ORANGE COUNTY BOARD OF COMMISSIONERS
ORANGE COUNTY PLANNING BOARD

QUARTERLY PUBLIC HEARING AGENDA
May 26, 2015
7:00 P.M.
Richard Whitted Meeting Facility
300 West Tryon Street
Hillsborough, NC 27278

NOTE: Information is available on-line at the "Meeting Agendas" link at: http://www.orangecountync.gov/ and also in the Planning Department or the County Clerk's Office

NOTICE TO PEOPLE WITH IMPAIRED HEARING: Audio amplification equipment is available on request. If you need this assistance, please call the County Clerk's Office at (919) 245-2130.

A. OPENING REMARKS FROM THE CHAIR

B. PUBLIC CHARGE

The Board of Commissioners pledges to the residents of Orange County its respect. The Board asks its residents to conduct themselves in a respectful, courteous manner, both with the Board and with fellow residents. At any time should any member of the Board or any resident fail to observe this public charge, the Chair will ask the offending member to leave the meeting until that individual regains personal control. Should decorum fail to be restored, the Chair will recess the meeting until such time that a genuine commitment to this public charge is observed. All electronic devices such as cell phones, pagers, and computers should please be turned off or set to silent/vibrate.

C. PUBLIC HEARING ITEMS

1. **Application for a Class A Special Use Permit** – To review and receive sworn testimony on a Special Use Permit application seeking approval of a school redevelopment/master plan for Emerson Waldorf School's existing facility located at 6211 New Jericho Road within the Chapel Hill Township.
2. **Zoning Atlas Amendment (Conditional Zoning District)** – To review an application requesting the rezoning of 112 acres of property from Rural Residential (R-1), Upper Eno Protected Watershed Protection Overlay District to Master Planned Development Conditional Zoning (MPD-CZ) , Upper Eno Protected Watershed Protection Overlay District in order to allow for the development of Hart's Mill Village within the Cheeks Township.
3. **Application for a Class A Special Use Permit** – To review and receive sworn testimony on a Special Use Permit application seeking to develop a solar array/public utility station on a portion of a 35.8 acre parcel of property located at 1612 White Cross Road within the Bingham Township.

4. **Unified Development Ordinance (UDO) Text Amendment** - To review government-initiated amendments to the text of the UDO to clarify existing regulatory requirements regarding the development of stormwater features and incorporate a State recognized process allowing for the installation of additional impervious surface area.
5. **Unified Development Ordinance (UDO) Text Amendment** - To review government-initiated amendments to the text of the UDO to incorporate recent changes in State law with respect to the review and permitting of temporary health care structures.
6. **Unified Development Ordinance (UDO) Text Amendment** - To review government-initiated amendments to the text of the UDO to modify sign regulations within certain Activity Nodes.

D. ADJOURNMENT OF PUBLIC HEARING

ORANGE COUNTY
BOARD OF COMMISSIONERS AND
PLANNING BOARD
QUARTERLY PUBLIC HEARING
ACTION AGENDA ITEM ABSTRACT
Meeting Date: May 26, 2015

Action Agenda Item No. C-1

SUBJECT: Class A Special Use Permit – Emerson Waldorf School

DEPARTMENT: Planning and Inspections **PUBLIC HEARING: (Y/N)** Yes

ATTACHMENT(S):

1. Application Packet
2. Property and Vicinity Map
3. Staff Comments
4. Neighborhood Information Meeting Comments
5. Notification Materials and Certification

Under Separate Cover – Full Scaled Copy of Project Site Plan

INFORMATION CONTACT:

Patrick Mallett, Planner II (919) 245-2577
Michael D. Harvey, Planner III (919) 245-2597
Craig Benedict, Director (919) 245-2575

PURPOSE: To hold a quasi-judicial public hearing and receive sworn testimony and evidence on a Class A Special Use Permit application proposing the development/expansion of a private school facility in accordance with the provisions of the Unified Development Ordinance (UDO).

A quasi-judicial hearing means that testimony is sworn and evidence must be competent and substantial. Hearsay or unsubstantiated opinions are not sufficient testimony. Board members are also prohibited from engaging in conversations with anyone on the merits of project outside of the public hearing process. Such conversations, commonly referred to as '*ex-parte communications*' are prohibited.

BACKGROUND: On December 19, 2014 staff received an application proposing the development/redevelopment of the existing Emerson Waldorf school campus located at the intersection of New Jericho and Millhouse Roads. The request was originally slated for review at the February 19, 2015 Quarterly Public Hearing but was removed from the agenda to allow the applicant more time to address staff comments.

The basic facts of the application are as follows:

Applicant**:** Emerson Waldorf
6211 New Jericho Road
Chapel Hill, NC 27517

Property Owners: Same

Agent(s): Summit Engineering

504 Meadowland Drive
Hillsborough, NC 27278

Location: 6211 New Jericho Road (SR 1899) off of Millhouse Road (SR 1725). Refer to Attachment 2 for a vicinity map of the project.

Parcel Information:

a. **PIN(s)**: 9871- 64-7391; 9871-64-5632; 9871-65-8140; 9871-74-3098; and 9871-72-1935. Please refer to Attachment 2 for a copy of a vicinity map detailing the subject parcels.

b. **Size of parcel(s)**: The school is located on an approximately 54 acre campus on 5 separate parcels of property.

c. **Zoning of parcel(s)**: Rural Buffer (RB).

d. **Township**: Chapel Hill.

e. **Future Land Use Map Designation**: Rural Buffer.

f. **Growth Management System Designation**: Rural.

g. **Existing Conditions/Physical Features**: The properties have previously been developed to support the school operation as well as an existing daycare operation operating under an existing Class B Special Use Permit.

There is an existing mixture of woodland and open space throughout the campus.

The school currently operates under a 'de-facto' Class A Special Use Permit in accordance with Section 8.6 of the UDO.

h. **Roads**: Vehicular access to the parcel is off of New Jericho Road, a State maintained roadway.

Surrounding Land Uses:

a. **NORTH**: Single-family residential with RB zoning on lots ranging from 4.5 to 20 acres in size;

b. **SOUTH**: Millhouse Road; Property owned by the applicant, specifically an open field supporting athletic activities zoned RB;

c. **EAST:** Undeveloped property zoned RB; railroad tracks and Interstate 40; Property owned by the applicant supporting the septic facility for the school; and

d. **WEST:** Single-family residential zoned RB ranging from 4 to 10 acres in size; Spence's Farm camp/retreat center operating under a previously issued Class B Special Use Permit; the Heartwood single-family residential subdivision zoned PDH-R1 with lots ranging from 0.5 to 1.5 acres in size.

Proposal: As detailed within Attachment 1, the applicant is requesting to modify and expand the existing campus. Part of their request is to have the County approve a Master Plan detailing the construction and location of new buildings and support facilities over the next 15-years. The plans are envisioned to support an increase in student population to approximately 350 students by 2030. Currently the school has 259 students enrolled. If the request is approved, the school is expected to see an increase of 91 students over the next 15 years.

Vehicular access to the site is restricted to New Jericho Road via 3 existing driveway access points. During peak student drop-off and pick up times (i.e. between 7:00 to 9:00 a.m. and 2:00 to 4:00 p.m.) drivers will be restricted to accessing the site via the northern driveway to avoid congestion. School personal will be responsible for traffic management during these times.

Ordinance Requirements – Class A Special Use: The following standards, as detailed within Section 5.8.4 of the UDO, have been established to determine the appropriateness of the application:

I. Service Provision:

(1) Fire – identifies the primary and secondary responders and the source(s) of water.

The submitted site plan provides the following detail:

1. New Hope Volunteer Fire Department will provide fire services for the facility.
2. Orange County EMS will provide emergency medical services.
3. The site is served via a private well.
4. Mr. Jason Shepard, Orange County Fire Marshal, has no issue with the permit being approved. Mr. Shepard has suggested that a condition be imposed indicating that the Fire Marshal review and approve the building and site plans prior to earth disturbing activity.

***Staff Comment**:* This request will become a condition of approval.

(2) Police – identifies the primary and secondary responders. The application identifies that the Orange County Sheriff's office will be responsible for providing protective services to the proposed school.

(3) Rescue services – identifies the primary and secondary responders. The application identifies that Orange County EMS will be responsible for providing emergency services to the proposed school.

Staff Comment: Staff has been informed there is sufficient capacity within the Department to provide rescue services to the school.

(4) Water Supply **–** identification of public or private utility source and capacity of water supply or identification of water source through a water resource study.

***Staff Comment**:* The application indicates that the site is served via a private well.

(5) Wastewater Treatment Methods – provider and capacity of wastewater treatment source. The application indicates that an existing septic system will serve the facility and will be expanded, if necessary, to accommodate additional students.

***Staff Comment**:* The existing septic system is permitted through the State. If the systems needs to be expanded/modified the request will have to be reviewed and acted upon by the State.

(6) Solid Waste. A Solid Waste Management Plan will have to be prepared and reviewed by **Orange County Solid Waste**.

Staff Comment: Mr. Jeff Scouten of Orange County Solid Waste reviewed the plan and requested modifications. Please refer to Attachment 3 for Mr. Scouten's comments. Staff recommends that the plan be revised accordingly and approved by Solid Waste as a condition of approval.

II. Biological Inventory:

A Biological Inventory is required. The purpose of the inventory is to identify

> ' *habitat diversity, species diversity, species or special concern such as those designated as threatened or endangered, last known sighting, candidate species likely to be present which may warrant protection, specimen trees outstanding in size and/or species, and the status and source of the information complied in the inventory'*

Staff Comment*:* The Planning Department and the Department of Environment, Agriculture, Parks, and Recreation (DEAPR) staff has reviewed the proposal and determined this project will have no significant impact to animal/plant species on the property or existing habitat area warranting special consideration or protection based on information contained within the *Inventory of Natural Areas and Wildlife Habitats for Orange County North Carolina*.

The application includes a biological inventory completed by the Catena Group of Hillsborough NC indicating the project will not have a detrimental impact on the local environment.

III. Landscaping and Buffering:

The UDO requires the submission of a landscape plan outlining the locations of existing vegetation, areas proposed for preservation, as well materials for proposed planting areas.

Staff Comment*:* Staff has reviewed the landscaping and buffering plan and determined it is consistent with the requirements of the UDO.

IV. Stormwater Management/Drainage/Grading and Erosion Control:

The applicant has provided a grading and stormwater management plan for the project.

Staff Comment*:* Staff recommends a condition of approval be the grading and stormwater management plan will be evaluated and approved by Orange County Erosion Control prior to the commencement of earth disturbing activities.

V. Traffic Impact Analysis (TIA):

The purpose of the TIA is to identify any and all traffic improvements that will be necessary to support the development.

Staff Comment*:* The applicant has supplied the required plan, which indicates that external modifications to adjacent roadways will not be unnecessary to support the project. The applicant will still be required to adhere to any permitting conditions imposed by NCDOT. Staff recommends this become a condition of approval.

VI. Public Road Access:

The UDO requires the property have access from an existing public road and that such access be in compliance with any and all public road access management plans adopted by Orange County. Staff has determined the project complies.

VII. Additional Standards:

Per Section 5.8.4 (a) (3) (n) of the UDO the following additional standards are required:

i. For non-charter public schools, the minimum lot size shall be as required by the adopted School Construction Standards, as amended from time to time by the Board of County Commissioners, the Orange County Board of Education and the Chapel Hill-Carrboro Board of Education.

ii. For all schools, the lot size shall be adequate to accommodate all activities. The proposed methods to handle the maximum number of participants and patrons for any single event shall be provided while also adhering to safe vehicular and pedestrian circulation.

Staff Comment: Staff believes the lot(s) are of sufficient size to accommodate the proposed project based on the maximum number of anticipated students as detailed by the applicant.

iii. Negative visual impacts shall be minimized along any major roadway. Negative visual impacts include, but are not limited to, loading/unloading areas, delivery areas, air handling units (roof top and other), parking areas for machinery, and storage buildings. Appropriate screening methods shall be used to enhance the aesthetic value of a project.

Staff Comment: Staff is satisfied that the applicant can adhere to this requirement.

iv. Transportation improvements as deemed necessary by the Traffic Impact Analysis.

Staff Comment*:* As previously indicated, the Traffic Impact Analysis does not indicate such requirements are necessary.

v. Site Access:

(a) There shall be a minimum of two access points to the site.
(b) Access points shall separate student drop-off areas and visitor parking from bus traffic.
(c) If school buses are used, then at least one access shall be limited to school employee and bus use during normal school hours.
(d) All access points shall be located to provide maximum visibility and safety.
(e) No driveway shall be permitted in a location that will hinder or congest traffic movement on a public street.

Staff Comment*:* The applicant is showing the required access points to the property off of New Jericho Road. Internal circulation segregates student drop-off/pick-up traffic from visitor or staff traffic. As there is no proposed use of school buses, the

applicant is not required to provide a separate access point for school employee and bus use.

Analysis: As required under Section 2.7.4 of the UDO, the Planning Director is required to: '*cause an analysis to be made of the application'* and pass that analysis on to the reviewing body. In analyzing this request, the Planning Director offers the following:

1. The application has been deemed complete in accordance with the requirements of Section 2.7, 2.9, and Section 5.8.4 of the UDO.
2. Staff has determined that the property is of sufficient size to support the proposed expansion.
3. The proposal appears consistent with the various goals outlined within the Comprehensive Plan concerning development, including:
    a. Land Use Overarching Goal: *Coordination of the amount, location, pattern, and designation of future land uses, with availability of County services and facilities sufficient to meet the needs of Orange County's population and economy consistent with other Comprehensive Plan element goals and objectives.*
    b. Land Use Goal 2: *Land uses that are appropriate to on-site environmental conditions and features and that protect natural resources, cultural resources, and community character.*
    c. Land Use Goal 3: *A variety of land uses that are coordinated within a program and pattern that limits sprawl, preserves community and rural character, minimizes land use conflicts, supported by an efficient and balanced transportation system.*
4. Staff has determined that the proposed expansion project is consistent with the provisions and goals of the Joint Planning Land Use Plan and Joint Planning Agreement.

Neighborhood information meetings were held on January 8 and April 10, 2015. There were no concerns expressed over the project. Please refer to Attachment 4 for additional information.

This item has been submitted to the State Clearing House for review. Initial comments have not indicated a concern. A formal response is expected by May 28, 2015 and will be forwarded to BOCC and Planning Board members.

JPA Review: In accordance with the Joint Planning Area Agreement, this project was sent to the Town of Chapel Hill for review and comment on January 5, 2015, with a revised site plan being sent to them once it was received by the Department on April 15, 2015. Town staff provided comments on the proposal, which can be viewed in Attachment 3.

Notification Requirements: Per Sections 2.7.5 of the UDO, staff has caused a notice of this hearing to be published: '*as least twice in a newspaper of public circulation in the County*' for two (2) successive weeks: *' no less than ten (10) days nor more than twenty-five (25) days'* before the public hearing. The legal ad was published accordingly.

On May 15, 2015 staff posted a sign on the property providing a notice of the date, time, and location of the public hearing. Staff also sent written notice by certified mail to all adjacent property owners located within 500 feet of the subject property as required by Section 2.7.5. This notice was sent on May 8, 2015 (see Attachment 5).

FINANCIAL IMPACT: This request has been reviewed by various County departments who have determined that the approval or denial of the request would not create the need for additional funding for the provision of County services.

RECOMMENDATION(S): The Planning Director recommends that the Board:

1. Receive the application,
2. Conduct the Public Hearing and accept sworn testimony and evidence.
3. Refer the matter to the Planning Board with a request that a recommendation be returned to the County Board of Commissioners in time for the **October 6, 2015** BOCC regular meeting.
4. Adjourn the public hearing until **October 6, 2015** in order to receive and accept the Planning Board's recommendation and any submitted written comments.

Attachment 1

SUMMIT
DESIGN AND ENGINEERING SERVICES
919.732.3883 SUMMIT-ENGINEER.COM
504 Meadowland Drive, Hillsborough, NC 27278

Letter of Transmittal

TO Orange County Planning Department
131 West Margaret Lane
Hillsborough, NC 27278

ATTN Mr. Patrick R. Mallett

DATE 04/15/2014	PROJ. NO. 14-0108
RE: Emerson Waldorf School SUP Submittal #2	

WE ARE SENDING YOU:

■ Attached ☐ Under Separate Cover ☐ Transmitted Via _____
☐ Prints ☐ Reproducible ☐ Specifications ☐ Shop Drawings
☐ Copy of Letter ☐ Change Order ☐ _____

COPIES	DRAWING	DATE	DESCRIPTION
2	24 X 36		Plans
2	11x17		Plans
1			SUP Narrative
1			Response to Comments
1			Biological Inventory
1			Forest Stewardship Plan

TRANSMITTED:

☐ For Approval ☐ As Requested ☐ For Your Use ■ For Review and Comment

COMMENTS

COPY TO

SIGNATURE: Kelly Sue Woody
Kelly Sue Woody

SU14-
SU14-00019

Orange County Planning and Inspections Department

APPLICATION FOR CLASS A SPECIAL USE PERMIT

APPLICANT INFORMATION:

Date: 12/19/14

Applicant: THE WALDORF EDUCATIONAL ASSOCIATION OF NORTH CAROLINA

Phone: (919) 967-1858

Address: 6211 JERICHO ROAD
CHAPEL HILL, NC 27514

Cell Phone:

E-mail: SBENNETT@EMERSONWALDORF.ORG

Agent: SUMMIT DESIGN & ENGINEERING SERVICES

Phone: (919) 732-3883

Address: 504 MEADOWLAND DRIVE
HILLSBOROUGH, NC 27278

Cell Phone:

E-mail: TERRY.BOYLAN@SUMMITDE.NET

Address of subject property: 6211 JERICHO ROAD, CHAPEL HILL, NC 27514

Parcel Identification Number (PIN): SEE ATTACHED

Lot Size: SEE ATTACHED

Zoning Designation: RURAL BUFFER (RB

Watershed Overlay: N/A

Other Overlay Zoning Districts: N/A

Request (include detailed description of proposed land use): THE EMERSON WALDORF SCHOOL REQUESTS THIS SPECIAL USE PERMIT TO BE USED AS A GUIDE IN MANAGING THE GROWTH OF THE STUDENT POPULATION FROM 258 STUDENTS IN 2014 TO APPROXIMATELY 350 STUDENTS IN 2030. THE SPECIAL USE MASTERPLAN WILL INCLUDE PROPOSED LOCATIONS FOR NEW AND RELOCATED BUILDINGS AND ASSOCIATED INFRASTRUCTURE TO SUPPORT STUDENT POPULATION GROWTH. THE EXISTING LAND USE (SCHOOLS: ELEMENTARY, MIDDLE AND SECONDARY) WILL REMAIN THE SAME.

SUBMITTAL INFORMATION Per Section 2.7.3 of the Unified Development Ordinance (UDO), all Class A Special Use Permit applications are required to submit the following:

1) 26 copies of a site plan prepared by a registered North Carolina land surveyor, landscape architect, architect, or engineer containing all required information detailed within Section 2.5 of the UDO. This site plan will also need to contain all relevant information demonstrating that the proposed special use compliance with all general and specific standards governing the proposed special use as detailed within Article(s) 5 and 6 of the UDO.
2) A detailed narrative outlining the proposed land use including operational requirements, the location of facility, appearance, etc.,
3) Documentation establishing compliance with Section 5.3.2 inclusive of the UDO.
4) The names and addresses of the owners involved with the project,
5) A list of property owners within 500 feet of the subject parcel and the name and address of each property owner, as currently listed in the Orange County tax records,
6) Elevations of all structures proposed to be used in the development,
7) 26 copies of the Environmental Assessment and/or Environmental Impact Statement if required by Section 6.16 of the UDO,
8) Statement outlining the anticipated development schedule for the completion of the project,

**** NOTE: It should be remembered that the review of all special use permit applications/modifications are carried out in a *quasi-judicial* format meaning that decisions relating to the approval or denial of an application are based solely on the sworn testimony of all parties involved with the case, both those for and against an application, as well as the review of competent material and substantial evidence submitted during the public hearing.**

Further the applicant has the burden of establishing, by the submission of competent material and substantial evidence, the existence of facts and conditions that demonstrate the projects compliance with the various requirements and standards detailed within the Unified Development Ordinance. **

I (we), the undersigned, have been made aware of the process for the review and action associated with a Class A Special Use Permit application and understand that only completed applications, containing all information required by the Orange County UDO shall be reviewed and acted upon by the County.

I (we) understand that it shall be my (our) responsibility to present evidence to the County in the form of sworn testimony, exhibits, documents, models, plans, and the like support the request for approval of the Class A Special Use Permit.

Further I (we) understand that any assistance I (we) may receive from County staff in preparing this application in no way guarantees a favorable recommendation by staff on the merits of this proposal nor does it guarantee an approval of the request by the County.

S Bennett (Dir. of Admin) 12/18/14

Applicant Date:

Applicant Date:

SUMMIT
DESIGN AND ENGINEERING SERVICES
919.732.3883 SUMMIT-ENGINEER.COM
504 Meadowland Drive, Hillsborough, NC 27278

ATTACHMENT TO CLASS A SPECIAL USE PERMIT APPLICATION

Parcel ID #	Lot Size
9871-64-7391	22.16 ac
9871-64-5632	2.60 ac
9871-72-1935	22.12 ac
9871-74-3098	5.62 ac
9871-65-8140	2.77 ac

EMERSON WALDORF SCHOOL CAMPUS MASTER PLAN

SPECIAL USE PERMIT NARRATIVE

1. INTRODUCTION

The Emerson Waldorf School (EWS), established in Chapel Hill in 1984, is a Pre-K thru grade 12 private school located on a 54 acre campus at 6211 New Jericho Road at its intersection with Millhouse Road in Orange County, NC. The existing school campus currently contains approximately 22,971 sf of classroom and support facilities in twelve buildings with an existing student population of +/-260, supported by a staff of 53 FT/PT teachers and administrators. The school includes Early Childhood (Kindergarten and Nursery), Lower School (1st -8th grades), and High School (9th – 12th grades). A school owned and operated teaching farm is located across Millhouse Road from the main campus. All students are transported to and from campus by private vehicle. Bus transportation is not offered by the school except for off campus trips, which only occur a couple of times per year.

1.1 About Waldorf – The EWS provides an integrated Waldorf curriculum and environment which encourages and promotes independent thinking and social responsibility as well as academic and artistic excellence. The EWS is affiliated with the international association of Waldorf Schools, one of the largest school movements in the world. Waldorf education, founded by Rudolf Steiner in Germany in 1919, is dedicated to the effort to guide the spirit in the human being to discover the spirit in the universe.

1.2 Purpose and Intent – The EWS is requesting a Special Use Permit for an updated campus masterplan that will provide a road map by which the school can plan for the location of new buildings and support facilities, phased over a period of 15 years, and would support an increase in student population to approximately 350 students and 55 staff by 2030. All proposed improvements would be located on the existing 54 acre school campus. No increase in campus acreage is proposed.

The school's proposed master plan includes:

- a 1,776 sf building addition that would connect the existing east and west wings of the lower school building **(P1 on Sheet C-4)**
- a 1,650 sf 8th Grade Classroom Bldg **(P2 on Sheet C-4)**
- renovation of an existing 1,573 sf for Eurythmy (dance) **(P2-A on Sheet C-4)**
- three new building additions to the high school campus totaling approximately 6,644 sf **(P5-A,B,C,D on Sheet C-4)**
- a 5,220 sf addition to the Early Childhood Center **(P4 on Sheet C-4)**
- a 13,942 sf Gymnasium **(P7 on Sheet C-4)**
- a 12,593 sf Auditorium **(P8 on Sheet C-4)**
- a 1,364 sf renovation / addition to existing Shop Bldg for relocation of school administration **(P3 on Sheet C-4)**
- an 11,800 sf Arts Center **(P6 on Sheet C-4)**
- internal roadways, surface parking and pedestrian improvements
- potable water, septic system and stormwater infrastructure improvements as required to support the expanding facilities on campus

1.3 Parcel Identification Numbers and Zoning for Campus Parcels

PIN	ZONING	PIN	ZONING
9871 64 7391	PDHR1, RB	9871 64 5632	RB
9871 65 8140	RB	9871 74 3098	RB
9871 72 1935	RB		

1.4 Current Land Uses – the current campus is zoned RB (Rural Buffer) and PDHR1 (Planned Development) and the land use is Private School. Adjacent properties are zoned RB and PDHR1 and the current land uses are single family residential.

1.5 Permitted Uses – The existing school campus was permitted under a de-facto Class B Special Use Permit used for permitting schools before 2002. The existing daycare / kindergarten building was permitted in 2006. One of the goals of the Class A Special Use Permit that Emerson Waldorf is requesting is to fold previous Special Use Permits into the new Permit so that future phases of school expansion can be permitted under the same Special Use Permit and approved via staff level approval of site plans conforming to the approved Master Plan.

1.6 Compliance with Future Land Uses – This proposal conforms to the many goals and future visions for this area remaining in the "RURAL BUFFER" as set forth by Orange County's Comprehensive Plan. Through the school's managed growth and emphasis on respect for the environment and for their neighbors, the EWS will promote conformity to the County's vision for this area of the county.

1.7 Operation Schedule – The school operates 5 days a week on a traditional September to May school schedule. Summer camps are offered from mid-June through July from 8:30-3:30 daily M-F. Students are transported to and from campus by the individual families. No bus service is provided.

2. FINDINGS OF FACT (PERFORMANCE STANDARDS)

As this project requires the review and approval of a Class A Special Use Permit, there are three general standards contained within Section 5.3.2(A)(2) of the Unified Development Ordinance that the County must affirm in approving the project. Within this portion of the narrative, the applicant would like to offer a summary of the evidence we intend to produce, justifying an affirmative finding.

(1) The Use will maintain and promote the public, health, safety and general welfare.

Campus improvements associated with implementation of the various elements proposed in the master plan include:

Internal traffic pattern adjustments and parking improvements, based on NCDOT MTSA Traffic Management Unit recommendations will provide the ability to stack carpool traffic on campus roads during daily student drop off and pickup times. These improvements will also better separate on-campus automobile circulation from pedestrian circulation.

Fire and EMS rescue access to existing and proposed buildings on campus will be better articulated to improve response times and reduce conflict with on-campus traffic. New buildings will be sprinklered

where required by Building Code. Nearby fire points (ponds) will continue to provide adequate water for fire-fighting requirements associated with a larger campus.

Stormwater collection and treatment for improved areas of campus will meet current State requirements which are above those that were in place during the initial development. Low impact stormwater collection in disconnected systems will be promoted to allow more infiltration of stormwater run-off into the on-site soils.

(2) The Use will maintain or enhance the value of contiguous property (unless the Use is a public necessity, in which case the Use need not maintain or enhance the value of contiguous property).

Future campus expansion as part of this master plan is planned to continue to develop in a low impact, pedestrian focused manner as all previous development on the campus. The goals of promoting walkability and on campus student safety, as well as minimizing the impact on the wooded, residential setting of the existing campus and on the surrounding residential areas will remain the mission and the development trend of the EWS. Parking and internal traffic improvements will reduce potential conflict and congestion on surrounding roads. Due to the fact that the existing property use is not changing, it is highly anticipated that the values of contiguous properties will be maintained as their current values are based on the fact that a school is already in the proximity. An outside expert has been obtained to provide additional material and expert testimony on this issue.

(3) The location and character of the Use, if developed according to the plan submitted, will be in harmony with the area in which it is to be located and the Use is in compliance with the plan for the physical development of the County as embodied in these regulations or in the Comprehensive Plan, or portion thereof, adopted by the Board of County Commissioners.

The master plan improvements proposed to the campus are intended to be constructed in such a manner as to minimize visual, acoustic and aesthetic impacts on the surrounding area and to keep the expanding campus in harmony with the surrounding residential properties that it now strives to achieve. Again, the existing use of the property as a school minimizes, if not omits any potential concerns of the proposed use violating the harmony of the existing area.

3. SPECIFIC STANDARDS OF EVALUATION:

3.1.1 Harmonious and Efficient Organization

This master plan has been strategically prepared, to the greatest extent possible to promote harmonious and efficient organization in relation to existing topography, existing vegetation, the character of adjoining property, the type and size of existing, and proposed building(s) by incorporating like sized structures in a sprawling type organization so as to minimize disturbance to the natural environment. This allows EWS to preserve the topo and natural portions of the site to the greatest extent possible.

3.1.2 Preservation of Natural State

Based on a review of the various school parcels, Rich Shaw, the Orange County Land Conservation Manager, states; "There is no significant natural heritage area known to exist on or adjacent to the subject property. However, there is a stream that flows through the southernmost parcel (PIN X-1935)

that should be protected from any future development activities. The stream appears (from aerial photography) to have forested buffer on both sides and it would be important to maintain (and possibly enhance) those buffers to protect water quality and stream habitats. The northernmost Waldorf properties are in fairly close proximity to a forested riparian corridor along New Hope Creek, which is located about 0.4 mile north of the Waldorf parcel on Galilean Trail. That section of New Hope Creek is identified as a significant wildlife corridor that links other protected open space properties. Maintaining the forest cover on the northernmost Waldorf parcels (as much as feasible) will contribute to the current relatively forested and open space character of that neighborhood, which also provides habitat to plants and wildlife that utilize the New Hope Creek corridor".

Future site plans submitted subsequent to the Master plan will preserve desirable vegetation and other unique natural features in their natural state when practical and as required by the Orange County Unified Development Ordinance. A Biological Inventory has been conducted to better assess the types of environmentally sensitive areas existing on-site and there are no findings or major indications that a development in accordance with the Master Plan would adversely impact significant wildlife. An Environmental Protection Plan will be provided with each future site plan for the development and shall include the locations of all existing trees 12" dbh. and larger.

