

MAYCOCK ENVIRONMENTAL

P.O. Box 27052, RALEIGH, NC 27611-7052
(919) 418-SOIL

Mr. Warren Paschal
General Shale
1600 Colon Road
Sanford, NC 27330

Subject: Proposed permit modification for the expansion of Brickhaven No. 2 mine, located southeast of Moncure in Chatham County, NC. Mine Permit 19-04.

Dear Mr. Paschal:

Per your request, I have reviewed the regulatory environmental issues associated with the proposed expansion of Brickhaven No. 2. On August 5, 2007, I conducted an on-site review of streams and wetlands within the proposed mining impact areas. On August 10, 2007, I reviewed the Natural Heritage Program databases for any potential adverse impacts to federally or state listed threatened or endangered plant or animal species. I have also reviewed GIS maps, USGS topographic maps and Chatham County Soil Survey maps for any relevant environmental information. I have included a description of my findings in this report. In summary, there do not appear to be any significant adverse environmental impacts associated with the proposed expansion of the existing mine.

The subject site is located on SR 1924 (Moncure Pit Road), approximately 0.7 miles east of intersection with SR 1916 (Corinth Road). The existing mine contains 384.1 acres of land currently permitted for mining by the North Carolina Mining Commission. Under this permit, up to 361.47 acres including off-site haul roads can be disturbed at one time within the property and permit boundaries. Aerial photographs show the extent of the mined areas in 1998 and in 2006.

The modification to the permit increases the area of permitted land by 264.55 acres and increases the land that can be disturbed by 229.42 acres. The modified permit proposes a total permitted area of 648.65 acres, with a maximum disturbed area of 590.89 acres for mining excavation. Four additional adjacent properties would be purchased, and these new areas must be evaluated for potential environmental impacts associated with proposed mining activities. They have been labeled A, B, C and D, for the sake of discussion.

The soils in this area are mapped as Peawick fine sandy loam, a thermic Aquic Hapludult, which is a deep moderately well drained soil formed from alluvium. Peawick soils are typically found in association with Riverview and Mattaponi soils, on level to gently sloping low to high stream terraces in the southern part of Chatham County near the Deep and Cape Fear Rivers. The map unit abuts the Creedmore-Green Level map unit to the north, soils, which are derived from Triassic Basin parent materials and include about 25 % of the Whitestore soil series.

As shown on the Moncure USGS topographic quadrangle, Gulf Creek drains into the Cape Fear River approximately two miles downstream of the subject site. The Division of Water Quality classification for Gulf Creek is Water Supply -IV, 18-5 (1) from its source to 0.2 miles above junction with Cape Fear River. It is classified as WS-IV Critical Area, 18-5 -(2) from 0.2 mile upstream of junction with Cape Fear River to the Cape Fear River (as of 8/3/92). The WS-IV classification designates Gulf Creek as being within a water supply watershed, and as having a Critical Area designation in the lower 0.2 mile of stream channel. The

subject site and the unnamed tributary on Site A are located over 0.5 miles upstream of Gulf Creek and nearly 2 miles upstream of the designated critical area. Distance and adequate stormwater management using approved best management practices on the subject site should effectively prevent any adverse impacts to water quality in Gulf Creek.

The four new properties to be added under the permit modification are described below:

Site A is 32.3 acres of wooded land located to the south – southwest of the existing mine property. Early successional vegetation and tree growth indicate that the site was planted in pines and then logged within the last five to ten years. A first order, intermittent stream channel is shown to begin in the lower half of Site A, and drains to the south to Gulf Creek. Due to drought conditions, no water was observed in the stream channel. No linear soil formation was mapped in association with the stream feature on Site A. According to the DWQ Stream Determination checklist and the USACE Stream Assessment form, this stream is less than intermittent and therefore is not considered jurisdictional under federal or state regulations.

Site B (51 acres) is located to the south of the existing mine property and is currently vegetated in early successional vegetation. It also appears to have been planted in pines and then logged within the last 10 years. The soils in this area are similar to those of Site A. No linear soil formation was mapped in association with the stream feature on Site A.

The marginally intermittent stream channel continues to drain across the southwest corner of the subject site from Site A. Due to drought conditions, no water was observed in the stream channel. According to the DWQ Stream Determination checklist and the USACE Stream Assessment form, this stream is less than intermittent and therefore is not considered jurisdictional under federal or state regulations.

Since the subject site and the unnamed tributary on Site B are located over 0.5 miles from Gulf Creek, adequate stormwater management using approved best management practices on the subject sites will effectively prevent any adverse impacts to water quality in Gulf Creek.

Site C is located due east of the existing mine sites, and consists of 109.17 wooded acres. A Progress Energy power line easement crosses the northwest corner of this site. No linear soil formations were mapped in association with the stream features on Site C. Three heads of small drainage ways were observed on this site, but no jurisdictional stream or wetland indicators were observed. One area (proposed basin J) did have manmade disturbance associated with the existing haul road that had wetland features and naturalized vegetation. Hydric soils were not observed at this location, so it would not be considered a jurisdictional wetland.

Site D (72 acres) is located to the east- north east of the existing mine site, and is also wooded with early successional vegetation. Site D is bisected diagonally from the northeast to the southwest by the Progress Energy power line easement, which is actively maintained by mowing. One upland stormwater conveyance (ephemeral/intermittent drainage feature) was observed draining to the southeast of this site. No wetlands were observed on this site, although some areas of compaction in the power line easement exhibited evidence of ponding.

