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Eastowne Office Park
Chapel Hill, NC 27514
(919) 929-0481
(919) 489-2803 Fax



**BALLENTINE
ASSOCIATES, P.A.**

T R A N S M I T T A L

TO: Ms. Angela Birchett **DATE:** 16 Aug 2013
COMPANY: Chatham County Planning Dept.
80-A East St. **PHONE:** (919) 542-8285
Pittsboro, NC 27312 **FAX:**
FROM: Dave Ballentine
PROJECT: Moncure Farm Solar Electric Power Plant
PROJECT#: 112006.07 "I"

	Name of Recipient(s)	Transmitted via	Enclosures
CC:	Brent Niemann, Strata Solar	PDF	All

Please find the following items:

- ☒ For Review and Comment
☒ For Approval
☐ For Your Use
☐ As Requested
☐ For Your Signature

Transmitted via:

- ☐ Fax # of Fax pages _____ includes cover page
☐ FedEx Standard (5pm) Priority (8:00 am)
☐ U.S. Mail First Class Priority (confirm/track)
☒ Delivery Courier **Hand Delivered**
☐ Pick Up

Copies	Date	Description
2	16 Aug 2013	Environmental Impact Assessment
2	14 May 2012	Report by ECS Carolinas, LLC
2	17 May 2012	Notification of Jurisdictional Determination - USACE
2	17 May 2013	General Crossing Permit - USACE
2	N/A	Soils Map
2	30 Jul 2013	Site Plan
2	30 Jul 2013	Aerial Map

REMARKS: Angela,

Please let us know if you have any questions or need anything else with the EIA.

Regards,

Dave
(919) 210-1986
davidb@bapa.eng.pro



Environmental Impact Assessment

For

Moncure Farm Solar Electric Power Plant

Prepared For:

Strata Solar, LLC
1119 US 15-501 Hwy South, Suite 101
Chapel Hill, NC 27517

Prepared By:

Ballentine Associates, P.A.
Consulting Engineers
221 Providence Road
Chapel Hill, NC 27514
(919) 929-0481

BA Project # 112006.07 "I"

Proposed Project Description and Need

- 1) Describe the overall project in detail, including all proposed phases:

This project is for the development of a solar electric power farm on approximately 29 acres of land as shown on the attached Site Plan. The existing site is primarily open pasture, which has been used for agricultural purposes. Portions of the site remain wooded, some of which will need to be cleared to make room for the proposed solar farm. The new solar farm will consist of fixed solar panels, dual inverter/transformer areas and a chain link fence along the perimeter of the array. The panels will be mounted to racks, which are supported by a series of posts. The posts will be driven directly into the existing ground without minimal excavation and land disturbance. The power produced will leave the site through existing Progress Energy power lines. At the completion of construction, the entire site will be seeded to create a good stand of grass.

- 2) Provide a project location map showing surrounding areas:

See attached Site Plan and Aerial Map.

- 3) Provide a project site plan showing existing and proposed facilities:

See attached Site Plan.

- 4) Describe how this project fits into larger plans or connects with adjacent projects:

The redevelopment of this site will have compatible features with neighboring sites. The property is bordered on the north and south by land used for agricultural purposes, and although not directly agricultural, the farming nature of the site will remain. In addition, there is a nearby brick plant, which produces a valuable commodity as will the solar farm. An access route to not restrict occasional farm traffic (if allowed by our landlord) is provided for on the Site Plan. The parcel where we are located is bordered by a stream to the West. Wetland and stream determinations are indicated on the Site Plan, and this work was prepared by ECS Carolinas and confirmed by the USACE. The finished product will be a standalone site, which will provide electricity to Progress Energy.

- 5) List and describe any public facilities or public benefits provided by the project:

This project will provide a source of green, renewable energy with no emissions to Progress Energy customers. It will increase the tax based without much demand on public services. And, it will be low impact development in regards to grading and impervious surfaces.

- 6) Discuss the land acreage to be disturbed during each phase:

The current site has been primarily used for farming crops, and the existing open fields are where the majority of disturbance will occur. While minimal grading will be necessary, most of the site will be considered disturbed due to activities driving posts,

installing fencing and landscaping, and installing electrical equipment. Site construction will last approximately 120 days, during which compliance with all Chatham County Erosion control requirements will be met. There are several wetlands including one on the eastern side that must be crossed, and another near the northwest corner. Efforts will be made to minimize disturbance to the wetlands, and all permits required by NCDENR-DWQ and USACE will be obtained.

- 7) List square footage and height (in stories) of new buildings:

No new buildings are proposed.

- 8) Describe proposed uses of all buildings and proposed facilities:

The new facilities will provide a source of solar generated electric power to be sold to Progress Energy. The power will be transmitted via an existing three-phase power line on the western side of the site.

- 9) Show number of parking spaces in parking lots and decks:

There will be two unimproved parking spots inside the permanent fence near the "T" of the access drive (east-west) and the existing "dirt path" on the east side of the project. A gate will provide access to the spaces.

- 10) Show areas to be cleared, graded, filled, paved, and landscaped:

See attached Site Plan.

- 11) Show connections to existing utility and sewer lines or new utilities:

No water and sewer will be needed. Interconnection to the electrical grid is shown on the Site Plan near the southwest property corner (ties to existing three-phase power line).

- 12) Show wastewater management systems on a map:

N/A

- 13) Show proposed areas of impervious and semi-pervious surfaces:

As discussed with Chatham County staff, the impervious surfaces will include the horizontal dimensions of the posts driven into the ground, plus a potential 100 square foot band around each inverter on site. Therefore there will be very low overall impervious on site. Access roads will be constructed on logging mats as needed (see Site Plan), and these will be removed and the areas re-seeded upon completion of construction.

- 14) Show and describe any proposed stormwater control devices:

Based on discussions with the Chatham County staff to date, no stormwater control devices

will be needed on site. Should this change, plans will be revised accordingly.

Alternatives Analysis

- 1) Discuss and compare all reasonable development alternatives (site selection, facility layout, utilities, stormwater management, construction methods, open space preservation, and any other pertinent alternative considerations).

The nature of this type of development requires access to high power utility lines and very clear unobstructed land free of shading for solar panels. This limits possible site selections. The fact that this site was previously used for farming crops where good sunlight and soils are needed, and the close proximity to an existing power line means this site is ideal. Likewise, the minimal impervious surfaces and disturbance impacts make this type of development well-suited for this site. The existing natural setting has been carefully considered for the design of the site and layout of the arrays, with special thought given toward preservation of the existing wetlands.

- 2) Discuss how the preferred alternative was selected and its benefits relative to other alternatives (including a no-build alternative, if applicable).

Given that the site is ideal for a solar farm, and that the environmental benefits of solar farming are exponential, the proposed development of this site would provide more benefit than if developed for housing, commercial, or no-build alternatives.

Existing Environment and Project Impacts

For each resource topic below, describe:

- Existing resources and conditions:

This site is currently a mixture of crop fields, compacted gravel, stands of trees & several wetland areas.

- Anticipated impacts (short-term construction) impacts, long-term operation impacts, and indirect or secondary impacts):

The short term impact to the site would be the disturbance of soil to smooth the ground for the installation of the solar panels. There will be no impact to adjacent properties. The long term impact will be a source of green energy for the area.

- Discuss how potential impacts to the resource will be avoided and minimized through alternative selection, design strategies, construction methods, and long-term maintenance procedures:

By locating the solar panels on an area of the site that is mostly flat and mostly uncovered the impacts to the site will be minimized. By utilizing alternative erosion

control and stormwater measures the total amount of soil disturbance will be minimal. And, by not working near the perimeter or the lower elevation portions of the site the chance of creating new areas of disturbance or concentrated runoff flows will be avoided.

- For unavoidable impacts, describe whether any compensatory mitigation is planned or required:

There is no compensatory mitigation planned or required.

Geography

- Discuss the geographic setting, geology, and topography of the project area and adjacent areas:

The natural geography of the area is rolling.

- Provide a topographic map of the property and surrounding area, use the county GIS website topography (2' contour interval) data at a scale appropriate for the project size, i.e., 1" = 100', etc.):

See attached Site Plan.

- Identify any 100-year floodplains (FEMA Special Flood Hazard Areas) on or adjacent to the property. If present, provide an appropriate-scale map of these flood-prone areas defined by the NC Flood Mapping Program:

There are no floodplains on the site.

- Show areas that will be graded or filled, and provide estimated cut/fill volumes:

Very minimal cut/fills are anticipated. No soil will be exported or imported from the site. The site will be balanced. Cut/Fill estimates are expected to average less than one foot. Grading & Drainage Plans will be provided.

- If the project includes pond or dam work, show areas that will be flooded:

This project does not include a pond or dam work.

Soils and Prime Farmlands

- Identify dominant soils in the project area (County GIS or NRCS website) and show on a map.

See attached soils map.

- Discuss any soil constraints (fill, wetland soils, septic suitability, slopes, etc.), and indicate those areas on a map.

Since the site generally primarily has gentle slopes, group B soils and minimal grading will be required, no soil constraints are anticipated.

- Describe any soil disturbance or contamination expected as a result of this project:

No Contamination is expected.

- If contamination is expected, discuss containment plans and procedures:

No Contamination is expected.

- If soil will be relocated, specify the number of square yards/feet to be moved, and its relocation site:

No soil will be removed or added to the site.

- Describe runoff management plans for the project.

Runoff for the project will be controlled by silt fencing and stone outlets while the soil is disturbed. When the site is stabilized the runoff will follow the natural drainage pattern.

- If soil disturbance is proposed, describe the off-site impacts expected from this activity.

There will be no offsite impact from soil disturbance.

- Provide a map of any prime or unique farmland soils in the project or service areas, and include references used to make this determination.

No prime or unique farmlands exist on this site.

- Describe impacts to prime or unique farmland soils, including acreage estimates of lost farmland soils and retained farmland soils.

No prime or unique farmlands exist on this site.

Land Use

- Provide a map showing current use of land on the site and surrounding properties.

See attached Aerial Map.

- Discuss how the current land use fits into the surrounding area (conservation, development, ecological function, etc).

The current land use of the site and neighboring sites is agricultural.

- Provide the current zoning of the project site and the surrounding area.

The current site is Zoned R-5. Across SR 1916 from the site is Zoned R-1. And, to the west of the property is US Army Corp of Engineers Area.

- Discuss how the proposed uses fit into the intended land use of the area (conservation, development, ecological function, quality of life).

The proposed use will not alter the spirit of the existing use. This site will remain a farm. It will however be geared towards a green utility alternative instead of for growing crops.

- Indicate whether zoning or local land use plans will need to be changed after project completion.

Land use will not need to be altered at the completion of this site work.

Wetlands

- Indicate whether wetlands are present; describe the basis for this determination and the identity of the person who made the determination.

Several wetlands are present on this site. ECS Carolinas, LLC confirmed the existing conditions. See attached report. The USACE confirmed the location of the wetlands; see attached Jurisdictional Determination.

- Show identified wetlands on a map, and describe all relevant details, such as acreage, types, delineation, function, etc.).

See attached Site Plan.

- If wetlands are to be filled, specify the number of acres that will be affected.

At this time, there are no intentions to fill any portion of the wetlands, other than for a crossing of the wetland on the eastern portion of the site.

- List all required permits and permitting agencies.
 - General Crossing Permit will be obtained through USACE
 - Erosion Control Permit from Chatham County
 - Building Permit from Chatham County
- If any diversions/additions/withdrawals of surface water will affect wetlands, describe those activities.

A crossing of the wetland on the eastern portion of the property will be necessary. Disturbance of the wetland will be minimized. See attached USACE General Crossing Permit.

Public Lands and Scenic, Recreational, and State Natural Areas

- Provide a map of County or municipal parks, scenic, recreational, or state natural areas (SNHAs, State or Federal Forests, etc.) on or adjacent to the site/project area.

See attached ECS Carolinas Report – Figure 7. The Army Corp land along the Cape Fear River lies to the west of the site. No additional impacts will occur.

Areas of Archaeological or Historical Value

- Discuss any archaeological or historical studies of the project location; provide relevant references.

N/A The site has been previously graded.

- Describe and identify on a map any structures (i.e., walls, buildings, etc.) on the site and provide estimated ages of those structures.

2 small barns exist near SR 1916, and current intentions are for the structures to remain.

- Describe all impacts to any archaeological or historical resources in the proposed project area.

See report by ECS Carolinas, who performed a review at the N.C. State Historical Preservation Office (SHPO) On-line database for previously surveyed architectural listings. Two (2) previously recorded properties were found to be located on the eastern and northern adjacent properties. However, ECS concluded that the proposed development of the site should not impact the integrity of these two previously recorded sites.

- Describe plans for demolishing or rebuilding any structures.

N/A

- Provide photographs of any significant resources, including all structures older than 50-years.

N/A

- Provide relevant correspondence with the Chatham County Historical Association and NC SHPO.

See correspondence within attached report prepared by ECS Carolinas is attached.

Air Quality

- Describe the project's impacts on ambient air quality.

No additional impacts from this site will occur.

- Describe plans for any open burning during or after construction.

N/A

- Indicate the number of proposed parking spaces, if applicable.

N/A

- Describe whether the project will increase odor levels, or the likelihood of odor complaints.

No additional impacts from this site will occur.

- Provide a copy of any required traffic studies.

N/A

Noise Levels

- Discuss current noise levels; use a benchmark, if possible.

Typical noise levels for construction sites. Heavy trucks and equipment are intermittently loud during the workday hours. See Site Plan Note #18.

- Describe any increases in noise levels expected from this project.

No additional noise. Site should have significant reduction in noise levels due to the nature of the solar panel operation. See Site Plan Note #18.

- Specify the distance at which the increased noise will be heard.

N/A. See Site Plan Note #18.

- Discuss whether surrounding properties will be affected by noise levels.

See Site Plan Note #18.

- If commercial uses are proposed, specify the hours of operation.

No additional operation hours

Light Levels

- Describe lighting plans for the project, including how lighting will impact adjacent residents and wildlife.

No additional lights for the site are proposed.

Surface and Groundwater Resources (discuss separately)

- Identify and provide a map of surface waters in the project area. Describe groundwater (aquifers) in the project area.

Groundwater will not be affected as no proposed drilling or excessive grading will occur.

- Include names, locations, classifications, and use support ratings for surface waters.

There are no surface waters on this site nor any that will be affected by this site.

- Specify and show on a map the river basin in which the project is located.

See attached Report by ECS – Figure 2 Chatham County GIS Map. The entire site is within the County watershed WS-IV-PA; Cape Fear river basin.

- Discuss any known groundwater quality issues.

N/A

- Discuss drinking water sources.

N/A

Fish and Aquatic Habitats

- Describe fish and aquatic habitats in and adjacent to the site/project area.

Other than the wetlands mentioned above, no fish or aquatic habitats exist on this site. The Cape Fear River lies to the west of the site, and no impacts to aquatic life are anticipated.

- Discuss impacts to fish and aquatic life and their habitats, including a map showing those habitats.

There will be minimal disturbance to existing wetlands. See attached Aerial Map and ECS Report – Figure 7.

Wildlife and Natural Vegetation

- Describe and provide a map of natural community types on and adjacent to the site/project area.

See attached Site Plan & attached Aerial Map. Wooded natural land is adjacent to the property, while other adjacent properties consist of farmland. See attached Aerial Map.

- List the species of dominant plants and animals observed on the site that typify those communities.

ECS reviewed the N.C. Natural Heritage Program On-line database for previously documented occurrences of rare plant and animal species, (i.e., endangered, threatened, and/or special concern) either on or within the vicinity of the project site. According to the on-line review, no species are located on the subject property or the surrounding vicinity. See attached ECS Report.

- Evaluate and discuss whether suitable habitat exists for rare, threatened, and/or endangered species, as described by the NC Natural Heritage Program.

See above.

- If wildlife will be displaced, discuss any limitations of adjacent areas to support them.

No wildlife will be displaced.

- Identify, list, and describe the distribution of the invasive species present on the site. Consult the NC Botanical Garden's Web page, "Plants to Avoid in the Southeast US" for a list of invasive species common to the region.

No invasive species have been found on site.

- If forests will be cleared, discuss the extent of planned deforestation and specify the forestry methods to be used, including BMPs.

There will be minimal forests cleared on site.

Hazardous Materials

- List all hazardous materials to be stored or introduced during construction or operation.

There will be no hazardous materials stored or introduced on site.

- For each hazardous material, other than in de minimis quantities or for routine housekeeping purposes, describe the procedures to be used to ensure their proper management, storage, and disposal.

There will be no hazardous materials stored or introduced on site.