3.1.3 Cultural and Archeological Resources

Based on a review of the various school parcels, Peter Sandbeck, the Orange County Cultural Resources Coordinator, states; "There are no previously identified historic properties or resources located on the school parcels. There is a recorded historic farmstead, formally known as the Blackwood Farm (OR0432) but now better known as Spence's Farm, located immediately south of the subject property along Millhouse Road. The Blackwood Farm (PIN 9871634523) property consists of an early house (built c. 1825-50), plus several 19th century log and stone outbuildings, and thus represents a noteworthy agricultural complex from that period. Therefore, any proposed development activity should take into consideration its impact on this adjacent historic resource. Given the proximity of the school parcels to the early farmstead, care should be taken to locate, identify and protect any potential human burial sites or cemeteries. The current Cemetery Census map does not show any identified burials on the school parcels".

Again, the individual site plans will take into consideration any potential cultural and archeological resources affected by the respective development and accommodate the preservation of these areas as required.

3.1.4 Enhancement of Residential Privacy – Future site plans developed under this master plan will provide reasonable visual, lighting and acoustic privacy for all adjacent residential properties and public rights of way. Given the required 100' Vegetated buffer around much of the property, the Residential Privacy will be inherent and consistent with existing use/property as a school.

3.1.5 Emergency Access - Revised plans to address the MSTA comments have created additional drive widths, parking areas, etc. by which an emergency vehicles can now improve their response time to emergency conditions at the EWS. During the individual site plan approval, other site features shall be arranged to permit practical emergency vehicle access to all sides of existing and proposed buildings.

3.1.6 Pedestrian Circulation and Access to Public Ways - A pedestrian circulation system is proposed which is direct, efficient, and pleasant. All buildings and parking areas on the campus are connected by a sidewalk system. Pedestrian sidewalks will be hard surfaces and ADA compliant where required. Pedestrian sidewalks are largely separated from vehicular traffic by wooded or landscaped areas. Landscaping is integrated into the pedestrian system to provide shade (trees) and aesthetic beauty, and to reinforce separation from motorized vehicles. Crosswalks are strategically located to safely cross pedestrians at primary building access points and at internal intersections. Future crosswalks will be at walk level, with no ramps or step downs. Pedestrian-way lighting may be provided by post lights as well as with bollard lights in high use areas.

3.1.7 External and Internal Campus Traffic Circulation – A Traffic Impact Analysis (TIA) has been performed by SEPI Engineering & Construction Inc. as part of this Special Use Permit request. The TIA has been reviewed by the NCDOT District Engineer and by the NCDOT Municipal and School Transportation Assistance (MSTA) Traffic Management Unit. The recommendations of those reviews by NCDOT are included in the proposed Master plan's Traffic Plan (TP-1). Note: all students are transported to and from campus by private vehicle. Parents of students in grades 1 through 3 are required to park and walk their children into their classrooms. Older students are generally dropped off /picked-up at designated spots shown on the TP-1. Some high school students drive to school and park in designated areas shown on the TP-1 and others are dropped off. Bus transportation is not offered by the school.

3.1.8 Proposed Schedule for Campus Activities Outside of Regular School Operating Hours -

- **Arts Center** - Besides classroom and academic space, this building will house a performance space and theater suitable for evening events. These events would occur once or twice a month. Smaller evening gatherings (committees, etc.) would use the facility on a weekly basis.
- **Eurythmy** - Occasional (monthly) and small (50 person) evening performances.
- **Auditorium** - The auditorium would host larger performances and events perhaps once or twice monthly. The facility would also be available for occasional (once or twice a month) rental as availability dictates.
- **Gym** - The gym will be used primarily for after-school athletics practice during the weekdays. Once or twice a week the gym will be used for games with an occasional night time game as well. Night-time usage would end by 9 pm. Occasional (once or twice a month) daytime weekend usage will occur as well. The gym will also be used for PE class on days when the weather does not allow for outdoor class. Occasional (once or twice a month) the facility may be rented out for basketball or other activities. In all cases night time usage would end at 9 pm.
- **Playing Field** - The playing field is in use 3-5 afternoons per week in the Fall and Spring for sports practice. There are occasional pick-up soccer or ultimate frisbee games on the weekends and one or two weekend ultimate frisbee tournaments in the Spring. The field will not be lighted. The field is used during the school day for PE class.
- **EWS Biodynamic Garden** (South of Playing Field) - This property is currently used for the farming and gardening curriculum. Activities here include daily harvesting, weeding, gardening and similar activities. Classes are also taught here during the school day and on occasional weekend days.

- **Offsite Parking is neither needed nor anticipated for future parking needs at activities beyond normal school hours due to parking revisions around the existing facility and proposed conditions. All required parking for these events is expeted tor remain on-site. Parking Counts/ Expectations are:**

  Auditorium 300 seats - 75 spaces vicinity of building.

  Arts Center 150 seats - 38 spaces vicinity of building.

  Concurrent events are not anticipated.

3.1.9 **Sanitary Sewer / Septic System** - NCDENR Division of Water Quality has issued and periodically updated Permit No. WQ0004508 for the continued operation of a 3,750 gpd wastewater collection, treatment and 77,850 sf surface irrigation disposal site on campus across New Jericho Road. The wastewater system includes individual septic tanks at each existing building. As new buildings are added in future phases of the master plan, the existing permit shall be updated to include additional waste flows. Additional septic field capacity may be required as the capacity of the existing surface irrigation disposal site is reached. The existing permit is in effect until June 30, 2015 and must be renewed by the school.

As each future building in the master plan undergoes construction plan review, NCDENR will review the adequacy of the existing septic system to serve that building and will revise/update the permit on file with NCDENR accordingly to include the sewer service load that the building will add to the existing septic system.

3.1.10 **Potable Water** - NCDENR Division of Water Quality issued and has periodically updated Water System Permit No. NC0368470 for the continued operation of a 23 gallon per minute (16,500 gpd) well on the west side of the Emerson Waldorf campus. This well replaced 2 smaller capacity wells on campus and so is labeled "Well No. 3" on the Water System Permit. In addition to the well, constructed in 2001, the permit lists a 3000 gallon hydro-pneumatic tank, a hypochlorite feed system for lead and copper control, a sodium hydroxide feed for PH control, 1105 lf of 2" waterline, 178 lf of 1" waterline and 139 lf of ¾" waterline to serve the needs of the existing buildings on campus.

The Permit references an engineer's report from Diehl and Phillips Engineers, Cary, NC, dated July 5, 2001 that contains the following water use projections (based on 10 gpd per students /staff - without showers or cafeteria):

5 yr – 260 students / staff growth (2006) – 2600 gpd requirement

10 yr – 300 students/ staff growth (2011) – 3000 gpd requirement

15 yr – 300 students / staff growth (2016) – 3000 gpd requirement

20 yr – 300 students / staff growth (2021) – 3000 gpd requirement

The school's current master plan for growth to 2030 includes 350 students and 50 staff for a potable water requirement of 4000 gpd – well below the current well capacity of 16,500 gpd.

As each future building in the master plan undergoes construction plan review, NCDENR will review the adequacy of the existing well system to serve that building and will revise/update the permit on file with

NCDENR accordingly to include the water service load that the building will add to the existing well system.

3.1.11 **Fire Protection** - per a meeting with Jason Shepherd, the Orange County Fire Marshall, and follow-up correspondence with Chief Mike Tapp of the New Hope Fire Department, there is currently appropriate water supplies via utilizing nearby water points at ponds located on Blackwood Mountain Road and at Cornerstone Drive to accommodate fire response requirements for the existing school campus. As the school develops, there is no guarantee that additional supply and capacity needs will not require supplemental water supply from a municipal sources. This requirement and subsequent design of utilities (if necessary) will be provided at the individual site plan approval process.

3.1.12 **Police/EMS** – The school is currently served by, and will continue to be served by, the Orange County Sheriff's Department and Orange County EMS.

3.1.13 **Solid Waste** - Existing collection of garbage and recyclables generated by the school is currently handled by private contractor. The school composts organic wastes where practicable. Waste areas have been shown on the revised plans.

3.1.14 **Storm Water Control** – It is anticipated that the respective review departments associated with Stormwater Control will request site specific treatment options, locations, that will be tracked on an overall map so as to ensure that all disturbances and impervious areas are adequately tracked and treated. Protective measures will ensure that collection and treatment of storm water runoff created or altered by future phases will not adversely affect the campus or neighboring properties or public storm drainage systems. Provisions will be made for construction of stormwater collection measures (SCM) including low impact design, grading, gutters, ditches, piping and the use of disconnected impervious surfaces to maximize stormwater infiltration on site as well as direct storm water to on-site SCMs. Surface water on all paved areas will be collected at intervals that do not obstruct vehicular or pedestrian traffic.

3.1.15 **Erosion Control** - It is understood that land clearing and disturbance in excess of 20,000 sf associated with future buildings or site improvements cannot commence without a formal erosion and sedimentation control plan reviewed and approved by the County. All future construction will be thoughtfully planned, whether subject to County review or not, so as to preserve existing vegetation and land forms to the greatest extent possible.

3.1.16 **Exterior Lighting** – Due to the specificity required to produce lighting plans, the applicant would like to commit to at a minimum meeting the Orange County UDO standards for such lighting. The applicant would respectfully request that the county staff assess the need for lighting on a site by site basis upon the individual submittals of all proposed future buildings. Lighting will be pedestrian scale along walkways as previously noted. Fixture design will be complementary to building architecture and will feature sustainable finishes to the greatest extent possible. The school does not anticipate providing ball field lighting for the existing play field across Millhouse Road from the main campus.

3.1.17 Protection of Property Values - Elements of future phases of construction shall be arranged to have minimum negative impact on values of adjoining property and other on-site uses. The organization of campus buildings and the orientation of the campus on site are designed to minimize unnecessary disturbance of natural areas, concentrate high activity areas into the center of the property, and maximize natural buffers adjacent to surrounding properties. This proposed master plan is not anticipated to negatively impact the adjacent lot values since the actual "use" of the property will not be changing.

3.1.18 Neighborhood Meetings

A neighborhood meeting was held on January 6, 2015 at the Orange County Planning Department. All neighbors within 500 l.f. of the school property were notified of the meeting by certified mail. A subsequent meeting was held on April 10, 2015 @ 12:00 p.m. at the same location. All notification standards were provided as required by Orange County's UDO.

4. CONCLUSION

Development and operation of the EWS Campus will be conducted in strict accordance with all applicable requirements of the Orange County Zoning Ordinance and applicable Master Plan Conditions of Approval as amended for the school campus. This Special Use Permit application and associated plans are compiled and submitted in order to convey the owner's intent. Timely review and processing of the information is appreciated and further input and guidance from staff and the respective boards is welcomed.

EXHIBIT – A

BIOLOGICAL INVENTORY

Biological Inventory

Emerson Waldorf School
Orange County, North Carolina

Prepared for:

Emerson Waldorf School
6211 Jericho Road
Chapel Hill, NC 27514

Prepared by:

The Catena Group

The Catena Group
410B Millstone Drive
Hillsborough, NC 27278
Tel: (919) 732-1300 Fax: (919) 732-1303

March 2015

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1.0 INTRODUCTION

The Catena Group (Catena) was contracted by Charles Viles, Chair of the Emerson Waldorf School (EWS) Campus Planning Committee, to conduct a biological inventory as part of a Special Use Permit (SUP) application for proposed new development at the EWS campus located at 6211 Jericho Road, Chapel Hill, North Carolina (Figure 1). The study site is comprised of five parcels (PINs 987-172-1935, 987-165-8140, 987-164-5632, 987-164-7391, and 987-174-3098), totaling approximately 49 acres.

The purpose of this investigation is to conduct a basic flora and fauna inventory, with an emphasis on protected species and rare or significant natural habitats. This inventory provides a qualitative reference, or baseline, on general abundance, distribution, and habitat association for flora and fauna species occurring on the property.

2.0 ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO)

As outlined in the January 13, 2015, Orange County Planning Department review of the EWS Master Plan and Class A Special Use Permit Materials, the follow items were requested:

> "Per Section 5.8.4 (A (1) (f) of the UDO you are required to provide a biological inventory for the properties subject to the permit application. This inventory has to be prepared in accordance with the standards detailed in Section 5.17.6 (A) (2) (b) of the UDO and is required to identify the following:
>
> 1. Habitat diversity,
> 2. Species diversity,
> 3. Species of special concern such as those designated as threatened or endangered,
> 4. Last known sighting,
> 5. Candidate species likely to be present which may warrant protection,
> 6. Specimen trees outstanding in size and/or species, and
> 7. The status and source of the information compiled in the inventory.
>
> The biological inventory is also required to be accompanied by an analysis describing the following:
>
> 1. Habitat integrity;
> 2. Relationships between habitats and to ecological communities offsite;
> 3. Any existing threats to flora and fauna; and
> 4. Potential for habitat enhancement."

3.0 METHODOLOGY

3.1. Pre-Field Investigation Database Search

Prior to conducting field surveys, Catena reviewed any available survey information for the area. The North Carolina Natural Heritage Program (NCNHP) systematic inventory (database) of rare

plant and animal species, the North Carolina Wildlife Resources Commission (NCWRC), and the US Fish and Wildlife Service (USFWS) list of threatened and endangered species for Orange County were consulted. Appendix A contains a list of threatened, endangered and rare species known in Orange County.

3.2. Field Investigation

Catena conducted the field survey on March 11, 2015, under warm and partly sunny conditions. Floral (plant) communities, rare species habitat, and significant fauna (wildlife) observations were identified and notable features were surveyed using a hand-held GPS unit (sub-meter accuracy).

3.2.1. Floral Communities

Plant surveys were conducted during the field investigation. Natural communities follow those described by Michael Schafale in the *Guide to the Natural Communities of North Carolina, Fourth Approximation* (2012). A natural community is defined as, "A distinct and reoccurring assemblage of populations of plants, animals, bacteria, and fungi naturally associated with each other and their physical environment." (Schafale 2012). Plant community types significantly altered by human disturbance typically do not fall into a natural classification, and are thus categorized in general terms (i.e. shrub/scrub, maintained/disturbed, etc.). Specimen trees or other significant floral features encountered were noted and mapped.

3.2.2. Faunal Communities

Visual faunal surveys were conducted during the field investigation. This cursory effort identified the presence of habitats suitable for protected and rare species, and also included field identification of species encountered (visual observation of species, scat and/or tracks) to the highest taxonomic level as practicable in the allocated timeframe. Sampling results (faunal community) will be considered representative of the community/habitat type sampled. Important faunal locations as observed during the field investigation were noted and mapped.

4.0 RESULTS

This section describes species composition and relative proportions of both natural and disturbed vegetative communities within the project area. Dominant species within each community are noted with a "D". Faunal species typical of the plant community are provided and species observed during the field investigation are noted with an "*". Plant community mapping is displayed on Figure 2. Scientific names are included in Appendix B. Photographs are included in Appendix C.

4.1. Floral Communities and Associated Fauna

Four communities were identified within the study area: Dry-Mesic Oak-Hickory Forest-Piedmont Subtype, Piedmont Headwater Stream Forest-Typic Subtype, Piedmont Semipermanent Impoundment-Shrub Subtype, Mixed Pine Forest, and Maintained/Disturbed (Figure 2). A description of each community type and the fauna associated with it follows.

4.1.1. Dry-Mesic Oak-Hickory Forest-Piedmont Subtype (37.7% coverage)

The Dry-Mesic Oak-Hickory Forest community is found on the parcels located north of Millhouse Road and west of New Jericho Road (Figure 2). The parcel to the east of New Jericho Road is also used as the septic spray field for the EWS campus. Access was restricted to this area by NC Department of Environment and Natural Resources regulations (NCDENR). Based on surveys traversing the boundary of this parcel, it was included in this community. This community is typically dominated by various oak and hickory species along with varying amounts of pine, maple, and poplar. Soils are typically acidic and support acid tolerant species. Canopy species observed include American beech, black oak[D], loblolly pine[D], Eastern red-cedar, pignut hickory, post oak, red maple, scarlet oak, shortleaf pine, slippery elm, tulip poplar, Virginia pine[D], white ash, white oak[D], Southern red oak, sweetgum, and sycamore. Subcanopy/shrub species include American beech, American holly, black cherry, Blue Ridge blueberry, Callery pear, common persimmon, downy arrow–wood, eastern red-cedar, flowering dogwood, hillside blueberry, painted buckeye, possomhaw, red maple, slippery elm, sourwood, southern blackhaw, southern red oak, sugar maple, tulip poplar, virginia pine, white oak, sweetgum, sycamore, and winged elm. This layer also includes the invasive autumn olive, Chinese privet, and nandina. Herbaceous species observed in this community include Christmas fern, crane-fly orchid, poison ivy, rattlesnake plantain, rattlesnake weed, southern grape fern, and striped wintergreen. The invasive Japanese honeysuckle vine is also present in this community.

Faunal species expected to occur in the community are white-tailed deer*, raccoon, grey fox, and the eastern gray squirrel*. Bird species typical for this community type include yellow bellied sapsucker*, red bellied woodpecker*, downy woodpecker*, hairy woodpecker*, northern flicker*, Carolina chickadee*, northern cardinal, tufted titmouse*, yellow-rumped warbler*, northern mockingbird, and American robin*. Predator and scavenger birds typically include the red-shouldered hawks* and turkey and black vultures, respectively. Marbled salamander, redback salamander, red-spotted newt, spotted salamander, white-spotted slimy salamander, eastern box turtle, eastern fence lizard, eastern garter snake, racer, rat snake, ringneck snake, and worm snake are also expected to occur in the community.

While conducting the field survey, Keith Bartholomew of EWS, indicated the location of a ephemeral seep located near the western edge of this community. During the field assessment the seep was dry. Seeps offer unique habitat for many faunal species including frogs and salamanders. Species that could utilize this transient habitat include American toad, Fowlers toad, northern cricket frog, spring peeper, southern two-lined salamander, and three-lined salamander.

4.1.2. Piedmont Headwater Stream Forest-Typic Subtype (7.6% coverage)

The Piedmont Headwater Stream Forest community is found on the southern parcels located south of Millhouse Road and east of New Jericho Road (Figure 2). This community is typically found along floodplains of small Piedmont streams. These forested areas are only moderately impacted by flooding and alluvial processes, resulting in vegetation that includes a majority of upland species with a few floodplain species. Soils within this community are typically course textured. Canopy species observed include black willow, eastern red-cedar, loblolly pine[D], sweetgum, and willow oak. Subcanopy/shrub species include American elderberry, American persimmon, black willow, eastern red-cedar, Pennsylvania blackberry, river birch, strawberry bush, sugarberry, wax myrtle, and yaupon. The invasive Chinese privet, Japanese barberry, and Multiflora rose are also present. Herbaceous species include American pokeweed, common bottlebrush grass, common rush, gill-over-the-ground, sedge, and tall fescue. The invasive Japanese stiltgrass is prominent throughout this community. Vines observed include muscadine and whiteleaf catbriar in addition to the invasive English ivy, Japanese honeysuckle, and winter creeper. Mistletoe, a parasitic plant that only grows on the branches of deciduous trees, was also observed.

In the recent past, portions of this community were utilized by a plant nursery. Gingko, live oak, and golden rain tree were observed, which are remnants of this prior land use.

Faunal species expected to occur in the community are similar to the Dry Mesic Oak Hickory Forest which include white tailed deer*, raccoon, grey fox, and the eastern gray squirrel*. Bird species typical for this community type include yellow bellied sapsucker*, red bellied woodpecker*, downy woodpecker, hairy woodpecker*, northern flicker*, Carolina chickadee*, yellow-rumped warbler*, northern cardinal, tufted titmouse*, northern mockingbird, Carolina wren, and American robin*. Predator and scavenger birds typically include the red-shouldered hawks* and turkey and black vultures, respectively. American toad, Fowlers toad, northern cricket frog, spring peeper, upland chorus frog, marbled salamander, redback salamander, red-spotted newt, southern two-lined salamander, spotted salamander, three-lined salamander, white-spotted slimy salamander, eastern box turtle, eastern fence lizard, eastern garter snake, eastern ribbon snake, racer, rat snake, ringneck snake, and worm snake are also expected to occur in the community.

4.1.3. Piedmont Semipermanent Impoundment-Shrub Subtype (2.3% coverage)

The Piedmont Semipermanent Impoundment community is located on the parcel directly south of Millhouse Road at the location of an old farm pond. This community is composed of successional species typical of a breeched impoundment. Aerial photography from 2002 depicts a full pond within this community. Aerials from early 2004, depict a breeched impoundment and the area has since been undergoing succession. Black willow[D] is the dominant tree species dominating the western side of the community. Sycamore was observed along the community margins. The herbaceous layer was dominated by smartweed mixed with common rush and sedges.

Faunal species expected to use this community North American beaver, raccoon, and white tailed deer*. Bird species typically include yellow-rumped warbler*, tufted titmouse*, Carolina chickadee*, Northern cardinal, and great blue heron*. American toad, Fowlers toad, northern cricket frog, spring peeper, upland chorus frog, marbled salamander, redback salamander, red-spotted newt, southern two-lined salamander, spotted salamander, three-lined salamander, white-spotted slimy salamander, eastern box turtle, eastern fence lizard, eastern garter snake, eastern ribbon snake, racer, rat snake, ringneck snake, and worm snake are also expected to occur in the community.

4.1.4. Mixed Pine Forest (6.8% coverage)

The Mixed Pine Forest is located at the southern most end of the study area. The community contains a large area of downed, dead pine trees that were killed by *Ips* bark beetles according to the EWS Forestry Stewardship Plan developed in 2014. Remaining canopy species include a majority of loblolly pine[D] with a few green ash. Subcanopy/shrub species include Eastern red-cedar, mullet bush, and red maple. This layer also includes the invasive autumn olive and Chinese privet. The herbaceous layer was sparse but included azure bluet, common dandelion, dock, and purple henbit. Vines observed were Carolina jessamine and the invasive Japanese honeysuckle. Bradford pear and Burford holly were also observed. These non-native species are most likely escapees from the adjacent former plant nursery.

Faunal species expected to occur in the community are similar to the Dry Mesic Oak Hickory Forest which include white tailed deer*, raccoon, grey fox, and the eastern gray squirrel*. Bird species typical for this community type include yellow bellied sapsucker*, red bellied woodpecker*, downy woodpecker*, hairy woodpecker*, Northern flicker*, Carolina chickadee*, yellow-rumped warbler*, northern cardinal, tufted titmouse*, mockingbird, Carolina wren*, and American robin*. Predator and scavenger birds typically include the red-shouldered hawks* and turkey and black vultures, respectively. American toad, Fowlers toad, redback salamander, red-spotted newt, eastern box turtle, eastern fence lizard, eastern garter snake, racer, rat snake, ringneck snake, and worm snake are also expected to occur in the community.

4.1.5. Maintained/Disturbed (45.7% coverage)

Maintained/disturbed areas are found throughout the study area in places where the vegetation is periodically mowed, such as roadside shoulders, lawns, and landscaped areas around building and athletic courts. The vegetation in this community is comprised of low growing grasses and herbs, in addition to scattered, discontinuous, often non-native canopy and subcanopy/ shrub species. Canopy species observed include American beech, American sycamore, green ash, loblolly pine, post oak, red maple, tulip poplar, Virginia pine, and white oak. Subcanopy/ shrub species include abelia, azalea, black cherry, burning bush, crape-myrtle, eastern redbud, eastern red-cedar, fig, hemlock, inland American hornbeam, Japanese apricot, leatherleaf mahonia, leatherleaf viburnum, painted buckeye, and winged elm. This layer also includes the invasive autumn olive and thorny olive. Herbaceous plants observed included broomsedge along roadways and paths, Carolina horsenettle, crocus, daffodil, hellebore, lamb's ear, and poison ivy. In addition the invasive Chinese lespedeza and common chickweed were also observed. Vine species included clematis, common greenbriar, cross-vine, and the invasive Japanese

honeysuckle. The southern portion of the study area includes the EWS farm. Non-crop herbaceous species observed in the field area include Bermuda grass, daffodil, hairy bittercress, tall fescue, white clover, and wild garlic.

Faunal species expected to occur in the community are similar to the Dry Mesic Oak Hickory Forest which include white tailed deer*, raccoon, grey fox, and the eastern gray squirrel. Bird species typical for this community type include Carolina chickadee*, yellow-rumped warbler*, northern cardinal, Eastern bluebird, house finch, American goldfinch, tufted titmouse*, Northern mockingbird, Carolina wren*, and American robin*. Predator and scavenger birds typically include the red-tailed hawks*, American kestrel, turkey vulture, and black vulture. American toad, Fowlers toad, redback salamander, red-spotted newt, eastern box turtle, eastern fence lizard, eastern garter snake, racer, rat snake, ringneck snake, and worm snake are also expected to occur in the community.

4.2. Rare Species

Catena searched for Orange County listed protected species and/or habitat in the study area (Appendix A). No protected species or habitat was observed within the project area.

4.3. Significant Trees

Across the EWS campus a few exceptionally large trees were noted (Figure 2). The Dry-Mesic Oak-Hickory Forest community contained a very large White oak and Post Oak. The Piedmont Semipermanent Impoundment community contained multiple very large loblolly pines.

5.0 CONCLUSION

Disturbed communities (Mixed Pine Forest and Maintained/Disturbed) comprised the majority of the property (approximately 52.4% of the property). The remaining 47.6% is comprised of natural communities (Dry-Mesic Oak-Hickory Forest-Piedmont Subtype, Piedmont Headwater Stream Forest-Typic Subtype, and Piedmont Semipermanent Impoundment-Shrub Subtype). Plants and animals observed on this property are consistent with local communities. No protected species were observed within the property during the field investigation.

6.0 STANDARD OF CARE

The environmental services performed by Catena have been conducted with that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its industry practicing in the same locality under similar budget and time constraints. No other warranty, expressed or implied is made.

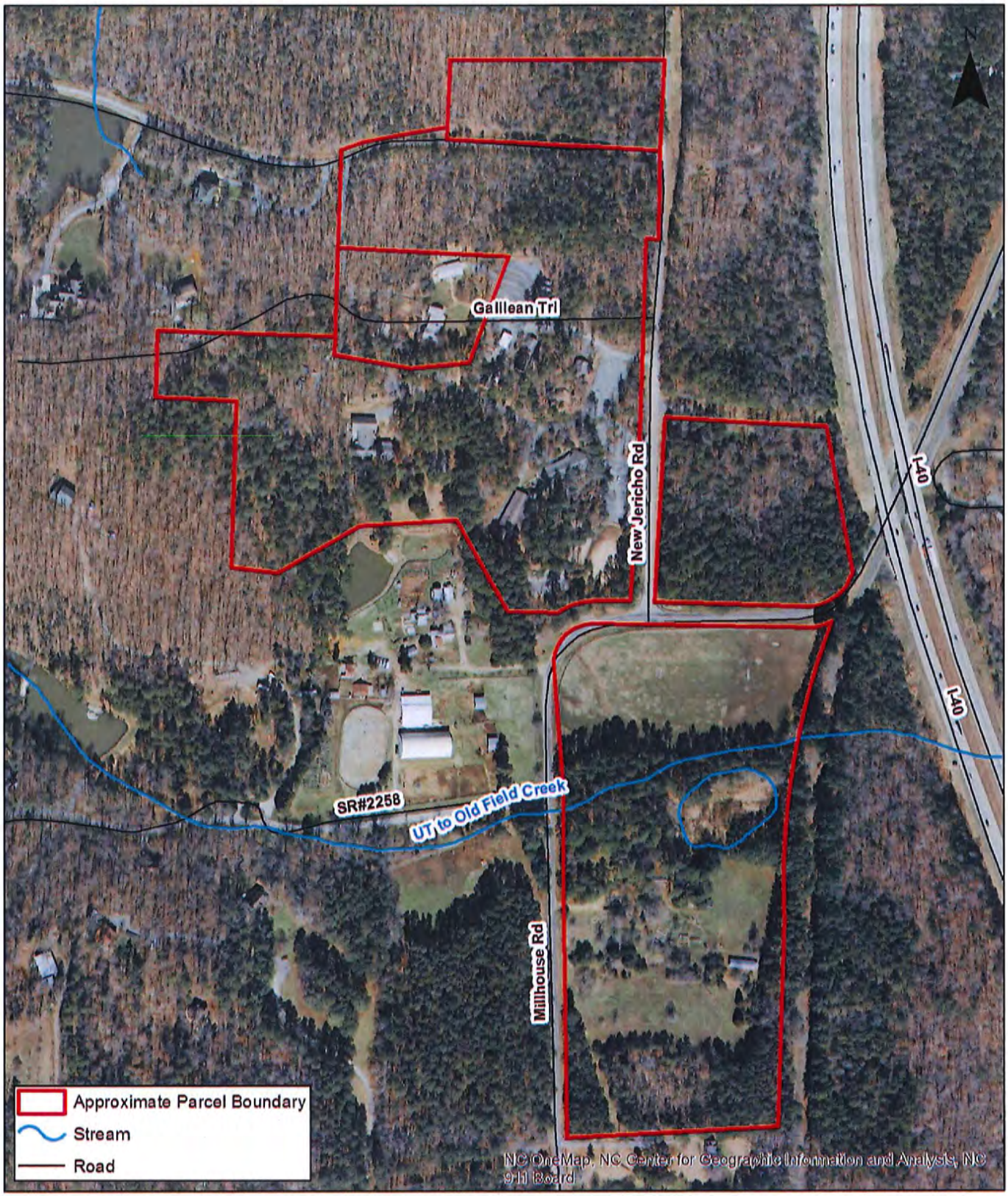
7.0 REFERENCES

NC Natural Heritage Program (NHP). 2015. NCNHP Element Occurrence Data. Accessed March 10, 2015. Database updated January 2015.

NC Wildlife Resources Commission (NCWRC). 2014. Protected Wildlife Species of North Carolina. Accessed March 10, 2015. http://www.ncwildlife.org/portals/0/Conserving/documents/protected_species.pdf.

Schafale, M.P. 2012. Guide to the *Natural Communities of North Carolina*. Fourth Approximation. North Carolina Natural Heritage Program, Department of Environment and Natural Resources. Raleigh, NC.

US Fish and Wildlife Service (USFWS). 2015. Endangered Species, Threatened Species, Federal Species of Concern, and Candidate Species; Orange County, NC. http://www.fws.gov/raleigh/species/cntylist/orange.html. Accessed March 10, 2015. Database updated December 27, 2012.