Maps and descriptions of element occurrences (documented field observations of specific species) are included from the Natural Heritage Program database. Only three records were found within 0.5 mile of the subject site perimeter. Bachman's sparrow (*Aimophila aestivalis*) is listed as an element occurrence by NHP (5890), first observed in 1984 and as recently as 1993. Bachman's sparrow is a migratory songbird, which often inhabits open woods with a grassy, shrubby understory. It was observed in a large clear-cut area along SR 1924, about 1.5 miles south of the intersection with SR 1912. This is approximately 0.2 mile east of Site C. Bachman's sparrow is listed as a 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. Such a designation does not confer any procedural or substantive protections of the ESA on the candidate species. This listing is generally used to: (1) identify species potentially at risk; (2) increase public awareness about those species; (3) identify data deficiencies and uncertainties in species' status and threats; (4) stimulate cooperative research efforts to obtain the information necessary to evaluate species

status and threats; and (5) foster voluntary efforts to provide stewardship for the species before an ESA listing as threatened or endangered becomes warranted.

The element occurrence (3522) of a four-toed salamander (*Hemidactylium scutatum*) is located along SR 1924, 0.2 mile east of junction with SR 1916, 0.75-mile northeast of Brickhaven. The four toed salamander prefers acidic bogs and sphagnum wetlands, but will survive in isolated wetlands and spring seeps. The field observation by NHP was made in a seepage area near the road.

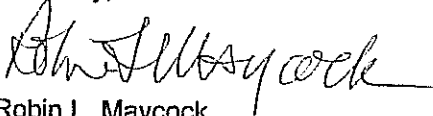
One element occurrence (17487) was a countywide record for Loggerhead shrike (*Lanius ludovicianus*). The accuracy of this report is considered to be very low by the NHP, and was recorded in the 1980s, with the most recent survey date in 1990. It is listed as a State Species of Concern. It has similar protection as a Federal Species of Concern, but only on the state level.

The proposed expansion to the east of the existing mine falls within the boundaries of a Natural Heritage Program Managed Area, as shown by blue shading on the enclosed maps. This area is apparently managed by the North Carolina Wildlife Resource Commission as game lands.

In summary, the proposed sites are primarily poorly drained flats without hydric soils, which were planted in pines and clear cut within the last ten years. No significant jurisdictional waters of the state of the U.S. (streams or wetland areas) were observed during field reconnaissance. No federally threatened or endangered plant or animal species are listed on or within 0.5 miles of the proposed expansion sites. Only one federal species of concern has been observed within 0.2 miles of the subject sites, the Bachman's sparrow, and that is a migratory songbird with a wide range of habitats. No regulatory issues are present that would require further action prior to expansion of the mine. With adequate stormwater management and appropriately applied best management practices, no adverse impacts to water quality downstream of the site are anticipated.

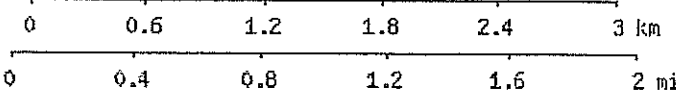
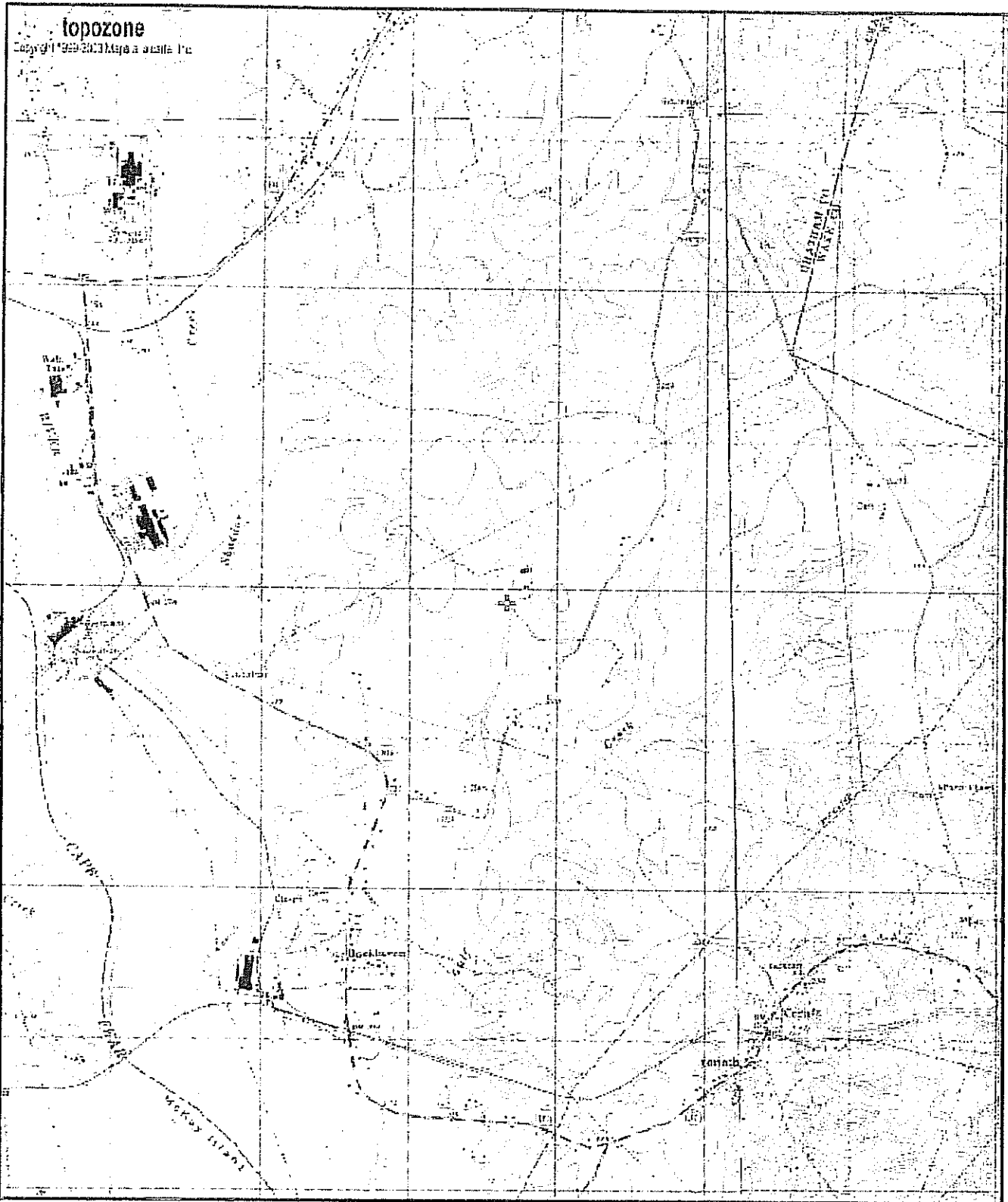
Please contact me if you have any questions about this report at (919) 418-7645 or by email at environmental_solutions@hotmail.com. I appreciate the opportunity to assist you with the evaluation of this project and I look forward to working with you again in the future.