Topographic Map

A topographic map with contours at vertical intervals of not more than five (5) feet, at the same scale as the First Plat, for all major subdivisions unless not deemed necessary by staff. Staff may require a topographic map for other subdivisions if necessary for adequate review. The date and method of preparing the topographic survey shall be stated.

See attached Site Plan and ECS Report Figure 3: USGS Topo Map.

Soils Evaluation

A soils evaluation shall be performed by a certified/licensed soil scientist or persons approved by the Health Department to perform such evaluations or investigations. Such evaluations shall be performed unless a central sewage disposal system is proposed. A soils map showing the location of suitable soils and a letter of explanation shall be submitted to perform such evaluations or investigations.

There are no planned waste water treatment, septic systems or drinking water wells planned for this project.

Utility Plans

Plans of proposed utility layouts for sewer and water where applicable, showing feasible connections to the existing utility system, or any proposed utility system.

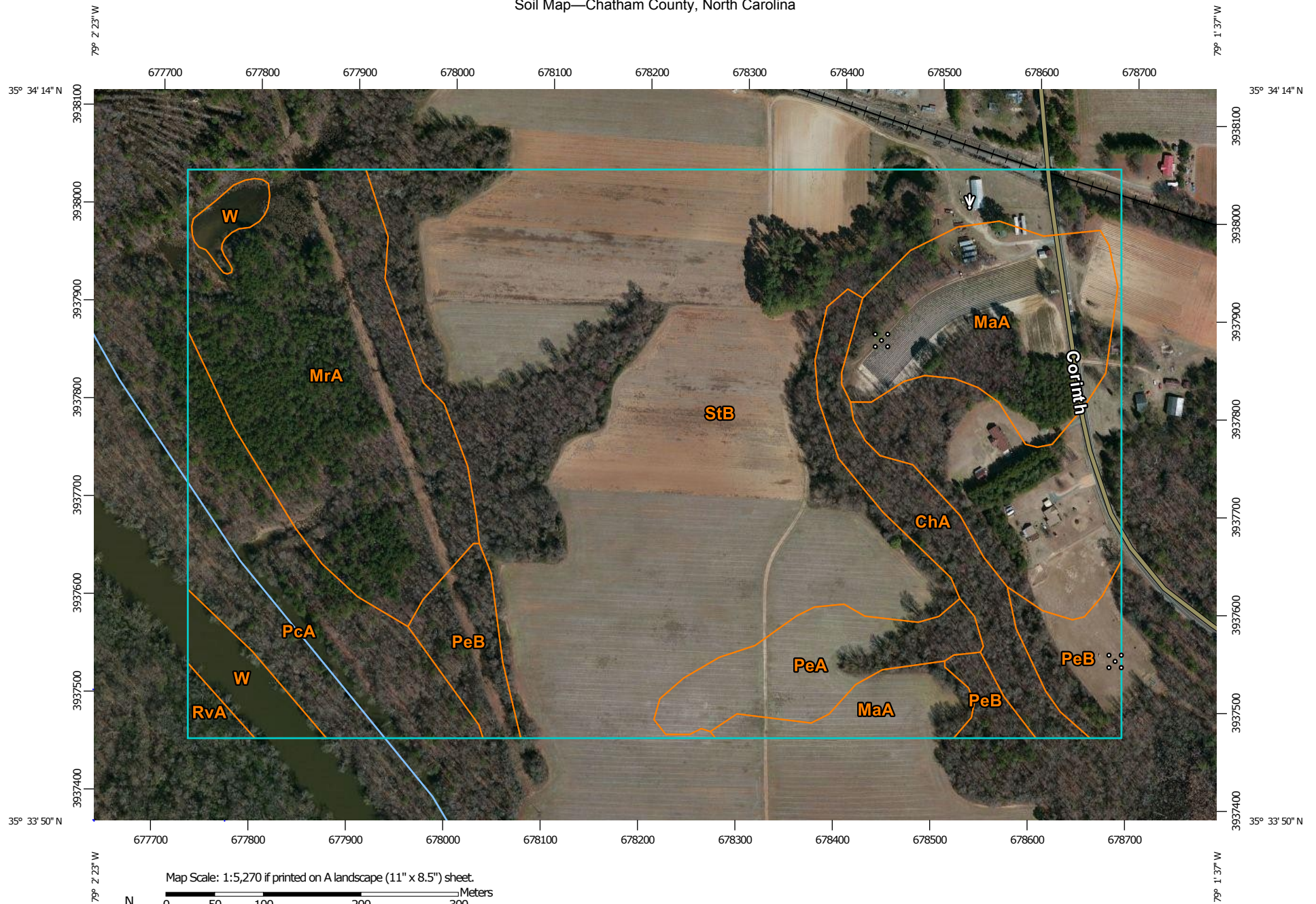
No new sewer or water connections or changes are proposed with this project.

U.S. Army Corps of Engineers and Division of Water Quality Permits or Certifications

Indicate if US Army Corps of Engineers and/or NC Division of Water Quality permits or certifications will be required. These permits and/or certifications may be required when development improvements may involve the placement of excavated material or fill material into streams, creeks, lakes, or wetlands. If any of these permits or certifications will be required, copies of the approved permits shall be submitted at time of Construction Plan submittal.

See attached USACE General Crossing Permit

Soil Map—Chatham County, North Carolina



Map Scale: 1:5,270 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84




**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

8/16/2013
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

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

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chatham County, North Carolina
Survey Area Data: Version 15, Jul 2, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 20, 2010—Apr 2, 2011

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

Chatham County, North Carolina (NC037)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ChA	Chewacla and Wehadkee soils, 0 to 2 percent slopes, frequently flooded	5.2	3.8%
MaA	Mattaponi fine sandy loam, 0 to 2 percent slopes	13.7	9.9%
MrA	Merry Oaks-Moncure complex, 0 to 2 percent slopes, occasionally flooded	20.8	15.0%
PcA	Peawick fine sandy loam, 0 to 2 percent slopes, rarely flooded	11.3	8.2%
PeA	Peawick fine sandy loam, 0 to 2 percent slopes	5.6	4.1%
PeB	Peawick fine sandy loam, 2 to 8 percent slopes	6.8	4.9%
RvA	Riverview silt loam, 0 to 3 percent slopes, frequently flooded	0.7	0.5%
StB	State sandy loam, 2 to 6 percent slopes	71.2	51.5%
W	Water	3.1	2.2%
Totals for Area of Interest		138.2	100.0%

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. SAW-2012-00656 County: Chatham U.S.G.S. Quad: NC-MONCURE

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: Strata Solar Development, LLC

Address: Mike Cohen
1119 15/501 Hwy South
Chapel Hill, NC, 27517

Telephone Number: 919-960-6015

Size (acres) 57

Nearest Waterway Cape Fear River

USGS HUC 3030004

Nearest Town Brickhaven

River Basin Upper Cape Fear, North Carolina.

Coordinates: Latitude: 35.56732 Longitude: -79.033179

Location description: Property is located at 3905 Corinth Road, Moncure, Chatham County, North Carolina. Property Identification Number: 0005767. The property is located approximately 500 feet east of the upper Cape Fear River and 1,500 feet south of the Triangle Brick Factory.

Description of area and activity: A solar farm is proposed for this property. Access to the solar farm will be via a pre-existing agricultural road and will require replacement of a damaged 24" CMP culvert with 32 linear feet of new 24" HOPE culvert. This permit (verification) is for the placement of fill in 307 square feet of jurisdictional wetlands for the purpose of placing riprap at the ends of the culvert and a riprap apron at the southern end of the culvert.

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: Nationwide Permit Number: NWP 39 Commercial and Institutional Developments.

SEE ATTACHED RGP or NWP GENERAL, REGIONAL AND SPECIAL CONDITIONS

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted application and attached information dated 05/23/2013. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

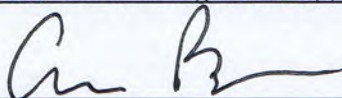
This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone 919-807-6300) to determine Section 401 requirements. For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management in Morehead City, NC, at (252) 808-2808.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact Craig Brown at 919-554-4884 x35 or Craig.J.Brown@usace.army.mil.

Corps Regulatory Official: Craig Brown



Date: May 30, 2013

Expiration Date of Verification: 03/18/2017

Determination of Jurisdiction:

- A. ☐ Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).
- B. ☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- C. ☐ There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- D. ☒ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued May 17, 2012. Action ID: **SAW-2012-00656**.

Basis for Determination: See Jurisdictional Determination issued on May 17, 2012.

Remarks: None

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B and C above).

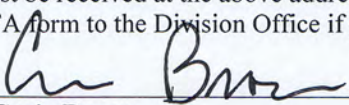
This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by (N/A).

****It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.****

Corps Regulatory Official: _____


Craig Brown

Date of JD: May 17, 2013

Expiration Date of JD: May 17, 2018

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our customer Satisfaction Survey online at <http://per2.nwp.usace.army.mil/survey.html>.

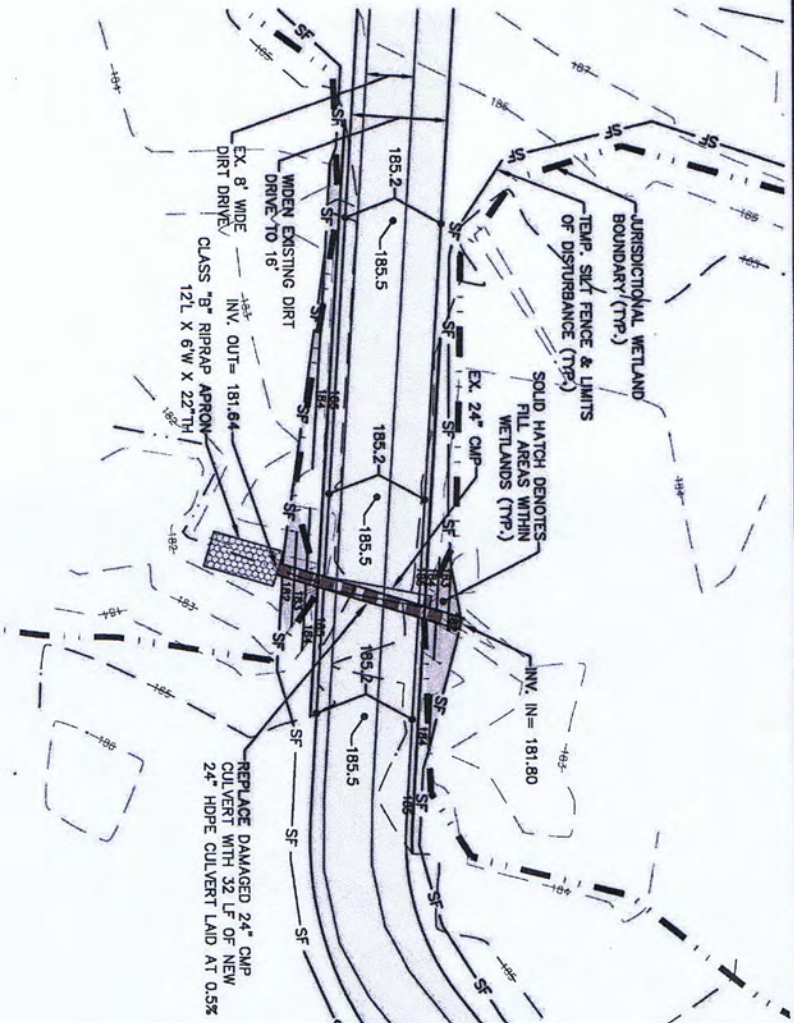
SAW-2012-00656

Copy furnished:

Agent: ECS Carolinas, LLP
Address: Ryan Conchilla
9001 Glenwood Avenue
Raleigh, NC, 27617-7505
Telephone Number: 919-861-9910

PLAN - CULVERT

1" = 20'



PROPOSED EARTHWORK INSIDE WETLAND:

FILL:	4.9 CUBIC YARDS
RIPPAP:	4.9 CUBIC YARDS
TOTAL:	9.8 CUBIC YARDS

TOTAL AREA OF WETLAND IMPACT = 307.1 SF (0.007 AC)

NOTES:

1. SURVEY PROVIDED BY STEWART PROCTOR.
2. DISTURBANCE AT THE WETLAND CROSSING SHALL BE MINIMIZED TO THE EXTENT PRACTICABLE FOR INSTALLATION OF THE CULVERT.
3. ALL CONSTRUCTION SHALL BE CONDUCTED IN ACCORDANCE WITH NODENR STANDARDS.
4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE MAINTAINED IN PROPER WORKING CONDITION THROUGHOUT CONSTRUCTION.
5. INSTALL TEMPORARY SILT FENCE STONE OUTLETS AT LOW POINTS IN SILT FENCE AS NECESSARY.
6. ADDITIONAL EROSION CONTROL MEASURES AND/OR MODIFICATIONS TO PROPOSED MEASURES MAY BE NECESSARY BASED UPON ACTUAL SITE CONDITIONS.

STRATA SOLAR

1119 US 15 South, Suite 101
Chapel Hill, NC 27516
919-960-6015
www.stratasolar.com

MONCURE FARM SOLAR ELECTRIC POWER PLANT TRIBUTARY CROSSING EXHIBIT CHATHAM COUNTY, NC

NUM	REVISION	DATE	ISSUED	DATE
2	REVS PER ECS	17 MAY 13	ECS	17 MAY 13
3	REVS PER ECS	29 MAY 13	ECS	29 MAY 13



BALLENTINE ASSOCIATES, PA

261 PROVIDENCE ROAD, CHAPEL HILL, NC 27514
(919) 960-5040

SCALE: AS NOTED

DATE: 25 MAR 13

JOB NUMBER: 112006.07

DRAWN BY: SJB

REVIEWED BY: G.J.R.

EXHIBIT 1

Action ID Number:

SAW-2012-00656

County: Chatham

Permittee:

Strata Solar Development, LLC
Mike Cohen

Project Name:

Moncure Farm/Ruth Jones; 3905 Corinth Road, Chatham County; PIN 5767

Date Verification Issued: May 30, 2013

Project Manager: Craig Brown

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

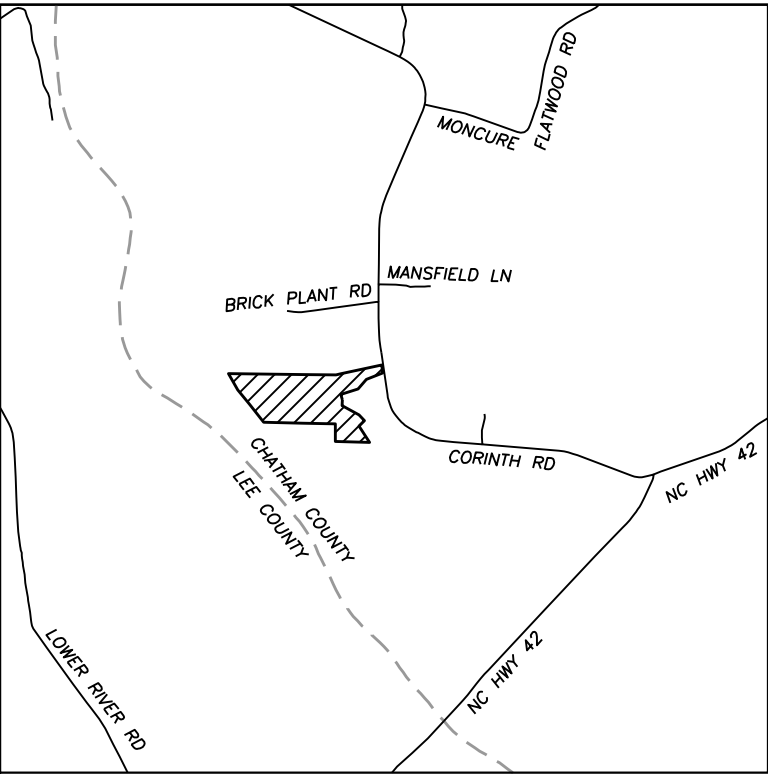
US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
Attn: Craig Brown
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