The Catena Group

Emerson Waldorf School

Biological Inventory

Vicinity Map

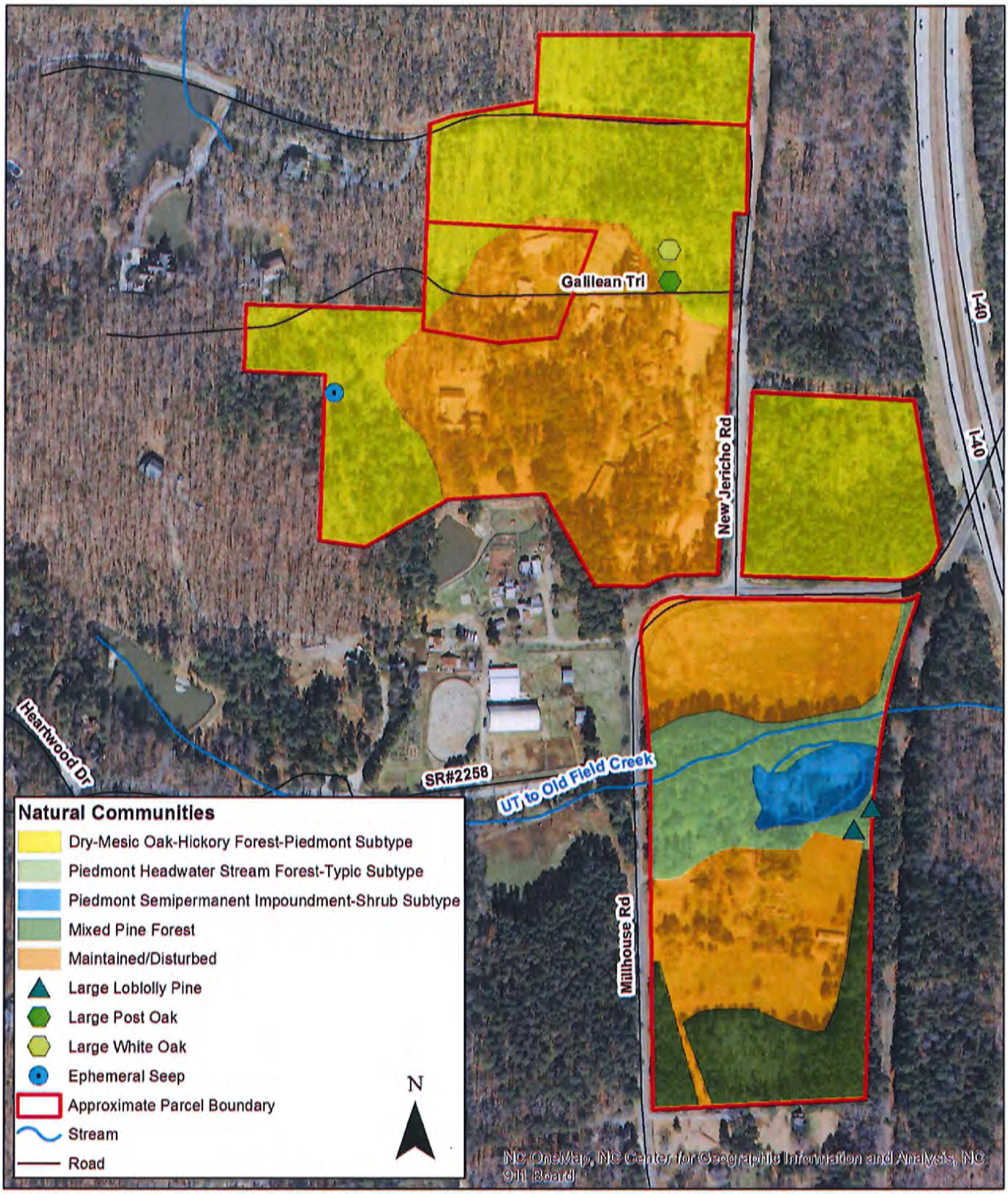
Orange County, North Carolina

Date: March 2015

Scale 0 100 200 Feet

Job No.: 6210

Figure 1



The Catena Group

Emerson Waldorf School

Biological Inventory

Natural Communities

Orange County, North Carolina

Date: March 2015

Scale 0 100 200 Feet

Job No.: 6210

Figure 2

Appendix A

Federally Threatened and Endangered Plant and Animal Species in Orange County

US Fish & Wildlife Service

Endangered Species, Threatened Species, Federal Species of Concern, and Candidate Species, Orange County, North Carolina, Updated: 12-27-2012 (http://www.fws.gov/raleigh/species/cntylist/orange.html)

Common Name	Scientific name	Federal Status	Record Status
Vertebrate:			
American eel	*Anguilla rostrata*	FSC	Current
Bald eagle	*Haliaeetus leucocephalus*	BGPA	Current
Carolina darter	*Etheostoma collis lepidinion*	FSC	Current
Red-cockaded woodpecker	*Picoides borealis*	E	Historic
Roanoke bass	*Ambloplites cavifrons*	FSC	Current
Invertebrate:			
Atlantic pigtoe	*Fusconaia masoni*	FSC	Current
Brook floater	*Alasmidonta varicosa*	FSC	Current
Dwarf wedgemussel	*Alasmidonta heterodon*	E	Current
Green floater	*Lasmigona subviridis*	FSC	Current
Savannah lilliput	*Toxolasma pullus*	FSC	Current
Yellow lampmussel	*Lampsilis cariosa*	FSC	Current
Vascular Plant:			
Butternut	*Juglans cinerea*	FSC	Historic
Creamy tick-trefoil	*Desmodium ochroleucum*	FSC	Historic
Michaux's sumac	*Rhus michauxii*	E	Historic
Smooth coneflower	*Echinacea laevigata*	E	Historic
Sweet pinesap	*Monotropsis odorata*	FSC	Current
Torrey's Mountain-mint	*Pycnanthemum torrei*	FSC	Current

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. FSC is an informal term. It is not defined in the federal Endangered Species Act. In North Carolina, the Asheville and Raleigh Field Offices of the US Fish and Wildlife Service (Service) define Federal Species of Concern as those species that appear to be in decline or otherwise in need of conservation and are under consideration for listing or for which there is insufficient information to support listing at this time.Subsumed under the term "FSC" are all species petitioned by outside parties and other selected focal species identified in Service strategic plans, State Wildlife Action Plans, or Natural Heritage Program Lists.

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 mor 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.

Appendix B

Common and Scientific Names

Floral Species

Common name	Scientific Name
Abelia	*Abelia x grandiflora*
American beech	*Fagus grandifolia*
American elderberry	*Sambucus canadensis*
American holly	*Ilex opaca*
American persimmon	*Diospyros virginiana*
American pokeweed	*Phytolacca americana*
American sycamore	*Platanus occidentalis*
Autumn olive	*Elaeagnus umbellata**
Azalea	*Rhododendron sp.*
Azure bluet	*Houstonia caerulea*
Bermuda grass	*Cynodon dactylon*
Black cherry	*Prunus serotina*
Black oak	*Quercus velutina*
Black willow	*Salix nigra*
Blue Ridge blueberry	*Vaccinium pallidum*
Bradford pear	*Pyrus calleryana "Bradford"*
Broomsedge	*Andropogon virginicus var. virginicus*
Burford holly	*Ilex cornuta*
Burning bush	*Euonymus alatus*
Callery pear	*Pyrus calleryana*
Carolina horsenettle	*Solanum carolinense*
Carolina jessamine	*Gelsemium sempervirens*
Chinese lespedeza	*Lespedeza cuneata**
Chinese privet	*Ligustrum sinense**
Christmas fern	*Polystichum acrostichoides*
Clematis	*Clematis sp.*
Common bottlebrush grass	*Elymus hystrix*
Common chickweed	*Stellaria media**
Common dandelion	*Taraxacum officinale*
Common greenbriar	*Smilax rotundifolia*
Common persimmon	*Diospyros virginiana*
Common rush	*Juncus effussus ssp. Solutus*
Crane-fly orchid	*Tipularia discolor*
Crape-myrtle	*Lagerstroemia indica*
Crocus	*Crocus sp*
Cross-vine	*Bignonia capreolata*
Daffodil	*Narcissus sp.*
Dock	*Rumex sp.*

Common name	Scientific Name
Downy arrow -wood	*Viburnum rafinesqueanum*
Eastern redbud	*Cercis canadensis*
Eastern red-cedar	*Juniperus virginiana*
English ivy	*Hedera helix**
Fig	*Ficus sp.*
Flowering dogwood	*Cornus florida*
Gill-over-the-ground	*Glechoma hederacea*
Gingko	*Ginkgo biloba*
Golden rain tree	*Koelreuteria paniculata*
Green ash	*Fraxinus pennsylvanica*
Hairy bittercress	*Cardamine hirsuta*
Hellebore	*Helleborus sp.*
Hemlock	*Tsuga canadensis*
Hillside blueberry	*Vaccinium pallidum*
Inland American hornbeam	*Carpinus caroliniana var. virginiana*
Japanese apricot	*Prunus mume*
Japanese barberry	*Berberis thunbergii**
Japanese honeysuckle	*Lonicera japonica**
Japanese stiltgrass	*Microstegium vimineum**
Lamb's ear	*Stachys byzantina*
Leatherleaf mahonia	*Berberis bealei*
Leatherleaf viburnum	*Viburnum rhytidophyllum*
Live oak	*Quercus virginiana*
Loblolly pine	*Pinus taeda* *
Mimosa	*Albizzia julibrissin**
Mistletoe	*Phoradendron leucarpium*
Mullet bush	*Baccharis halimifolia*
Multiflora rose	*Rosa multiflora**
Muscadine	*Muscadinia rotundifolia*
Nandina	*Nandina domestica**
Painted buckeye	*Aesculus sylvatica*
Pennsylvania blackberry	*Rubus pensilvanicus*
Pignut hickory	*Carya glabra*
Poison ivy	*Toxicodendron radicans*
Possomhaw	*Ilex decidua*
Post oak	*Quercus stellata*
Purple henbit	*Lamium amplexicaule*
Rattlesnake plantain	*Goodyera pubescens*
Rattlesnake weed	*Hieracium venosum*

Common name	Scientific Name
Red maple	*Acer rubrum*
River birch	*Betula nigra*
Scarlet oak	*Quercus coccinea*
Sedge	*Carex sp.*
Shortleaf pine	*Pinus echinata*
Slippery elm	*Ulmus rubra*
Smartweed	*Polygonum sp.*
Sourwood	*Oxydendrum arboreum*
Southern blackhaw	*Viburnum rufidulum*
Southern grape fern	*Sceptridium biternatum*
Southern red oak	*Quercus falcata*
Strawberry bush	*Eunyomus americanus*
Striped wintergreen	*Chimaphila maculata*
Sugar maple	*Acer saccharum*
Sugarberry	*Celtis laevigata*
Sweetgum	*Liquidambar styraciflua*
Sycamore	*Platanus occidentalis*
Tall fescue	*Festuca arundinacea*
Thorny olive	*Elaeagnus pungens**
Tulip poplar	*Liriodendron tulipifera*
Virginia pine	*Pinus virginiana*
Wax myrtle	*Morella cerifera*
White ash	*Fraxinus americana*
White clover	*Trifolium repens*
White oak	*Quercus alba*
Whiteleaf catbriar	*Smilax glauca*
Wild garlic	*Allium sp.*
Willow oak	*Quercus phellos*
Winged elm	*Ulmus alata*
Winter creeper	*Euonymus fortunei**
Yaupon	*Ilex vomitoria*

* Invasive Species

Faunal Species

Common Name	*Scientific Name*
American goldfinch	*Spinus tristis*
American kestrel	*Falco sparverius*
American robin	*Turdus migratorius*
American toad	*Anaxyrus americanus*
Black vulture	*Coragyps atratus*

Carolina chickadee	*Poecile carolinensis*
Carolina wren	*Thryothorus ludovicianus*
Downy woodpecker	*Picoides pubescens*
Eastern bluebird	*Sialia sialis*
Eastern box turtle	*Terrapene carolina carolina*
Eastern fence lizard	*Sceloporus undulatus*
Eastern garter snake	*Thamnophis sirtalis*
Eastern gray squirrel	*Sciurus carolinensis*
Eastern ribbon snake	*Thamnophis sauritus sauritus*
Fowlers toad	*Anaxyrus fowleri*
Gray fox	*Urocyon cinereoargenteus*
Great blue heron	*Ardea herodias*
Hairy woodpecker	*Picoides villosus*
House finch	*Haemorhous mexicanus*
Marbled salamander	*Ambystoma opacum*
Northern cardinal	*Cardinalis cardinalis*
Northern flicker	*Colaptes auratus*
Northern mockingbird	*Mimus polyglottos*
Northerrn cricket frog	*Acris crepitans*
Raccoon	*Procyon lotor*
Racer	*Coluber constrictor*
Rat snake	*Elaphe obsoleta*
Redback salamander	*Plethodon cinereus*
Red-bellied woodpecker	*Melanerpes carolinus*
Red-shouldered hawk	*Buteo lineatus*
Red-spotted newt	*Notophthalmus viridescens*
Ringneck snake	*Diadophis punctatus*
Southern two-lined salamander	*Eurycea cirrigera*
Spotted salamander	*Ambystoma maculatum*
Spring peeper	*Pseudacris crucifer*
Three-lined salamander	*Eurycea guttolineata*
Tufted titmouse	*Baeolophus bicolor*
Turkey vulture	*Cathartes aura*
Upland chorus frog	*Pseudacris feriarum*
White-spotted slimy salamander	*Plethodon cylindraceus*
White-tailed deer	*Odocoileus virginianus*
Worm snake	*Carphophis amoenus*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Yellow-rumped warbler	*Setophaga coronata*

Appendix C

Site Photographs

Large White Oak in the Dry-Mesic Oak-Hickory Forest-Piedmont Community

Large Post Oak in the Dry-Mesic Oak-Hickory Forest-Piedmont Community

Crane fly orchid

Dry-Mesic Oak-Hickory Forest community

Evidence of white tailed deer

Large Loblolly pines in the Piedmont Headwater Stream Forest Community

Ips bark beetle evidence in the Mixed Pine Forest

EXHIBIT – B

TREE SURVEY INFORMATION

Forest Stewardship Plan

Waldorf Educational Association of North Carolina, Inc.

6211 New Jericho Road
Chapel Hill, NC 27516

By:
John M. McBryde, District 11 Water Quality Forester
NC Registered Forester # 1639

Kelly Douglass, Forest Stewardship Biologist
Certified Wildlife Biologist
NC Certified Environmental Educator

June 2014

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Property Description

The Waldorf Educational Association of North Carolina, Inc. is a private school that opened in 1984 (http://www.emersonwaldorf.org/) and is located at 6211 New Jericho Road in Chapel Hill, NC. The school teachings are based on the "philosophical and pedagogical indications of Dr. Rudolf Steiner," which includes the following practices: multi-sensory learning, interdisciplinary, individual focus on students, creative play, and natural science exploration. The school offers classes for student's age 0-18 and includes a nursery, Parent-Child, Pre-K, and K-12. The school is a fully sponsored member of the Association of Waldorf Schools in North America (AWSNA; since 1987) and the Waldorf Early Childhood Association of North America. In 2010, the school became accredited by the Southern Association of Colleges and Schools (SASC) and the Southern Association of Independent Schools (SAIS).

The property is comprised of 5 tax parcels that total 55.27 acres (This acreage is according to the tax records. For management purposes, the plan will use acreage reflected using ArcGIS totaling 49.23 acres). This includes the school grounds as well as woodland, open land, horse pasture, a rental cabin, and an abandoned pond. The property has received minimal forest and wildlife management in the past; however, it has been used for recreation and educational opportunities. Site improvements have been made for internal road access, additional educational buildings, and enhancing walking trails. The tract also includes an onsite farm, where students grow and sell produce at the Farmer's Market open every Thursday.

Current Management Objectives

The School plans to manage this tract for recreation, aesthetics, water quality, forest health, and as an educational tool for attending students. Their management objectives include:

- ✓ Providing a safe learning environment for students.
- ✓ Permaculture - a "philosophy of working with, rather than against nature…of looking at plants and animals in all their functions, rather than treating any areas as a single product system" Bill Mollison ***The definition and description of permaculture is from Wikipedia***
    - ✓ Branch of ecological/environmental design and engineering
    - ✓ Develops sustainable architecture and self-maintained agricultural systems
    - ✓ 3 core tenets: Care for the earth; Care for the people; Return of surplus
    - ✓ 12 design principles: Observe and interact; catch and store engery; obtain a yield; apply self-regulation and accept feedback; use and value renewable resources and services; produce no waste; design from patterns to details; integrate rather than

segregate; use small and slow solutions; use and value diversity; use edges and value the marginal; creatively use and respond to change
- ✓ Common practices of permaculture: agroforestry, natural building, rainwater harvesting, sheet mulching, managed rotational grazing, etc

- ✓ Enhancing the aesthetical and recreational values of the property
- ✓ Ecological sustainability
- ✓ Water quality and soil erosion
- ✓ Native species management
- ✓ Maintain farm/garden area for students
- ✓ Maintain home/horse pasture (rental property)
- ✓ Maintain playing field for students
- ✓ Future development and expansion of the school

Area Descriptions & Recommendations

The following section breaks the property up into management areas based on timber types, management recommendations, and your objectives. Each of these areas is depicted on your management map located at the back of this plan.

Management Area 1

Area Description

Management Area 1; +/- 3.9 acres, is a mixed upland pine forest that is around 63-65 years of age. Dominant species include loblolly pine with Virginia pine and shortleaf pine scattered throughout. Co-dominant upland hardwood species include: scarlet oak, white oak, and southern red oak. Evidence of old skid trails and cedar stumps suggest that this area was logged 65 years ago and regenerated naturally on its own. Presently, the trees are 11-20 inches in diameter (at breast height) and are 75-80 feet tall. The midstory and understory are fairly open and consist of sweetgum, red maple, elm, grapevine, musclewood, sourwood, beech, dogwood, white ash, black cherry, Japanese honeysuckle, green brier, cranefly orchid, and wood sorrel. There is an abundance of dead trees/debris on the forest floor, mostly Virginia pine, that have fallen due to age, stress, and past storm damage. The soils in this area are well drained with gentle slopes (4-8%).

Management Area 1 Recommendations

The timber in this area is approaching maturity and has become stagnant in growth. Many Virginia pine trees have died and fallen to the forest floor. This is typical of Virginia pine of this age and size. Virginia pine has a very shallow root system that

cannot support ice damage or very high winds well. The loblolly pine and shortleaf pine are of good to excellent quality and would bring in revenues, if harvested, that would assist in paying for reforestation as well as additional improvements across the property.

Below are 3 options for management. These options coincide with your objectives to provide the students with a safe learning environment and educational opportunities while also enhancing wildlife habitat, forest health, and biodiversity.

Option #1 – Clearcut harvest (including removal of potential hazard trees), prepare the site for planting and subsequent planting of either shortleaf pine or loblolly pine seedlings.

I recommend that you hire a consulting forester (see information below in plan on consultants) and clearcut harvest this area, which would include harvesting all merchantable and unmerchantable trees. Harvesting should occur when the soil is dry to prevent soil compaction and rutting. I have also included an abundance of information in the plan below about harvesting timber.

Once the trees have been harvested, ideally some type of site preparation should occur. Being that this is a small area, a back pack spray application of herbicides to kill any reproduction would aid in future tree planting. However, I understand that you are not interested in applying chemicals to your property, so a site preparation burn may be a more feasible practice. A site preparation burn would help to clean up the site, consume any Virginia pine seed that is on the ground, and also recycle nutrients back into the soil. If either of these 2 practices are not possible, then you will have to plant the pine seedlings without site preparation. However, if this occurs, it will take a lot of timber stand improvement to make sure survival of the seedlings is achieved (i.e. cutting undesirable competition with brushsaws, etc.). Site preparation (chemical application and burning) should occur during the summer months.

Once the site has been prepared, I recommend that you plant either loblolly pine seedlings or shortleaf pine seedlings across the entire area. The trees should be planted on a 10 X 10 foot spacing, yielding 436 pine trees per acre. I would recommend hiring a tree planting crew to complete this work; however, if you want to make this an educational opportunity, you could have students and/or faculty plant the trees under the supervision of a professional. Tree planting typically cost around $80 per acre to plant loblolly pine seedlings and around $100 per acre to plant shortleaf pine seedlings (trees and labor). The seedlings should be planted during the winter months (December through March) of the year following harvest.

Option #2

Similar to Option #1, this option would be to reforest the portion south of Galilean Trail in pines after the clearcut harvest, but not reforest the 1.5-acre portion north of Galilean Trail. As we discussed on-site, you could manage the 1.5-acre portion as early successional habitat to provide cover, forage, and nesting habitat for a variety of wildlife species. This would include installing fire lines around the area and burning the vegetation every 2-3 years. You can also broadcast native wildflower seed after the first burn to help create fine fuels (to help burn the area successfully) and encourage pollinator habitat. The creation and maintenance of early successional habitat can also be an excellent educational opportunity for your students, especially if they help broadcast the seed after the burn. For more information on creating fire lines, the benefits of prescribed burning, and selecting grass and flower seed to broadcast on the area, contact Kelly Douglass with the NC Wildlife Resources Commission at (919) 621-3317 or kelly.douglass@ncwildlife.org.

Option #3

A third option would be to maintain the current stand of trees. If this option is chosen, drastic improvements to the current stand would need to be made to provide a safe learning environment for your students. The condition of the walking trails throughout this area suggest that students frequently use this area for recreational purposes. This can be extremely dangerous with the amount of downed trees and more importantly the potential of other trees falling in this area. You would need to remove all trees that pose a threat to falling in this stand, which would include any snags and most of the Virginia pine.

Maintain walking trails

There are several walking trails throughout this area that could be improved. Once harvesting has ceased, cleaning up these trails should be done immediately so they are cleared and ready for restoring. If the logger is equipped with a whole tree chipper, mulch from this operation can be used to spread across the trails.

Management Area 2

Area Description

Management Area 2; +/- 1.2 acres, is a mixed upland pine forest that is around 60 years of age. Dominant species include loblolly pine with Virginia pine and shortleaf pine scattered throughout. Presently, the trees are 10-19 inches in diameter (at breast height) and are 75-85 feet tall. The midstory and understory are fairly open and consist of eastern red cedar, red maple, blackgum, white oak, post oak, blackjack oak, American beech, elm, Japanese honeysuckle, green brier, cranefly orchid, mosses, and violets.

There are several downed/fallen trees in the understory but not nearly as much as in Area 1. The soils in this area are well drained with gentle slopes (4-8%).

Management Area 2 Recommendations
The recommendations for this area are identical to Management Area 1 (options #1 & #3). If harvesting occurs, your consulting forester should make sure that the area is clearly marked so that the loggers do not cut near the sprinklers in Area 5.

Management Area 2A

Area Description
Management Area 2A; +/- 4.4 acres, is very similar to Area 2, but the trees are slightly larger and there is an abundance of invasive plant species. Presently, the trees are 13-23 inches in diameter (at breast height) and are 75-85 feet tall. The midstory and understory are fairly open and consist of eastern red cedar, red maple, blackgum, white oak, post oak, blackjack oak, American beech, elm, persimmon, eastern red bud, wax myrtle, multiflora rose, leatherleaf mahonia, Chinese privet, Japanese stilt grass, Russian olive, hellebore, Christmas fern, Chinese silvergrass, Japanese honeysuckle, and daffodil. The soils in this area are well and somewhat poorly drained with gentle slopes (2-6%).

Management Area 2A Recommendations
The recommendations for this area are also identical to Management Areas 1 (options #1 & #3) & 2. I would most likely recommend that replant this area in loblolly pine seedlings, since that is what is currently growing now.

A major focus in this area should be maintaining water quality, since there is a stream that intersects this area. Appropriate forested buffers should be left along this area during harvesting in accordance with the Jordan Lake Buffer Rules (Cape Fear River Basin). See below for more information about buffer rules and rules affecting harvesting near streams.

Another major focus of this area, and several other areas on the property, should be eradication (or at least controlling) exotic, invasive plants to help promote the regeneration of native flora and increase plant diversity. See the section on invasive plant control later in the plan.

An old pond, with breached dam, exists in this area. It is currently providing excellent habitat for amphibians and reptiles and could either be fixed (drained and dam repaired) and used for fishing purposes, or maintained as is to continue providing habitat for

amphibians. This area, if left as is, could be used an as excellent educational opportunity for students to learn about the life cycle of certain species (like amphibians) and the importance of conserving water and protecting water quality.

Management Area 3

Area Description

Management Area 3; +/- 5.7 acres, is an upland hardwood stand with scattered mixed pine throughout that is around 65 years of age. The stand is dominated by white oak, with pignut hickory, northern red oak, post oak, sweetgum, and loblolly pine throughout. Evidence of old skid trails and cedar stumps suggest that this area was logged 65 years ago and regenerated naturally on its own. Presently, the trees are 10-18 inches in diameter (at breast height) and are 70-75 feet tall. Stand quality is good with some mortality throughout and hypoxylon canker present on snags. The midstory and understory are fairly open and consist of red maple, black cherry, flowering dogwood, eastern red cedar, scattered blackgum, poverty grass, greenbrier, and low bush blueberry. The soils in this area are well drained with gentle slopes (3-8%).

Management Area 3 Recommendations

The trees in this area are growing well and should continue to do so. I recommend that you maintain this area as a mature hardwood forest, as this area is aesthetically pleasing and is used for school programs and student recreation.

The trees are healthy but some hazard trees should be removed from the area to prevent student injury. Wildlife habitat can be improved by a practice called crop tree release. This kind of work can be accomplished with a chainsaw by selecting a few crop trees per acre (a mix of red and white oaks) and removing the competing hardwoods on at least 3 sides (4 is preferred). Be sure to protect the other mast producing trees in the area, including blackgum, black cherry, and flowering dogwood. Any snags left should be positioned away from walking trails. Maintain walking trails with mulch where possible.

Management Area 4

Area Description

Management Area 4; +/- 3.6 acres, is mixed upland pine forest that is around 32 years of age. This area was hit hard by IPS beetles many years ago leaving a large hole in the canopy with several smaller holes throughout of dead and downed pine trees. Most of the damage was done to the east of the power line right of way. The overstory trees that are left standing are 7-16 inches in diameter (at breast height) and are 60-65 feet tall. The

holes where IPS beetles killed the overstory trees have regenerated naturally with low value hardwoods, including red maple, sweetgum, elm, and Russian olive. The soils in this area are well drained with gentle slopes (4-8%).

Management Area 4 Recommendations

This area is a major safety hazard not only to the students and faculty at the school, but to neighboring landowners as well. Many of the dead trees have already fallen within the stand but there is an abundance of dead trees still standing that pose a threat to falling on someone or adjacent property.

I recommend that you lump this area in with the other areas to be harvested so that clean up can begin. Have your consulting forester include this area with Areas 1, 2, and 2A when those harvests occur. The logger should harvest all standing timber that is living. If they are comfortable with it, they can also fell any dead trees still standing as well. Some site preparation will be necessary and may include bulldozer work and burning piles. I cannot give any site preparation recommendations at this time; once the timber harvest is complete, we can reassess what needs to be done to get this stand growing again.

Once the site preparation is completed, plant either loblolly or shortleaf pine seedlings following the guidance laid out in Area 1 & 2.

Again, I recommend eradicating, or at least controlling, the exotic, invasive plants in this area. See the section below for more information.

Management Area 5

Area Description

Management Area 5; +/- 3.8 acres, is the waste water spray field located on the property. This area is an upland pine hardwood stand that is around 65 years of age. Dominant species include: sweetgum, red maple, loblolly pine, shortleaf pine, Virginia pine, elm, white oak, and willow oak. Presently, the trees are 9-21 inches in diameter (at breast height) and are 75-80 feet tall. The midstory and understory are somewhat open and consist of eastern red cedar, red maple, black cherry, elm, American beech, Japanese honeysuckle, cranefly orchid, mosses, violets, greenbrier, leatherleaf mahonia (1 plant observed), and Japanese stilt grass. The soils in this area are well and somewhat poorly drained with gentle slopes (2-6%).

Management Area 5 Recommendations

I recommend that you allow this area to continue to grow as long as the spray field is in place. No heavy equipment should be in this area and no students or faculty should enter either. Ensure that this area is marked as "Do Not Enter" and that the signs are visible from all sides when approaching the stand.

Again, I recommend eradicating, or at least controlling, the exotic, invasive plants in this area. See the section below for more information.

Management Area A

Area Description

Management Area A; +/- 21.7 acres total, is made up of the school administrative buildings, indoor and outdoor classrooms, playgrounds, parking lot, basketball court, school garden, and sports/playing field. There are pockets of trees located throughout this area, mostly dominated by loblolly pine. The trees are around 76 years of age, 12-30 inches in diameter (at breast height), and are 85-100 feet tall. The understory is manicured from the maintenance crew and has little vegetation growing, except for a few

areas near the basketball court where there is an understory and a midstory present. The soils in this area are well drained with gentle slopes (3-8%).

Management Area A Recommendations

The trees in this area are approaching maturity with many already mature. We discussed ensuring that forest health and student safety are the main objectives for this area. I recommend that you identify the trees in this area that pose a hazard to falling and have those removed. This would include any snags, trees with tops broken out, and trees that are leaning on other trees (snags away from buildings and play areas should be maintained for wildlife). Continue to maintain this area for school activities. Continue to remove poison ivy from trees so that students do not touch (also use this as an educational opportunity for identification). Landscaping should consist of native plants and shrubs. Focus new development in this area so other areas can be more easily managed. Songbird boxes can be erected throughout the area to encourage various species to frequent the area and can also be used as an educational opportunity for the students (especially if they help monitor and maintain the boxes). These should be maintained annually in the winter months (remove wasp nests, old nesting material, etc). Boxes should be placed on metal poles using predator guards.