Sincerely,



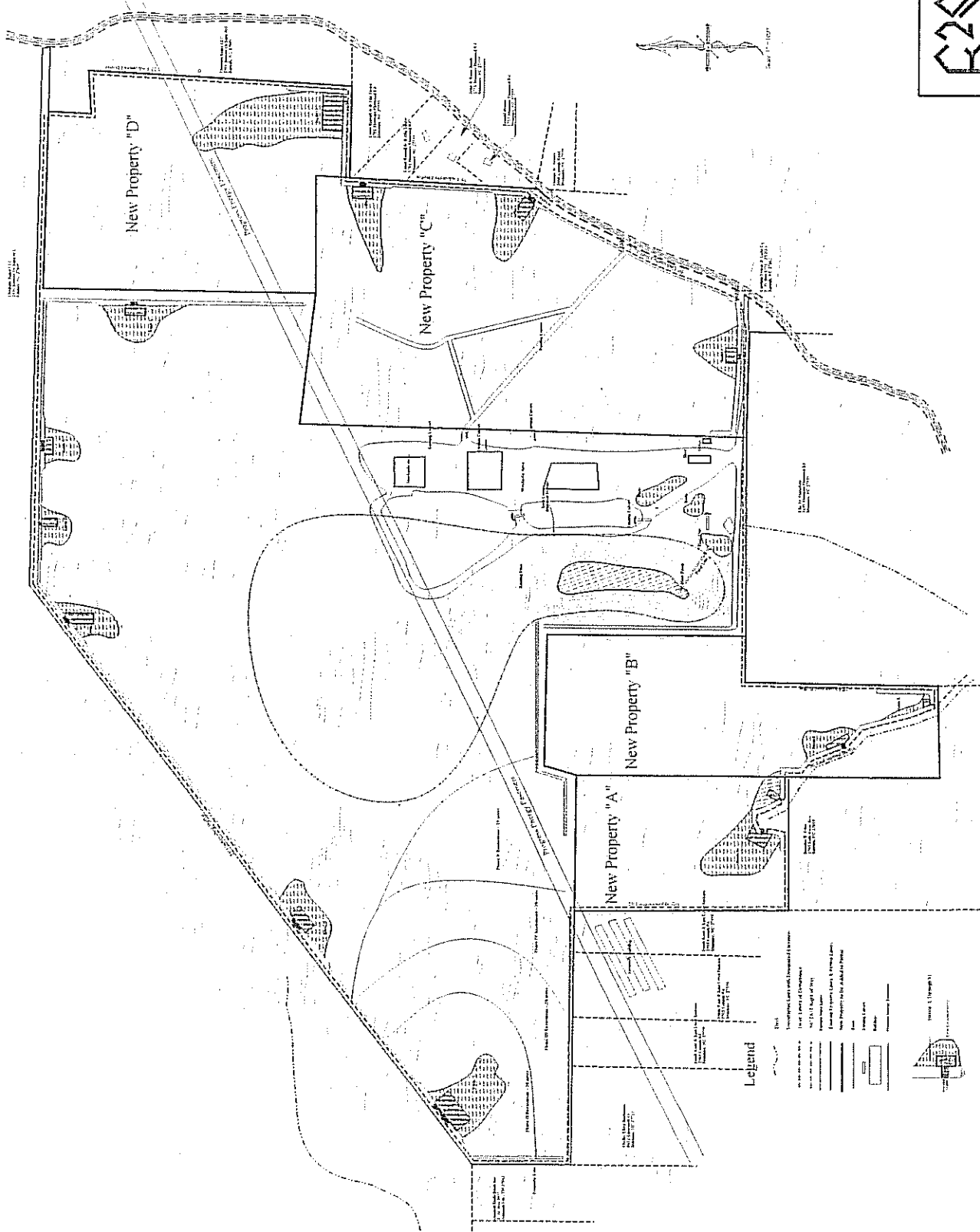
Robin L. Maycock
Licensed Soil Scientist #1205