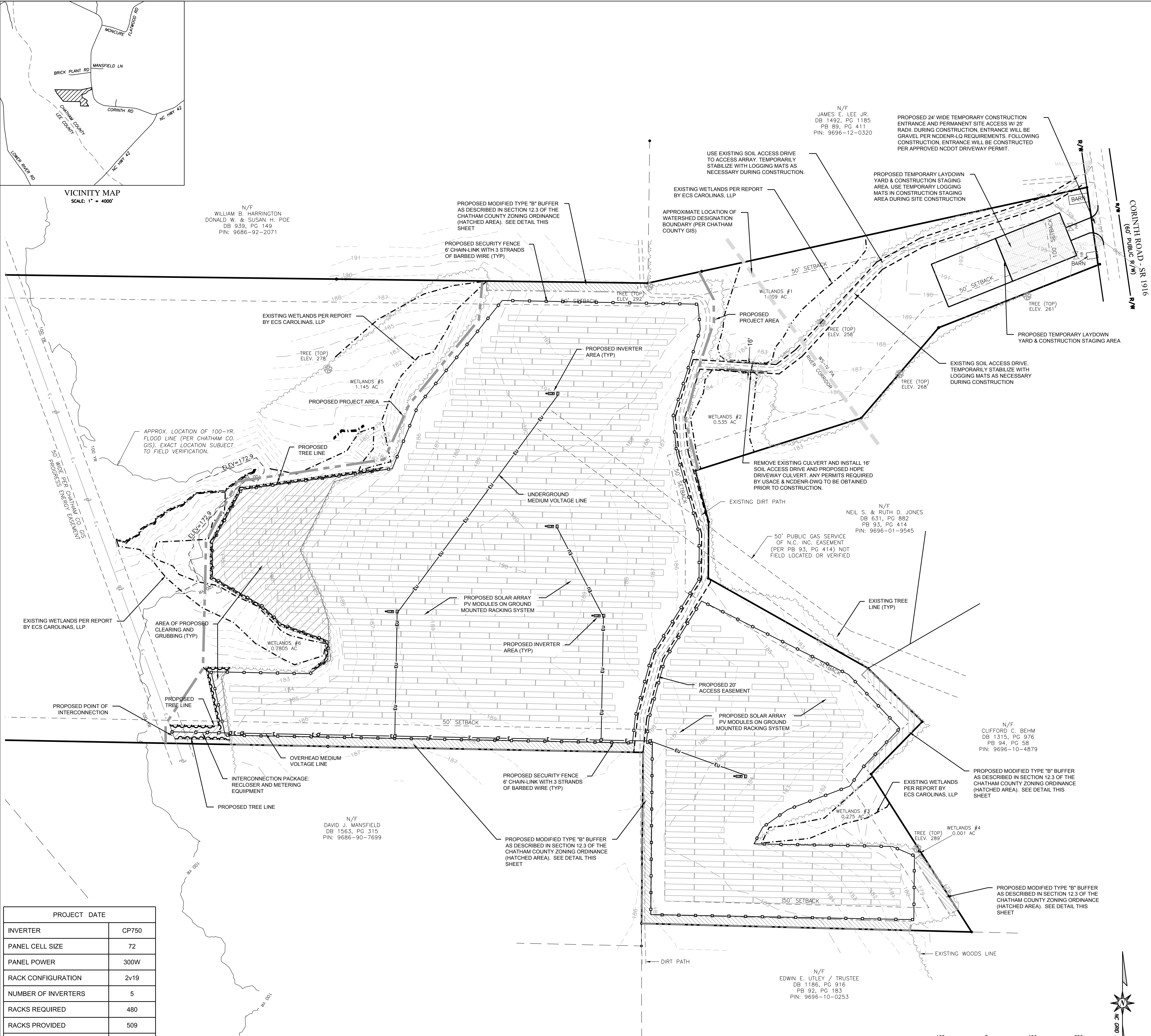
Signature of Permittee

Date



VICINITY MAP
SCALE: 1" = 4000'

N/F
WILLIAM B. HARRINGTON
DONALD W. & SUSAN H. POE
DB 939, PG 149
PIN: 9686-92-2071

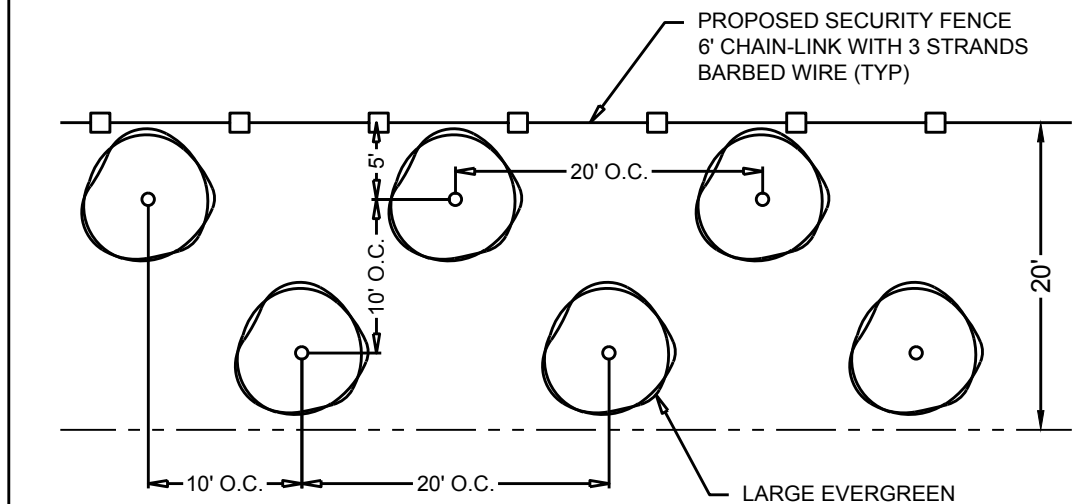


PROJECT DATE	
INVERTER	CP750
PANEL CELL SIZE	72
PANEL POWER	300W
RACK CONFIGURATION	2v19
NUMBER OF INVERTERS	5
RACKS REQUIRED	480
RACKS PROVIDED	509
TIME OF PLACEMENT	3:14 PM
MODULE INCLINATION	20°
AZIMUTH	178.9034°

NOTES

- PROPERTY INFORMATION
PIN: 9696-01-6207 (PORTION)
OWNER: RUTH DEAN JONES &
KAY DEAN BRAY
PHYSICAL ADDRESS: 3905 CORINTH RD, MONCURE NC
TOTAL PARCELS ACREAGE: 87.065 AC (DEED)
PROJECT AREA: 28.32 ACRES
EXIST ZONING: R-5 (RESIDENTIAL DISTRICT)
RIVER BASIN: CAPE FEAR
WATERSHED: WS-IV PA (NORTHEAST) RIVER CORRIDOR (SOUTHWEST)
PROPOSED LAND USE: SOLAR ENERGY SYSTEM
MINIMUM SETBACK REQUIREMENTS:
ZONING R-5
FRONT 100'
SIDE 50'
REAR 50'
- THE PURPOSE OF THIS PLAN IS FOR A CONDITIONAL USE PERMIT APPLICATION FOR REVIEW AND APPROVAL BY THE CHATHAM COUNTY BOARD OF COMMISSIONERS. ALL INFORMATION SHOWN IS FOR PLANNING PURPOSES ONLY.
- TOPOGRAPHIC DATA & EXISTING IMPROVEMENTS SHOWN ON THIS PLAN IS PER AN ACTUAL FIELD SURVEY PERFORMED BY STEWART-PROCTOR, PLLC ON APRIL 26, 2012.
- LEGAL REFERENCE: BEING A PORTION OF THAT PROPERTY DESCRIBED IN DB 671 PG 470, CAPE FEAR TOWNSHIP, CHATHAM COUNTY REGISTRY.
- ALL RIGHT-OF-WAYS ARE PUBLIC, UNLESS NOTED OTHERWISE.
- THE PROPERTY SHOWN HEREON DOES CONTAIN SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD (I.E. 100-YR. EVENT) PER FEMA FIRM MAP PANEL NO. 3710968600K AND PANEL NO. 3710969600J EFFECTIVE DATE FEBRUARY 2, 2007.
- WATERS OF THE US SHOWN PER REPORT BY ECS CAROLINAS, LLP. AND FIELD LOCATED BY STEWART-PROCTOR, PLLC.
- UTILITY LINES AND SERVICES SHOWN HEREON ARE APPROXIMATE OR AS REPORTED BY VARIOUS RESPONSIBLE PARTIES. LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE AND MUST BE FIELD VERIFIED. CALL NC ONE CALL CENTER BEFORE DIGGING AT 811.
- THE CONTRACTOR/OWNER SHALL BE RESPONSIBLE FOR VERIFYING ALL MINIMUM BUILDING SETBACK REQUIREMENTS WITH THE BUILDING INSPECTIONS DEPARTMENT PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ZONE TRAFFIC CONTROL IN OR ADJACENT TO NCDOT RIGHT-OF-WAY. ALL METHODS SHALL CONFORM WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND/OR NCDOT STANDARDS & SPECIFICATIONS.
- COPIES OF ALL PERMITS AND APPROVED PLANS MUST BE KEPT ON-SITE IN A PERMIT BOX THAT IS CONSPICUOUSLY LOCATED AND EASILY ACCESSIBLE DURING CONSTRUCTION.
- A SEDIMENT AND EROSION CONTROL PLAN WILL BE APPROVED BY CHATHAM COUNTY PRIOR TO BEGINNING CONSTRUCTION.
- A DRIVEWAY PERMIT WILL BE APPROVED BY NCDOT PRIOR TO BEGINNING CONSTRUCTION.
- PROJECT AREA WITHIN PROPOSED PERMANENT & TEMPORARY FENCE AND CONSTRUCTION STAGING AREAS WILL BE CLEARED AND GRUBBED, RETAINING PRE-DEVELOPMENT DRAINAGE PATTERNS (I.E. NO MASS GRADING). REMAINING PROJECT AREAS (OUTSIDE FENCE & STAGING AREAS) WILL CONSIST OF TREE CLEARING ONLY (NO GRUBBING) TO ALLEVIATE SHADING OF THE ARRAY. MINOR GRADING (APPROX. 545 SF) WILL OCCUR AROUND INVERTER AREAS TO DIVERT SURFACE DRAINAGE. CONSTRUCTION STAGING & AREAS SUBJECT TO RUTTING DURING CONSTRUCTION WILL BE TEMPORARILY STABILIZED WITH LOGGING MATS, WHICH WILL BE REMOVED FOLLOWING CONSTRUCTION. THE ONLY PERMANENT IMPERVIOUS SURFACES WILL BE THE DRIVEN RACK POSTS & TWO CONCRETE SLABS (TOTALING LESS THAN 100 SF) AT EACH INVERTER AREA.
- NO LIGHTING IS PROPOSED FOR THIS SITE.
- ALUMINUM SIGNS ("DANGER - HIGH VOLTAGE" AND "DANGER - NO TRESPASSING") MEASURING 14" X 10" IN SIZE, WILL BE PLACED ON PERMANENT SECURITY FENCING, ALTERNATING EVERY 100' AROUND THE ARRAY.
- SYSTEMS, EQUIPMENT AND STRUCTURES WILL NOT EXCEED TWENTY-FIVE (25) FEET IN HEIGHT WHEN GROUND MOUNTED. EXCLUDED FROM THIS HEIGHT REQUIREMENT, HOWEVER, ARE ELECTRIC TRANSMISSION LINES AND UTILITY POLES.
- NOISE LEVELS MEASURED AT THE PROPERTY LINE WILL NOT EXCEED FIFTY (50) DECIBELS WHEN LOCATED ADJACENT TO AN EXISTING RESIDENCE OR RESIDENTIAL DISTRICT.

MODIFIED TYPE "B" BUFFER



NOTES

- PLANTING AREA WILL BE APPROXIMATELY 20' WIDE
- LARGE EVERGREEN SCREENING SHRUBS
CAMELLIA JAPONICA 'J.C. RAULSTON'
CHAMAECYPARIS OBTUSA 'CRIPPIER'
ILEX VOMITORIA 'SHADOWS FEMALE'
MYRTICA CERIFERA
CAMELLIA
GOLDEN HINOKI FALSE CYPRESS
YAUPOIN HOLLY
WAX MYRTLE



STRATA
SOLAR
1119 US 15 501 Hwy South, Suite 101
Chapel Hill, NC 27516
919-960-6015
www.stratasolar.com
NC License No.: D-0298

DEVELOPER/CONSULTANTS

PROJECT NAME & ADDRESS

MONCURE FARM SOLAR
ELECTRIC POWER PLANT
3905 CORINTH RD,
MONCURE, NC
CHATHAM COUNTY

DATE

05/10/2013

PROJECT NUMBER

C-004-12-MON

PROJECT NAME

MONCURE FARM

SYSTEM SIZE

5.00 MWp AC

ENGINEER

BTN

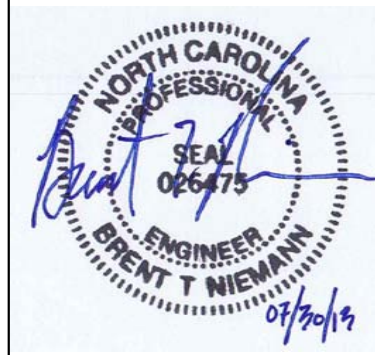
CHECKER

BTN

DRAWN BY

APL/JRB

SEAL



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REVISIONS

NO.	DESCRIPTION
1	MMDDYY
2	
3	
4	
5	
6	
7	
8	
9	
10	

DRAWING DESCRIPTION

CONDITIONAL
USE SITE PLAN

SCALE

1" = 100'

C 2.1



May 14, 2012

Mr. Mike Cohen
Strata Solar Development, LLC
1119 15/501 Highway South, Suite 101
Chapel Hill, North Carolina 27516

Reference: Field Delineation, Jurisdictional Determinations and NEPA Database Review
Moncure Farm- An approximate 45-acre portion tract
3905 Corinth Road
Moncure, Chatham County, NC
ECS Project: 06.19247

Dear Mr. Cohen,

ECS Carolinas, LLP (ECS) is pleased to provide our results of a wetland field delineation, jurisdictional determination and NEPA Database Review services conducted for the above referenced property. Our Services were conducted in accordance with ECS Proposal #06-15507.

PROJECT INFORMATION

The project site is an approximate 45-acre portion of a larger parent property tract which totals 87-acres located west of Corinth Road, Moncure, NC. According to information provided to ECS and the Chatham County On-line GIS website, the Parcel Number for the subject property is 5767. The subject property mostly consists of undeveloped agricultural fields and undeveloped woodlands. No structures are currently located on the subject property.

WETLAND DETERMINATION

For the purposes of this determination, wetlands are those areas satisfying the technical criteria contained in the Environmental Laboratory 1987, *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (the 1987 Manual). The field investigation included an inspection of the entire study area to identify areas exhibiting wetland criteria. The criteria used are based on the identification of the following characteristics in accordance with the 1987 Manual:

1. The presence of wetland plants (technically referred to as hydrophytic vegetation) as defined in *The National List of Plants Species that Occur in Wetlands* (Reed, 1998).
2. The presence of wetland hydrology (continuous soil saturation within at least one foot of the surface for 5-12.5% of the growing season).
3. The presence of wetland soil (technically referred to as hydric soils) indicators caused by long-term inundated or saturated conditions.

A US Army Corp of Engineers (USACE) Wetland and Upland Data Sheets were also completed for the site (Appendix B).

The study was conducted by walking the property boundary and interior of the site via transects, starting from Cornith Road which is the eastern property boundary of the parent parcel and then west across the parent parcel to the subject property which consists of a central agricultural field and small adjacent undeveloped woodlands in the northwestern and southeastern portions of the subject property corner. ECS moved in a clockwise direction south along the eastern property boundary and then west to western property boundary until reaching the northern property boundary (**Figure 2**). Further information used to determine the presence of wetland areas located on-site included aerial photographs, soil surveys, and topographic maps.

PHYSICAL SETTING AND HYDROGEOLOGY

A review of the United States Geological Survey (USGS) Topographical Map, Moncure, North Carolina Quadrangle, indicates that the central portion of the subject property is situated approximately 200 feet above mean sea level (MSL) and slopes down-gradient in opposite directions to the east and west through the central portion of the subject property to the Cape Fear River which is approximately 165 feet MSL. Surface water runoff from the site vicinity would be expected to flow east and west from the subject property and then south towards the Cape Fear River (**Figure 3**).

The area in which the site is located contains five (5) soil types identified by the United States Department of Agriculture (USDA) National Resource Conservation Service (NRCS), (**Figure 4**).

The Chewacla and Wehadkee soils (ChA) soil complex consists of somewhat poorly drained soils and located on floodplains. According to the North Carolina List of Hydric Soils, this soil does meet hydric criteria. Approximately less than 1.0% of the soil on the subject property is comprised of this mapping unit.

The Mattaponi fine sandy loam (MaA) soil complex consists of well drained soils and located on ridges on stream terraces. According to the North Carolina List of Hydric Soils, this soil does not meet hydric criteria. Approximately 6.1% of the soil on the subject property is comprised of this mapping unit.

The Peawick fine sandy loam (PeA) soil complex consists of moderately well drained soils and located on stream terraces. According to the North Carolina List of Hydric Soils, this soil does not meet hydric criteria. Approximately 11.5% of the soil on the subject property is comprised of this mapping unit.