Management Area B

Area Description

Management Area B; +/- 5.0 acres, includes the rental cabin, horse pasture, and surrounding areas (see map). This area is mostly made up with various yard trees and shrubs, many of which are exotic, invasive species. Species include: crepe myrtle, nandina, star magnolia, multiflora rose, leatherleaf mahonia, Russian olive, hellebore, Chinese silvergrass, Japanese honeysuckle, and daffodil.

Management Area B Recommendations

I recommend that you maintain this area as is.

Again, I recommend eradicating, or at least controlling, the exotic, invasive plants in this area. See the section below for more information.

Invasive Plant Species Control

During our site visit, we noted the presence of 5 exotic, invasive plants: tree-of-heaven, multiflora rose, Japanese stilt grass, Chinese privet, and Japanese honeysuckle. We recommend controlling these species through the use of targeted, spot spray herbicide applications. Be sure to use the correct herbicide and application rates. When using herbicides, follow all label instructions. Near the stream and pond, we recommend using herbicides approved for aquatic use only, or using glyphosate with a surfactant with low toxicity to aquatic animals (e.g., Agri-dex Spray Adjuvant). Most likely, it will take several herbicide applications to keep these species under control. Information on controlling this species may be found at the following website: http://www.invasive.org/eastern/srs/. See the forestry leaflets *Exotic, Non-native and Invasive Plants are a Problem*, *Multiflora Rose*, *Tree-of-Heaven*, *Japanese Stilt Grass*, *Chinese Privet*, and *Japanese Honeysuckle* for more information.

Water Quality

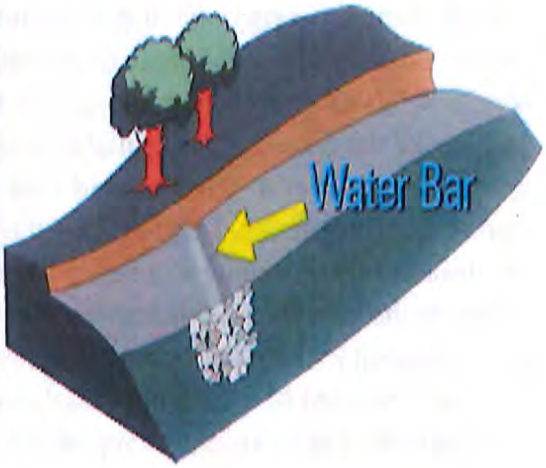
Overall, water quality on your property is good and you have been maintaining your internal road system well. If you decide to install new roads or renovate existing roads, the following information could be useful to you. Some of these can also be used on walking trails (on a much smaller scale) if erosion becomes a problem. Below are some tips and diagrams.

Water Bars

Constructed with a bulldozer or tractor, a water bar is an earthen fill "mound-trench" built into the road or trail at a 15 to 30 degree down slope angle. It diverts rainwater off the pathway, thus minimizing erosion by preventing stormwater runoff from moving long distances along travel corridors. The water bar should be built such that the uphill end of the bar ties into any adjacent bank or cutwall to receive ditch flow. An energy absorber on the downslope outfall, such as riprap, brush, and treetops, will serve to slow and dissipate the water's movement; particularly if outflow can lead to gully erosion. When installed in series, the number used is dependent on the slope of the road or trail as follows:

Grade of Road/Trail (Degrees)	Spacing (feet) between Water Bars
5	135
10	80
15	60
20	45
30	35

Water bars are usually installed after regular use of the forest road or skid trail has ended. A high relief water bar (three feet or greater in height) will serve as a deterrent for normal vehicle traffic. Water bars should be stabilized with grass seeding/mulching or volunteer growth at the time of project closeout. Armoring the water bars with crushed stone should be considered under circumstances of steep grades and highly erodible soils. After the tract is closed and before vegetation has fully re-colonized and stabilized the water bar, it is important to check in periodically to be certain a major storm flow event has not damaged the water bar and rendered it nonfunctional.



Broad-based Dips

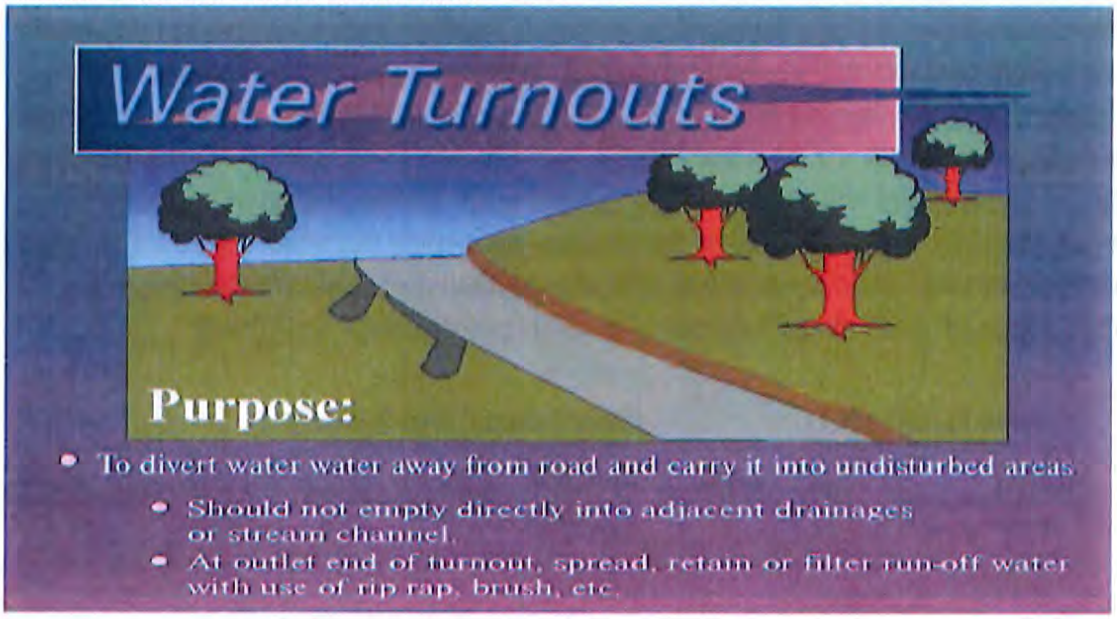
As its name implies, a broad-based dip is a broad earthen dip-hump combination built into the surface of a flat or insloped access road. The dip forms a reverse or outsloped cross-drain to divert flowing water from one side of the roadway to the other. This structure is usually applied to haul roads with slopes less than 12%. The dip is preferred over the water bar as it allows truck traffic to maintain a fairly uniform speed traversing the tract as opposed to the stop and go, "speed bump" characteristics of the water bars. A broad-based dip is not a substitute stream crossing method but rather a method to control transport of water from a paralleling road should ditch on one side of the road to the other. Slope of the land again dictates the spacing of this BMP as follows:

Road Grade (%))	Broad-Based Dip Spacing
2-4	200-300
5-7	160-180
8-10	140-150

Key points to remember during the installation phase include installing the dip at a 30-degree downslope, tying the upper end of the dip into an adjacent bank to avoid water by-passing the dip, providing a cross-drain outslope of about 3%, and energy absorbers as described in the water bar discussion. On highly erodible soils, the broad-based dip should be armored with crushed stone or rock ballast.

Water Turnouts

Water turnouts can be a ditch, trench, or other conveyance used to divert stormwater runoff away from a road surface or adjacent ditch. The turnout, which can be the width of a backhoe bucket or a bulldozer blade, carries water into undisturbed areas of vegetation to both dissipate energy and disperse water flow to the forest floor. Water turnouts should intersect a ditch line at the same depth and be outsloped 1-3%. On sloping roads, turnouts should be 30-45 degrees downslope. The use of water turnouts is often dependent on gradient of the property and availability of suitable outlets. Water turnouts should be spaced at a distance to provide good road drainage thus avoiding water pooling which can lead to soil compaction, souping, or rutting. A water turnout can have a secondary application of functioning as a minor sediment trap, therefore, maintenance is important to ensure the turnout is neither subject to erosion itself from excessive runoff events or sedimentation to the point of becoming nonfunctional. As with other water control structures covered in this section, tract closure should include perennial grass seeding/mulching or volunteer vegetation growth to enhance long-term stability of the turnout. Most importantly, water turnouts must not empty directly into streams or other water channels (i.e., drainage ways, ditches, channalized streams, etc.) leading directly to streams and other waters of the State.



Miscellaneous

Selling Timber & Consulting Foresters

Consulting Forester
I HIGHLY recommend having a private consulting forester handle your timber sale. Although they charge a fee, consultants generally find their landowner a better price for their stumpage. This should be the first thing you do, as your consultant can help you decide when to begin work. I have enclosed a list of consultants that you may contact.

Attached you will find some information about selling timber and information that needs to be part of the timber sale contract. As with any forestry operation, someone should monitor the operation closely. You could also notify the NC Forest Service when logging is occurring so we can perform a water quality inspection.

Environmental Concerns

All forestry activities should be performed in a responsible manner and with minimum site disturbance. The following need to be considered when harvesting:

- ✓ All forestry activities are required to follow the NC Forest Practice Guidelines (FPG's) in order to remain exempt from the Sedimentation Pollution Control Act. FPG's are performance standards established to help protect North Carolina's water quality.
- ✓ The law holds you equally responsible for compliance with these regulations. You need to use your timber contract to put the responsibility back on the logger and timber buyer.
- ✓ Forestry activities must also comply with the Neuse, Tar-Pamlico, and Jordan Lake River Basin rules (where applicable).
- ✓ Any activity involving heavy machinery should be done when the soil is dry to help prevent rutting and soil compaction.

Timber "Basis"

Timber Sale $$ - Timber Basis = Taxable Income

You will owe federal and state tax on any net timber sale income (your "gain"). Your taxable income is the gross dollar value of the sale, less any costs of selling the timber (consultant fees, temporary road improvements, etc.), AND less your adjusted timber "basis".

Your original basis is usually one of the following:

1) the purchase price of your timber on the day that you purchased that timber (probably purchased with the land).
2) the fair market value at date of death in the case of inheritance (assuming the estate was valued at full fair market value, including the timber).
3) the donor's basis if the timber is received by gift.
4) all capitalized reforestation expenditures (If you planted the trees and did not expense the reforestation costs, then your basis will be the cost of reforestation).

The adjusted basis will be the original basis plus any capitalized annual management expenses or less any depletion, casualty loss, amortization or other tax write-off of basis dollars.

It is very important to establish your basis before the timber sale in order to reduce the amount of your federal taxes. This basis should be established by a registered forester and should be assigned **BEFORE** the timber is cut.

Taxation of Timber Sale Income – Capital Gains

- ✓ Timber is real property and is therefore a capital asset (like land or houses).
- ✓ When you sell timber, the money you make (minus the costs of selling timber and minus your timber basis) is a "long-term capital gain", assuming that you have owned the timber for more than one year.
- ✓ The Federal Government taxes "long-term capital gains" at a lower rate than regular income (wages or farm income).
- ✓ The top "capital gains" rate is currently set at 15% while tax rates on regular income can be as high as 35%. Additionally, "capital gains" are not subject to self-employment taxation (currently 15%) as is farm income.
- ✓ As you can see, reporting timber sale income as a "capital gain" can greatly reduce your tax burden.
- ✓ You may want to enlist the services of a tax accountant who is familiar with the minutia of forestry taxation.

Reforestation

Following harvest, you should contact us immediately so a reforestation plan can be prepared. Site preparation can run as high as $250 per acre; however, it is usually much less and is often nothing. Planting tree seedlings costs about $75 per acre. All reforestation costs are eligible for cost-share funds that pay up to 40% of the total cost.

There are also substantial Federal Tax Incentives for Reforestation that can further reduce the amount of your reforestation investment. Contact us as soon as cutting is finished. Delaying can raise the cost of reforestation substantially.

Federal Tax Incentives for Reforestation

Up to $10,000 of qualifying reforestation expense may be taken as a federal tax deduction in the year that the reforestation expenses are incurred. Any additional reforestation expenses (with no limit) can be amortized over the next 84 months as additional federal tax deductions. The proper use of these tax incentives can greatly reduce the total amount of your forestry investment. Be sure to mention these incentives to your accountant. Also, see this web site: http://www.timbertax.org/

Keep in mind that all cost-share payments are "income" and you will receive a Federal 1099 in January of the following year. You will have to pay income tax on any cost-share payment unless you elect the option to exclude these reforestation cost-share payments from taxable income (IRS Code Section 126). However, if you chose to do this, you will not be able to count the cost-shared portion of your reforestation expense toward the Reforestation Tax Deductions mentioned above.

Boundary Line Maintenance and Landowner Liability

It is important that you maintain the boundary line around your property. I have enclosed a brochure entitled "Woodland Owner Notes: Maintaining Forest Property Boundaries." It is also important that you understand your obligation to those who have permission to use your land as well as anyone trespassing on your land. Please refer to the enclosed brochure entitled "Woodland Owner Notes: Land Ownership, Liability, and the Law in North Carolina."

A great way for the students to learn more about wildlife, ecosystems, and permaculture would be getting involved in a few citizen science projects that are sponsored by conservation agencies. Below are a few projects that may be of interest to you:

- Dragonfly Pond Watch Program (The Xerces Society): http://www.xerces.org/dragonfly-migration/pondwatch/
- Bumble Bee Watch (The Xerces Society): http://www.xerces.org/bumble-bee-watch/
- The Great Backyard Bird Count (The Cornell Lab of Ornithology, National Audubon Society, Bird Studies Canada): http://gbbc.birdcount.org/
- Christmas Bird Count (National Audubon Society): http://birds.audubon.org/christmas-bird-count
- Hummingbirds at Home (National Audubon Society): http://www.hummingbirdsathome.org/
- NestWatch (The Cornell Lab of Ornithology): http://nestwatch.org/

- FrogWatch USA (Association of Zoos and Aquariums): http://www.aza.org/frogwatch/

North Carolina's Forestry Present-Use Valuation (PUV) Property Tax Program

You may want to check with the Tax Office in Hillsborough to see if your property qualifies for the present use tax valuation. This valuation is used on tracts of timber, over 20 acres that are being managed in a responsible manner. This classification could greatly reduce your tax burden. **Take a copy of this plan down to the Tax Office upon receipt, if needed!**

Final Thoughts

Thank you for keeping North Carolina a beautiful place to work and live. Your interest in forest stewardship is to be commended. Kelly Douglass and I enjoyed talking with you about the future management of your property. If you have any questions or concerns, please don't hesitate to call us. I can be reached in Hillsborough at 919-732-8105 and Kelly can be reached at (919) 621-3317.

Sincerely,

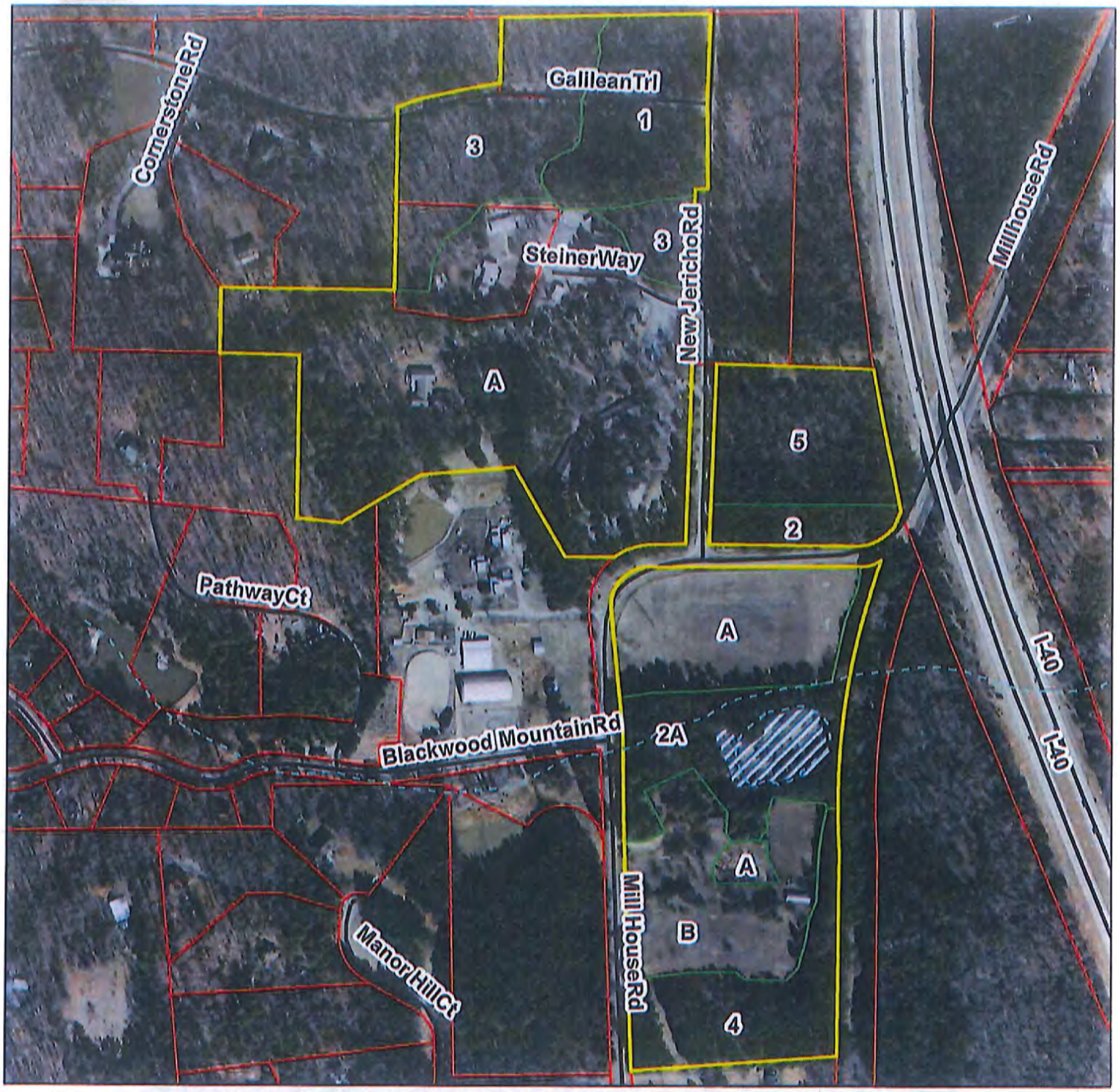
John M. McBryde

District 11 Water Quality Forester

NC Registered Forester # 1639

Management Map

Emerson Waldorf School



Boundaries and acreages are approximate.

0 150 300 600 900 1,200 Feet

Landowner: Waldorf Educational Association of NC, Inc.
Location: 6211 Jerico Rd., Chapel Hill, NC
PINs: 9871647391; 9871645632; 9871658140; 9871743098; 9871721935
County: Orange
Date: March 26, 2014
Data Source: NC One Map Orthophoto 2010

Legend

- Property Boundary (55.27ac)
- County Parcels
- Management Areas
- Pond
- Classified Streams
- Unclassified Streams
- Roads

Soil Map—Orange County, North Carolina
(PropBoundAll)

Map Scale: 1:4,920 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

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

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 1:20,000.

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: Orange County, North Carolina
Survey Area Data: Version 13, Dec 21, 2013

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

Date(s) aerial images were photographed: May 10, 2010—Apr 30, 2011

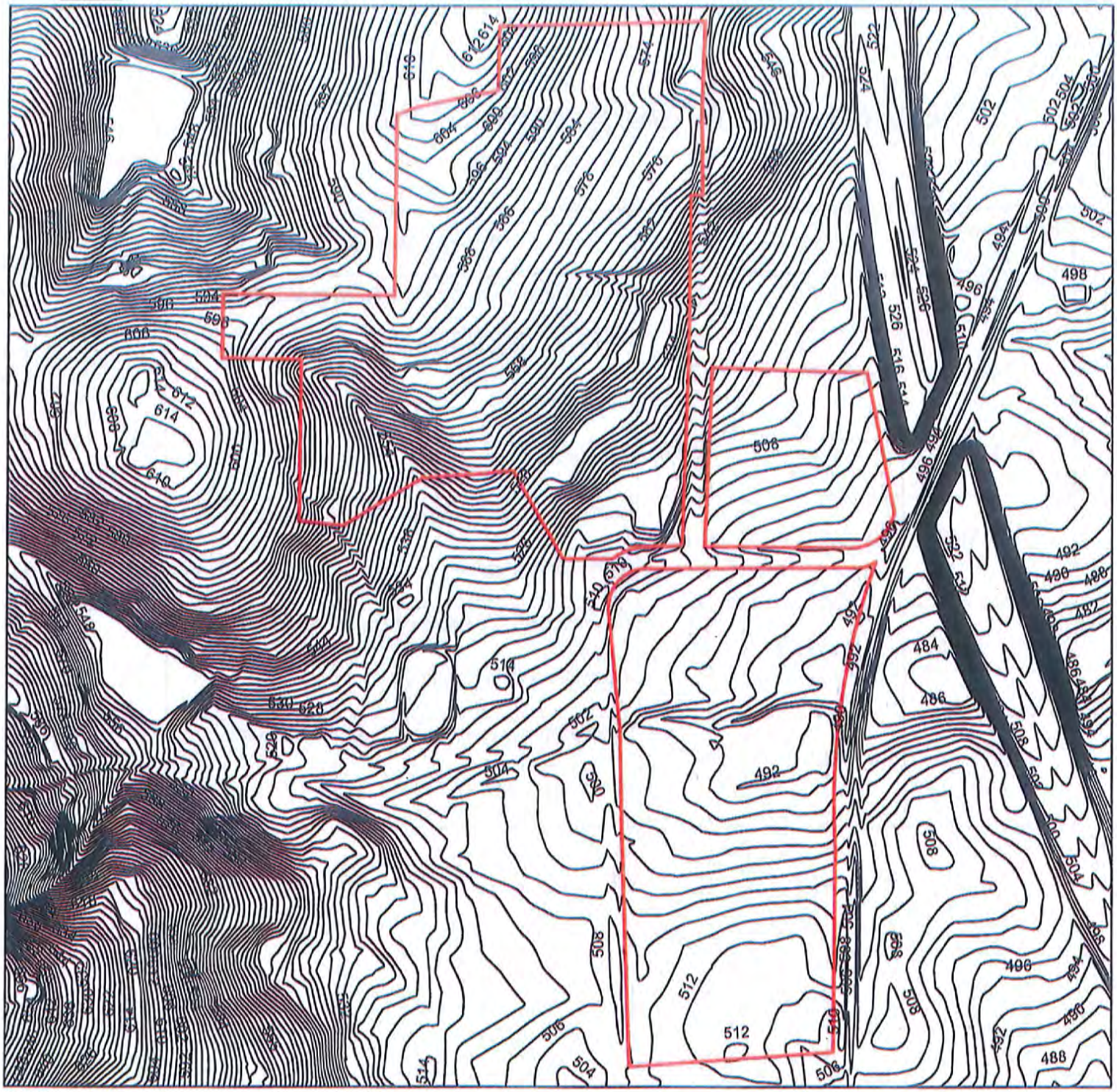
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Orange County, North Carolina (NC135)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EnB	Enon loam, 2 to 6 percent slopes	13.5	26.5%
EnC	Enon loam, 6 to 12 percent slopes	24.9	48.9%
HrB	Herndon silt loam, 2 to 6 percent slopes	7.8	15.3%
HwB	Lloyd clay loam, 2 to 6 percent slopes	0.4	0.8%
TaD	Tarrus silt loam, 8 to 15 percent slopes	3.6	7.0%
TaE	Tarrus silt loam, 15 to 25 percent slopes	0.2	0.4%
W	Water	0.6	1.1%
Totals for Area of Interest		**50.9**	**100.0%**

Topographic Map

Emerson Waldorf School



Boundaries and acreages are approximate.

0 175 350 700 1,050 1,400 Feet

Landowner: Waldorf Educational Association of NC, Inc.
Location: 6211 Jerico Rd., Chapel Hill, NC
PINs: 9871647391; 9871645632; 9871658140; 9871743098; 9871721935
County: Orange
Date: March 26, 2014
Data Source: NC One Map Orthophoto 2010

Legend

- Property Boundary (55.27ac)
- alltopo2003

Schedule of Management Activities

Recommended Date	Area	Acres	Practice Description	Date Completed
2014-2019	ALL	49.23	Begin eradicating invasive species as possible.	
2014	1, 2, 2A, 4	13.1	Hire consulting forester to begin planning your harvest regime.	
2014-2019	ALL	49.23	Maintain and improve walking trails.	
2014-2019	ALL	49.23	Remove hazard trees from entire property. Continue as needed.	
2014-2017	1, 2, 2A, 4	13.1	Clearcut harvest, site prepare, and plant loblolly or shortleaf pine seedlings.	
2024	ALL	49.23	Have property re-examined. Update forest stewardship plan.	

Forest Stewardship Program Resource Elements

The following thirteen (13) natural resource elements are addressed in all Forest Stewardship Management Plans when they are present and/or applicable to the landowner and the management of their property:

Soil & Water	Biological diversity	Aesthetic quality
Recreation	Timber	Fish & wildlife
Threatened & Endangered Species	Forest health	Archeological, cultural & historic sites
Wetlands	Fire	Carbon cycle
Range/Silvopasture/Agroforestry		

This document provides information on the 13 required Forest Stewardship Program natural resource elements. Your Forest Stewardship Plan will likely contain additional details on these resource elements as they relate to your property and management objectives. Your plan may not address one or more of these resource elements if they were not observed on your property or was not identified as one of your management objectives. If you would like more information, contact your Forest Stewardship Program plan writer or local NC Forest Service (NCFS) office. Additional information and brochures may be available through your local NCFS office or at: http://www.ncforestservice.gov/publications.htm

Soil and Water

Soil fertility is of major importance when it comes to forest management. Just as fertile soil is needed to produce high quality agricultural crops, specific soil conditions are required to grow good quality timber stands. Soil requirements vary by tree species. In forest silviculture, soil productivity is expressed as the "Site Index." Site index (SI) is the measure of growth in a tree species on a particular soil over a 25 or 50-year period. It is important to understand the nature of your tract's soils and to avoid heavy equipment use on certain soil types during wet conditions. Information on local soils and accompanying data can be found on the Natural Resources Conservation Service (NRCS) website: http://soils.usda.gov/

All forestry activities must protect water quality and comply with, among others, the North Carolina Forest Practices Guidelines Related to Water Quality (FPGs). Refer to the following website on FPGs:
http://ncforestservice.gov/publications/Forestry%20Leaflets/WQ01.pdf NCFS personnel can perform FPG site inspections upon request.

Additionally, the state and some local governments have also established rules to protect vegetated riparian buffers found along streams, rivers, and reservoirs in various parts of North Carolina. Refer to the following website: http://ncforestservice.gov/water_quality/buffer_rules.htm

Your Forest Stewardship Plan should draw attention to water bodies located on your property that should be protected during forest management activities. This may include the establishment of streamside management zones (SMZs) which are meant to prevent sedimentation and maintain healthy water temperatures. Proper pre-harvest planning prior to cutting timber can help ensure protection of both soil and water resources. Information on forestry activities and water quality issues can be found on the NCFS website: http://ncforestservice.gov/water_quality/water_quality.htm

Soil and Water on Your Property: The property lies in the Cape Fear River Basin and is subject to the Jordan Lake Buffer Rules. Soil erosion and runoff are discussed extensively in the plan. The landowner is interested in preserving and protecting water quality throughout the property.

Biological Diversity

Biodiversity is the variety of life (including diversity of species, genetic diversity and diversity of ecosystems) and the processes that support it. Landowners can contribute to the conservation of biodiversity by providing a diversity of habitats. It is important to select management options that offer the greatest opportunities for promoting wildlife habitat and conserving biodiversity while fulfilling other land ownership objectives. Some of these options include, but are not limited to, conserving wildlife habitat and biodiversity by:

1. Managing stand-level habitat features.
2. Promoting *aquatic* and riparian areas.
3. Managing landscape features.
4. Conserving rare species and communities.
5. Protecting special features and sites.
6. Developing partnerships with natural resource agencies and conservation organizations.

For more information on managing for biological diversity, refer to the following website: http://www.fs.fed.us/ecosystemservices/biodiversity.shtml

(intermediate stand management), or implement a harvest to utilize the mature trees and/or remove the current stand of undesirable trees to start a new stand.

Timber on your property: Several areas need some type of harvest to meet your objectives. This is addressed in the FSP.

Fish and Wildlife

Fish and other aquatic species depend on healthy water quality and quantity. The forest management choices you make have a direct impact on both of these. Proactive and positive things landowners can do include establishing streamside management zones (SMZs), preventing or mitigating sources of sedimentation, and leaving un-mown areas around ponds. Landowners that have water bodies present on their property may contact various natural resource professionals to obtain technical assistance on improvement, aquatic maintenance, and fish stocking. Visit the following website for information on pond management and fishing opportunities:
http://www.ces.ncsu.edu/nreos/wild/fisheries/mgt_guide/chapter1.html

Forestry activities and how they relate to water quality are discussed at:
http://ncforestservice.gov/water_quality/water_quality.htm

An explanation of streamside management zones is located at:
http://www.woodlandstewardseries.com/landowner-information-for-managing-woodland/documents/ExplainingStreamsideManagementZones.pdf

Wildlife has four basic requirements: food, cover, water and space. Different wildlife species require different stages of forest growth to meet these needs. For example, quail and partridge feed on seeds of annual and perennial weeds and grasses that occur in young stands of timbers, where sunlight reaches the forest floor. This is early successional habitat. Pileated woodpeckers depend on dead and rotting trees found in mature forests. This is late successional habitat. Still other wildlife prefer mid-successional habitat. Several aspects of your property determine how many species can live and thrive in your forest - plant cover, harvest operations, water resources and topography. Your property may have woodland, streams, swamps, rivers, ponds, and areas that adjoin fields, pastures, roads and other openings. Managing these "edges" of your forest is crucial to abundant populations of some wildlife species. The relationship between vegetation management and wildlife species habitat is well established. Understanding relationships is the first step in determining how your property can be managed to promote the wildlife species you want to attract. For more information on managing fish and wildlife on your forestland and ponds contact a Forest Stewardship

Biologist at http://ncforestservice.gov/fsandfl/stewardship_contacts.htm or visit the North Carolina Wildlife Resources Commission webpage: http://www.ncwildlife.org/

Wildlife on Your Forest: Addressed in FSP.