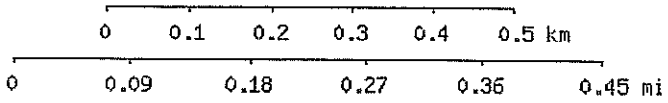
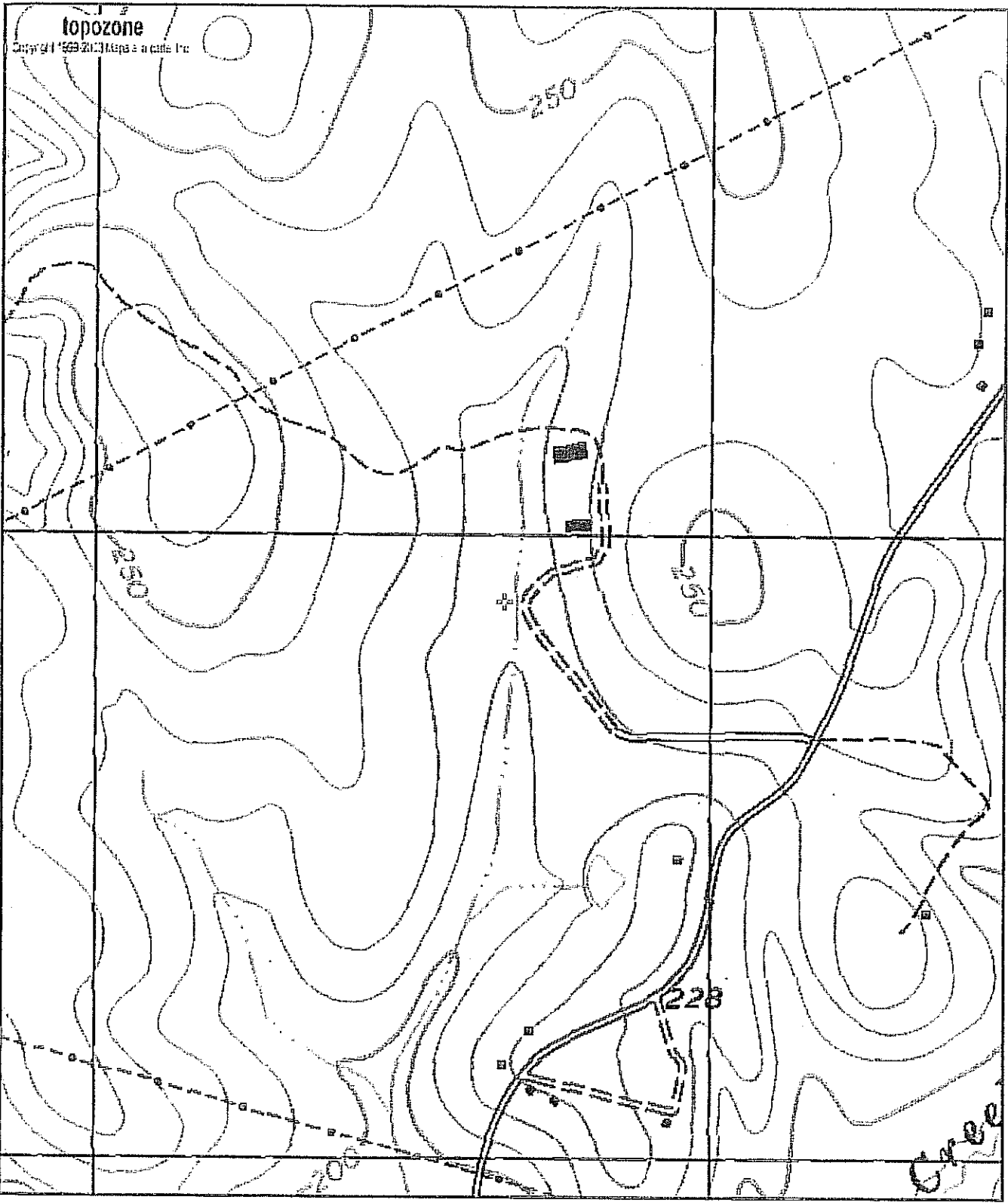
Cc: Mr. T. Patrick Shillington, PE, Engineering and Environmental Sciences



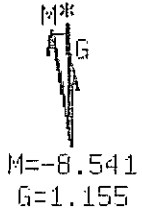
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 USGS Moncure (NC) Quadrangle
 Projection is UTM Zone 17 NAD83 Datum