The Peawick fine sandy loam (PeB) soil complex consists of moderately well drained soils and located on stream terraces. According to the North Carolina List of Hydric Soils, this soil does not meet hydric criteria. Approximately less than 1.0% of the soil on the subject property is comprised of this mapping unit.

The State sandy loam (StB) soil complex consists of well drained soils and located on stream terraces. According to the North Carolina List of Hydric Soils, this soil does meet hydric criteria. Approximately 81.3% of the soil on the subject property is comprised of this mapping unit.

Review of the National Wetland Inventory (NWI) Map identified no wetland areas located on the subject property (**Figure 5**).

A review of the NC Floodplain Mapping Program indicates that the western portion of the parent property is located in the 100 year floodplain of the Cape Fear River which is located along the western adjacent property (**Figure 6**). However, the subject property location is depicted outside of the floodplain of the Cape Fear River.

FIELD RECONNAISSANCE

Mr. Ryan Conchilla and Mr. Justin Williams of ECS Carolinas, LLP conducted a wetland and stream determination at the above-referenced property on March 6, 2012. The weather at the time of the reconnaissance was humid with a temperature of approximately 75° Fahrenheit. ECS was not accompanied during the determination.

The subject property is currently utilized as agricultural fields with portions of undeveloped woodlands which totals approximately 45-acres. No structures are currently located on the property. The wetland field delineation started near the northeastern corner of the subject property (Photographs 1 and 2) and moved west across the site until reaching a dirt access way with an existing culvert located in the eastern portion of the subject property (Photograph 3). ECS moved south along the eastern portion of the subject property (Photograph 4) until reaching the southeastern corner portion of the subject property, where the existing woodline extended out into the agricultural fields (Photograph 5). ECS started marking the wetland boundary in the field at this area with "pink flagging" labeled W-1 through W-14 (Photographs 6, 7 and 8). ECS moved to the southeastern property corner where additional flagging was labeled WA-1 through WA-5 (Photograph 9). Hydric soil indicators including saturation and low chroma values were observed throughout the woodlands (Photograph 10).

ECS moved north through the central portion of the subject property which consisted of agricultural fields where brown non-hydric soil indicators were observed (Photograph 11). ECS moved to the woodlands located in the northwestern corner of the subject property (Photograph 12). ECS started marking the wetland boundary in the field at this area with "pink flagging" labeled WB-1 through WB-23 (Photographs 13, 14 and 15). ECS observed hydric soil indicators including saturation and low chroma values along with braided channels that exhibited bed and bank characteristics throughout the woodlands located in the northwestern corner of the subject property (Photograph 16). No additional wetland and or stream locations were observed on the subject property.

USACE FIELD VERIFICATION AND JURISDICTIONAL DETERMINATION

As outlined in ECS proposal 15507 issued on March 1, 2012, USACE Field Verification and Jurisdictional Determination (JD) Services were conducted on April 18th 2012 on the subject property with Mr. Craig Brown, representative of the USACE.

The field JD began in the northeastern corner of the subject property and moved southwest across the subject property and then west to the northwestern corner of the subject property. During the USACE field JD on-site, no ECS flagging locations were moved. At the time of this report, an official USACE Jurisdictional Determination was not available for the subject property.

NEPA DATABASE REVIEW- ENDANGERED SPECIES SURVEY

Literature Review

The literature review was conducted using information obtained from the U.S. Fish & Wildlife Service website for Endangered Species, Threatened Species, Federal Species of Concern, and Candidate Species, Chatham County, NC,

(<http://www.fws.gov/nc-es/es/cntylist/Robeson.html>). The website was updated on September 22, 2010. The following species were listed for Chatham County:

Critical Habitat Designations:

Cape Fear shiner - *Notropis mekistocholas* - Approximately 4.1 miles of the Rocky River from North Carolina State Highway 902 Bridge downstream to Chatham County Road 1010 Bridge; and approximately 0.5 river mile of Bear Creek, from Chatham County Road 2156 Bridge downstream to the Rocky River, then downstream in the Rocky River (approximately 4.2 river miles) to the Deep River, then downstream in the Deep River (approximately 2.6 river miles) to a point 0.3 river mile below the Moncure, North Carolina, U.S. Geological Survey Gaging Station. Constituent elements include clean streams with gravel, cobble, and boulder substrates with pools, riffles, shallow runs and slackwater areas with large rock outcrops and side channels and pools with water of good quality with relatively low silt loads.

Federal Register Reference: September 25, 1987, Federal Register, 2: 36034-36039.

Common Name	Scientific name	Federal Status	Record Status
Vertebrate:			
American eel	<i>Anguilla rostrata</i>	FSC	Current
Bachman's sparrow	<i>Aimophila aestivalis</i>	FSC	Current
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGPA	Current
Cape Fear shiner	<i>Notropis mekistocholas</i>	E	Current
Carolina darter	<i>Etheostoma collis lepidinion</i>	FSC	Current
Carolina redbhorse	<i>Moxostoma</i> sp. 2	FSC	Current
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	Historic
Invertebrate:			
Atlantic pigtoe	<i>Fusconaia masoni</i>	FSC	Current
Brook floater	<i>Alasmidonta varicosa</i>	FSC	Current
Carolina creekshell	<i>Villosa vaughaniana</i>	FSC	Current
Septima's clubtail	<i>Gomphus septima</i>	FSC	Current
Yellow lampmussel	<i>Lampsilis cariosa</i>	FSC	Current
Vascular Plant:			
Buttercup phacelia	<i>Phacelia covillei</i>	FSC	Current
Harperella	<i>Ptilimnium nodosum</i>	E	Current
Sweet pinesap	<i>Monotropsis odorata</i>	FSC	Current
Virginia quillwort	<i>Isoetes virginica</i>	FSC	Historic

Definitions of Federal Status Codes:

E = endangered. A taxon "in danger of extinction throughout all or a significant portion of its range."

T = threatened. A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

C = candidate. A taxon under consideration for official listing for which there is sufficient information to support listing. (Formerly "C1" candidate species.)

BGPA = Bald and Golden Eagle Protection Act. See below.

FSC = federal species of concern. A species under consideration for listing, for which there is insufficient information to support listing at this time. These species may or may not be listed in the future, and many of these species were formerly recognized as "C2" candidate species.

T(S/A) = threatened due to similarity of appearance. A taxon that is threatened due to similarity of appearance with another listed species and is listed for its protection. Taxa listed as T(S/A) are not biologically endangered or threatened and are not subject to Section 7 consultation. See below.

EXP = experimental population. A taxon listed as experimental (either essential or nonessential).

Experimental, nonessential populations of endangered species (e.g., red wolf) are treated as threatened species on public land, for consultation purposes, and as species proposed for listing on private land.

P = proposed. Taxa proposed for official listing as endangered or threatened will be noted as "PE" or "PT", respectively.

Bald and Golden Eagle Protection Act (BGPA):

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) becomes the primary law protecting bald eagles. The Eagle Act prohibits take of bald and golden eagles and provides a statutory definition of "take" that includes "disturb". The USFWS has developed National Bald Eagle Management Guidelines to provide guidance to land managers, landowners, and others as to how to avoid disturbing bald eagles. For more information, visit <http://www.fws.gov/migratorybirds/baldeagle.htm>

Threatened due to similarity of appearance(T(S/A)):

In the November 4, 1997 Federal Register (55822-55825), the northern population of the bog turtle (from New York south to Maryland) was listed as T (threatened), and the southern population (from Virginia south to Georgia) was listed as T(S/A) (threatened due to similarity of appearance). The T(S/A) designation bans the collection and interstate and international commercial trade of bog turtles from the southern population. The T(S/A) designation has no effect on land management activities by private landowners in North Carolina, part of the southern population of the species. In addition to its official status as T(S/A), the U.S. Fish and Wildlife Service considers the southern population of the bog turtle as a Federal species of concern due to habitat loss.

Definitions of Record Status:

Current - the species has been observed in the county within the last 50 years.

Historic - the species was last observed in the county more than 50 years ago.

Obscure - the date and/or location of observation is uncertain.

Incidental/migrant - the species was observed outside of its normal range or habitat.

Probable/potential - the species is considered likely to occur in this county based on the proximity of known records (in adjacent counties), the presence of potentially suitable habitat, or both.

ECS reviewed the N.C. Natural Heritage Program On-line database for previously documented occurrences of rare plant and animal species, (i.e., endangered, threatened, and/or special concern) either on or within the vicinity of the project site. According to the on-line review, no

species are located on the subject property or the surrounding vicinity (**Figure 7**).

Agency Correspondence

ECS composed letter requests addressed to the North Carolina Natural Heritage Program (NCNHP) and United States Fish & Wildlife Service (USFWS) dated March 13, 2012 to determine if the subject property is located in the immediate vicinity of any registered sightings or habitats for endangered species. ECS received a response from The N.C. Natural Heritage Program on April 5, 2012 which states that the Program has no record of rare species, significant natural communities, significant natural heritage areas or conservation/managed areas at the project site. ECS received a response from the USFWS dated March 29, 2012 which states that 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. A copy of the information requests and received response is included in (Appendix D).

Endangered Species & Archeological Summary

ECS conducted an Endangered Species/Archeological Survey, which assessed the potential for significant environmental impacts based on the four categories listed below:

- Wilderness Areas and Wildlife Preserves. Based on the review of the N.C. Natural Heritage Program On-line database, the subject property and surrounding properties are not located on a registered area (**Figure 7**).
- Endangered Species. According to the letter response received from Mr. Harry E. LeGrand, representative of the NC Natural Heritage Program (NCNHP), no record of rare species, significant natural communities, significant natural heritage areas, or conservation/managed areas are located on-site or the surrounding area.
- Historic Places. ECS visited the N.C. State Historic Preservation Office (SHPO) in downtown Raleigh on March 7, 2012 and met with Ms. Susan Myers, Site Registrar and Staff Archaeologist, to review recorded archaeological sites in the vicinity of the project area. As a result of that record review, ECS identified two (2) previously recorded archaeological sites located on and in close proximity to the subject property identified as 31CH603 and 31CH588. At the recommendation of Ms. Meyers, ECS submitted this site information to Mr. John Mintz, assistant state archaeologist for review. ECS was provided with a letter response provided from NCSHPO on March 15, 2012, stating that based on the topographic and hydrological status of the site, there is high probability that additional archaeological sites may exist within the project area. A copy of the NCSHPO response is included in (Appendix D). ECS reviewed the N.C. State Historical Preservation Office (SHPO) On-line database for previously surveyed architectural listings. Two (2) previously recorded properties are located on the eastern and northern adjacent properties identified as: CH0738- Norfolk Southern Railway Depot (Gone) and CH0784- James Rufus Marks House. ECS does not anticipate that the proposed development of the site will impact the integrity of these two previously recorded sites.

- Indian Religious Sites. Based on the review conducted with the NCSHPO office, ECS did not identify previously recorded Indian Religious Sites located on the subject property or in the immediate vicinity.

LIMITATIONS

Observations, conclusions, and/or recommendations pertaining to the potential jurisdictional wetland areas and stream features within the subject site are necessarily limited to the conditions observed, and/or materials reviewed at the time this study was undertaken.

This report is provided for the exclusive use of Strata Solar Development, LLC and is not intended to be used or relied upon in connection with other projects or by other unidentified third parties. The use of this report by an undesignated third party or parties will be at such party's sole risk and ECS disclaims liability for such third party use or reliance.

CONCLUSIONS

Based on our assessment of the proposed project site location and on-site field conditions, ECS identified jurisdictional wetland areas located in the southeastern and northwestern corners of the subject property. These findings were confirmed by Mr. Craig Brown, representative of the USACE on April 18th, 2012. At the time of this report, a hard-copy of the official JD was not available. ECS recommends that prior to site development activities the wetland boundaries be surveyed by a registered North Carolina licensed land surveyor and recorded on the corresponding property deed. Once this is accomplished, a copy of the land survey should be sent to the USACE for signed authorization of the established wetland boundaries.

ECS did not identify previously documented occurrences of rare plant and/or animal species, on the project site. ECS does not anticipate that the proposed development will have a significant impact on the previously surveyed architectural listings CH0738- Norfolk Southern Railway Depot (Gone) and CH0784- James Rufus Marks House.

Based on the two (2) previously recorded archaeological sites located on and in close proximity to the subject property location, Mr. John Mintz, has requested that additional archaeological services be conducted on the subject property prior to site development. ECS has contacted Mr. Danny Gregory, Principal Archaeologist with New South Associates, Greensboro, NC to perform these additional archaeological services which will be covered under a separate heading. ECS recommends completing this additional assessment and satisfying NCSHPO requirements before starting any development activities on-site. If there are changes to the footprint of the proposed development plan, ECS request to be notified prior to any earth moving or land clearing activities.

Moncure Farm - Wetland Field Determination/JD/NEPA Review
3905 Cornith Road, Moncure, Chatham County, NC
ECS Project #06.19247

ECS appreciates the opportunity to provide our environmental services for this project. If you have questions or need additional information, please contact us at (919) 861-9910.

Respectfully submitted,
ECS Carolinas, LLP



Ryan Conchilla
Environmental Project Manager



Aric V. Geda, P.E.
Vice President

I:_PROJECTS\T19000-T19999\19247_Wetland DeterminationLetter.doc

Appendix A – Figures

- Figure 1 – Site Location Map
- Figure 2 – Chatham County On-line GIS Map
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- Figure 5 – National Wetlands Inventory Map (NWI)
- Figure 6 – NC Floodplain Mapping Program
- Figure 7 – NC Natural Heritage Program Map
- Figure 8 – NCSHPO Map

Appendix B – Wetland/Upland Field Data Sheets

Appendix C – Letter Information Requests

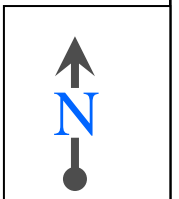
Appendix D – NC Heritage Program, USFWS and NCSHPO Letter Responses

Appendix E – Site Photographs

Appendix F – Proposed Development Plan

APPENDIX A

FIGURES



SOURCE:

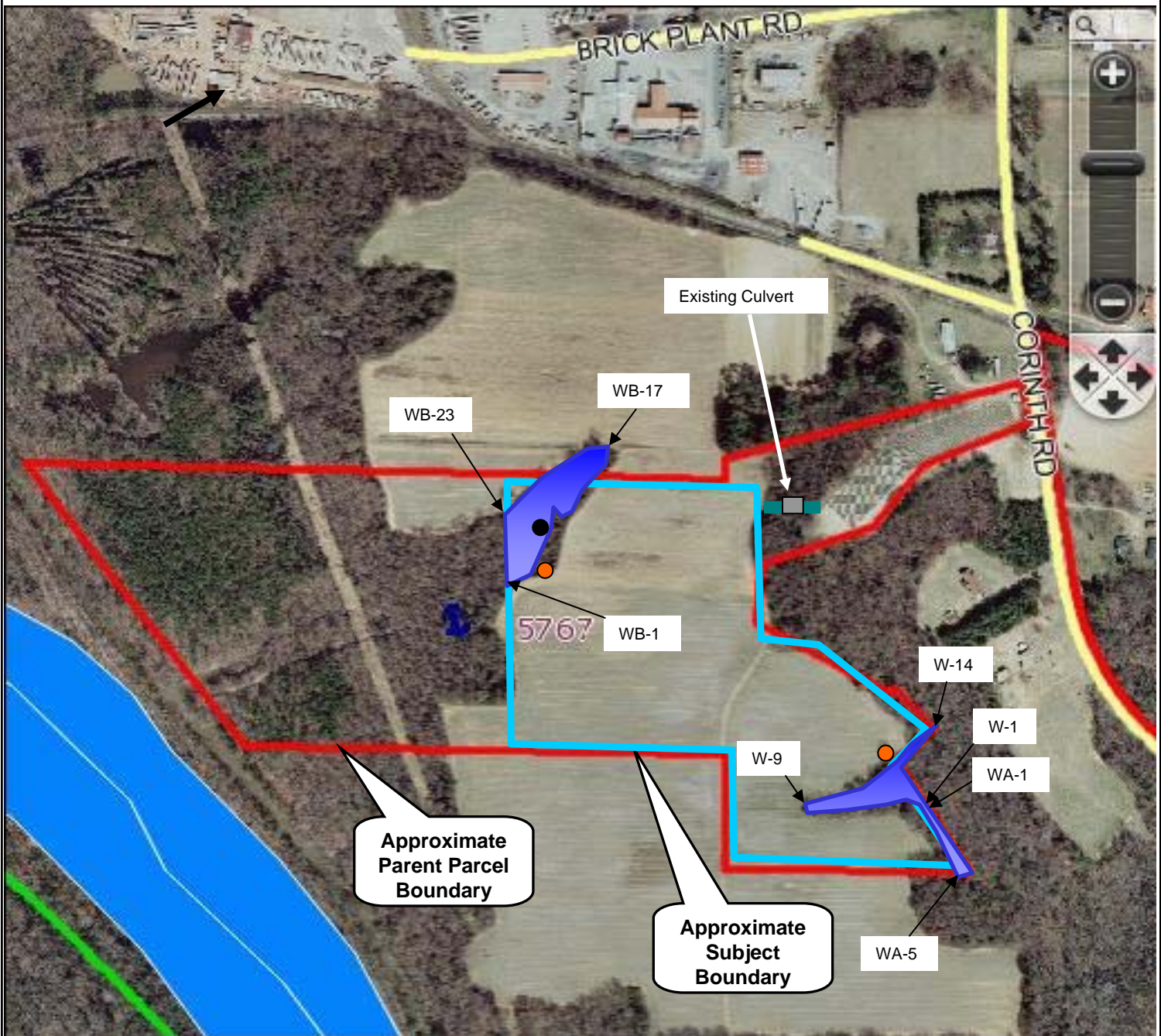
MapQuest



**FIGURE 1
SITE LOCATION MAP**

Moncure Farm
Approximate 45-acre tract
3905 Corinth Road
Moncure, Chatham County, North Carolina
ECS Project No. 19247

*The wetland/stream locations shown on this map are approximate. They have been delineated by ECS. They have been verified by the US Army Corps of Engineers. They have not been surveyed.