Threatened and Endangered Species

The North Carolina Natural Heritage Program provides information on state and federal threatened and endangered (T&E) plants and wildlife, habitats of particular conservation concern, and stewardship actions designed to benefit these important natural resources. The site has an online mapping tool, "The Virtual Workroom", that can provide geographic information on T&E species and natural communities of concern that are within a 2-mile radius of a specified location. A searchable database that can provide county-level and US Geological Survey (USGS) information is also available. The North Carolina Natural Heritage Program lists T&E species information at the following websites:

- http://www.ncnhp.org/Pages/heritagedata.html
- http://www.ncnhp.org/Pages/guide.htm
- http://www.ncnhp.org/Images/2010%20Rare%20Animal%20List.pdf

T& E Species on Your Property: No threatened or endangered species were noted on the property.

Forest Health

A healthy forest is a forest that possesses the ability to sustain the unique species composition and processes that exist within it. The health of our forests must be maintained to ensure the survival of plant and animal species that make the forest their home, and to protect those processes that maintain a healthy environment. A healthy forest must also be able to accommodate the present and future needs of people for a variety of values, products, and services. Forest health protection issues are often directly related to the active management of insects and diseases, invasive plants and wildfire. Yearly inspections for signs of insects, diseases or invasive plant infestations should be completed by the landowner. More forest health information can be found on the following websites:

- www.forestpests.org
- http://www.fs.fed.us/foresthealth/
- http://www.fs.fed.us/r8/foresthealth/
- http://ncforestservice.gov/forest_health/forest_health.htm

Forest Health on Your Property: A major objective, addressed in FSP.

Archeological, Cultural and Historic Sites

Cultural resources refer to landscapes, structures, archeological artifacts, and vegetation that represent a culture or society. These remains are pieces of history that can provide a glimpse into the technology, culture, and environment of earlier societies and reveal much about our country's origins and development. Make sure you alert your forester or ranger to any such sites as they begin to develop your Forest Stewardship Plan. If you have specific questions about such sites, it may also be possible to work with a trained expert from the North Carolina Cultural Resources staff. It is especially critical to understand where such sites may be located prior to conducting ground disturbing projects. Information concerning Archeological, Cultural and Historic sites can be found at these websites:

- http://www.ces.ncsu.edu/forestry/resources/publications/documents/won45.pdf
- North Carolina Cultural Resources (http://www.ncdcr.gov/)
- North Carolina Office of Archives and History (http://www.history.ncdcr.gov/)

Archeological Cultural and Historical Sites on Your Property: No archeological, cultural, or historical sites were observed on your property.

Wetlands

Wetlands are highly productive areas, whether it be in terms of timber production, water quality protection, wildlife habitat, etc. Due to their wet-natured soils and longer rotation hardwood stands, they are also sensitive ecosystems that need to be managed carefully. Some of the forestry activities done on "high ground" may still be carried out in wetland areas, but others practices may not. It is the responsibility of the landowner to understand the regulations related to forestry before engaging in forestry practices or contracting with a forest management service to work on their land. This can seem a daunting responsibility, especially when it comes to wetland areas, but answers to your forest management questions can be provided if the landowner asks the right questions. The NCFS; private consulting foresters; the NC Forestry Association; and the NC Forestry Extension Program can be good sources of information on allowable forestry practices in wetlands. The two primary agencies that regulate activities in wetlands are the NC Division of Water Quality and the US Corps of Engineers.

More information on North Carolina wetlands, as well as forestry activities that may be carried out in them, can be found at these websites:

- http://dcm2.enr.state.nc.us/wetlands/brochure.htm
- http://ncforestservice.gov/publications/WQ0107/BMP_chapter06.pdf

Wetlands on your property: One unclassified stream and one pond with dam breached on property.

Fire

Prescribed fire is the planned use of fire under pre-determined weather and fuel conditions to obtain specific management objectives. This is also known as "controlled" burning, and when done correctly it mimics the frequent burning that used to occur in NC naturally. Prescribed burning is a critical management tool that benefits North Carolina's forests, wildlife and overall environment. It also helps reduce the devastating impacts of uncontrolled wildfire hazards. Prescribed fire is especially important in North Carolina due to the large amount of land lying in the Wildland/Urban Interface (WUI). The N.C. General Assembly recognized the importance of prescribed burning in the NC Prescribed Burning Act, which may be reviewed at the following website: http://www.ncleg.net/EnactedLegislation/Statutes/PDF/ByArticle/Chapter_106/Article_80.pdf

The NC Forest Service and its partners train, plan and coordinate with local fire services and before a prescribed fire is started in order to ensure that all burning regulations are obeyed. There are also private contract burners that provide this service in various parts of the state.

Additional information on prescribed burning may be found at:

- http://ncforestservice.gov/Managing_your_forest/managing_your_forest.htm
- http://www.ces.ncsu.edu/forestry/pdf/ag/AG-616.pdf
- http://www.ncfirewise.org/
- http://ncforestservice.gov/fire_control/fc_wui.htm

Prescribed Fire Opportunities on Your Property: Addressed in FSP.

Carbon Cycle

All forest plants and soils "store" carbon, so your management influences the natural cycles of that storage in both living and dead plant material. The removal of carbon from the atmosphere is the process of carbon sequestration. Trees are roughly 50% carbon, based on dry weight. Certain forest management practices can promote more plant growth per acre. Timber harvests can lead to durable wood products that store carbon for long periods of time. You enable the trees on your forest to use and store carbon by maintaining forest health, replanting areas that have been harvested and actively managing a dynamic growing forest.

In recent years, programs dealing with "carbon sequestration", "carbon credits" and "biomass" have been in the news. While the resulting financial benefit to forest landowners is still in question, this may still be a topic to watch. The amount of carbon

credits on your property can be computed based on a forest inventory cruise of your property. Age, stocking levels, species and site index of the soils are factors that can affect this inventory. Many consulting foresters can complete the base-line inventory for an associated fee. Should you decide to participate in a carbon sequestration market, you should take into consideration the commitment period, contracts, associated fees, market access, inventory methods, aggregators, certification programs, afforestation and silvicultural treatments. More information on this topic can be found at: http://www.ces.ncsu.edu/forestry/programs/woody_biomass/pubs_and_research.php

Range/Silvopasture/Agroforestry

Silvopasture dates back to when humans first started burning and thinning forests to promote forage for the animals they relied on for food. The practice is increasingly popular in the South as a way to supplement timber income on small pine plantations and some hardwood stands. Trees can provide longer-term returns from sawlogs for lumber, while livestock in a rotational grazing system provides steady annual income. There can be, however, problems with combining the two management schemes if it is not done correctly. Before any new silvopasture system is established, landowners should thoroughly explore the associated economic and environmental considerations along with local land use, zoning, cost-share program, and tax regulations. Forest and agricultural land may have separate zoning and land-use regulations accompanied by different tax assessments. Environmental requirements (ex. planting trees, stream-side protection, and wildlife habitat maintenance) also may vary with land use.

More information on silvopasture may be found at these websites:

- http://www.srs.fs.usda.gov/compass/issue15/03pastures.html
- http://www.srs.fs.usda.gov/compass/issue15/03top.html
- http://www.silvopasture.org/pdf_content/silvopasture_handbook.pdf
- http://www.srs.fs.usda.gov/compass/issue15/03what.html

EXHIBIT – C

MARKET/IMPACT ANALYSIS APPRAISAL REPORT

IMPACT ANALYSIS

Emerson Waldorf School

6211 New Jericho Road, Chapel Hill, NC 27516

Proposed Special Use Permit

For

Emerson Waldorf School

C/o Mr. Steve Bennett – Director of Administration
6211 New Jericho Road
Chapel Hill, North Carolina 27516

Everett V. Knight
Chapel Hill Appraisals & Consultants
P. O. Box 33037
Raleigh, North Carolina 27636

Effective Date of Report
April 13, 2015

File Number
C041509

Everett V. Knight
Chapel Hill Appraisals & Consultants
PO Box 33037
Raleigh, NC 27636
(919) 308-7000

April 19, 2015

Mr. Steve Bennett – Director of Administration
Emerson Waldorf School
6211 new Jericho Road
Chapel Hill, NC 27516

Subject: Impact Analysis of the Proposed Emerson Waldorf Expansion,
Class A Special Use Permit - located at 6211 New Jericho Road
Chapel Hill, NC 27516
Orange County, NC

Dear Mr. Bennett,

In response to your request, and as outlined separately in our Engagement Letter, I have investigated and summarized the potential impact of the proposed expansion of the Emerson Waldorf School Class A Special Use Permit on the site (as if 100% complete) on the immediate surrounding neighborhood area.

The property is located at 6211 New Jericho Road north of the intersection of Millhouse Road (SR 1725) & New Jericho Road (SR 1899), in central Orange County adjacent to and just west of I-40 & the NC Rail line. The site is considered a single site, comprised of five parcels totaling 55.27 acres, according to the application and supporting documents filed with the Orange County Planning Department. The properties are currently zoned Rural Buffer (RB) and de-facto Special Use Permit (RB). Millhouse Road is considered a neighborhood collector and New Jericho Road supports the School and a small group of large lot residences just north of the subject site.

The proposed expansion of Emerson Waldorf School seeks to increase student capacity for education purposes from a current student population of +/-258 to not more than 350 students by 2030, all of which would be accomplished within the boundaries of the existing 55.27 acre site per the Special Use Permit Narrative (hereby attached by reference) thru an updated campus masterplan (see SUP Masterplan addendum attached).

This SUP would be controlled by a comprehensive masterplan, under agreed development standards, utilities, parking, and open space program, according to the Special Use Permit Narrative & Masterplan submitted to Orange County Planning.

The masterplan would be the guide for all new facilities and additions, including classrooms, Childhood Center, Gymnasium, Auditorium, Arts Center, roadways, parking and pedestrian improvements. When necessary the masterplan contemplates expansion of existing on-site wells, septic and stormwater systems and associated permits, under permit from NCDENR while maintaining all existing vegetated buffers to protect water quality, stream habitats and maintain forest cover, and minimizing footprint impact and associated vegetation removal from future facilities while maintaining the existing wooded residential setting on surrounding residential areas.

The masterplan further contemplates all future traffic and parking improvements will be met based on an NCDOT MTSA Traffic Management Unit recommendations that will provide the ability to stack carpool traffic on campus roads during daily student drop off and pickup times as well as better separate on-campus automobile circulation from pedestrian circulation, including a better articulated traffic pattern to improve EMS response time and reduced conflict with on-campus traffic.

The masterplan appears to incorporate and promote on-campus and off-site pedestrian focused walkability and student safety in a low impact manner. The masterplan purposefully proposes to minimize visual, acoustic and aesthetic impacts on the surrounding area by constructing this proposed expansion in aesthetic harmony with existing facilities and the surrounding residential properties.

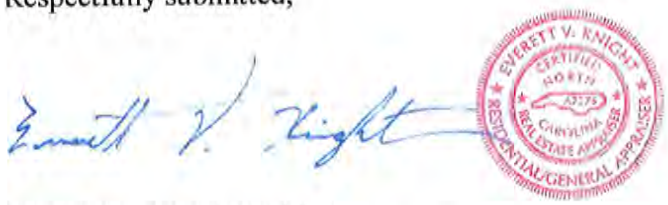
This Report describes my opinion of the effect of the "Assumption" that the expansion of the Emerson Waldorf School is 100% complete per the proposed SUP on the surrounding properties and neighborhood.

> An Assumption or Extraordinary Assumption is defined as: an assumption, directly related to a specific assignment, which, if found to be false, could alter the appraiser's opinions or conclusions (Assumptions presume as fact uncertain information, in this case it is assumed 100% compete per the SUP).

The attached analysis is in two parts. The first section contains a more detailed description of the property both as it is currently configured and as if the overall site would be configured as proposed and "Assumed" 100% complete; and if the site is fully developed per the proposed SUP, as further described in the Application, as well as relevant information about the neighborhood and its relation to the subject. This section addresses the surrounding neighborhood harmony issue. The second section is a summary of my professional opinion and analysis, and the reasoning behind my conclusions. This section addresses the issue of the likely effect of the proposed expansion of the Emerson Waldorf School, as if 100% complete, on the values and marketability of the immediate surrounding properties and neighborhood area.

Based on this information and analyses, it is my opinion that the proposed Emerson Waldorf School SUP when 100% complete will have **no** negative effect on the value or marketability on the immediate surrounding properties or nearby neighborhood area and will **not** injure the surrounding properties or neighborhood. **Thus, the surrounding properties and the general neighborhood vicinity near the Emerson Waldorf School expansion should maintain their current market values, and over time, their appropriate appreciation levels.**

Respectfully submitted,



Everett V. Knight (A7275)
Chapel Hill Appraisals & Consultants
North Carolina Certified General Appraiser
(Signed April 19, 2015)

DESCRIPTION OF THE SUBJECT SITE

Location

The property is located at 6211 New Jericho Road (SR 1899) at its intersection with Millhouse Road (SR 1725), in the northern section of Chapel Hill Township area of Orange County approximately one (1) mile northwest of Town of Chapel Hill.

Shape, Size and Function

The overall shape of the 55.27 acres site is irregular, due to the assemblage of the five (5) parcels which comprise the overall 55.27 acre site. The site is served by Millhouse Road (SR 1725) and New Jericho Road (SR 1899). The intersection of Millhouse Road and New Jericho Road essentially dissects the site with most of the existing structures located in the northwest quadrant of the overall site, the northeast quadrant comprises the existing and permitted spray-irrigation waste disposal area (otherwise undisturbed) and south of Millhouse road is an existing open athletic field. See Master Site Plan addendum attached.

Zoning and Neighboring Land Uses

The subject property is currently zoned Rural Buffer (RB) as defined by the existing Orange County Zoning Ordinance as amended.

As stated, the property is currently developed as a multi building, multi-facility, private school, which includes eleven (11) buildings, all of which support the existing Waldorf School. Three of the eleven buildings are planned to be removed as a component of the proposed SUP.

There are other improvements to the property, including paved asphalt travelway (the northern portion of New Jericho Road & all of Galilean Trail) and a short gravel travelway (all are privately maintained); three board esthetic fencing exists along the southern side of Millhouse Road. The spray-irrigation system exists on the most eastern portion of the overall 55.27 acre site and is exclusively improved as a waste disposal area.

There are combinations of agricultural, equestrian and residential improvements in the immediate surrounding area, including agricultural structures and single-family site-built residential houses. Most residences are typically located on parcels much larger than 1 acre and are more typically on parcels 2.0+ acres to 10.0+ acre sizes, with many supporting agricultural and equestrian activities, vegetated or are heavily wooded.

Site Topography

The topography is considered rolling and mostly wooded except that portion that is improved with existing academic structures and the open athletic field south of Millhouse Road. Drainage appears adequate, with no known or observed floodplain proximate to the 55.27 acre site would be impacted by the proposed expansion of the Emerson Waldorf School SUP. Elevations range from a high of approximately 615 feet AMS near the most northwest corner down to approximately 490 feet AMS located at the most southeast corner of the overall 55.27 acre site. The most southern of the five parcels appears to include a small, functioning mostly as a wet-weather stream, runs east-west across the central portion of this parcel and appears to be a naturally storm water collector for the overall area. This stream exists in an area which is otherwise unaffected by the existing improvements or athletic areas of the overall 55.27 acre site. There are no known flood prone areas observed on any areas of the overall 55.27 acre site or identified on any FEMA maps. The rise in topography to its highest point is considered an acoustic benefit to the area from noise generated by I-40 (further described herein).

The majority of the property (estimated at 60%+) consists of existing mature woods & vegetation.

Soil Conditions

No known or observed soil nor sub-soil problems were observed and none are known are assumed, or disclosed to me by representatives of Emerson Waldorf School.

Access

The property is served by two publicly maintained paved roads. Millhouse Road (SR 1725), which runs east-west across the middle of the subject property and New Jericho Road (SR 1899) which runs north up the middle of the overall 55.27 acre site (New Jericho Road feeds into Millhouse Road and thus Millhouse Road is considered the primary Road servicing the site). These two public roads essentially dissect the 55.27 acre site with essentially all existing structures located in the northwest quadrant of the overall site. Galilean Trail is a private paved travelway and runs along the northern most boundary of the site (See Master Site Plan attached).

Internal access is provided by a series of existing well planned private travelways (See Master Site Plan attached).

Vegetation

The 55.27 acre site appears comprised of Mature woods – pines, hardwoods and some undergrowth – all of which cover the majority of the property, with the exception of open athletic field south of and along Millhouse Road (See attached Ortho Map addendum).

It must be noted that the entire area which supports the on-site spray irrigation waste disposal system is wooded and otherwise undisturbed. In addition to this portion of the overall 55.27 acre site being entirely wooded, it also provides a natural wooded buffer to I-40 which is immediately to the east of the overall 55.27 acre site.

It is important to note that this existing waste disposal site exists under a restricted development condition which does not allow this portion of the overall 55.27 acre site to be improved beyond the existing on-site wastewater collection system as defined under NCDENR Permit WQ0004508. The additional importance of this NCDENR Permit restriction is the residual acoustic benefit to the site and overall neighborhood area of the natural noise absorption characteristics this naturally vegetated area provides to the immediate 55.27 acre site and the overall neighborhood from the high traffic count and subsequent traffic noise by the nearby I-40 corridor.

The topography of the overall site coupled with the height and density of the natural undergrowth and tree cover in this portion of the overall 55.27 acre site coupled with the significant width and length of this wooded buffer creates a noise absorption acoustic benefit to the site and the overall neighborhood which might otherwise be lost if this portion of the site were developed in almost any other manner. NCDOT released a Traffic Noise Analysis and Abatement Manual in July 2011, and among other points, noted the acoustic benefits to nearby properties from aspects of topography and naturally vegetated buffers along high traffic corridors and Interstates, similar to this site.

Easements/Encroachments

No existing easements or encroachments are known or observed at inspection and none are assumed. Public utility easements may exist but are not considered adverse to value or marketability of the subject property or surrounding area. These public easements include Electric, Telephone and Natural Gas.

It must be noted that the southernmost parcel is subject to and easement in favor of the NC Railroad along its most eastern side with an undefined easement Right-of-Way width.

Existing Improvements

As stated, the majority of the property is currently wooded. Currently the property is developed as a multi building, multi-facility, private school, which includes eleven (11) buildings, all of which support the existing Waldorf School. Three of the eleven buildings are planned to be removed as a component of the proposed SUP (See Masterplan & Building Schedule addendum attached). Other improvements a few small supporting accessory structures (storage structures) & other limited agricultural improvements to the property, and also include gravel travelways and parking areas. The remaining site is considered naturally vegetated and otherwise unimproved. These improvements are further noted on the Building Schedule addendum attached (existing and to be removed).

DESCRIPTION OF PROPOSED EMERSON WALDORF SCHOOL SUP

Location

The property is located at 6211 New Jericho Road (SR 1899) at its intersection with Millhouse Road (SR 1725), in the northern section of Chapel Hill Township area of Orange County approximately one (1) mile northwest of Town of Chapel Hill.

Proposed Improvements (Per the proposed SUP Masterplan)

The Emerson Waldorf School SUP does not propose an increase in acreage and will continue to operate on the existing 55.27 acre site.

Of the current eleven buildings three will be removed and nine (9) will be added to the 55.27 acre site for a total of seventeen (17) buildings. The total floor area of all buildings will be approximately 75,259 sf, after all buildings are completed, per the SUP. Emerson Waldorf School will continue to operate as a multi building, multi-facility, private school. In addition to these buildings the site will be further improved with travelways, walks, parking spaces and athletic facilities. No improvements will be located in the 100 foot setback, except a portion of the eighth-grade classroom and some of the on-site parking along New Jericho Road where parking is contemplated in the Orange county Ordinance.

The completed facility is planned to support approximately 350 students, with 55 staff members, once completed in +/-2030, per the SUP (a +/-15 year time period).

Emerson Waldorf School does not provide transportation to or from the School and none are contemplated in the SUP. The SUP will provide for one bus parking space and on van parking space for designated activity trip purposes only. There are 161 parking spaces planned per the SUP of which 98 spaces already exist. The proposed parking spaces include visitor, teacher, handicap & high school student parking, all of which are within the existing boundary of the 55.27 acre site and not visible from Millhouse Road, except those spaces associated with the proposed gymnasium and athletic field. Internal traffic and parking improvements are based on NCDOT MTSA Traffic Management Unit recommendations, including incorporation of recommendations for vehicular circulation, and incorporate vehicular stacking for carpooling and daily student drop off and pickup times as well as better separation of on-campus vehicular circulation from pedestrian circulation. No public roadway improvements are planned. EMS access will be better managed thru the NCDOT MTSA Traffic Management Unit recommendations to better articulate response times and potential on-campus traffic conflicts for access to all sides of each building.

Crosswalks are strategically located to safely cross pedestrians at primary building access points and at internal intersections. Crosswalks will be at walk level, with no ramps or step downs. Pedestrian-way lighting will be provided by post lights as well as with bollard lights in high use areas.

Proposed Utilities

The potable water supply & treatment will be by on-site private wells under NCDENR permit NC0368470 for the continued operation of a 23 gallon per minute (16,500 gpd) well, a 3,000 gallon hydro-pneumatic storage tank, a hypochlorite feed system, a sodium hydroxide feed system coupled with underground plumbing delivery system as noted in the SUP Narrative. Under this permit, NCDENR will review and monitor the ongoing adequacy of the on-site potable water supply system.

Wastewater treatment will be in accordance with the existing on-site wastewater collection system as defined under NCDENR Permit WQ0004508 for the continued operation of a 3,750 gpd wastewater collection, treatment and 77,850 sf surface irrigation on-site disposal area. This permit includes a series of on-site septic tanks coupled with an underground plumbing delivery system to the on-site surface irrigation disposal area thru a series of treatment processes. Under this permit, NCDENR will review and monitor the ongoing adequacy of the on-site potable wastewater treatment system.

All other utilities are public and include Electric, Telephone and Natural Gas.

Proposed Access & Access Improvements

The Emerson Waldorf School will continue to be served by the two existing publicly maintained paved roads. Millhouse Road (SR 1725), which runs east-west across the middle of the subject property and New Jericho Road (SR 1899) which runs north up the middle of the overall 55.27 acre site (New Jericho Road feeds into Millhouse Road and thus Millhouse Road is considered the primary Road servicing the site). These two public roads essentially dissect the 55.27 acre site with essentially all existing structures located in the northwest quadrant of the overall site. Galilean Trail is a private paved travelway and runs along the northern most boundary of the site (See Masterplan attached).

Internal access will be provided by a series of well planned private travelways and on-site parking areas (See SUP Masterplan attached).

Visibility

The applicant is proposing a comprehensive open space management plan under the proposed SUP that involves preservation of a significant amount of existing woodlands, and a significant amount of existing vegetation will be retained as a buffer on all sides of the subject 55.27 acre site, which will visually benefit the surrounding properties, including front, side and rear setbacks. Location, type, size and direction of exterior lighting shall not glare or direct illumination that interferes with adjacent properties or the safety of public rights-of-way, per the proposed SUP.

The height and density of the natural undergrowth and tree cover in this portion of the overall 55.27 acre site coupled with the significant width and length of this wooded buffer under the proposed SUP should be virtually invisible from immediate surrounding neighbors and limited direct visibility to all other property owners and travelways in the neighborhood, except the existing athletic field and proposed gymnasium and supporting parking area, which area is already visible to the neighborhood.

From a design layout standpoint, all of the proposed building improvements, except a portion of building P2 (eighth-grade classroom) are to be carefully located in the middle of the property to less conspicuous areas within the proposed Emerson Waldorf School SUP Masterplan to help mitigate visibility of buildings and their heights within existing sight and tree lines.

The context, aesthetics, scale, and massing of the proposed improvements as described in the SUP is to be guided by an overarching architectural theme and standards. Subtle variations between the proposed improvements are likely, however, the architectural theme will prevail throughout the site under the proposed Emerson Waldorf School SUP.

NEIGHBORHOOD DESCRIPTION

The specific neighborhood of the proposed Emerson Waldorf School is the area along Millhouse Road, immediately west of I-40, and is composed of the Emerson Waldorf School, agricultural & equestrian uses, and large lot residential houses.

It must be noted that the acoustic influence from I-40 traffic is pronounced at all times.

Within a three (3) mile radius of the site are mostly rural residential and agricultural settings, which are mostly supported by a series of commercial establishments near the northern border of the Town of Chapel Hill, including retail, emergency, medical & recreational services along with major transportation corridors such as I-40 & NC 86.

CONCLUSION

The immediate area around the proposed expansion of Emerson Waldorf School was observed to be dominated by the School site itself at 55.27 acres. Other nearby properties includes usages for agricultural and equestrian purposes, as well as large lot residential purposes (see Neighborhood Improvement Map attached). As can be seen on the Topographic Map and the Neighborhood Improvement map, the nearby wooded and larger tracts have been developed to near capacity of density and when recognizing that Emerson Waldorf School has existed in this location on 55.27 acres since 1984, and when coupled with the context, design, scale and location to be inside the setbacks of the planned improvements for the proposed SUP expansion of Emerson Waldorf School, the proposed SUP appears to be appropriate and positive contributors for such a community supported educational use.

A 2007 Triangle Business Journal editorial reprint supports a strong network of public and private schools and considers such a combination to bolster the area's reputation and strong emphasis on education and the ability to successfully recruit and maintain businesses and thus enhances the quality of the overall community. The more education options a community has the more appealing the community is.

The mostly wooded and vegetated areas of the Emerson Waldorf School site contributes an acoustic beneficial buffer to the site and the surrounding neighborhood from I-40 traffic & NC Railroad noise. The higher elevation of the northwest corner of the property also naturally functions to noise pollution buffer to those properties further north and west of the site from the I-40 traffic & NC Railroad noise. Finally, the undevelopable open space requirements on the 55.27 acre site are also considered beneficial buffers.

It is my opinion that the proposed Emerson Waldorf School SUP is considered consistent with the overall area, while incorporating appropriate development standards and guidelines for such educational use. Therefore, it is my opinion that the proposed Emerson Waldorf School SUP would have **no** negative effect (in terms of value or marketability) on the immediate surrounding properties including agricultural, equestrian and single-family residential uses and their respective nearby neighborhoods.

Considering the prevalent land uses in the immediate neighborhood, the already existing nearby agricultural and equestrian uses, the general character of the area, the relative minimal density of existing residential development, and the location of the proposed expanded Emerson Waldorf School, it is my opinion that the proposed Emerson Waldorf School would not be inconsistent with other existing uses in the immediate and surrounding area and would have **no** negative effect on value or marketability on surrounding properties.

NOTE: I have not performed an appraisal of the subject property as improved or as proposed, or any of the surrounding neighborhood properties or Comparable Sales Neighborhoods. The above-mentioned information and analysis is intended for use as an Impact Analysis only, as it relates to the subject proposed Emerson Waldorf School expansion (assumed 100% complete as proposed per SUP as presented). No opinion of value is stated and none is assumed.

Certification and Statement of Limiting Conditions

The Appraiser certifies and agrees that:

1) The Appraiser has no present or contemplated future interest in the property analyzed; and neither the employment to make the analysis, nor the compensation for it, is contingent upon any specific or implied outcome.

2) The Appraiser has no personal interest in or bias with respect to the subject matter of the report or the participants. The opinions in the report are not based in whole or in part upon the race, color, or national origin of the prospective owners or occupants of the properties, or upon the race, color, or national origin of the present owners or occupants of the properties in the vicinity of the property.

3) The Appraiser has personally inspected the property, and is generally familiar with the location of the nearby neighborhood. To the best of the Appraiser's Knowledge and belief, all statements and information in this report are true and correct, and the Appraiser has not knowingly withheld any significant information.

4) All contingent and limiting conditions herein (imposed by the terms of the assignment or by the undersigned affecting the analysis, opinions, and conclusions contained in the report) have been disclosed.

5) This appraisal report has been made in conformity with and is subject to the requirements of the Code of Professional Ethics and Standards of Professional Conduct of the appraisal organizations with which the Appraiser is affiliated.

6) All conclusions and opinions concerning the real estate that are set forth in the report were prepared by the Appraiser whose signature appears on the report. No change of any item in the report shall be made by anyone other than the Appraiser, and the Appraiser shall have no responsibility for any such unauthorized change.

Scope of Work:

The Scope of the assignment is specific to the Clients stated needs, and is the extent of the process in which data was collected, confirmed, & reported, sufficient to satisfy the Purpose of the Assignment, and is based on the complexity of the assignment and the reporting requirements. Emerson Waldorf School is applying for a SUP with Orange County to expand its existing education facilities on Millhouse Road, and Orange County has a requirement that the applicant must provide evidence to how such an SUP might influence values on the surrounding properties and neighborhood, which is the subject of this Impact Analysis. The site was visited & photographed on April 13, 2015, data was collected and analyzed relative to the assignment and results and developed opinions are provided in this Impact Analysis.

In other words, the Scope of Work is the extent of the process in which data was collected, confirmed, & reported, sufficient to satisfy the Purpose of the Assignment,

Contingent and Limiting Conditions

The certification of the Appraiser appearing in the report is subject to the following conditions and to such other specific and limiting condition as are set forth by the Appraiser in the report.

1) The Appraiser assumes no responsibility for matters of a legal nature affecting the property or the title thereto, nor does the Appraiser render any opinion as to the title, which is assumed to be good and marketable. The property is analyzed as though under responsible ownership.

2) Any sketch in the report may show approximate dimensions and is included to assist the reader in visualizing the property. The Appraiser has made no survey of the property.

3) The Appraiser is not required to give testimony or appear in court because of having made the report with reference to the property in question, unless arrangements have been made previously therefore.

4) Any distribution of components in the report between land and improvements applies only under the existing program of utilization. The separate opinions for land and building must not be used in conjunction with any other assignment and are invalid if so used.