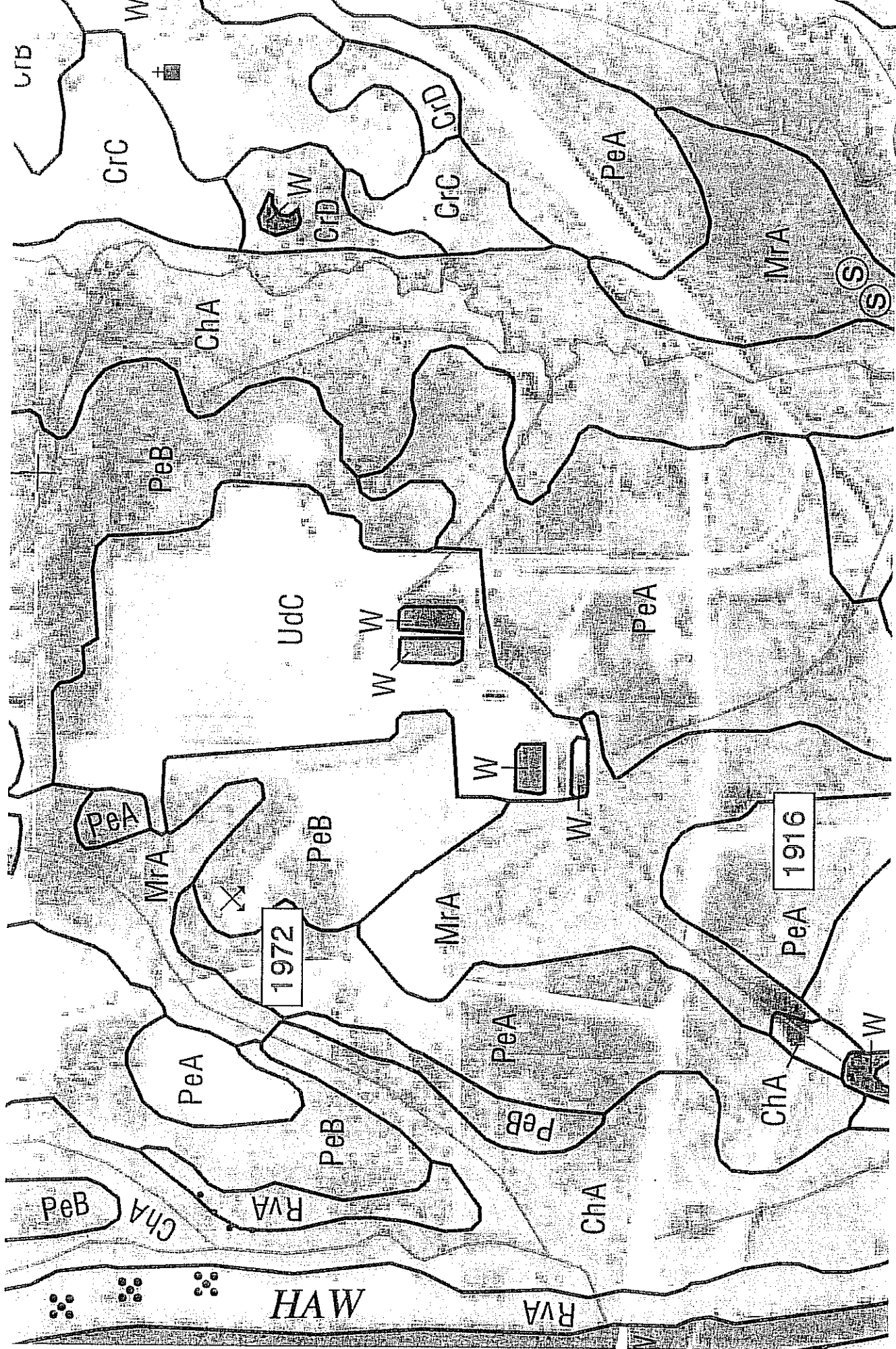






UTM 17 679655E 3940672N (NAD27)
 USGS Moncure (NC) Quadrangle
 Projection is UTM Zone 17 NAD83 Datum





1972

1916

MhA

RvA

PeB

PeA

PeB

RvA

MfA

PeA

PeB

MfA

W

PeA

PeB

ChA

ChA

PeA

W

PeA

W

W

W

Udc

PeB

ChA

CrC

CrD

CrC

CrD

PeA

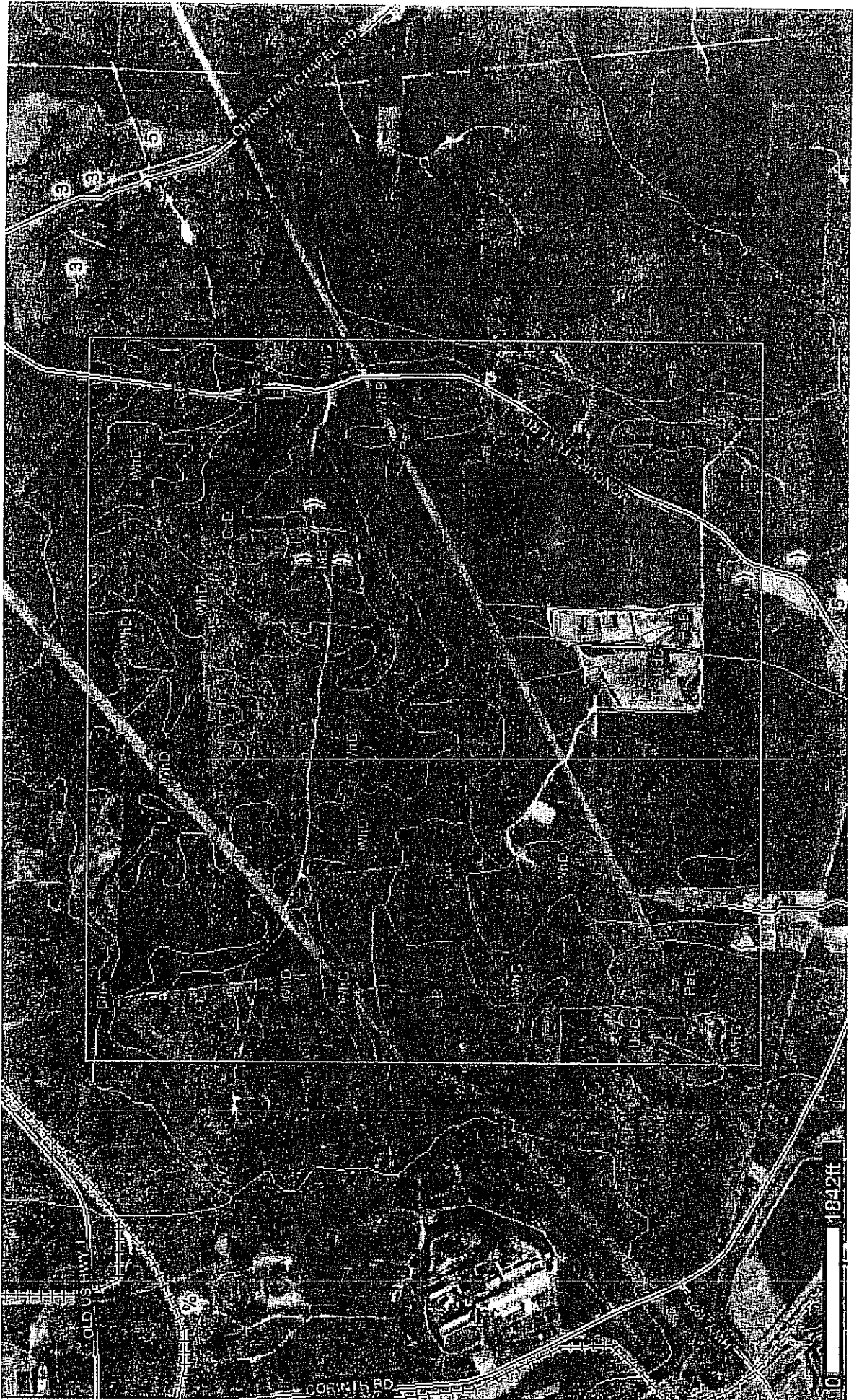
MfA

S

S

CrB

W



CHRISTIAN CHURCH

OLD US HWY 1

CORINTH RD

1842ft

Select Element Occurrence(s)