LEGEND

- Approximate Subject Boundary
- Approximate Parent Parcel Boundary
- Jurisdictional Wetland Boundary
- Wetland Point
- Upland Point

— ■ — Existing culvert in access road



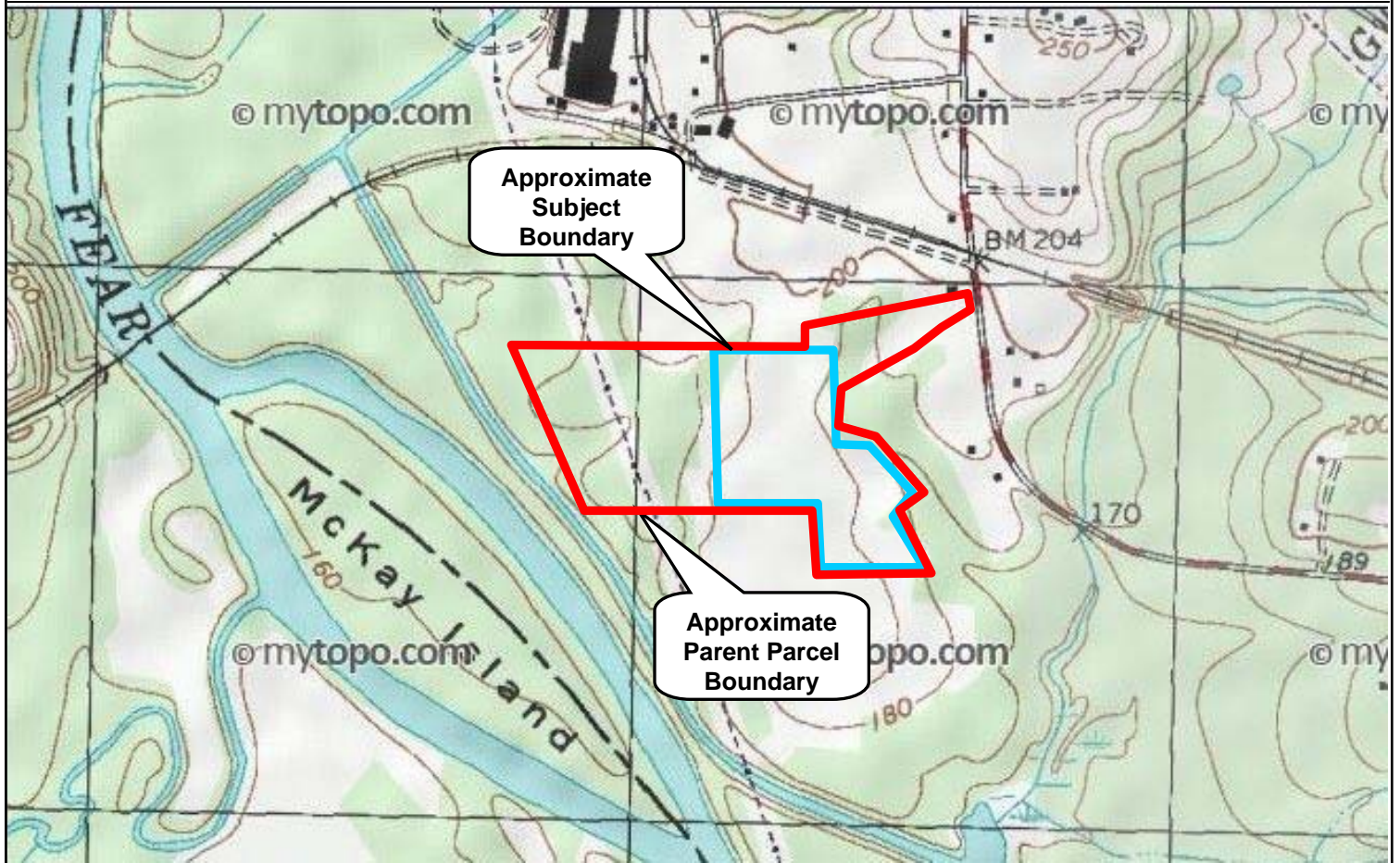
SOURCE:

Chatham County on-line GIS
Aerial Photograph



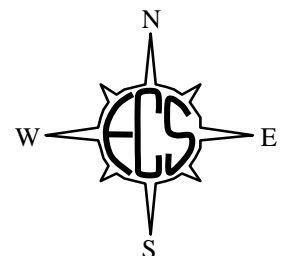
FIGURE 2 AERIAL SITE MAP

Moncure Farm
Approximate 45-acre tract
3905 Corinth Road
Moncure, Chatham County, North Carolina
ECS Project No. 19247



LEGEND

- Approximate Subject Boundary
- Approximate Parent Parcel Boundary



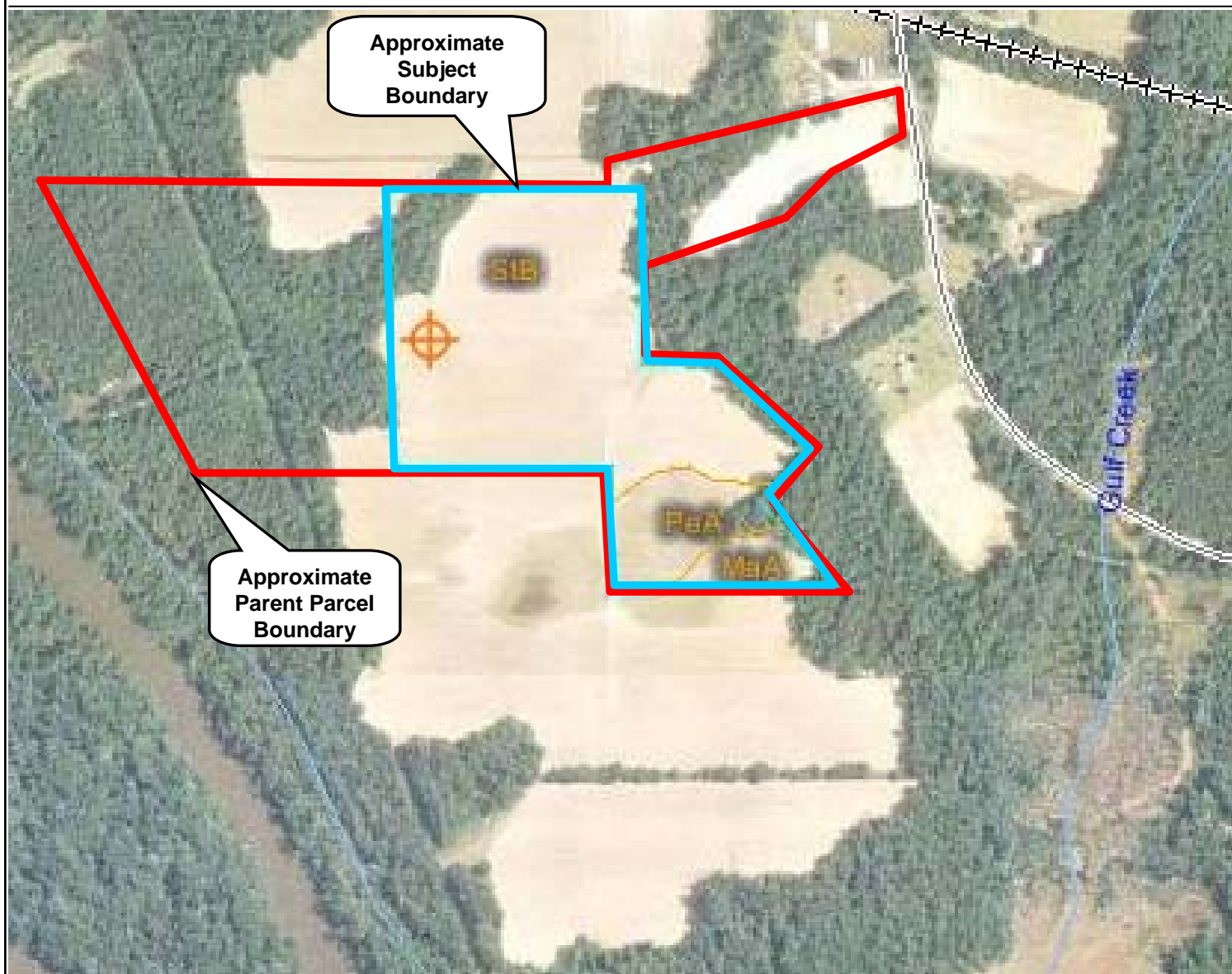
SOURCE:

United States Geological Survey 7.5-
Minute Series Topographic Map:
Moncure, North Carolina,
Digital-topo-maps
Contour = 10 feet



FIGURE 3 USGS TOPOGRAPHIC MAP

Moncure Farm
Approximate 45-acre tract
3905 Corinth Road
Moncure, Chatham County, North Carolina
ECS Project No. 19247



LEGEND

- Approximate Subject Boundary
- Approximate Parent Parcel Boundary

SOILS LOCATED ON-SITE

ChA – Chewacla and Wehadkee soils
 MaA – Mattaponi fine sandy loam
 PeA – Peawick fine sandy loam
 PeB – Peawick find sandy loam
 StB – State sandy loam



SOURCE:

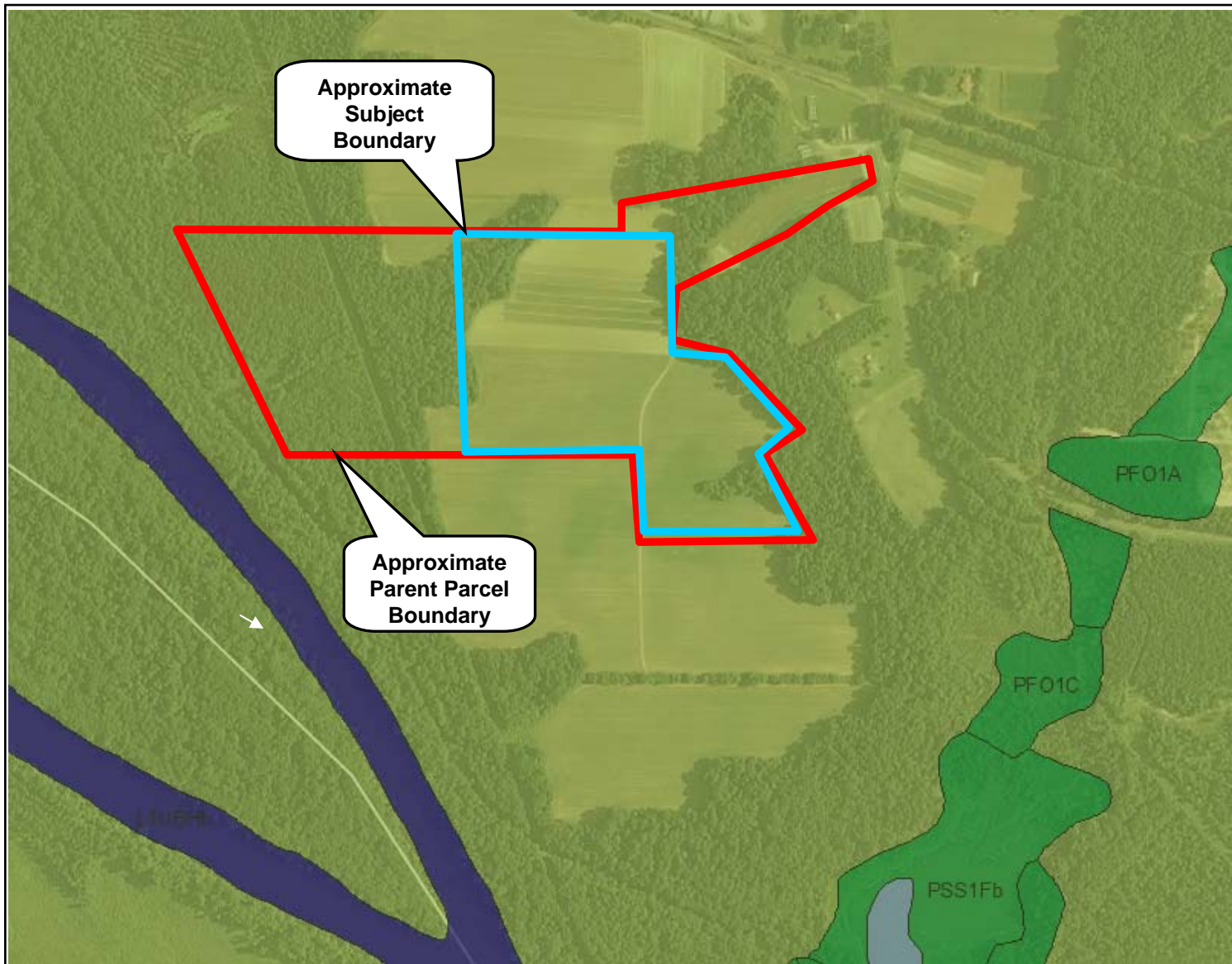
USDA-NRCS On-line Web Soil Survey

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



FIGURE 4 USDA SOIL MAP

Moncure Farm
 Approximate 45-acre tract
 3905 Corinth Road
 Moncure, Chatham County, North Carolina
 ECS Project No. 19247



LEGEND

- Approximate Subject Boundary
- Approximate Parent Parcel Boundary



SOURCE:

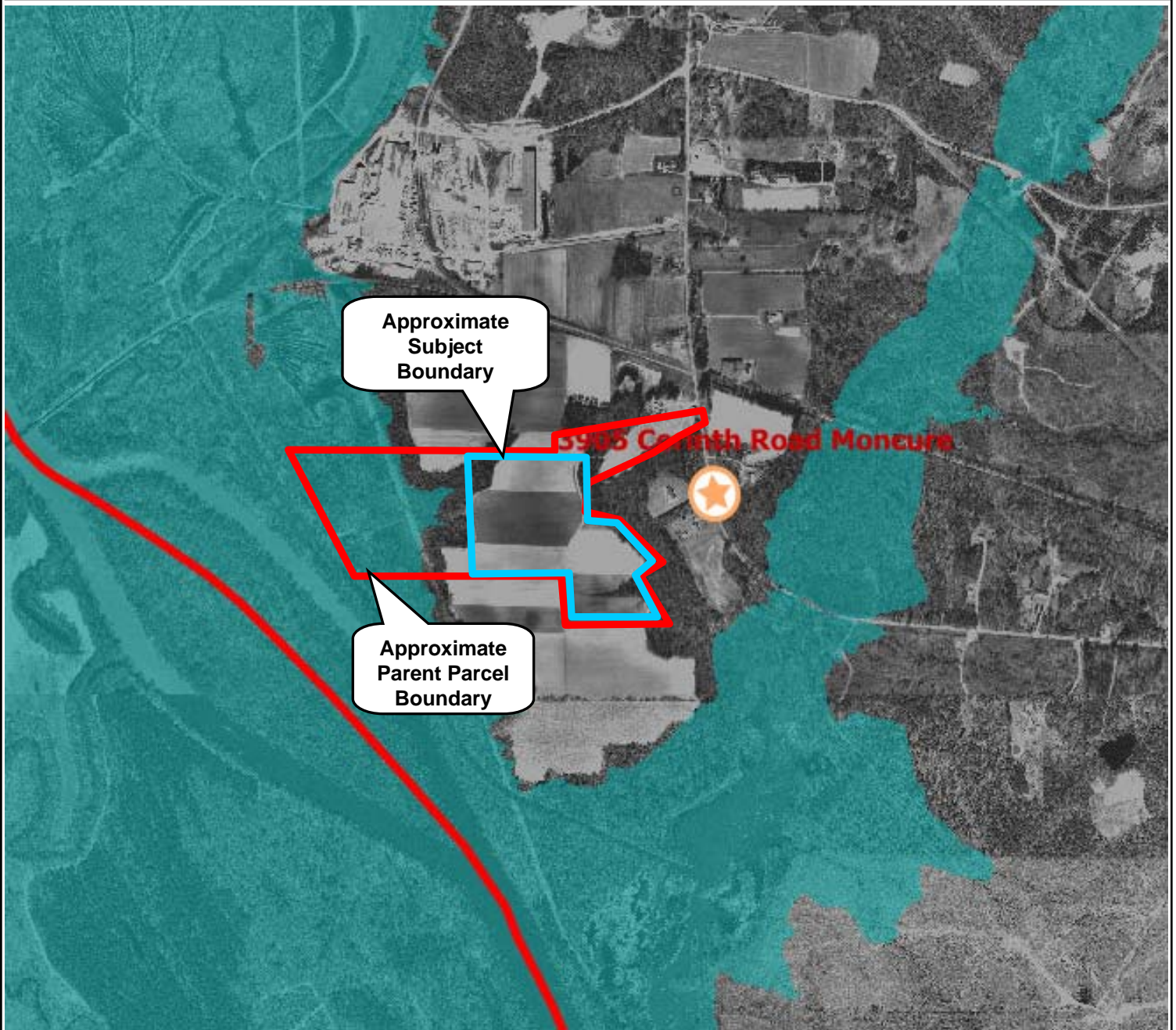
National Wetland Inventory Mapping Program

<http://www.fws.gov/wetlands/Data/Mapper.html>



FIGURE 5
National Wetlands Inventory Map

Moncure Farm
Approximate 45-acre tract
3905 Corinth Road
Moncure, Chatham County, North Carolina
ECS Project No. 19247



LEGEND

- Approximate Subject Boundary
- Approximate Parent Parcel Boundary



SOURCE:

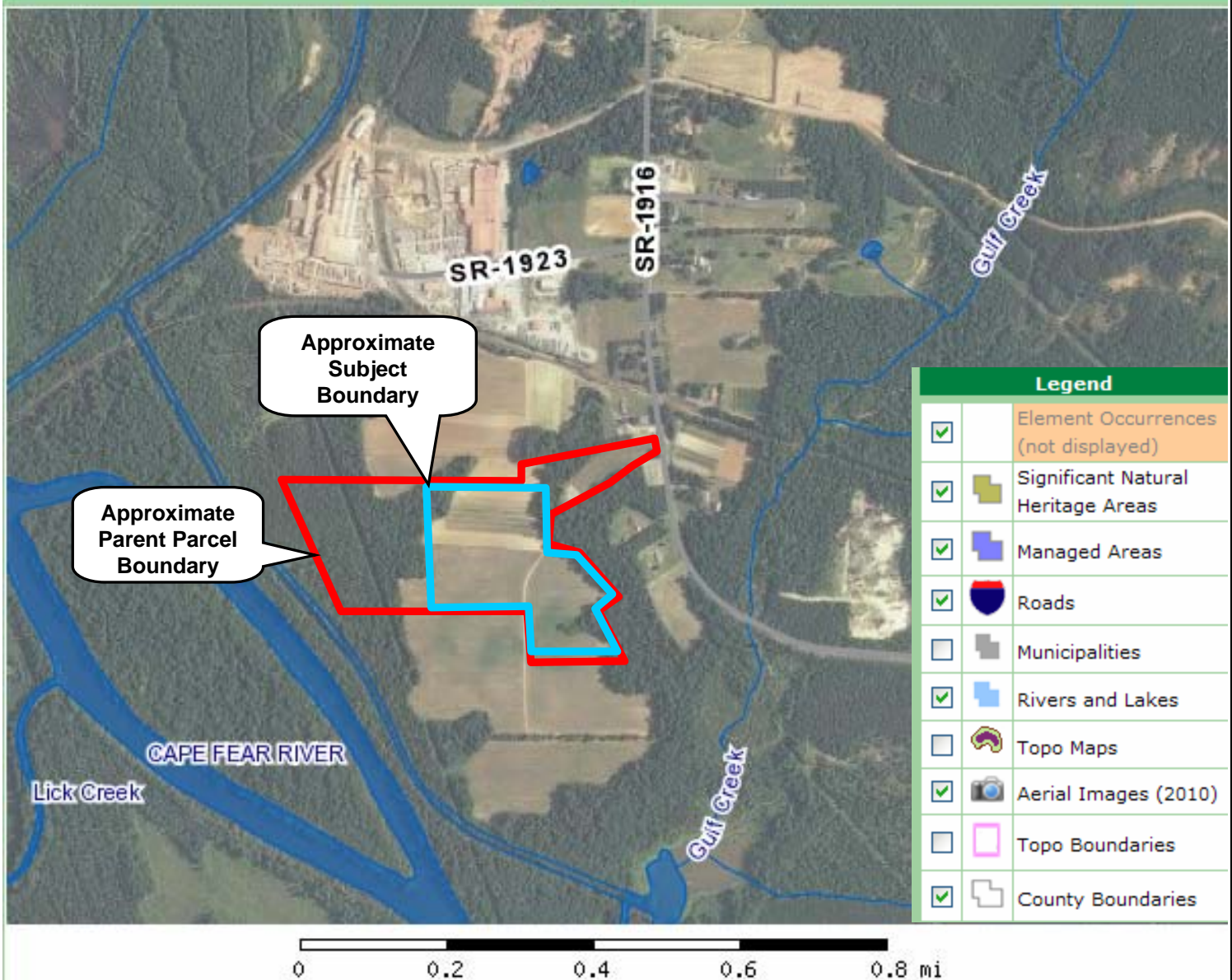
NC Floodplain Mapping Program
<http://www.ncfloodmaps.com/>



FIGURE 6 NC Floodplain Map

Moncure Farm
 Approximate 45-acre tract
 3905 Corinth Road
 Moncure, Chatham County, North Carolina
 ECS Project No. 19247

NC Natural Heritage Program Virtual Workroom



LEGEND

- Approximate Subject Boundary
- Approximate Parent Parcel Boundary



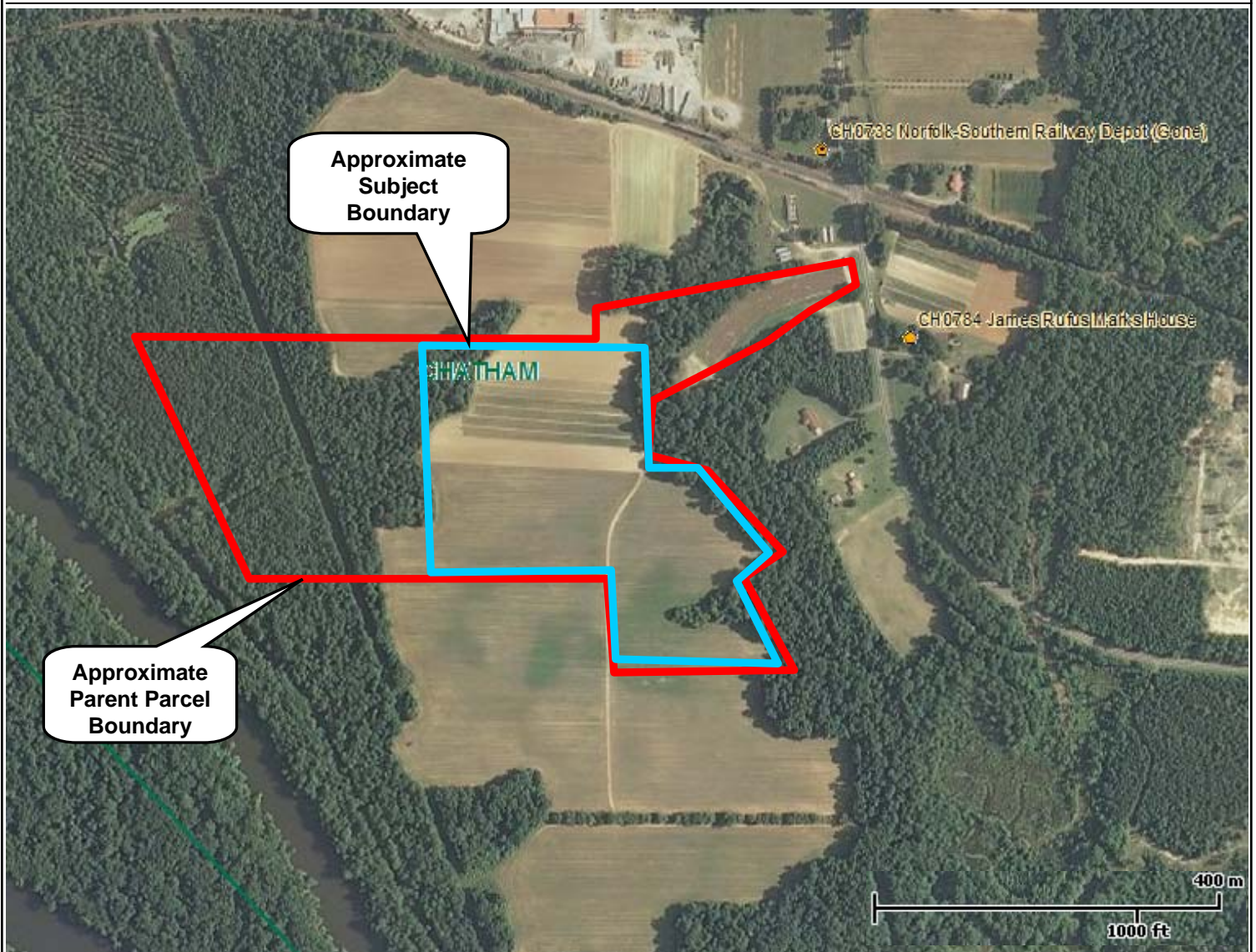
SOURCE:

NC Natural Heritage Program
www.ncnhp.org/Pages/heritagedata.html



FIGURE 7 NC Natural Heritage Program Map

Moncure Farm
 Approximate 45-acre tract
 3905 Corinth Road
 Moncure, Chatham County, North Carolina
 ECS Project No. 19247



LEGEND

- Approximate Subject Boundary
- Approximate Parent Parcel Boundary



SOURCE:

NC State Historic Preservation Office (SHPO)
On-line Mapping

www.hpo.ncdcr.gov/



FIGURE 8 **NC State Historic Preservation Office**

Moncure Farm
Approximate 45-acre tract
3905 Corinth Road
Moncure, Chatham County, North Carolina
ECS Project No. 19247

APPENDIX B

WETLAND AND UPLAND DATA SHEETS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 3905 Cornith Road City/County: Moncure/Chatham Sampling Date: 3/06/12
 Applicant/Owner: Ms. Ruth D. Jones State: NC Sampling Point: DP-1
 Investigator(s): Ryan Conchilla Section, Township, Range: Moncure
 Landform (hillslope, terrace, etc.): toe-of-slope/flood plain Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR or MLRA): LRR Lat: 35.5696 Long: -79.0289 Datum: NWI
 Soil Map Unit Name: PeA- PEAWICK- FINE SANDY LOAM NWI classification: non-hydric
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present?	Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>	
Remarks: DP-1 is located in a small wooded drainage way located in the southeastern corner of the subject property. Innundation was observed throughout the driage way during the site reconnaissance.		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Surface Water Present?	Yes <u> </u> No <u>X</u> Depth (inches): <u> </u>	
Water Table Present?	Yes <u>X</u> No <u> </u> Depth (inches): <u>+6</u>	
Saturation Present? (includes capillary fringe)	Yes <u>X</u> No <u> </u> Depth (inches): <u>+6</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water was observed within the drainage way, but was outside of the data plot.
--

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: **DP-1**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. Maple	70	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>54%</u> (A/B)
2. Sweet Gum	65	Y	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
135 = Total Cover 50% of total cover: _____ 20% of total cover: _____				
Sapling/Shrub Stratum (Plot size: 30 ft)				
1. Maple	45	Y	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. Sweet Gum	45	Y	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
90 = Total Cover 50% of total cover: _____ 20% of total cover: _____				
Herb Stratum (Plot size: 30 ft)				
1. Juncus effusus	40	Y	FACW	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. unk. herbaceous species	15	Y	NR	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
55% = Total Cover 50% of total cover: _____ 20% of total cover: _____				
Woody Vine Stratum (Plot size: 30 ft)				
1. Smilax laurifolia	10	N	FACW	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
10 = Total Cover 50% of total cover: _____ 20% of total cover: _____				
Remarks: (If observed, list morphological adaptations below).				

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Lec ²		
0-4	10 YR 2/1						loam	
4-16	10 YR 6/1						loam	saturated

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|---|--|---|
| <input type="checkbox"/> Histosol (A1)
<input type="checkbox"/> Histic Epipedon (A2)
<input type="checkbox"/> Black Histic (A3)
<input type="checkbox"/> Hydrogen Sulfide (A4)
<input type="checkbox"/> Stratified Layers (A5)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)
<input type="checkbox"/> Muck Presence (A8) (LRR U)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)
<input type="checkbox"/> Depleted Below Dark Surface (A11)
<input checked="" type="checkbox"/> Thick Dark Surface (A12)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)
<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)
<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)
<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)
<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Marl (F10) (LRR U)
<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)
<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)
<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)
<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)
<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)
<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)
<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 153B)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks) |
|---|--|---|

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 3905 Cornith Road City/County: Moncure/Chatham Sampling Date: 3/06/12
 Applicant/Owner: Ms. Ruth D. Jones State: NC Sampling Point: DP-2
 Investigator(s): Ryan Conchilla Section, Township, Range: Moncure
 Landform (hillslope, terrace, etc.): toe-of-slope/flood plain Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR or MLRA): LRR Lat: 35.5696 Long: -79.0289 Datum: NWI
 Soil Map Unit Name: PeA- PEAWICK- FINE SANDY loam NWI classification: non-hydric

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>	
Remarks: DP-2 is located outside of the wooded drainage way in an active agricultural field.		

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>-</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>+16</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>+16</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: **DP-2**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status		
1. Sweet Gum	55	Y		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2/1/2012</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
55 = Total Cover					
50% of total cover: _____ 20% of total cover: _____					
Sapling/Shrub Stratum (Plot size: _____)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover					
50% of total cover: _____ 20% of total cover: _____					
Herb Stratum (Plot size: _____)					
1. _____					
2. _____					
3. _____					
4. _____					
5. unk. herbaceous species	15	Y	NR	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.	
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
15% = Total Cover					
50% of total cover: _____ 20% of total cover: _____					
Woody Vine Stratum (Plot size: 30 ft)					
1. Smilax laurifolia	10	N	FACW	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
2. _____					
3. _____					
4. _____					
5. _____					
10 = Total Cover					
50% of total cover: _____ 20% of total cover: _____					
Remarks: (If observed, list morphological adaptations below).					

SOIL

Sampling Point: DP-2

[illegible]

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 3905 Cornith Road City/County: Moncure/Chatham Sampling Date: 3/06/12
 Applicant/Owner: Ms. Ruth D. Jones State: NC Sampling Point: DP-3
 Investigator(s): Ryan Conchilla Section, Township, Range: Moncure
 Landform (hillslope, terrace, etc.): toe-of-slope/flood plain Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR or MLRA): LRR Lat: 35.5696 Long: -79.0289 Datum: NWI
 Soil Map Unit Name: StB- State sandy loam NWI classification: non-hydric

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present?	Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>	
Remarks: DP-3 is located inside the wooded drainage way in the northWest corner of the subject property.		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Surface Water Present?	Yes <u> </u> No <u>X</u> Depth (inches): <u>-</u>	
Water Table Present?	Yes <u>X</u> No <u> </u> Depth (inches): <u>+6</u>	
Saturation Present? (includes capillary fringe)	Yes <u>X</u> No <u> </u> Depth (inches): <u>+6</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: **DP-3**

Tree Stratum (Plot size: 30 ft)				Absolute % Cover	Dominant Species?	Indicator Status
1.	Maple			70	Y	FAC
2.	Sweet Gum			65	Y	FAC
3.						
4.						
5.						
6.						
7.						
8.						
				135	= Total Cover	
50% of total cover: _____				20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: 30 ft)						
1.	Maple			45	Y	FAC
2.	Sweet Gum			45	Y	FAC
3.						
4.						
5.						
6.						
7.						
8.						
				90	= Total Cover	
50% of total cover: _____				20% of total cover: _____		
Herb Stratum (Plot size: 30 ft)						
1.	Juncus effusus			40	Y	FACW
2.						
3.						
4.						
5.	unk. herbaceous species			15	Y	NR
6.						
7.						
8.						
9.						
10.						
11.						
12.						
				55%	= Total Cover	
50% of total cover: _____				20% of total cover: _____		
Woody Vine Stratum (Plot size: 30 ft)						
1.	Smilax laurifolia			10	N	FACW
2.						
3.						
4.						
5.						
				10	= Total Cover	
50% of total cover: _____				20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below).