5) The Appraiser assumes that there are no hidden or unapparent conditions of the property, subsoil, or structures, which would render it more or less valuable. The Appraiser assumes no responsibility for such conditions, or for engineering, which might be required to discover such facts.

6) Information, estimates, and opinions furnished to the Appraiser, and contained in the report, were obtained from sources considered reliable and believed to be true and correct. However, no responsibility for accuracy of such items furnished the Appraiser can be assumed by the Appraiser.

7) Disclosure of the contents of the report is governed by the Bylaws and Regulations of the professional appraisal organizations with which the Appraiser is affiliated.

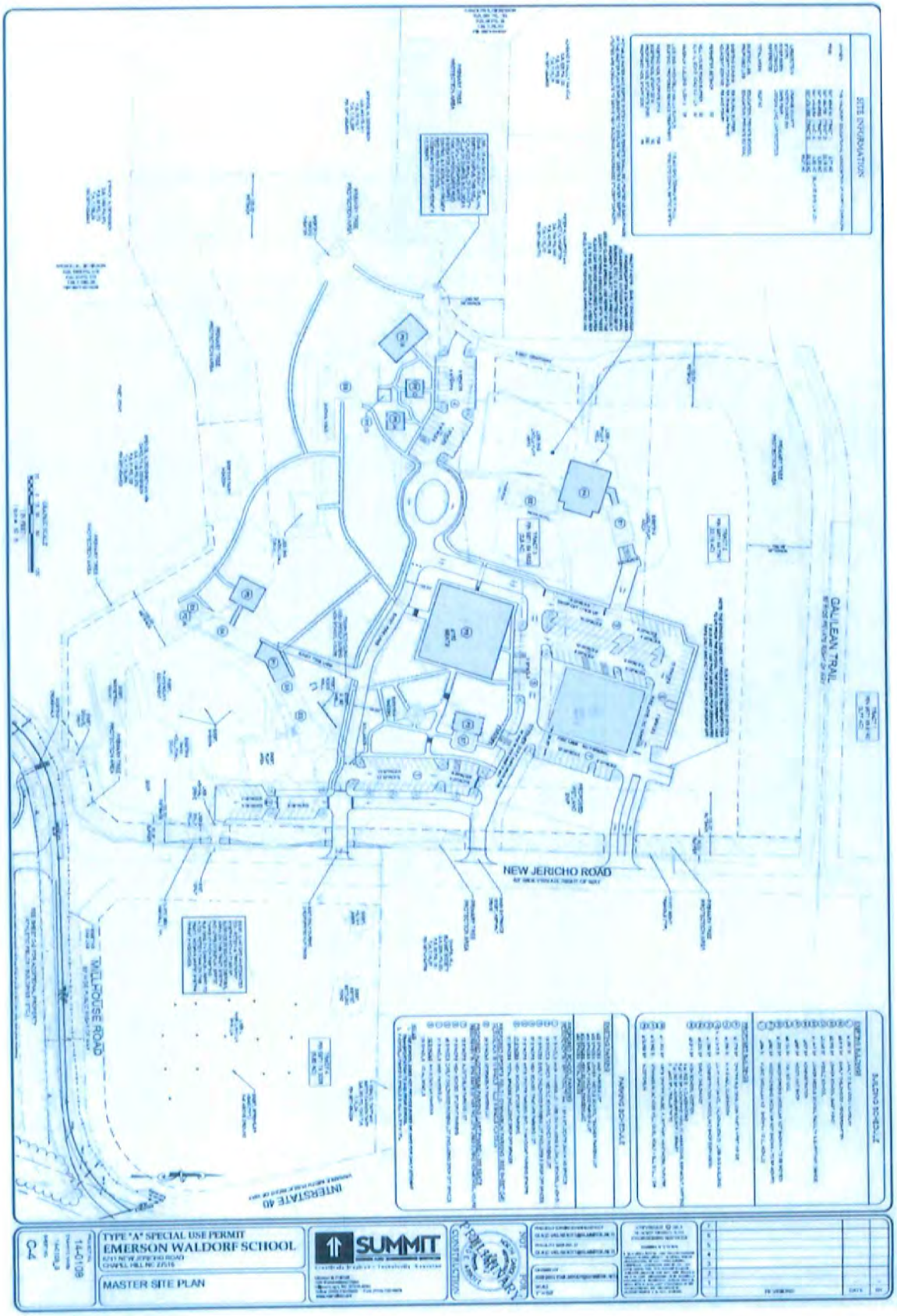
8) Neither all, nor any part of the content of the report, or copy thereof (including conclusions about the property, the identity of the Appraiser, professional designations, reference to any professional appraisal organizations, or the firm with which the Appraiser is connected), shall be used for any purpose by anyone but the client specified in the report, the user if appraisal fee paid by same, the user or its successor and assigns, insurers, consultants, professional appraisal organizations, any state or federally approved institutions, any department, agency, or instrumentality of the United States of any state of District of Columbia, without the previous written consent of the Appraiser; nor shall it be conveyed by anyone to the public through advertising, public relations, news, sales, or other media, without the written consent and approval of the Appraiser in advance.

9) On all reports, subject to completion or satisfactory completion, repairs, or alterations, the report and conclusions are contingent upon completion of the improvements in a workmanlike manner and/or as proposed.

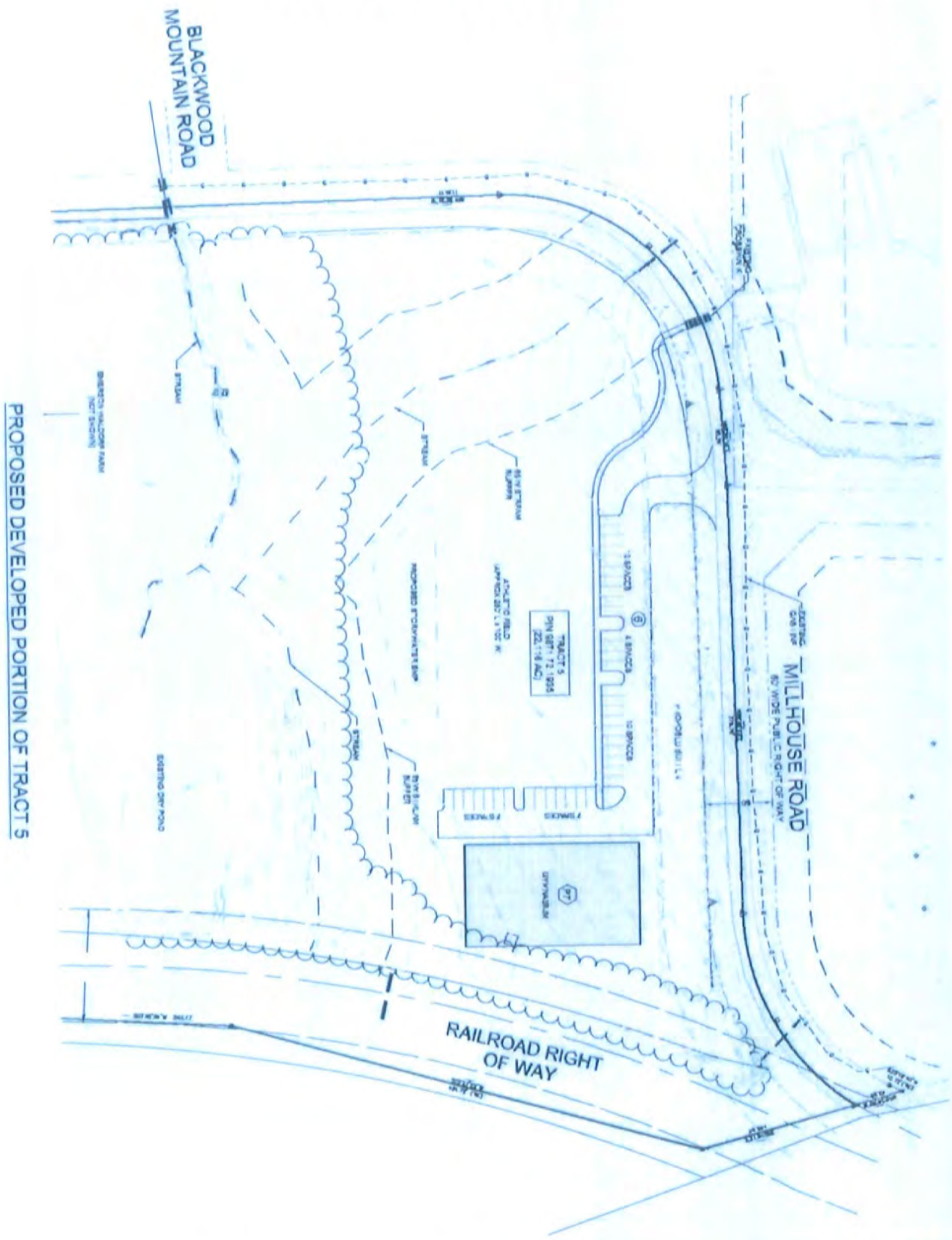
Everett V. Knight - (Signed April 19, 2015)
A7275 (NC Certified General)

ADDENDA

MASTER SITE PLAN



MASTER SITE PLAN



SITE INFORMATION

SITE INFORMATION

OWNER:	THE WALDORF EDUCATIONAL ASSOCIATION OF NORTH CAROLINA		
PINS:	9871-65-8140 (TRACT 1)	2.77 AC	
	9871-64-7391 (TRACT 2)	22.16 AC	
	9871-64-5632 (TRACT 3)	2.60 AC	
	9871-74-3098 (TRACT 4)	5.62 AC	(SEPTIC SYSTEM LOT)
	9871-72-1935 (TRACT 5)	22.12 AC	
		55.27 AC	

JURISDICTION: ORANGE COUNTY
STATE: NORTH CAROLINA
RIVER BASIN: CAPE FEAR
WATERSHED: JORDAN LAKE (UNPROTECTED)
REFERENCE:

TOTAL AREA: 55.27 AC

EXISTING USE: EDUCATION (PRIVATE SCHOOL)
PROPOSED USE: EDUCATION (PRIVATE SCHOOL)

EXISTING ZONING: RB (RURAL BUFFER)
PROPOSED ZONING: RB (Special Use Permit)
ADJACENT ZONING: RB AND PDHR1

PERIMETER SETBACK 100'

MILL HOUSE ROAD BUFFER 30'
NEW JERICHO ROAD BUFFER 30'

MAXIMUM BUILDING HEIGHT: 25'

EXISTING / PROPOSED WATER SUPPLY: *16,500 GPD COMMUNITY WELL
EXISTING / PROPOSED SEWAGE TREATMENT: *3750 GPD COMM. SEPTIC SYSTEM

EXISTING NOS. STUDENTS (2014)	258
EXISTING NOS. STAFF (2014)	40
PROPOSED NOS. STUDENTS (2030)	350
PROPOSED NOS. STAFF (2030)	55

* POTABLE WATER AND SEPTIC SYSTEM STATE PERMITS SHALL BE UPDATED AS EACH PHASE OF THE MASTER PLAN IS IMPLEMENTED TO ENSURE THAT EXISTING WATER / SEPTIC UTILITIES ARE ADEQUATE TO SERVE NEW BUILDINGS & INCREASED STUDENT CAPACITY.

BUILDING SCHEDULE

BUILDING SCHEDULE

EXISTING BUILDINGS

E1	±1,661 SF	EARLY CHILDHOOD - NURSERY
E2	±2,515 SF	EARLY CHILDHOOD - KINDERGARTEN
E3	±2,992 SF	LOWER SCHOOL (EAST WING)
E4	±3,053 SF	MIDDLE SCHOOL
E5	±1,447 SF	LOWER/MIDDLE SCHOOL FACULTY & EURYTHMY (DANCE)
E6	±627 SF	ADMINISTRATION
E7	±682 SF	WOODLAND SHOP
E8	±6,120 SF	HIGH SCHOOL
E9	±1,200 SF	HANDWORKING (MODULAR NOT SHOWN – TO BE MOVED)
E10	±960 SF	WOODWORKING (MODULAR NOT SHOWN - TO BE MOVED)
E11	±864 SF	MUSIC (MODULAR NOT SHOWN - TO BE MOVED)

PROPOSED BUILDINGS

P1	±1,776 SF	CENTER BUILDING (JOIN EAST & WEST WINGS)
P2	±1,650 SF	8TH GRADE CLASSROOM
P2 A	±1,573 SF	EURYTHMY (DANCE) (RENOVATION OF EXISTING BUILDING)
P3	±1,364 SF	ADMINISTRATION (WOODLAND SHOP EXPANSION)
P4	±5,220 SF	EARLY CHILDHOOD
P5	±6,244 SF	HIGH SCHOOL ADDITION A ±1,522 SF - CLASSROOMS B ±2,762 SF - ACADEMIC WING (CLASSROOMS, BREAKOUT, MEETING) C ±1,960 SF - ADMIN/RESOURCE / LIBRARY D ±400 SF - TRELLIS PATIO
P6	±11,800 SF	ARTS CENTER (MUSIC, EURYTHMY, HANDWORK, THEATRE)
P7	±13,942 SF	GYMNASIUM (ACROSS MILLHOUSE ROAD) - SEE SHEET C-5
P8	±12,593 SF	AUDITORIUM

PARKING SCHEDULE

PARKING SCHEDULE

EXISTING PARKING

±22 SPACES MAIN PARKING LOT
±22 SPACES LOWER / MIDDLE SCHOOL TEACHER PARKING LOT
±44 SPACES EARLY CHILDHOOD PARKING LOT
±10 SPACES HIGH SCHOOL PARKING LOT
±98 SPACES TOTAL SPACES

PROPOSED SCHOOL PARKING

(REQUIREMENTS: 1 SP/1 FACULTY (55), 1 SP/4 STUDENTS (350) = 143 SPACES)

(1) 31 SPACES MAIN PARKING LOT (VISITOR PARKING & LOWER SCHOOL DROP OFF)
(2) 18 SPACES LOWER / MIDDLE SCHOOL TEACHER PARKING LOT
(3) 51 SPACES EARLY CHILDHOOD PARKING LOT (INCLUDES 5 DROP OFF SPACES)
(4) 32 SPACES HIGH SCHOOL TEACHER PARKING LOT
(5) 12 SPACES ARTS CENTER PARKING (INCL. 2 HANDICAP PARKING SPACES)
(8) 17 SPACES HIGH SCHOOL STUDENT PARKING
161 SPACES TOTAL SPACES (INCLUDING DROP OFF SPACES)

PROPOSED SPORTS FIELD / GYMNASIUM PARKING (SEE SHEET C-5)

(REQUIREMENTS: 10 SPACES / FIELD, 5 SPACES PER COURT)

(6) 38 SPACES GYMNASIUM PARKING LOT

PROPOSED AUDITORIUM PARKING (LAST PHASE) - 300 SEATS

(REQUIREMENTS: 1 SP/4 SEATS (OTHER PKG LOTS USED DURING NON-SCHOOL HOURS)

(7) 13 SPACES AUDITORIUM PARKING LOT
(8) 17 SPACES HIGH SCHOOL STUDENT PARKING
(3) 56 SPACES EARLY CHILDHOOD PARKING LOT (INCLUDING DROP OFF SPACES)
(1) 31 SPACES MAIN PARKING LOT
(5) 12 SPACES ARTS CENTER PARKING
129 SPACES TOTAL SPACES

NOTES:

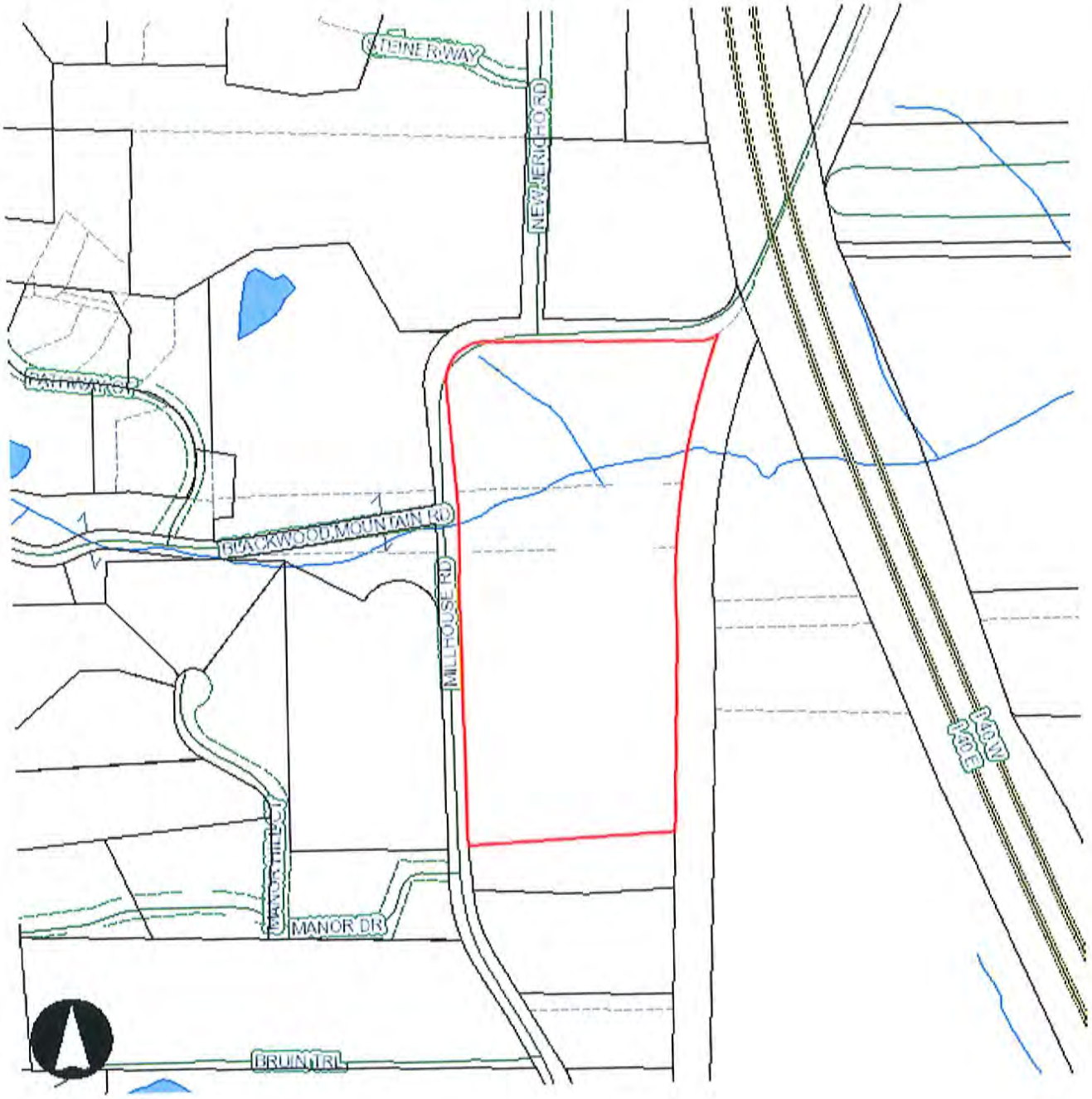
1. ***THE SCHOOL DOES NOT PROVIDE BUSES OR VANS FOR DAILY STUDENT TRANSPORTATION TO AND FROM SCHOOL.***
2. PROPOSED PARKING SPACES SHALL BE 9'W x 18'L.