Found 2 Element Occurrence(s)

| Select Details | EO ID | Scientific Name | EO Nb | Common Name | Date Last Observed | EO Rank | EO Accuracy | State Protection Status | Federal Protection Status | State Rank | Global Rank |
|---|-------|----------------------|-------|-------------------|--------------------|---------|-------------|-------------------------|---------------------------|------------|-------------|
| <input type="checkbox"/> View | 5890 | Almophila aestivalls | 16 | Bachman's Sparrow | 1993-07-18 | E | Low | SC | FSC | S3B,S2N | G3 |
| <input type="checkbox"/> View | 17487 | Lanius ludovicianus | 15 | Loggerhead Shrike | 1990-PRE | E | Very Low | SC | | S3B,S3N | G4 |

[Select All](#) [Zoom to Record](#)

Element Occurrence Information

Element Occurrence ID 5890

Scientific Name *Aimophila aestivalis*

Element Occurrence Number 16

Common Name Bachman's Sparrow

Most Recent Survey Date 1993-07-18

Date First Observed 1984

Date Last Observed 1993-07-18

Element Occurrence Rank E - Verified extant (viability not assessed)

Directions ALONG SR 1924 ABOUT 1.5 MILES SOUTH OF INTERSECTION WITH SR 1912.

Element Occurrence Data ROGER MCNEILL NOTED 13 SINGING BIRDS IN SOUTHEASTERN CHATHAM COUNTY ON JULY 18, 1993; NOT KNOWN HOW MANY AT THIS SITE (E.O.). ONE SINGING BIRD IN JUNE AND JULY 1984, TWO SINGING ON MAY 5, 1985; NOTED BY HARRY LEGRAND.

Habitat Description LARGE CLEARCUT AREA.

Owner Name and Comments

Protection Comments

Management Comments

Additional Comments

Element Occurrence Source Point Information

Element Occurrence ID 3522
 Scientific Name Hemidactylum scutatum
 EO Number 54
 Common Name Four-toed Salamander
 Most Recent Survey Date 1993-03-28
 Date First Observed 1993-03-28
 Date Last Observed 1993-03-28
 EO Rank E - Verified extant (viability not assessed)
 Directions ALONG SR 1924, 0.2 ROAD MILE EAST OF JUNCTION WITH SR 1916, 0.75 MILE NORTHEAST OF BRICKHAVEN.
 EO Data ONE FOUND WITH EGGS IN SEEPAGE ALONG SR 1924, BY S.D. SMITH. COLLECTED ON MARCH 28, 1993. NCSM 32072.
 Habitat Description IN SEEPAGE NEAR ROAD
 Owner Name and Comments
 Protection Comments
 Management Comments
 Additional Comments
 Source Feature Mapping Comments
 Source Feature Digitizing Comments
 Source Feature Descriptor HDMS DEFAULT CONVERSION VALUES
 Source Feature Locator

Element Occurrence Information

Element Occurrence ID 17487
 Scientific Name Lanius ludovicianus
 Element Occurrence Number 15
 Common Name Loggerhead Shrike
 Most Recent Survey Date 1990-PRE
 Date First Observed 1980S
 Date Last Observed 1990-PRE

Element Occurrence Rank E - Verified extant (viability not assessed)

Directions CHATHAM COUNTY

Element Occurrence Data SPECIES HAS BEEN OBSERVED IN THIS COUNTY DURING THE NESTING SEASON, 1980-1990 (IRVIN 1990).

Habitat Description

Owner Name and Comments

Protection Comments

Management Comments

Additional Comments

Home

NC Natural Heritage Program Virtual Workroom

Locator Map

Legend

Element Occurrences
(features appear only when selected)

EO Source Points

EO Source Lines

EO Source Polygons

Submitted EOs

Significant Natural Heritage Areas

Managed Areas

Primary Roads

Secondary Roads

Municipalities

Rivers and Lakes (Lines)

Rivers and Lakes (Polygons)

Topo Images

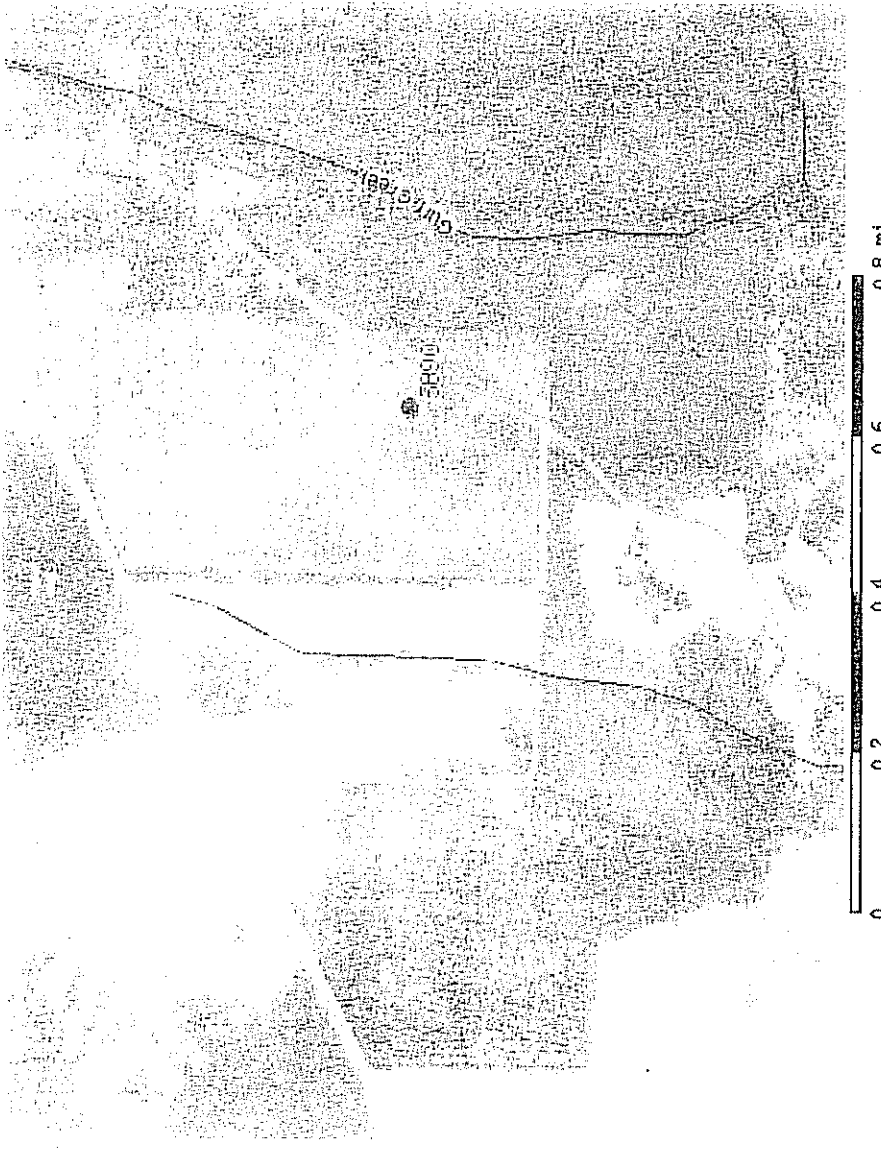
Aerial Images (2006)