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	5 (A)
Total Number of Dominant Species Across All Strata:	5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	54% (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____	(A) _____ (B) _____
Prevalence Index = B/A = _____	
Hydrophytic Vegetation Indicators:	
___ 1 - Rapid Test for Hydrophytic Vegetation	
___ 2 - Dominance Test is >50%	
___ 3 - Prevalence Index is ≤3.0 ¹	
___ Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Definitions of Four Vegetation Strata:	
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
Woody vine – All woody vines greater than 3.28 ft in height.	
Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Lec ²		
0-6	10 YR 2/1						loam	
6-16	10 YR 6/1						loam	saturated

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Organic Bodies (A6) (LRR P, T, U)
☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
☐ Muck Presence (A8) (LRR U)
☐ 1 cm Muck (A9) (LRR P, T)
☐ Depleted Below Dark Surface (A11)
☒ Thick Dark Surface (A12)
☐ Coast Prairie Redox (A16) (MLRA 150A)
☐ Sandy Mucky Mineral (S1) (LRR O, S)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR P, S, T, U)

- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
☐ Thin Dark Surface (S9) (LRR S, T, U)
☐ Loamy Mucky Mineral (F1) (LRR O)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Marl (F10) (LRR U)
☐ Depleted Ochric (F11) (MLRA 151)
☐ Iron-Manganese Masses (F12) (LRR O, P, T)
☐ Umbric Surface (F13) (LRR P, T, U)
☐ Delta Ochric (F17) (MLRA 151)
☐ Reduced Vertic (F18) (MLRA 150A, 150B)
☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☒ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 3905 Cornith Road City/County: Moncure/Chatham Sampling Date: 3/06/12
 Applicant/Owner: Ms. Ruth D. Jones State: NC Sampling Point: DP-4
 Investigator(s): Ryan Conchilla Section, Township, Range: Moncure
 Landform (hillslope, terrace, etc.): toe-of-slope/flood plain Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR or MLRA): LRR Lat: 35.5696 Long: -79.0289 Datum: NWI
 Soil Map Unit Name: StB- State sandy loam NWI classification: non-hydric

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>	
Remarks: DP-4 is located near the wooded drainage way in the northwest corner of the subject property.		

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>-</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>+16</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>+16</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: **DP-4**

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. Sweet Gum	55	Y		Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)																
2. _____				Total Number of Dominant Species Across All Strata: <u>2/1/2012</u> (B)																
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)																
4. _____				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
<u>55</u> = Total Cover 50% of total cover: _____ 20% of total cover: _____				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
Sapling/Shrub Stratum (Plot size: _____)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.																
1. _____																				
2. _____																				
3. _____																				
4. _____																				
5. unk. herbaceous species	15	Y	NR	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
<u>15</u> = Total Cover 50% of total cover: _____ 20% of total cover: _____																				
Woody Vine Stratum (Plot size: <u>30 ft</u>)																				
1. Smilax laurifolia	10	N	FACW																	
2. _____																				
3. _____																				
4. _____																				
5. _____																				
<u>10</u> = Total Cover 50% of total cover: _____ 20% of total cover: _____																				
Remarks: (If observed, list morphological adaptations below).																				

SOIL

Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10 YR 6/6						sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☒ Histosol (A1)
- ☒ Histic Epipedon (A2)
- ☒ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☒ Stratified Layers (A5)
- ☒ Organic Bodies (A6) (LRR P, T, U)
- ☒ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☒ Muck Presence (A8) (LRR U)
- ☒ 1 cm Muck (A9) (LRR P, T)
- ☒ Depleted Below Dark Surface (A11)
- ☒ Thick Dark Surface (A12)
- ☒ Coast Prairie Redox (A16) (MLRA 150A)
- ☒ Sandy Mucky Mineral (S1) (LRR O, S)
- ☒ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☒ Stripped Matrix (S6)
- ☒ Dark Surface (S7) (LRR P, S, T, U)

- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

APPENDIX C

LETTER INFORMATION REQUEST



ECS CAROLINAS, LLP

Geotechnical • Construction Materials • Environmental • Facilities

"Setting the Standard for Service"

NC Registered Engineering Firm F-1078

March 13, 2012

Mr. Harry E. Legrand, Jr.
North Carolina Natural Heritage Program
1601 Mail Service Center
Raleigh, North Carolina 27699-1601

Re: **Review for Presence of Endangered/Threatened Species and Wildlife Preserves**
Moncure Farm, LLC
An approximate 45-acre portion of a larger parent property tract totaling 87-acres
3905 Corinth Road
Moncure, Chatham County, North Carolina
ECS Project 06.19247

Dear Mr. Legrand:

ECS Carolinas, LLP has been contracted to perform an Endangered Species Survey at the above-referenced site. Therefore, we request your assistance in determining if the project will have an impact on any Federal or State listed species (currently as well as proposed species listed as threatened or endangered) and designated or proposed critical habitat (including Wildlife Preserves) that may be present in the project area.

The project site is an approximate 45-acre portion of a larger parent property tract located west of Corinth Road, Moncure, NC. According to information provided to ECS and the Chatham County On-line GIS website, the Parcel Number for the subject property is 5767. The subject property mostly consists of undeveloped agricultural fields and undeveloped woodlands. No structures are currently located on-site.

Please contact us at (919) 861-9910 or RConchilla@ecslimited.com if you have questions or need more information. Your assistance with this review is greatly appreciated.

Sincerely,

Ryan Conchilla
Environmental Project Manager

Aric V. Geda, P.E.
Vice President

Enclosures:

Figure 1- Google Vicinity Map
Figure 2- 2008 Aerial Photograph
Figure 3- USGS Topo Quad



March 13, 2012

Mr. John Ellis
Ecological Services Supervisor
U.S. Fish and Wildlife Services, Raleigh Field Office
P.O. Box 33726
Raleigh, North Carolina 27636-3726

Re: **Review for Presence of Endangered/Threatened Species and Wildlife Preserves**
Moncure Farm, LLC
An approximate 45-acre portion of a larger parent property tract totaling 87-acres
3905 Corinth Road
Moncure, Chatham County, North Carolina
ECS Project 06.19247

Dear Mr. Ellis:

ECS Carolinas, LLP has been contracted to perform an Endangered Species Survey at the above-referenced site. Therefore, we request your assistance in determining if the project will have an impact on any Federal or State listed species (currently as well as proposed species listed as threatened or endangered) and designated or proposed critical habitat (including Wildlife Preserves) that may be present in the project area.

The project site is an approximate 45-acre portion of a larger parent property tract located west of Corinth Road, Moncure, NC. According to information provided to ECS and the Chatham County On-line GIS website, the Parcel Number for the subject property is 5767. The subject property mostly consists of undeveloped agricultural fields and undeveloped woodlands. No structures are currently located on-site.

Please contact us at (919) 861-9910 or RConchilla@ecslimited.com if you have questions or need more information. Your assistance with this review is greatly appreciated.

Sincerely,

Ryan Conchilla
Environmental Project Manager

Aric V. Geda, P.E.
Vice President

Enclosures:

Figure 1- Google Vicinity Map
Figure 2- 2008 Aerial Photograph
Figure 3- USGS Topo Quad

APPENDIX D

NC HERITAGE PROGRAM, USFWS AND NCSHPO LETTER REPONSES



North Carolina Department of Environment and Natural Resources
Office of Conservation, Planning, and Community Affairs

Beverly Eaves Perdue
Governor

Linda Pearsall
Director

Dee Freeman
Secretary

April 5, 2012

Mr. Ryan Conchilla
ECS Carolinas, LLP
9001 Glenwood Avenue
Raleigh, NC 27617-7505

Subject: Moncure Farm, LLC – an approximately 45-acre portion of a larger tract, 3905 Corinth Road; Moncure, Chatham County
ECS Proposal: 06.19247

Dear Mr. Conchilla:

The Natural Heritage Program has no record of rare species, significant natural communities, significant natural heritage areas, or conservation/managed areas at the project site nor within 0.2 mile of the project area. (There are such features on the western side of the Cape Fear River, as well as at McKay Island in the river.) Although our maps do not show records of such natural heritage elements in the project area, it does not necessarily mean that they are not present. It may simply mean that the area has not been surveyed. The use of Natural Heritage Program data should not be substituted for actual field surveys, particularly if the project area contains suitable habitat for rare species, significant natural communities, or priority natural areas.

You may wish to check the Natural Heritage Program database website at www.ncnhp.org for a listing of rare plants and animals and significant natural communities in the county and on the quad map. Our Program also has a new website that allows users to obtain information on element occurrences and significant natural heritage areas within two miles of a given location: http://nhpweb.enr.state.nc.us/public/virtual_workroom.phtml. The user name is "guest" and the password is your e-mail address (see instructions on log-in screen). You may want to click "Help" for more information.

Please do not hesitate to contact me at 919-707-8603 if you have questions or need further information.

Sincerely,

Harry E. LeGrand, Jr., Zoologist
Natural Heritage Program

Mailing address: 1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Location: 217 W. Jones Street, Raleigh NC 27604
Phone: 919-707-8600 Webpage: www.oneNCNaturally.org

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North Carolina
Naturally
Natural Resources Planning and Conservation



United States Department of the Interior

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

March 29, 2012

Ryan Conchilla
ECS Carolinas, LLP
9001 Glenwood Avenue
Raleigh, NC 27617-7505

Re: Moncure Farm, LLC- Moncure, Chatham County, NC

Dear Mr. Conchilla:

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".

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	



**North Carolina Department of Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, 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

March 15, 2012

Markus Wilhelm
Moncure Farm, LLC
1119 US 15-501 Hwy South
Chapel Hill, NC 27517

Re: Construction of 4.975 MW Solar Photovoltaic Electric Generating Facility, 3905 Corinth Road,
Moncure, Chatham County, CH 12-0293

Dear Mr. Wilhelm:

We have received notification from the State Clearinghouse concerning the above project.

Although no specific project boundaries were included with the documentation, the general project area contains at least nine recorded archaeological sites, some of which will likely be affected by the proposed project. None of these sites (31CH586, 31CH587, 31CH588, 31CH589, 31CH590, 31CH591, 31CH592, 31CH603 and 31CH604) have been evaluated as to their eligibility for inclusion in the National Register of Historic Places. At least one of these sites, 31CH603, has yielded human skeletal remains. Additional such remains are likely to be present.

Please forward a map indicating the precise project boundaries as soon as possible so we may complete our review and determine which sites will be affected.

We will recommend that an investigation be conducted of the project area by an experienced archaeologist to identify and evaluate the significance of archaeological remains that may be damaged or destroyed by the proposed project. Potential effects on unknown resources must be assessed prior to the initiation of construction activities.

Two copies of the resulting archaeological report, as well as one copy of the appropriate site forms and updates, should be forwarded to us for review and comment as soon as they are submitted by the consulting archaeologist and well in advance of any construction activities.

A list of archaeological consultants who have conducted or expressed an interest in contract work in North Carolina is available at www.archaeology.ncdcr.gov/ncarch/resource/consultants.htm. The archaeologists listed, or any other experienced archaeologist, may be contacted to conduct the recommended survey.

We have determined that the project as proposed will not have an effect on any historic structures.

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,



for Ramona M. Bartos

cc: Clearinghouse

NORTH CAROLINA ARCHAEOLOGICAL SITE FORM
OFFICE OF STATE ARCHAEOLOGY

SITE NAME(S): MONCURE 2 OTHER SITE NUMBER: RLACH513
INSTITUTION ASSIGNING: University of North Carolina--Chapel Hill PROJECT SITE NUMBER: _____
SITE COMPONENT: Prehistoric SITE REMAINS: No Above-Ground Remains

SITE LOCATION INFORMATION

COUNTY	CHATHAM	QUAD MAP	MONCURE 1970 (81PR)
COORDINATE SYSTEM	UTM	MAP UNITS	
MAP ZONE	17	MAP EASTING	678040
MAP DATUM	NAD 27	MAP NORTHING	3937660
RECORDED W/GPS?:	No	GPS DATA POST-PROCESSED?:	Unknown

DATE RECORDED: 11/12/1985
RECORDED BY: _____
RESULT OF COMPLIANCE PROJECT: No CODING DATE: 9/16/1986
PROJECT NAME: _____ CODED BY: _____
ARTIFACT INVENTORY ATTACHED?: No
CURATION FACILITY: University of North Carolina--Chapel Hill ACCESSION NUMBER: _____ ORDER: 1
BIBLIOGRAPHIC NUMBER(S): BIB 3956
RECOMMENDATIONS: Test Excavations

ENVIRONMENTAL INFORMATION

TOPOGRAPHIC SITUATION: Other ELEVATION (FEET): 180
SLOPE PERCENT LOW(%): 0 SLOPE PERCENT HIGH (%): 0
SLOPE FACE DIRECTION: _____ SOIL COMPOSITION: Sandy Loam
MODERN VEGETATION: Row Crop/Cultivated NRCS SOIL TYPE CODE: WF
SOIL SERIES NAME: _____
DISTANCE TO WATER (METERS): 400 NEAREST PERM WATER TYPE: River, Creek, or Stream
DRAINAGE BASIN: Cape Fear SITE SIZE: Unknown
GROUND VISIBILITY LOW (%): 0 GROUND VISIBILITY HIGH (%): 0
PERCENT DESTROYED: _____ DESTRUCTION DATE: _____

INVESTIGATIONS

COLLECTION MADE: No
AREA COVERED IN CONTROLLED COLLECTION (SQ.M.): _____
SUBSURFACE TEST MADE: No

NATIVE AMERICAN SITE INFORMATION

CULTURAL AFFILIATIONS: Woodland (Unknown Subperiod) SITE FUNCTION: Short-Term Habitation
Late Archaic

NORTH CAROLINA ARCHAEOLOGICAL SITE FORM
OFFICE OF STATE ARCHAEOLOGY

MIDDEN: Unknown

LITHICS:

Ground or Pecked Stone

Secondary Debitage

Bifaces

Hafted Bifaces/Projectile Pts.

OTHER/ MISC SAMPLES

Worked Marine/River Shell

Human Bone or Teeth

NATIVE AMERICAN CERAMICS

HISTORIC SITE INFORMATION

PERIOD OF OCCUPATION BEGIN

PERIOD OF OCCUPATION END

REFINED DATE FROM:

REFINED DATE TO:

ARCHITECTURE

Other

KITCHEN

Wine Bottle

Ceramics

DATEABLE CERAMICS: Unknown

OFFICE OF STATE ARCHAEOLOGY USE ONLY

DATE ON NRHP:

REGISTER STATUS: Unassessed

TYPE OF FORM: Archaeological Site Form IV

RECORDER STATUS: NCAC Member or Professional

FORM RELIABILITY: Coding Complete

LOCATIONAL RELIABILITY: Within 100m Rad

FORM DATA CHECKED BY:

FORM DATE:

COMMENTS

RESEARCH
POTENTIAL:

ABORIGINAL HABITATION

EXPLANATION
OF IMPACTS:

LAND BEING SOLD. POSSIBILITY OF BRICKHAVEN INDUSTRY MOVING INTO AREA.

EXPLANATION OF
RECOMMENDATIONS

TESTING NEEDED TO EVALUATE NATIONAL REGISTER ELIGIBILITY.