GIS ORTHOGRAPHIC SITE MAP

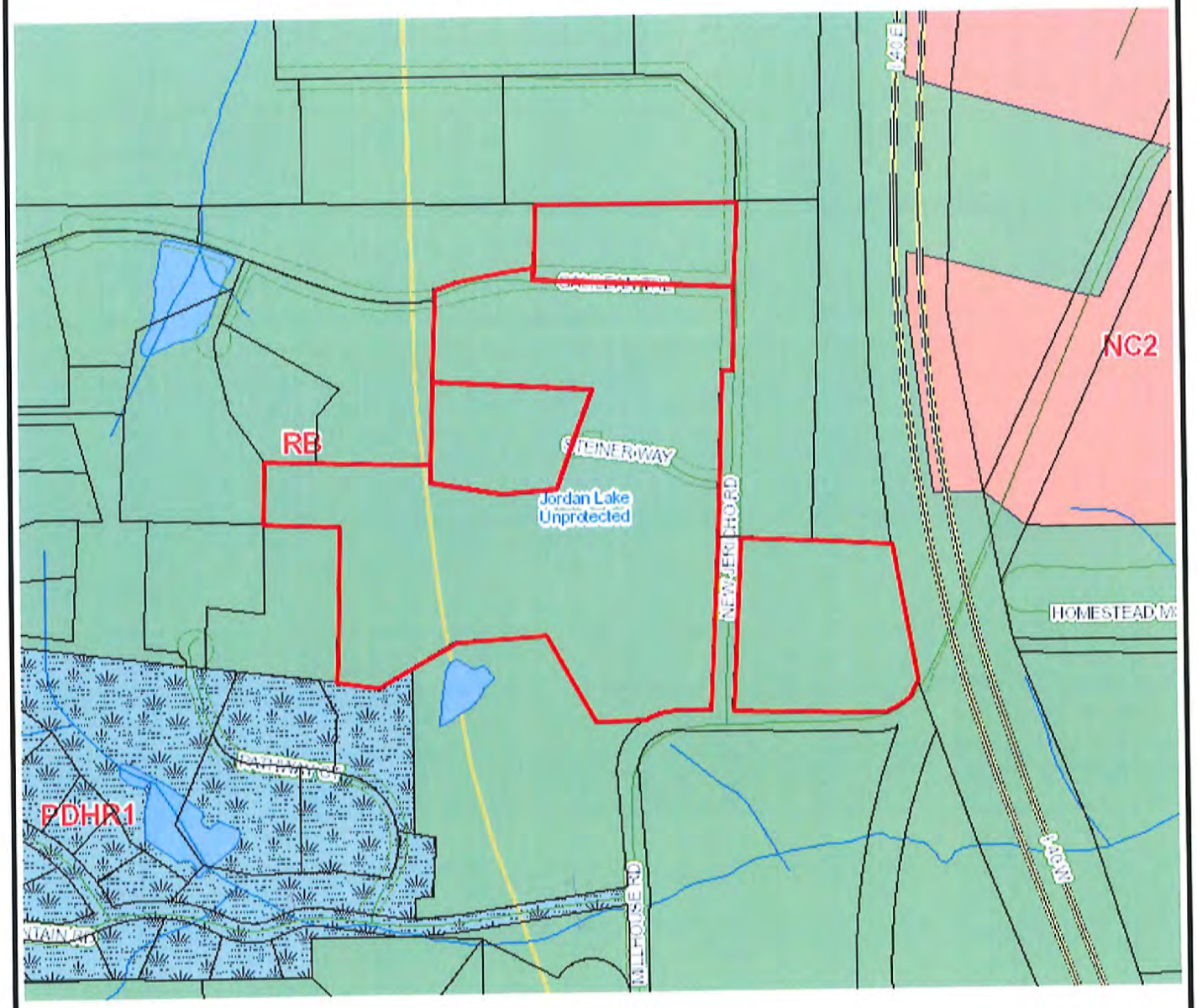
GIS ORTHOGRAPHIC SITE MAP

GIS PARCEL MAP

GIS PARCEL MAP

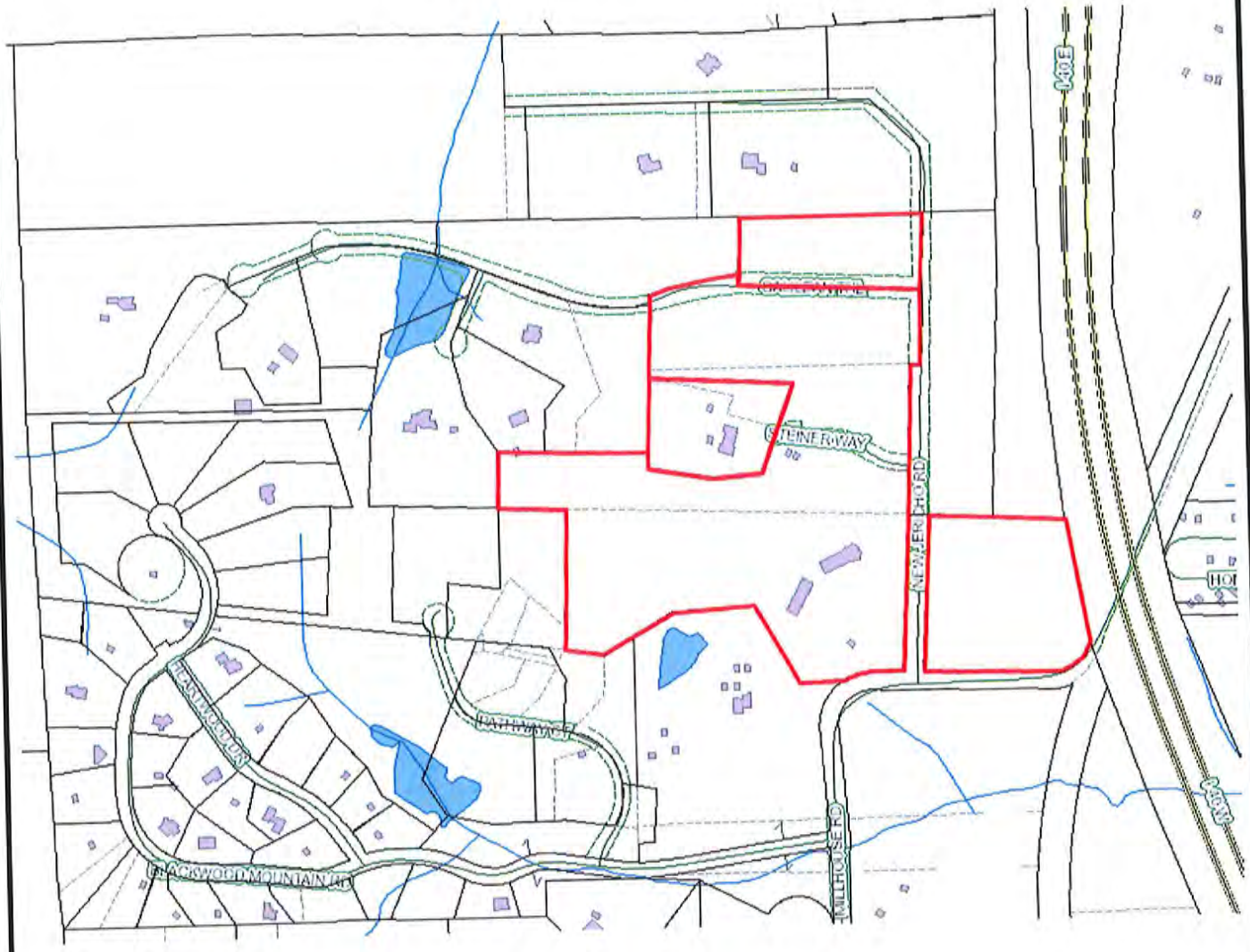


GIS Zoning MAP

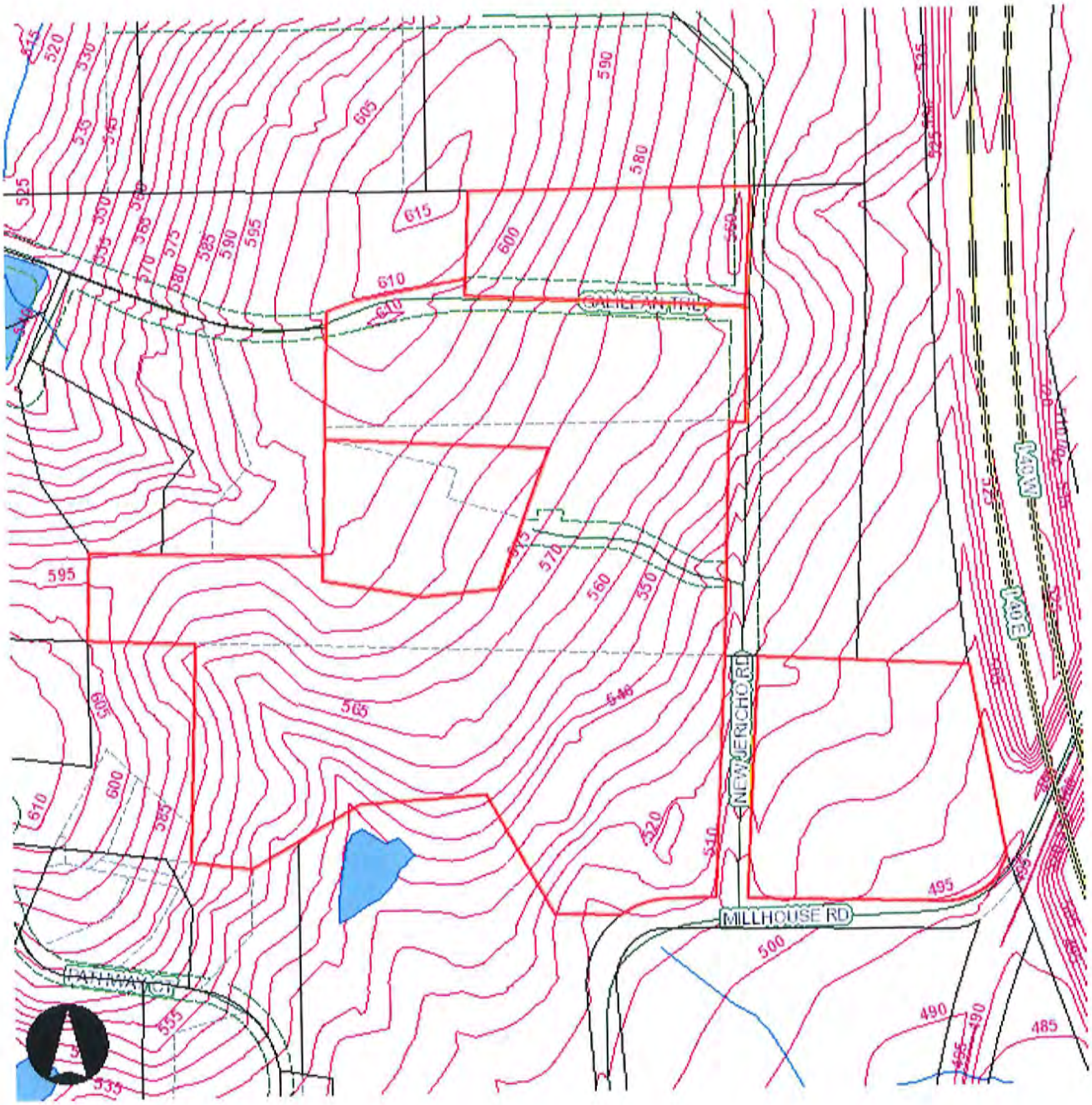


GIS Neighborhood Improvements Map

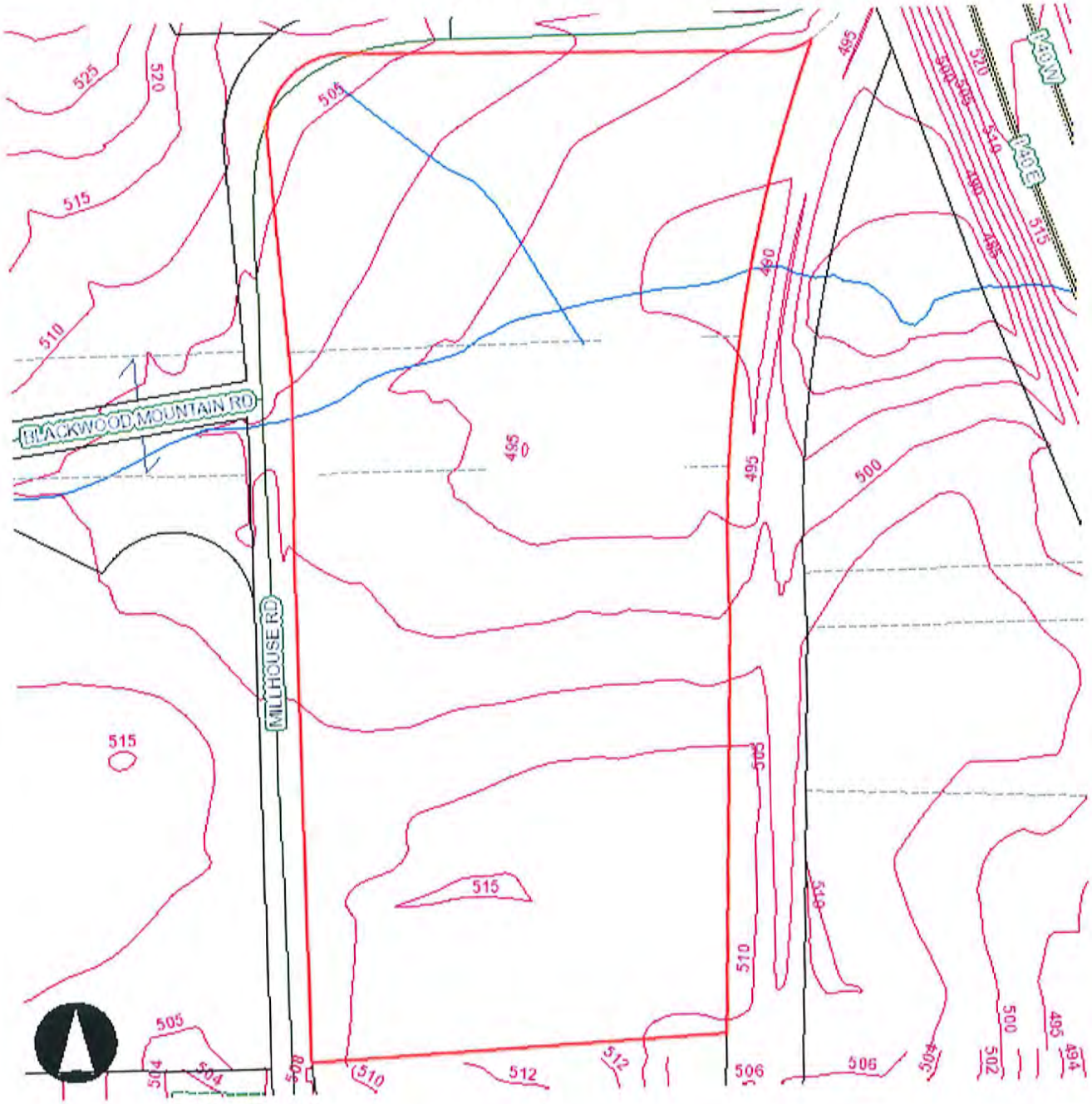
(Location of existing structures in the area)



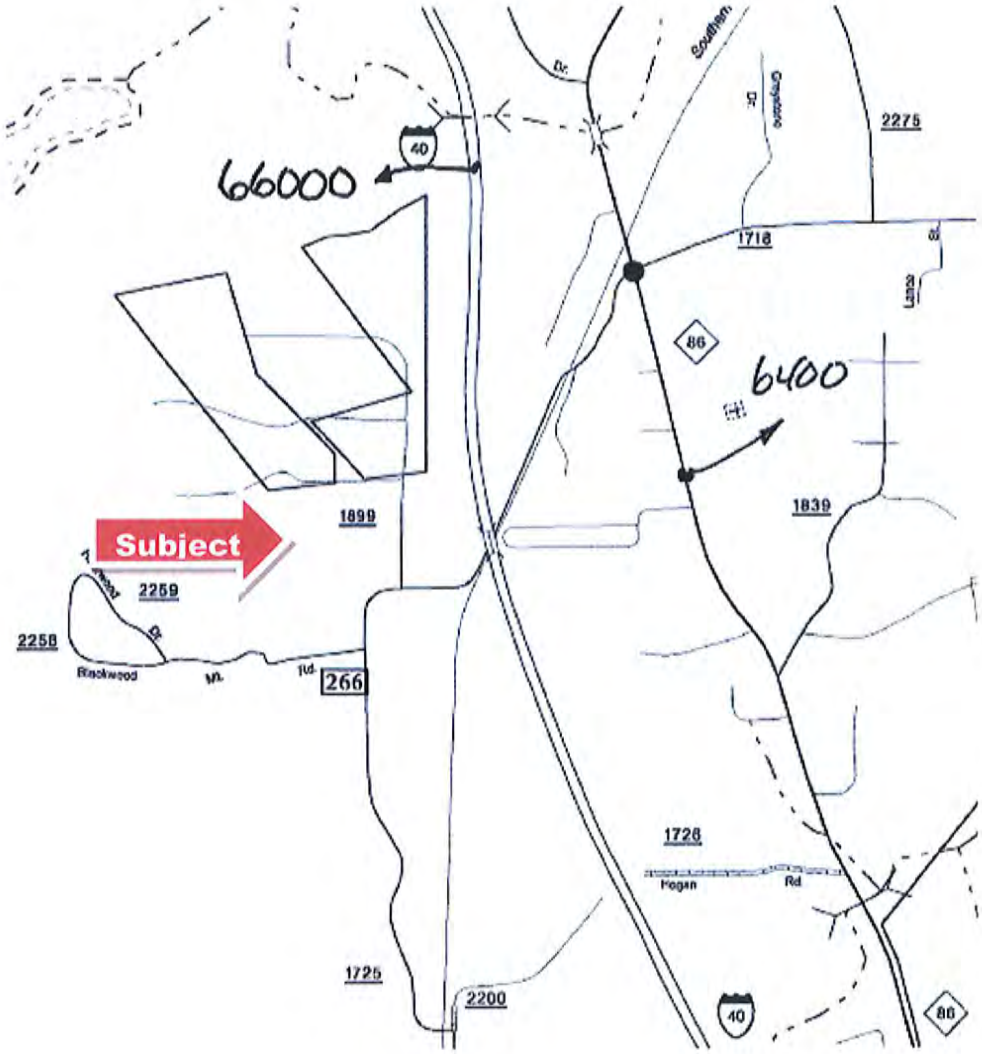
GIS TOPOGRAPHIC MAP



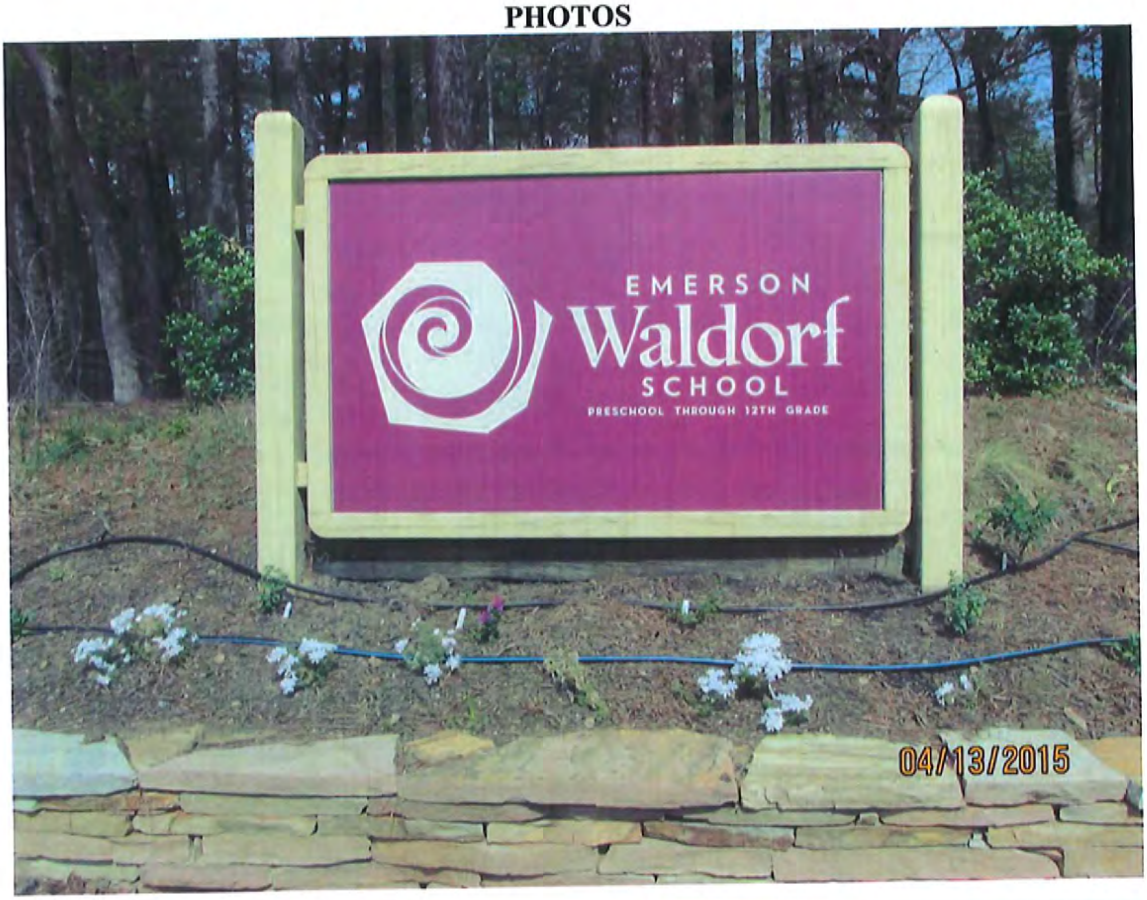
GIS TOPOGRAPHIC MAP



NC DOT Traffic Volume (AADT) Map (2013)



PHOTOS


EMERSON
Waldorf
SCHOOL
PRESCHOOL THROUGH 12TH GRADE
04/13/2015

04/13/2015

PHOTOS

04/13/2015

WASTE WATER
SPRAY FIELD
DO NOT ENTER
04/13/2015

04/13/2015

04/13/2015

04/13/2015

04/13/2015

STOP
04/13/2015

04/13/2015

EXHIBIT – D

TRAFFIC IMPACT ANALYSIS (TIA)

SEPI
ENGINEERING & CONSTRUCTION

TRAFFIC IMPACT ANALYSIS

Emerson Waldorf School TIA

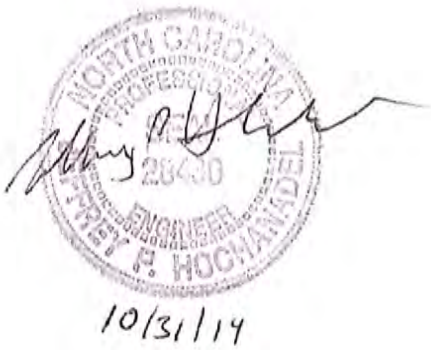
Prepared by
SEPI Engineering & Construction

Prepared for
Emerson Waldorf School

October 2014

Emerson Waldorf School
Chapel Hill, North Carolina

Traffic Impact Analysis



10/31/14

Prepared by
SEPI Engineering and Construction
1025 Wade Avenue
Raleigh, NC 27605
License Number: C-2197

Prepared for
Emerson Waldorf School
6211 New Jericho Road
Chapel Hill, NC 27516

October 2014

EXECUTIVE SUMMARY

I. Existing Conditions

The Emerson Waldorf School is proposing a renovation and expansion. **Figure ES-1** shows the general site location of the existing school. The existing school is located off New Jericho Road north of Millhouse Road just west of I-40 in Chapel Hill, North Carolina. The proposed renovations/expansion are scheduled to be complete by 2030. This report analyzes the full build-out scenario for the year 2030, the no-build scenario for 2030, as well as 2014 existing year traffic conditions.

The existing site currently contains approximately 22,121 square feet (sf) of space in 11 buildings, with a total student population of 258. The school includes Early Childhood (Kindergarten and Nursery), Lower School (1st – 8th grades) and High School (9th – 12th grades). **Figure ES-2** shows the existing school layout and locations of the three site driveways and three primary parking lots (total of approximately 98 parking spaces) currently used for student pick-up / drop-off. For future site build-out, the site will contain approximately 54,589 sf of space in 20 buildings with a student population of 350 students. Access to the site with the proposed expansion will remain the same as existing with the three site driveways. Approximately 145 parking spaces are proposed throughout the site under the proposed expansion, and an additional 131 spaces for auditorium parking, when needed. **Figure ES-3** shows the proposed project site plan and location of the future expansion. **Figure ES-3** also shows the specific locations of the proposed buildings, traffic circulating driveways, and parking facilities.

Specific analyses were conducted to analyze the internal traffic circulation and queuing vehicle storage. In addition, the site will be analyzed to ensure that it will meet the NCDOT's recommended 350-feet of queue storage. Current vehicle queue storage for student drop off and pick up stretches from the southernmost parking lot fronting New Jericho Road northward to the second site driveway.

This report analyzes and presents the traffic impacts that the proposed development will have on the following intersections:

- Site Driveway 1 / SR 1899 (New Jericho Road)
- Site Driveway 2 / SR 1899 (New Jericho Road)
- Site Driveway 3 / SR 1899 (New Jericho Road)
- NC-86 / SR 1718 (Mt Sinai Road) / SR 1725 (Millhouse Road)
- SR 1899 (New Jericho Road) / SR 1725 (Millhouse Road)
- Clyde Road / Chapel Hill Public Works Driveway / SR 1725 (Millhouse Road)
- SR 1725 (Millhouse Road) / SR 1727 (Eubanks Road)

The impacts of the site traffic from the renovation / expansion on the existing intersections (listed above) will be evaluated during the AM and (school) PM peak hours of an average weekday. The following analysis is based on the 2014 existing year traffic, the 2030 traffic with the addition of ambient growth and approved area development traffic volumes, the 2030 total traffic with the addition of estimated site-generated traffic produced by the school, and the future year 2030 total traffic with the addition of recommended roadway improvements. Currently, there is one background development (The Edge) to be completed (prior to 2030) within the surrounding area. To account for area-wide 2030 ambient traffic growth, an annual growth rate of 1.0 percent per year was applied to the existing volumes. This growth rate was provided to SEPI by the NCDOT.

The project study area is primarily serviced by three corridors (NC-86, Millhouse Road, and Eubanks Road) with several other corridors in the project study (New Jericho Road and Mt Sinai Road). There are currently three site driveways connecting to New Jericho Road. Site Driveway 1 functions as an "exit-only" driveway from the southernmost school parking lot. Site Driveway 2 is a full movement driveway, and services the two existing parking lots that front New Jericho Road and drop-off area located in front of the Main Office / 1st-4th Grade Building. Site Driveway 3 provides access to the daycare / kindergarten buildings (and parking lot) located in the northwest corner of the property as well as the northernmost parking lot fronting New Jericho Road.

To provide a more conservative vehicle estimate, no adjustments were made to anticipated traffic volumes to account for transit use. Additionally, no adjustments were made to anticipated traffic volumes to account for alternative / non-motorized modes of transportation (bicycle or pedestrian).

II. Background Conditions

Currently there is one Town of Chapel Hill development near the study area which is scheduled for completion by 2019, through a phased approach, and will be used as approved area development traffic. This development, currently known as The Edge, will include a mix of land uses and be located along Eubanks Road just west of NC 86. The Edge site plan includes four direct access driveways to Eubanks Road over a distance of approximately 2,500 feet, 431 residential units (apartments), 157,000-sf office space, and 196,250-sf commercial/retail space (potentially including 250 hotel rooms). There were no recommended improvements within the project study area.

To account for area-wide future ambient traffic growth, an annual growth rate of 1.0 percent was applied to the existing traffic volumes.

Currently there are no Town of Chapel Hill projects scheduled for construction in the project study area. Because of this, no adjustments were made to the existing area lane configuration. All analyses will be conducted using the existing lane configurations.

III. Project Conditions

The site generation potential of the proposed development was determined using the trip generation rates projected by the NCDOT's Municipal and School Transportation Assistance's (MSTA) school calculator. The approximate number of students (350) was used to estimate the traffic generated during the AM and (school) PM peak hours. It should be noted that the MSTA school calculator provides only the peaking characteristics of the school. While the AM peak hour trips generated by the school occur at the same time as the AM peak hour for the project study area roadway facilities; the PM peak hour generated trips do not correspond with the peaking characteristics of the project study area roadway facilities. The school's PM peak hour will occur at approximately 2:30 – 3:30 p.m., whereas the PM peak hour of the project study area roadway facilities occurs between 4:00 p.m. – 6:00 p.m. For this reason, PM traffic was analyzed during the school's PM peak period (2:00 p.m. – 4:00 p.m.). AM trips generated totaled 372 vehicles with 221 vehicles entering and 152 vehicles exiting. PM trips generated totaled 211 vehicles with 94 vehicles entering and 117 vehicles exiting.

Because the existing MSTA school calculator volumes closely resembled the existing traffic data collected (see **Table ES-1** below), it was assumed (for purposes of analysis) that the MSTA calculator would provide an accurate representation of future on-site trips and on-site queuing. Therefore, trips generated by the MSTA calculator were used for all on-site Condition 3 analyses. The net differences in trips between the future and existing trips calculated by the MSTA calculator were applied to the traffic network for all off-site Condition 3 analyses.

Table ES-1 summarizes the estimated traffic generation for the proposed development during the AM and (school) PM peak hour. No attempt was made to reduce the number of trips by a transit factor (due to the lack of accessible bus routes in the area), nor were the trips reduced due to pass-by trips. A heavy vehicle percentage of two percent was calculated by the MSTA school calculator and assumed for the purposes of this analysis. Existing peak hour factors were used for analysis due to the fact that existing school trips are currently using the same network as commuter trips.

Table ES-1 – Peak Hour Trip Generation (Vehicles / Hour)

TYPE	SCHOOL	NUMBER OF STUDENTS	AM PEAK HOUR			PM PEAK HOUR		
			Enter	Exit	Total	Enter	Exit	Total
Existing Conditions								
MSTA	Early Childhood	55	31	24	55	15	15	30
	Lower	158	89	68	157	42	42	84
	High	45	39	20	59	12	25	37
	Total	**258**	**159**	**112**	**271**	**69**	**82**	**151**
Existing Conditions								
Counts	**Total**	**258**	**158**	**115**	**263**	**98**	**106**	**214**
Future Conditions								
MSTA	Early Childhood	55	31	24	55	15	15	30
	Lower	215	121	93	214	57	57	114
	High	80	69	35	103	22	45	67
	Total	**350**	**212**	**145**	**357**	**90**	**113**	**203**
Net Difference								
TOTAL			**54**	**34**	**88**	**22**	**31**	**53**

Existing Conditions

Currently, the procedure for drop-off / pick-up is based on grade level. All children in grades 4 and under are required to be walked into school by a parent. Bus transportation is not offered at the school. The parent vehicles for the Early Childhood program (Kindergarten and under) enter the site through Site Driveway 3, travel north and park in the parking lot adjacent to the Early Childhood buildings. These vehicles use Site Driveway 3 to exit the site.

Parent vehicles for the elementary and middle school children currently use both Site Driveway 2 and Site Driveway 3 for entering / exiting the school site. A portion of these vehicles use Site Driveway 3 to enter the site and park in the parking lot in front of the Pavilion (see **Figure 2**). Once these parents walk their children into school, they exit the site using Site Driveway 2 or Site Driveway 3. Parents of elementary and middle school children also enter via Site Driveway 2 and either park in the parking lot located adjacent to the Lower School area or use Site Driveway 2 and the main parking lot to drop off their children. The majority of the vehicles for the Lower School use Site Driveway 1 to exit the site. A few of the vehicles that drop off children via Site Driveway 2 use the same drive for exiting the site. In addition, if Site Driveway 2 backs up with vehicles, some parents travel down New Jericho Road and enter thought Site Driveway 3,

circle through the main parking lot back to Site Driveway 2 for drop-offs. During the busiest period of drop-off / pick-up, a small amount of queuing occurs on New Jericho Road.

High school students and parents use Site Driveway 3 to enter and exit the site. A percentage of the high school students park on-site in the parking areas adjacent to the Early Childhood buildings and High School building (see **Figure 2**). It is important to note that the vehicles coming from the western portion of the site (High School and Early Childhood) cannot use Site Driveway 2, as it is a dedicated fire lane blocked off from through traffic.

The existing access and on-site circulation of vehicles create several conflict points, especially between pedestrians and vehicles. Parents and students walking to the buildings cross moving traffic in parking areas and access drives with no visible crosswalks, specifically Site Driveway 2. This creates a safety concern, and causes vehicles to back-up within access drives and onto New Jericho Road while waiting for pedestrians to cross. In addition, the school provides coffee for parents during morning drop-off in an area adjacent to the Main Office / 1st-4th Grades Building. This amenity results in a grouping of people in an area that is busy with vehicles and vehicles occupying parking spaces for a longer period of time.

Future Conditions – On-Site

The proposed expansion includes improvements that will address existing circulation and queuing concerns. As illustrated in **Figure ES-3**, the three existing site driveways will continue to provide ingress/egress as they currently function. However, the drop-off / pick-up will be organized to provide sufficient on-site queuing and mitigate conflict points, as demonstrated in **Figure ES-4**. Site Driveway 3 will serve as ingress for all parents/students, with parents of the Early Childhood program and the High School using Site Driveway 3 to also exit. Site Driveway 2 will act primarily as a site egress point during school pick-up / drop-off, but will be full movement throughout the school day. Site Driveway 1 will act as a site egress only and will service parents that have picked-up / dropped-off students that do not need to be walked into school.

Early Childhood parents, parents picking-up / dropping-off only high school students, as well as high school students allowed to park on campus will enter / exit the site via Site Driveway 3. Site Driveway 3 will be the sole access route to the northwesternmost site parking lot that fronts the Early Childhood buildings. Based on the current bell schedule, high school students will arrive on campus and park (or be picked-up / dropped-off) prior to the arrival of the Early Childhood parents / students. Additionally, Early Childhood parents / students leave site at approximately 12:00 p.m.; consequently, these age groups should not conflict. However, a vehicular conflict point is created for those vehicles existing Site

Driveway 3 and those wishing to turn south towards the proposed parking lot or queue storage lane (located between Site Driveways 3 and 2). However, as discussed later in the document, Condition 3 Synchro analyses reveal that the conflict point created causes only insignificant delays and does not exacerbate on-site queuing.

Site Driveway 3 will also serve as the main entrance for parents / students wishing to access the Lower and Middle Schools. Vehicular movements, once on the site, will turn left into either a linear parking lot (for parents picking-up / dropping-off students in Grades 1 – 4) or a queue storage lane (for parents picking-up / dropping-off students in Grades 5 – 8). Vehicles using the parking lot will exit Site Driveway 2, where vehicles using the queue storage lane will cross Site Driveway 2 and ultimately exit via Site Driveway 1. A vehicular conflict point is created for those vehicles existing Site Driveway 2 and those wishing to cross Site Driveway 2 and exit via Site Driveway 1. However, as discussed later in the document, Condition 3 Synchro analyses reveal that the conflict point created causes only insignificant delays and does not exacerbate on-site queuing.

A one-way (southbound only) traffic pattern has been designed through the proposed parking lot (located between Site Driveways 2 and 3) to help facilitate on-site traffic flow to Site Driveway 2. A sidewalk, located adjacent to the parking lot will provide access for Grade 1 – 4 parents and students. Vehicles will park in this lot and access the sidewalk. An unimpeded crossing is provided for pedestrians from this sidewalk to the lower buildings. In addition, the morning coffee station, currently located in front of the Main Office / 1st – 4th Grades Building, will be relocated to the existing gazebo in the Pavilion area. This area provides more space for gathering and is protected from the vehicle circulation. These improvements will improve on-site safety and greatly reduce pedestrian / vehicular conflict points.

It should be noted that the extension of Site Driveway 2 will continue to be blocked to through traffic and used only as an emergency / fire lane. Parents / students will cross this fire lane from the proposed parking lot to access the school buildings to the south. Additionally, this area is currently used by students to move from building to building throughout the day. On-site observations revealed students running between buildings and not realizing they were crossing a vehicular route. Opening this lane to traffic would create a significant number of unmarked pedestrian / vehicular conflict points and would create significant safety concerns.

The queue storage area (located between Site Driveways 2 and 3) will allow vehicles to store on campus before crossing Site Driveway 2 and ultimately picking-up / dropping off students near Site Driveway 1. This southbound route will be for vehicular storage / passage only and will have no pedestrian

crossings. This improvement will allow for all vehicular queuing to occur on-site. It should be noted that, for purposes of analysis, it was assumed that all parents picking-up / dropping off students in the 5th – 12th grade will use this vehicular path. This represents a "worst case" scenario for future queuing projections. In actuality, all parents picking-up / dropping-off high school students (only) will enter / exit the site via Site Driveway 3 and will never enter the queue storage lane. Only when parents have students in both the lower school and high school will they use the queue storage lane to access pick-up / drop-off.

The older student (5th grade and higher) pick-up / drop-off location will be relocated to the southernmost parking lot. The equivalent of approximately three parking spaces will be provided for parents just west of Site Driveway 1. As previously discussed, vehicles will enter via Site Driveway 3, pick-up / drop-off students, and exit via Site Driveway 1. There is approximately 400 feet of on-site queue storage with the proposed expansion. With a projected MSTA queue length of 350 feet, adequate on-site storage will be available for queued vehicles.

Staff members are projected to arrive on-site prior to vehicular queuing in the AM peak hour and leave the site after vehicular queuing in the PM peak hour. Early Childhood and High School teachers will use the northwesternmost parking lot and will enter and exit the site via Site Driveway 3. Teachers for Grades 1 – 8 will enter the site via Site Driveway 3, turn south through the queuing lane, and park in the southernmost site parking lot. After school, these teachers will leave the site through Site Driveway 1.

Several future MSTA calculator spreadsheets were created to help route traffic through the site. An overall spreadsheet was created to show all future trips (summarized in **Table ES-1** above). A second spreadsheet was created accounting for the Early Childhood student population (55 students) and staff (assumed 7), high school student drivers (23 students), and high school staff (assumed 11) which will enter / exit the site via Site Driveway 3. A third spreadsheet was created accounting for the proposed students in Grades 1 – 4 (115 students) that will park in the parking lot located between Site Driveways 2 and 3. These trips will enter the site via Site Driveway 3 and exit the site via Site Driveway 2. A fourth spreadsheet was created accounting for the proposed students in Grades 1 – 5 (100 students) and Grades 9 – 12 (57 students) being picked-up / dropped-off and Grades 1 – 8 staff members parking in the southernmost parking lot. These trips will enter the site via Site Driveway 3 and exit the site via Site Driveway 1.

Future Conditions – Off-Site

The directional traffic patterns, or trip distribution, of the (net) site generated traffic was determined based on existing off-site travel patterns. Based on traffic data collected by SEPI, 51% of the projected trips will approach / depart the site

from the northeast using Millhouse Road and 49% of the projected trips will approach / depart the site from the west using Millhouse Road. The distribution percentages were applied to the generated trips to predict routes and project traffic volumes for the 2030 build-out scenario.

IV. Traffic Operations Analysis

As is typical for a traffic impact analysis, each of the study area intersections were first analyzed under existing conditions. The intersections (existing and future) were then analyzed with and without the addition of site traffic during the project build-out year (2030). Next, mitigated improvements were introduced to the network so that each intersection either operated at a LOS D (or better) or operated at a LOS equal to or better than the without site traffic condition.

For this analysis, the following four conditions were evaluated:

Condition 1: 2014 Existing Traffic
Condition 2: Build-Out Year (2030) Without Site Traffic
Condition 3: Build-Out Year (2030) With Site Traffic
Condition 4: Build-Out Year (2030) With Site Traffic & Mitigated Improvements

Table ES-2 shows the (critical intersection movement) results of the intersection analyses for each Condition.