Aerial Images (1998)

Topo Boundaries

County Boundaries

Redraw Map



Map Size: 600 x 450

Functions

Zoom In

Zoom Out

Pan

Identify

Select Features

Submit EO

Show Coordinal

Query Database

Clear Selection

Quick View

--Select Region--

Problems or Questions


GIS Data Sources: NCNHP, CGIA, NCDOT, USGS. NCNHP data updated on: 2007-Aug-10

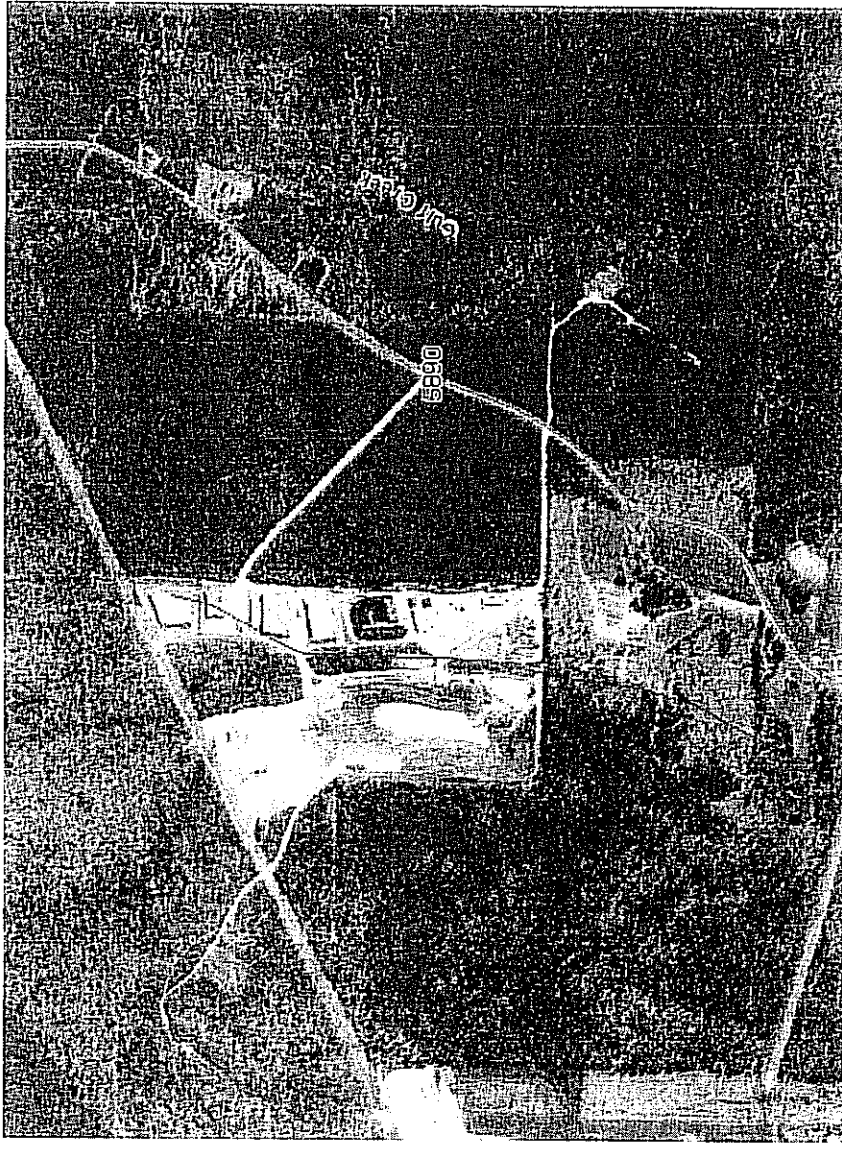
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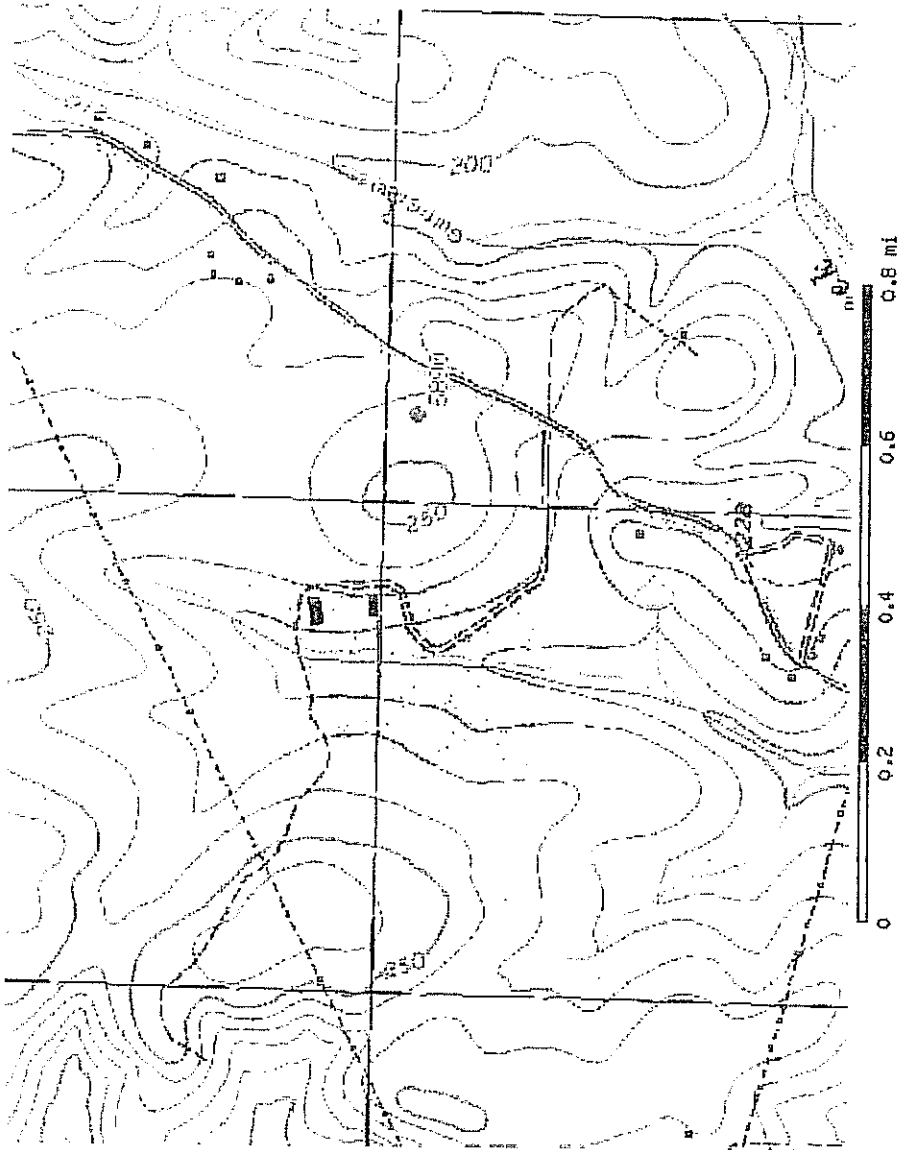
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[Problems or Question](#)