EXCAVATION
RESULTS:SUBSURFACE TESTING
RESULTS:FEATURE
DESCRIPTION:OWNER/TENANT
INFORMATION:LOIS WOMBLE LEASED BY STEDMAN WORRELL, RT 1, MONCURE 775-5347 COLLECTIONS BY
ZEB D. AND MARTHA HARRINGTON RT 1, BOX 298, MONCURE, NC 27559 776-3088

DIRECTIONS TO SITE:

COMMENTS:

STATE SITE #: CH588

NORTH CAROLINA ARCHAEOLOGICAL SITE FORM
OFFICE OF STATE ARCHAEOLOGY

SITE NAME(S):

OTHER SITE NUMBER:

INSTITUTION ASSIGNING: University of North Carolina--Chapel Hill

PROJECT SITE NUMBER: CH505

SITE COMPONENT: Prehistoric

SITE REMAINS: No Above-Ground Remains

SITE LOCATION INFORMATION

COUNTY	CHATHAM	QUAD MAP	MONCURE 1970 (81PR)
COORDINATE SYSTEM	UTM	MAP UNITS	
MAP ZONE	17	MAP EASTING	678290
MAP DATUM	NAD 27	MAP NORTHING	3937410
RECORDED W/GPS?:	No	GPS DATA POST-PROCESSED?:	Unknown

DATE RECORDED: 2/21/1985

RECORDED BY:

RESULT OF COMPLIANCE PROJECT: No

CODING DATE: 4/29/1930

PROJECT NAME:

CODED BY:

ARTIFACT INVENTORY ATTACHED?: No

RECOMMENDATIONS

Monitoring

Test Excavations

ENVIRONMENTAL INFORMATION

TOPOGRAPHIC SITUATION: Upland Flats	ELEVATION (FEET):	190
SLOPE PERCENT LOW(%): 0	SLOPE PERCENT HIGH (%):	0
SLOPE FACE DIRECTION: South	SOIL COMPOSITION:	
MODERN VEGETATION:	NRCS SOIL TYPE CODE:	
	SOIL SERIES NAME	
DISTANCE TO WATER (METERS): 400	NEAREST PERM WATER TYPE:	River, Creek, or Stream
DRAINAGE BASIN: Cape Fear	SITE SIZE:	
GROUND VISIBILITY LOW (%): 0	GROUND VISIBILITY HIGH (%):	0
PERCENT DESTROYED	DESTRUCTION DATE	
	DESTRUCTION CAUSES	Unknown

INVESTIGATIONS

COLLECTION MADE: Yes

COLLECTION STRATEGY

Total

AREA COVERED IN CONTROLLED COLLECTION (SQ.M.):

SUBSURFACE TEST MADE: No

NATIVE AMERICAN SITE INFORMATION

CULTURAL AFFILIATIONS:

Archaic (Unknown Subperiod)

SITE FUNCTION

Limited Activity

MIDDEN:

STATE SITE #: CH588

NORTH CAROLINA ARCHAEOLOGICAL SITE FORM
OFFICE OF STATE ARCHAEOLOGY

OTHER/ MISC SAMPLES

Fire-Cracked Rock

NATIVE AMERICAN CERAMICS

HISTORIC SITE INFORMATION

PERIOD OF OCCUPATION BEGIN

PERIOD OF OCCUPATION END

REFINED DATE FROM:

REFINED DATE TO:

DATEABLE CERAMICS: No

OFFICE OF STATE ARCHAEOLOGY USE ONLY

DATE ON NRHP:

REGISTER STATUS: Unassessed

TYPE OF FORM: Archaeological Site Form VI

RECORDER STATUS: NCAC Member or Professional

FORM RELIABILITY: Incomplete-Internally

LOCATIONAL RELIABILITY: Accurate

FORM DATA CHECKED BY:

FORM DATE:

COMMENTS

RESEARCH
POTENTIAL:

UNKNOWN

EXPLANATION
OF IMPACTS:

EXPLANATION OF
RECOMMENDATIONS

SITE NEEDS EVALUATION

EXCAVATION
RESULTS:

SUBSURFACE TESTING
RESULTS:

FEATURE
DESCRIPTION:

NONE OBSERVED

OWNER/TENANT
INFORMATION:

INFORMANTS: R. P. STEPHEN DAVIS, JR./H. TRAWICK WARD

DIRECTIONS TO SITE:

COMMENTS:

HISTORIC CERAMIC
TYPES:

HISTORIC SITE
DESCRIPTION:

OTHER IMPORTANT
ARTIFACT TYPES:

Appendix G. Inventory of Private Collections Examined during Survey

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Site	Description
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31Ch592 (RLA-Ch509)

Aboriginal Ceramics:

3 Aboriginal Sherds (computer-coded)

Lithics:

1 Projectile Point (with Morrow Mtn.-like base)

1 Biface - possibly imported flint

1 Flake (probably imported material)

7 Flakes

1 Soapstone (probably unworked)

4 Rocks

1 Large country rock (possibly smoke-stained)

Euroamerican Artifacts:

6 Red Slip Ware (hard). Ginger color and yellow lines.
Probably small bowl with folded rim.British (Staffordshire or Lambeth ware). Compare with
Metropolitan ware (cf. Hume 1969:103) which dates
ca. 1680-1715.2 White Glazed Stoneware (thin): slip dip salt glaze over
gray body; pre-1720.4 Kaolin pipe bowl fragments; one is a Dutch Gouda
pipe (polished bowl) ca. 1720-1750

18 Kaolin pipe stem fragments

1 Cast Pewter Spoon (in 3 fragments); 18th century

1 Bone-handled Fork (2 long tines) with two sets
of small drilled holes in rhomboid pattern on each
side of handle. Ferrous (steel?) blade with slightly
pistol-shaped butte.

(Late 17th to early 19th century).

1 Brass Thimble (rather short and light) with pattern-
stamped crown; 18th/19th century ?
(cf. Hume 1969:256).4 Brass Straight Pins (1" long with tin wash and wire-
wound heads)

1 Rifle Barrel fragment (ca. 16.42 mm interior diameter)

1 Gun Frizzen. Straight, possibly French.
(cf. Good 1972:142; figure 30).

1 Grubbing Hoe (narrow with bit cut off)

1 Flat ferrous metal (knife blade ?)

1 Iron Chisel

1 Nail fragment

- Miscellaneous metal (ferrous) fragments

1 Pistol Flint

5 Wine Bottle fragments (3 large, 2 small); 1 burned/
partially melted; 2 articulating with high kick (jar)

Other Artifacts:

1 Deer Antler Awl

Appendix G Continued.

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Site	Description
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=====

1 Aboriginal-like pipe stem with apparent metal tooling marks running lengthwise. Bore diameter of 9/64 inch.

Shell:

1 Mussel Shell (edge not present)

Animal Bone:

- Animal Bone includes:

Deer; antler, rt. distal tibia, possible calcarea

Pig; teeth and jaws

Cow; metatarsals, teeth and mandibles

Fish; skull fragments and vertebrae

Lesser scaup; 1 leg bone

(Butcher marks on many domestic animal bones)

Carbonized Plant Remains:

- Wood Charcoal (1 bag - ca. 20 g)

31Ch603 (RLA-Ch513)

Aboriginal Ceramics:

12 Aboriginal Sherds (computer-coded)

Lithics:

3 Morrow Mountain projectile points

7 Guilford projectile points

3 Halifax projectile points

5 Savannah River projectile points

7 Eared Yadkin projectile points

2 Badin projectile points

1 Yadkin projectile point

3 Caraway projectile points

1 PeeDee Pentagonal projectile point

3 Small Stemmed (Randolph type) projectile points

7 Bifaces or Preforms

1 Small Biface

1 Unusual biface struck from flat, rounded piece of slate

1 Slate Gorget fragment (polished, greenish)

3 Stone Pipe fragments (polished chloritic schist).

Exterior polished, interior bearing striated grooves primarily along long axis; 2 stem (1 possibly bowl?) and 1 bowl fragment

3 Celts/celt fragments

16 Flakes

1 Spherical pecked granitic ball with dimple

Euroamerican Artifacts:

1 Historic sherd (unidentified)

1 piece brick mortar?

1 Bottle Glass (green)

Other Artifacts:

Appendix G Continued.

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Site	Description
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=====

1 Shell Bead (possibly 2)

Human Remains:

- Human bone fragments: Sub-adult (4-6 yrs) and Adult (30-40 yrs). Some bone calcined; some appears to be copper-stained. No incisors present.

31Ch604 (RLA-Ch514)

Lithics:

- 1 Quartzite Cobble with battering at both long ends and center of one flat face
- 1 Rock (flat schistose)
- 1 Quartzite Rock
- 1 Black Exotic Flint (gunflint ?)
- 1 Banded black and blond exotic cryptocrystalline
- 1 Blonde chalcedony (battered)

Euroamerican Artifacts:

- 11 Pearlware (mostly plate)
- 8 Historic sherds (yellow and brown slip over red body; yellow interior); probably Moravian; includes wide strap handle (from chamber pot ?)
Probably pre-1820 (cf. Quimby 1973:285; Fig. 29)
- 7 Whiteware (mostly plate)
- 4 Creamware (bowl or chamber pot)
- 4 Hand-Painted Polychrome Whiteware; Green, blue, orange, & brown floral design; Early-Mid 19th century
- 2 Hand-Painted Polychrome Whiteware; Green, blue, pink floral design; Early-Mid 19th century
- 5 Blue Transfer Print Whiteware
- 4 Shell-Edged Whiteware (3 green, 1 blue); probably 19th century
- 5 Annular Whiteware (3 light & dark green, engine-turned with black, orange, and white finger-painted swirls; 2 have blue band at rim with stylized "flying bird" motif in brown)
- 5 Miscellaneous Historic Sherds (2 articulating Whiteware sherds with hand-painted green leaves; 3 Annular Whiteware sherds including 1 dark green, 1 cobalt blue, and 1 greenish brown with red oak leaf)
- 1 Iron Plate Lock retaining part of lock mechanism on back (cf. Hume 1969:248; specimen # ?) 18th Century?
- 1 Iron Hoe Blade (probable 19th century)
- 1 Flat Iron
- Miscellaneous flat iron - 1 bag
- 1 Flat Iron fragment with square hole (horse furniture ?)
- 2 Large Spikes
- 1 Semi-Round "Wedge" with beveled end

Appendix G Continued.

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Site Description

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- 1 Pewter fragment (curved; reworked spoon blade ?)
- 1 Type 9 Button (Hume 1969:91) with circular pattern
- 1 Iron swivel strap (rifle ?)
- Nails (both wrought and cut ?) - 1 bag
- 2 Wire fragments
- 2 Bottle Glass (green)
- 2 Bottle Glass (clear; 1 thick; 1 with chromatic patina)
- 1 Tan stone opaque fine-grained playing marble
- Animal Bone:
 - Animal Bone (2 bags) including catfish, deer, cow, pig, and turkey
- Carbonized Plant Remains:
 - 1 Carbonized Corn Cob fragment
- Miscellaneous:
 - 2 Fired Clay fragments
 - 2 Mussel shells (unmodified)

Saxapahaw 36 (Barnard Collection)

- Aboriginal Ceramics:
 - 66 Aboriginal Sherds (computer-coded). All net-impressed except one coarse fabric-marked
- Lithics: Barnard said that some of the Archaic points in his collection were from adjacent sites and removed them prior to this analysis.
 - 1 Retouched Flake
 - 2 Caraway-like preforms
 - 2 Caraway-like projectile points
 - 7 Hillsborough-like projectile points
 - 4 Unidentifiable Woodland triangular point fragments
 - 1 Savannah River projectile point
- Shell:
 - 5 Fresh-water Periwinkle shells
- Animal Bone:
 - 4 Turtle Shell
 - 7 Deer Bones
 - 1 Bear Scapula
- Human Bone:
 - 1 Thoracic vertebra (about T10); very fresh, unweathered. Lower ventral portion of centrum clipped by plow or shovel. Virtually no lipping, but definitely mature individual ca. 30 yrs. old. Transverse processes eroded or broken at ends.

31Am164 (RLA-Am143):Steve Woods Collection:

- Aboriginal Ceramics: Ceramics not computer-coded.
 - 1 Fabric-Imprinted Sherd (crushed gneiss temper)

Appendix G Continued.

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Site	Description
	1 Fabric-Impressed Rimsherd (coarse crushed qtz temper)
	Lithics: Archaic projectile points also present in collection but not borrowed for analysis.
	17 Randolph projectile points
	1 Corner-Notched Biface (chalcedony)
	1 Biface (black & white silicate)
	Euroamerican Artifacts:
	1 Glass Bead (black wire-wound); 13 mm wide (across central hole, 11 mm long, and 3 mm diameter hole; late 18th/early 19th century ?
	Other Artifacts:
	1 Atempored sherd with concentric ring incisions/impressions (Colono ware ?)

=====

- 1 Bore diameters in 64th inch: 13 specimens at 4/64, 4 specimens at 5/64, and 1 specimen at 6/64. According to Binford (1978), these diameters yield a mean date of A.D. 1766 and a range (with one standard deviation) of A.D. 1743-1788. However, Harrington (1978:64) notes that: "... for comparable periods, many of the Dutch pipes had smaller stems and smaller stem holes than English pipes." Thus, given that one of the bowl fragments was from a Dutch Gouda pipe, and some of the stems may have also been Dutch, the earlier end of this range may be the more accurate date.

APPENDIX E

SITE PHOTOGRAPHS



Photo 1: View from the northeast corner of the parent property along Corinth Road, facing south.



Photo 2: View from the northeast corner of the subject property, facing southwest.



Photo 3: View of the dirt access road and existing culvert located in the northeastern portion of the subject property, facing east.



Photo 4: View of the woodlands and agricultural field located along the eastern portion of the subject property.



Photo 5: View of the existing wetlands area located within the woodlands near the southeastern corner of the subject property.



Photo 6: View of the wetland area located inside the woodline.



Photo 7: View of drainage swell that extends through the central portion of the woodlands and drains to the eastern property boundary.



Photo 8: View of the wetland area located in the southeastern corner of the subject property.



Photo 9: View of wetland area located in the southeastern corner of the subject property.



Photo 10: View of the hydric soils located in these wetland areas.



Photo 11: View of across the central portion of the subject property facing north.



Photo 12: View near the woodline located in the northwestern corner of the subject property, facing south.



Photo 13: View of the wetland area located inside the woodland in the northwestern portion of the subject property.



Photo 14: View from inside the woodland area in the northwestern portion of the subject property.



Photo 15: View of the drainage way located in the woodlands.



Photo 16: View of the hydric soils located in the northwestern portion of the subject property.

APPENDIX F

PROPOSED DEVELOPMENT PLAN

PEC – Moncure Farm, LLC – Chatham County
3905 Corinth Rd, Moncure NC 27559

Up to 45 acre site
Parcel #5767

3 Phase Distribution available at multiple
points



U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

COPY

Action Id. SAW-2012-00656 County: Chatham U.S.G.S. Quad: NC-MONCURE

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner: Ruth Jones

Ruth Jones

Address: 3912 Corinth Road
Moncure, NC 27559

Agent: ECS Carolinas, LLP

Ryan Conchilla

Address: 9001 Glenwood Avenue
Raleigh, NC 27617-7505

Property description: Property is located at 3905 Corinth Road, Moncure, Chatham County. Site evaluated is a portion of a larger tract, identified as PIN: 5767.

Size (acres): 45

Nearest Waterway: Cape Fear

USGS HUC: 3030004

Location description: see above

Nearest Town: Moncure

River Basin: Cape Fear

Coordinates: Latitude: 35.56732 Longitude: -79.033179

Indicate Which of the Following Apply:

A. Preliminary Determination

- ☐ Based on preliminary information, there may be wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

B. Approved Determination

- ☐ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- ☒ There are waters of the U.S. including wetlands on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

☒ The waters of the U.S. including wetlands on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The waters of the U.S. including wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- ☐ There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Morehead City, NC, at (252) 808-2808 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact Craig Brown at 919-554-4884 x35/Craig.J.Brown@usace.army.mil.

C. Basis for Determination: Use of the 1987 Wetland Delineation Manual and appropriate regional supplement. The wetlands exhibit the appropriate soils, hydrology and vegetation as outlined by the Manual. The onsite wetlands drain to the Cape Fear River, a TNW.

D. Remarks

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

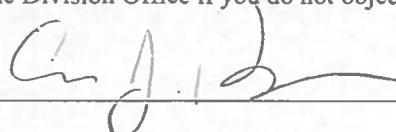
This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by July 17, 2012.

****It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.****

Corps Regulatory Official: Craig Brown



Date: May 17, 2012

Expiration Date: May 17, 2017

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the attached customer Satisfaction Survey or visit <http://per2.nwp.usace.army.mil/survey.html> to complete the survey online.

Copy furnished: Agent

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: Ruth Jones		File Number: SAW-2012-00656	Date: May 17, 2012
Attached is:		See Section below	
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
<input type="checkbox"/>	PERMIT DENIAL	C	
<input checked="" type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D	
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E	

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division,
Attn: Craig Brown
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587
Phone: (919) 554-4884 x35**

If you only have questions regarding the appeal process you may also contact:

**Mr. Jason Steele, Administrative Appeal Review Officer
CESAD-PDO
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Attn: Craig Brown, 69 Darlington Avenue, Wilmington, North Carolina 28403

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**