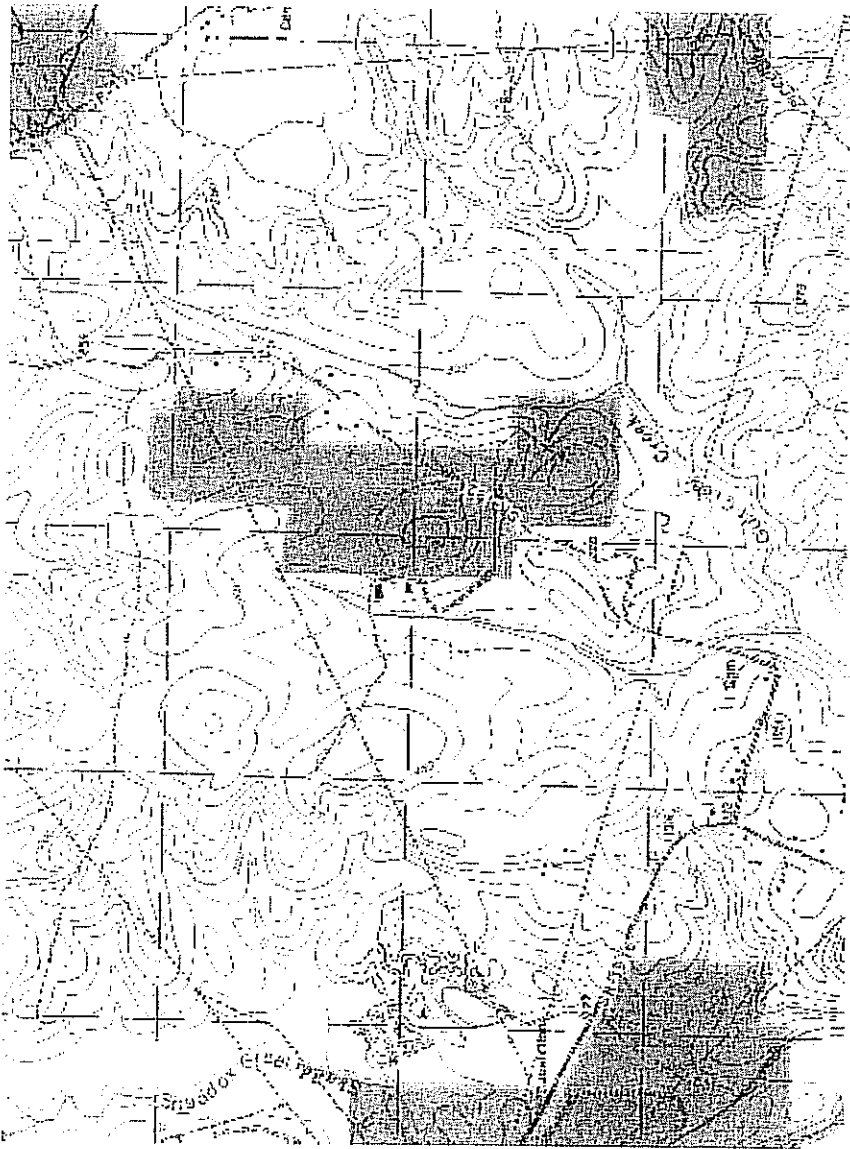
GIS Data Sources: NCNHP, CGIA, NCDOT, USGS. NCNHP data updated on: 2007-Aug-10

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