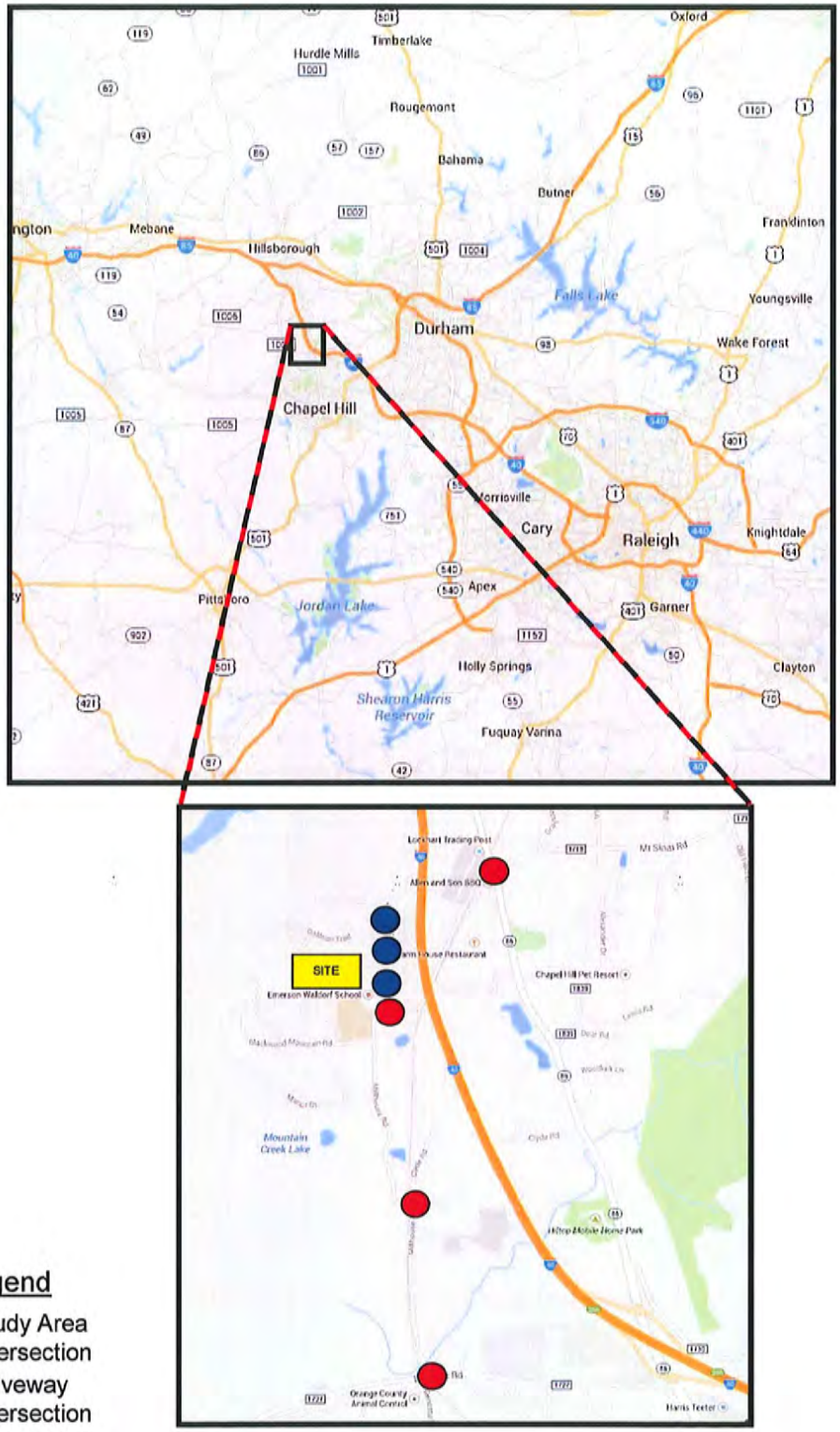
Table ES-2 – Level of Service and Delay (sec/veh) Results – Study Area Intersections

Intersection	2014 Condition 1 Existing Traffic		2030 Condition 2 Without Site Traffic		2030 Condition 3 With Site Traffic		2030 Condition 4 With Site Traffic & Improvements	
	AM	PM	AM	PM	AM	PM	AM	PM
Site Driveway 1 / SR 1899 (New Jericho Road)	A (9.3)^	A (9.2)^	A (9.3)^	A (9.2)^	A (9.6)^	A (9.4)^		
Site Driveway 2 / SR 1899 (New Jericho Road)	A (3.8)^	A (5.1)^	A (3.8)^	A (5.1)^	A (9.0)^	A (9.0)^		
Site Driveway 3 / SR 1899 (New Jericho Road)	A (8.6)^	A (8.6)^	A (8.6)^	A (8.6)^	A (8.5)^	A (8.6)^		
NC-86 / SR 1718 (Mt Sinai Road) / SR 1725 (Millhouse Road)	*F (109.8)^*	*E (36.4)^*	*F (505.8)^*	*F (151.5)^*	*F (744.0)^* C (21.7)	*F (215.8)^* B (14.6)		
SR 1899 (New Jericho Road) / SR 1725 (Millhouse Road)	B (12.3)^	B (11.1)^	B (12.6)^	B (11.2)^	C (16.1)^	B (12.8)^		
Clyde Road / Chapel Hill Public Works Driveway / SR 1725 (Millhouse Road)	A (8.0)	A (8.1)	A (8.2)	A (8.4)	A (8.7)	A (8.6)		
SR 1725 (Millhouse Road) / SR 1727 (Eubanks Road)	A (8.9)	A (7.5)	B (11.0)	A (8.5)	B (13.8)	A (8.7)		

^ => Key unsignalized intersection movement
* => Delay incalculable
X (##.#) => SimTraffic LOS & Delay (average of 5 runs)

V. Conclusions and Recommendations

In conclusion, the Emerson Waldorf School was analyzed for four separate conditions: 2014 existing (Condition 1), 2030 without the addition of site traffic (Condition 2), 2030 with the addition of site traffic (Condition 3), and finally 2030 with the addition of site traffic and mitigated improvements (Condition 4). **Table ES-2** above shows the levels of service and delay values for each analyzed condition. Traffic counts, performed by SEPI, form the basis for the analysis of Conditions 1 - 4. No offsite intersection improvements are recommended or necessary to help mitigate delay due to site traffic from the Emerson Waldorf School expansion.



Not To Scale

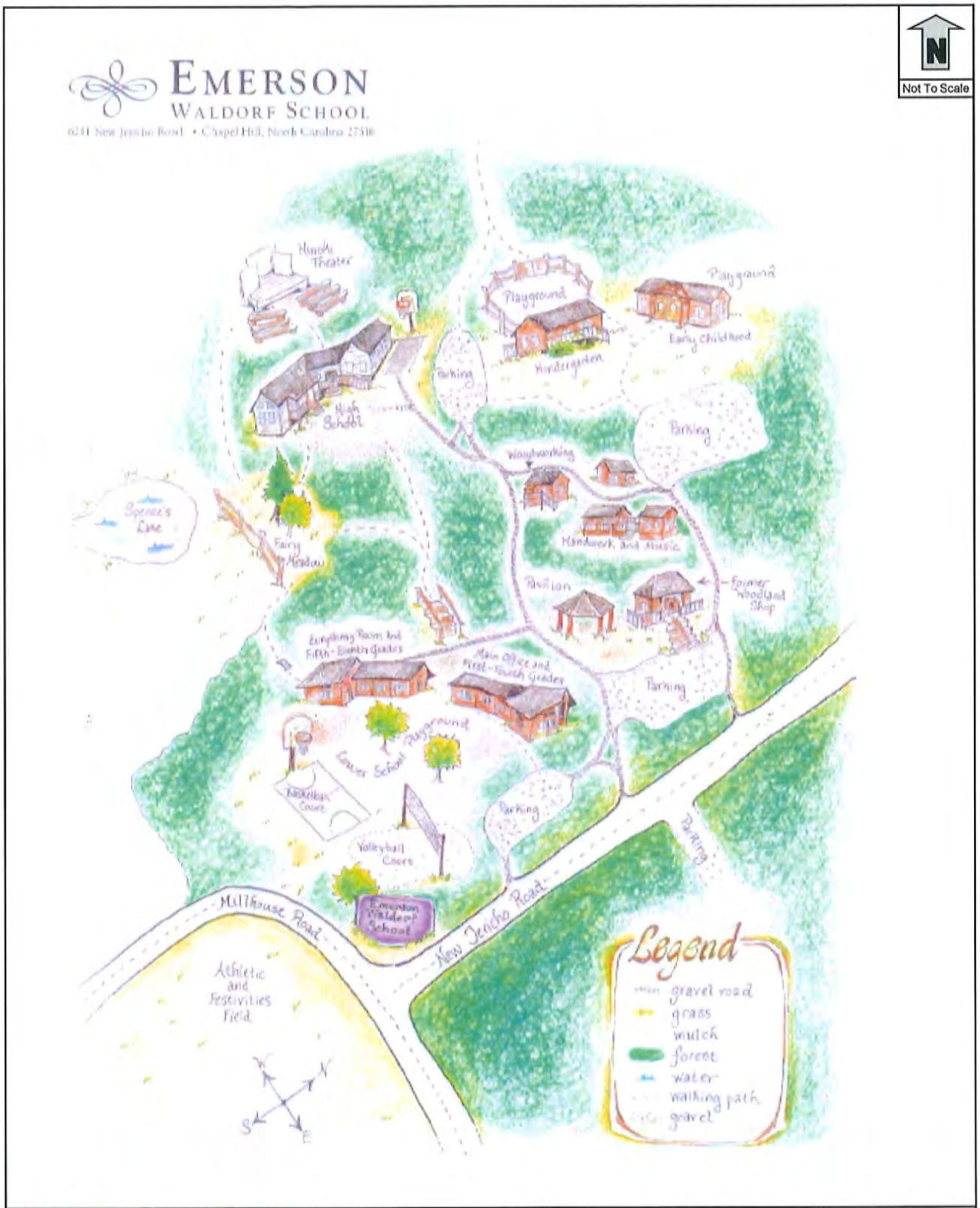
Legend

- = Study Area Intersection
- = Driveway Intersection

SEPI ENGINEERING & CONSTRUCTION

Emerson Waldorf School
Chapel Hill, North Carolina

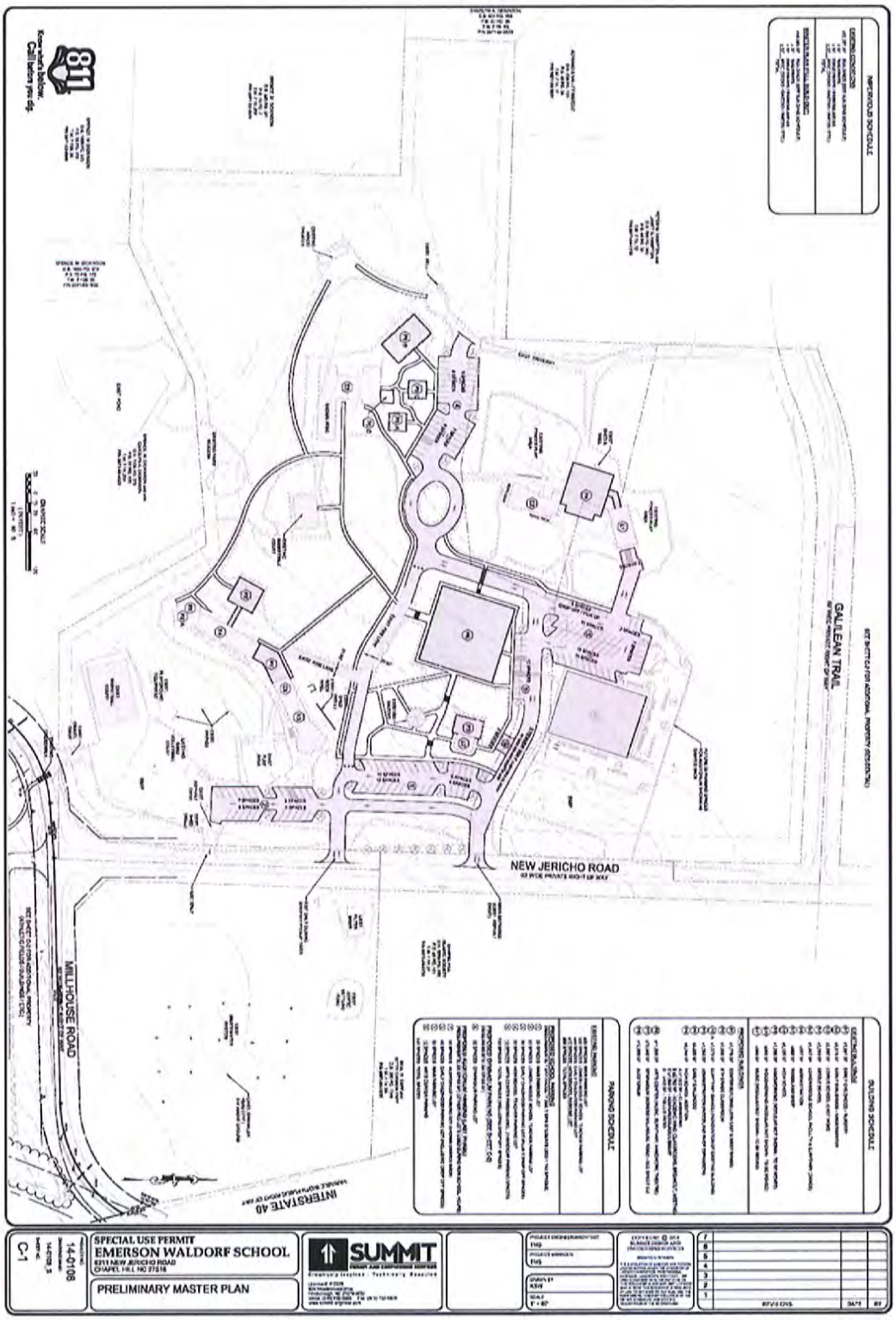
Site Location Map | Figure ES-1



SEPI
ENGINEERING & CONSTRUCTION

Emerson Waldorf School TIA
Chapel Hill, North Carolina

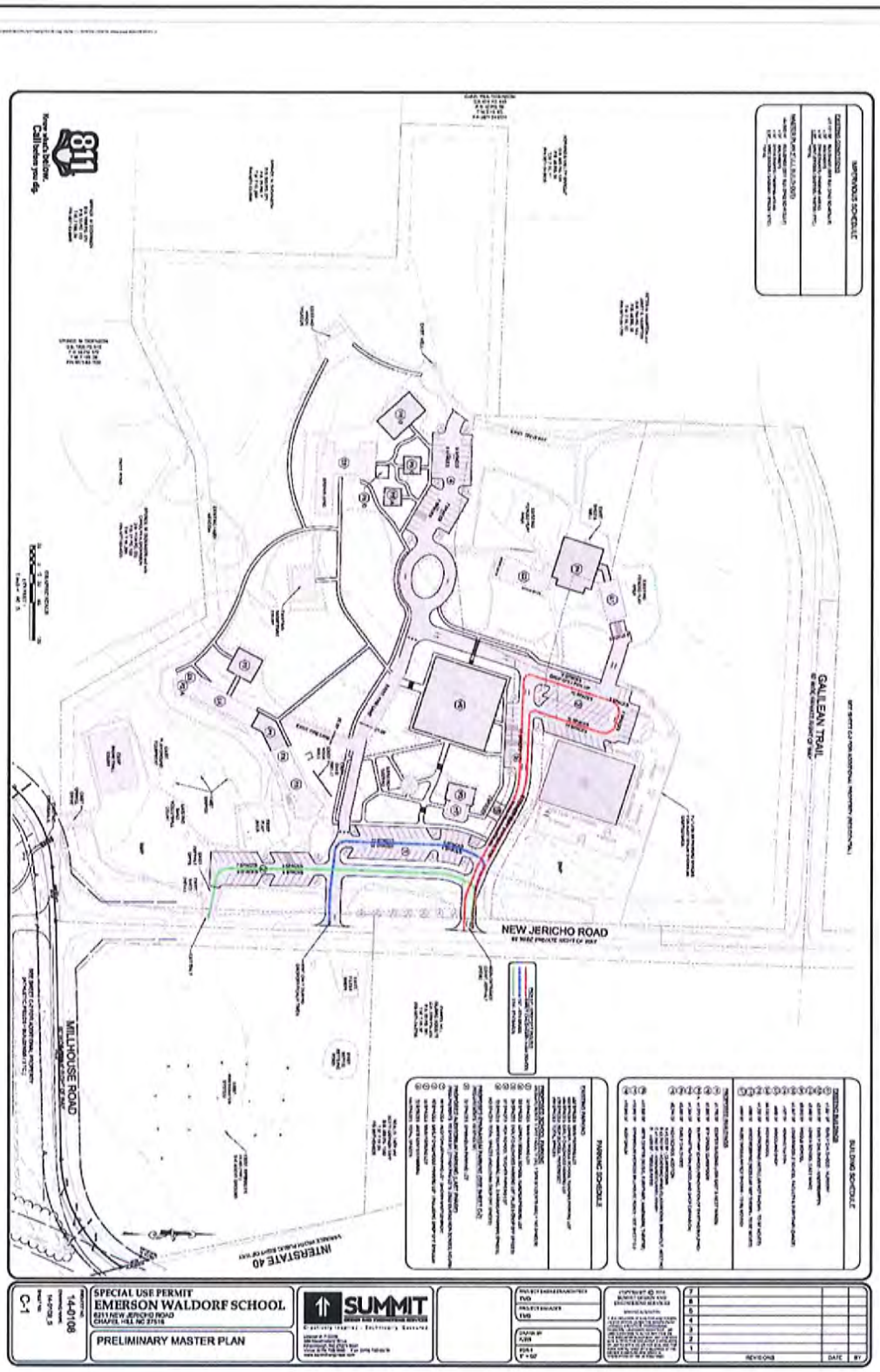
Existing Site Layout | Figure ES-2



SEPI ENGINEERING & CONSTRUCTION

Emerson Waldorf School TIA
Chapel Hill, North Carolina

Site Plan | Figure ES-3



Not To Scale

SEPI
ENGINEERING & CONSTRUCTION

Emerson Waldorf School TIA
Chapel Hill, North Carolina

Proposed On-Site Vehicle Circulation | Figure ES-4

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Administration
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

January 13, 2014

Mr. Terry Boylan, Summit (Consultant for Emerson Waldorf School)
Summit Design and Engineering Services
504 Meadowlands Drive
Hillsborough, NC 27278

Mr. Charles Viles, Mr. Mark Hulbert, and Mr. Keith Bartholomew
(Emerson Waldorf School Representatives)
6211 Jericho Road
Chapel Hill, NC 27514

NOTICE OF STAFF REVIEW AND COMMENTS:
1ST REVIEW OF MASTER PLAN AND CLASS A SPECIAL USE PERMIT MATERIALS

Emerson Waldorf School located at 6211 Jericho Road, Chapel Hill, NC 27514
(Orange County PINs: 9871-64-7391; 9871-64-5632; 9871-65-8140; 9871-74-3098; and 9871-72-1935)

Dear Sirs,

On December 19, 2014 the Orange County Planning Department received a formal Class A Special Use Permit (SUP) application package and Master Plan proposing the expansion of the Emerson Waldorf School. The request seeks to accommodate planned school expansions of the campus and its facilities for the foreseeable future. The 5 lot 54-acre campus is zoned Rural Buffer (RB) with Jordan Lake Unprotected, and Major Transportation Corridor (MTC) Overlay Districts.

Staff determined on December 23, 2014 that the materials submitted were sufficient to proceed with the SUP process as defined in Section 2.7 of the Orange County Unified development Ordinance. On December 30, 2014 Orange County Planning Staff delivered courtesy review copies of the submitted materials to the NCDOT District Engineer, Towns of Chapel Hill and Carrboro for professional review and comment. On the morning of January 8, 2015 Orange County Staff presented the case before Orange County Development Advisory committee (DAC), and on the evening of January 8, 2015 a Neighborhood Information Meeting (NIM) was conducted.

Below are the first round staff comments and questions for the request. These are intended to help you craft your materials, evidence to be submitted at the Quasi-Judicial hearing to be held by the Orange County Board of Commissioners (BOCC) tentatively scheduled for Monday, February 23, 2015.

I. EXISTING BUILDING/SITE INFORMATION (C2 and C-3):

As required under Section 5.8.4 of the Orange County Unified Development Ordinance (UDO), you are required to provide a breakdown of existing conditions on the property, including the number and square footage of existing buildings. On Sheet C-2 you provide notes on 'Building Schedule' that provides what appears to staff to be a breakdown of existing buildings and square footages. If this is correct please rename the block appropriately to indicate you are providing a breakdown of existing building(s), their uses, and square footages.

We also request the following information as required by Section 5.8.4 of the UDO:

1. Provide a detailed breakdown on Sheet C-2 in the total number of employees/staff laid out as follows:
    a. Students per grade level,
    b. Teachers,
    c. Admin workers,
    d. Grounds/maintenance,
    e. Other Emerson Waldorf employees, including part-time, and
    f. Daycare employees as well as students.

    Please note: You will need to differentiate between the daycare staff and Emerson Waldorf staff as the there are different requirements associated with each entity (i.e. parking, special use permit standards, and state requirements etc.).

    Please provide a note on the site plan denoting the daycare operation is a permitted use of property subject to a previously issued Class B Special Use Permit by the County.

    The plan will need to note/label the 'daycare' area including: classroom(s), outdoor play area (and required sq. ft.), parking, etc. You also need to keep in mind nothing associated with this plan can reduce required play area (i.e. 75 sq. ft. outdoor play area per child) for the previously approved daycare use.
2. Under the parking information provide additional detail on the size and dimensions of the parking spaces as required under Section 5.8.4 (A) (1) (a) of the UDO You will also to identify the uses of said spaces as follows:
    a. Number and location of visitor parking spaces by category (e.g. elementary school drop off);
    b. Number and location of teacher/employee parking spaces;

c. Number and location of student parking; and
d. Number and location of daycare parking spaces.

3. Please provide a note on Sheet C-2 under the parking schedule indicating if there are busses and/or vans serving the school or not. If there are, you will need to identify and provide detail on the number of bus van parking spaces on-site.
4. Please note the location of all existing student drop-off and pick-up points on Sheet C-2 as this is the current conditions sheet.

II. BIOLOGICAL INVENTORY:

Per Section 5.8.4 (A (1) (f) of the UDO you are required to provide a biological inventory for the properties subject to the permit application. This inventory has to be prepared in accordance with the standards detailed in Section 5.17.6 (A) (2) (b) of the UDO and is required to identify the following:

1. Habitat diversity,
2. Species diversity,
3. Species of special concern such as those designated as threatened or endangered,
4. Last known sighting,
5. Candidate species likely to be present which may warrant protection,
6. Specimen trees outstanding in size and/or species, and
7. The status and source of the information compiled in the inventory.

The biological inventory is also required to be accompanied by an analysis describing the following:

- Habitat integrity;
- Relationships between habitats and to ecological communities offsite;
- Any existing threats to flora and fauna; and
- Potential for habitat enhancement.

This inventory is required as part of the SUP application submittal. While Sheets C-2, C-3 and the Narrative cover some of these items, it does not address all of the required line items.

Please ensure all of the above are included or addressed with your next revision. Please also remove the old tree survey shown on sheets C-2 and C-3, which is now outdated. Provide an updated survey and tree stand descriptions to meet the above.

Please also provide a Resource Management Plan as defined in Article 10 of the UDO and as required under Section 5.8.4 of the UDO.

III. **LANDSCAPING**:

1. Provide a Landscape and Tree Preservation Plan as required in UDO Section 5.8.4 A (b) on a new sheet.

   The Master Site Plan will need to illustrate and label required zoning buffers and building setbacks as well as all identified tree protection areas.

   The plan should reference how the landscaping requirements are intended to be met. The current plan only implies tree plantings to meet the off-street parking areas.

   Please note we are not requiring the full blown landscaping plan as part of this submittal but we are requiring a detailed description/illustration of required buffers and a typical planned buffer planting scheme.

   We will also require you to identify and label all tree protection areas, limits of disturbance, etc.

2. Please add the following note(s) on this new landscaping sheet:

   a. There needs to be a general note added to this aforementioned new sheet indicating all development requirements associated with Section 6.8 shall be complied with,

   b. Provide a note indicating that existing foliage will be protected in accordance with the provisions of Section 6.8, including the following specific references:

      1. Per Section 6.8.4 (A) (1) of the UDO all existing trees located within the Primary Tree Protection Area as defined within the UDO shall be protected. Please note we are asking for your to identify and label all tree protection areas,

      2. Per Section 6.8.4 (B) (1) add a note reading as follows:

         Existing trees, regardless of size, shall not be cut or otherwise damaged or destroyed within a primary tree protection area except as shown on an approved Landscape and Tree Preservation Plan, plot plan, or site plan

      3. Section 6.8.4 (B) (3) add a note reading as follows:

         During construction activities, adequate protective measures shall be provided to minimize damage to existing trees and other vegetation.

      4. Section 6.8.4 (B) (7) add a note reading as follows:

         Signs shall be posted identifying the tree protection areas and shall state the area is not

to be disturbed. Such protective devices shall effectively protect the critical root zones, trunks, and tops of trees to be retained and shall be maintained until all work has been completed.

5. Please provide the following note:

   Native, non-invasive, and drought tolerant species shall be used where additional landscape areas are proposed.

6. Add a note indicating that all site plans submitted to the County proposing development of buildings, consistent with this Master Plan, shall contain all required documentation demonstrating compliance with the specific landscaping and buffer regulations contained within Section 6.8 of the UDO.

IV. SITE ACCESS:

1. Please evaluate the proposed ingress/egress for vehicular and pedestrian movements at New Jericho Road and on-site. Your evaluation should address staff concerns that:

   a. Left turn delays may create stacking onto the public right-of-way;
   b. The drop offs (aka "kiss and go") lane may create internal delays;
   c. The pedestrian crossing at Mill House Road to the athletic field may be unsafe and improperly located given the existing roadway and property topography;
   d. NC DOT and County staff are still reviewing the possible need for external traffic improvements (i.e. a turn land on Millhouse Road and/or New Jericho Road for example) as we continue to review the submitted Traffic Impact Assessment.

2. Illustrate the appropriate sight distance triangles for all existing and proposed driveways and the proposed pedestrian crossing.

3. Please show location of internal directional signage providing information to motorists and pedestrians on the location of parking, drop off areas, school buildings, facilities, etc.

4. Indicate AM/PM peak hour trip generation information on the cover sheet.

5. Illustrate the drop-off and pick up areas with the relative amount of car storage.

6. Indicate on-site and off-site (e.g. NCDOT) signage that will be proposed to avoid confusion and delays during student pick up drop off periods.

7. Illustrate internal pedestrian walks ways and off-street parking cross walks (e.g. the crossing from the parking to the Gazebo/coffee stand student parent collection area.

8. Illustrate parent off-street parking areas (e.g. areas where parents park and escort children to Gazebo.

V. SOLID WASTE:

1. Request for master trash and recycling plan illustrating areas for solid waste pick and/or disposal areas. Note, this may be contracted privately but the areas need to be defined to ensure no site conflicts (e.g. utility lines and parking).

VI. PROGRAMMING:

1. Outline on the Master Plan (and in the narrative) activities beyond normal school operations that may occur (e.g. internal and/or external programs anticipated in the Gym, Eurhythmy, Auditorium and Arts Center, Ball field). This should demonstrate intensity, frequency, type of use and special provisions.

   For example, the Auditorium is envisioned to have XX specials events each year consisting of YY activities with ZZ participants.

2. Illustrate number of seats and/or other performance standards used to meet off-site parking requirements (e.g. Auditorium: 200 seats. 50 spaces provided at rate of 1 parking space per 4 seats).

VII. OFF-STREET LIGHTING:

1. Provide a Photometric Plan as required in UDO Section 6.11. The Plans should lighting for all outdoor areas (e.g. balls fields, trails and off street parking areas).

VIII. EMERGENCY SERVICES:

1. Please address Jason Shepherd's comment (via e-mail on January 5, 2015) regarding the narrative Section 3.1.10 Fire Protection.

   "My recollection of my meeting did not indicate me saying that there are adequate water supplies for the property for future expansion. We currently have to my knowledge, appropriate water supply, but I stated that depending on future growth, future code changes and design, there is a possibility that a municipal water supply may be needed for fire protection of designed buildings. I cannot rule out design and code requirements."

As discussed in our meetings, we encourage you to address the above concerns and questions well in advance of the Public Hearing. We also encourage you to start preparing your evidence to be entered into the record as well as expert witnesses you may need to address any concerns or specific findings of fact.

As always, we will be more than happy to review (and/or meet with you in person) to ensure your materials address the stated concerns and/or required findings of fact for a Class A SUP. Please feel free contact me anytime at 919-245-2577 and/or pmallett@orangecountync.gov.

Very Respectfully,

Pat Mallett, Planner II

CC: Michael Harvey, Planner III, Current Planning Supervisor; File

SUMMIT
DESIGN AND ENGINEERING SERVICES
919.732.3883 SUMMIT-ENGINEER.COM
504 Meadowland Drive, Hillsborough, NC 27278

April 15, 2015

Pat Mallett, Planner II
Orange County Planning & Inspections Dept.
131 W. Margaret Lane
Suite 201
PO Box 8181
Hillsborough, NC 27278

Re: Emerson Waldorf School located at 6211 Jericho Road, Chapel Hill, NC 27514 (Orange County PINs: 9871-64-7391; 9871-64-5632; 9871-65-8140; 9871-74-3098; and 9871-72-1935)

Dear Mr. Mallett:

On behalf of our client and the applicant, Summit Design and Engineering Services is providing to you responses to all applicable comments dated January 13, 2015 following our submittal of plans to the Orange County Planning Department on December 19, 2014.

Summit Design and Engineering Services will be more than happy to address and provide any clarification needed on the attached responses and looks forward to discussing these matters with you further.

Sincerely,

SUMMIT DESIGN AND ENGINEERING SERVICES

Chad E. Abbott, PE
Manager, Land Development Dept.

Responses to all comments are in Bold Red Italics.

I. EXISTING BUILDING/SITE INFORMATION (C2 and C-3):

As required under Section 5.8.4 of the Orange County Unified Development Ordinance (UDO), you are required to provide a breakdown of existing conditions on the property, including the number and square footage of existing buildings. On Sheet C-2 you provide notes on 'Building Schedule' that provides what appears to staff to be a breakdown of existing buildings and square footages. If this is correct please rename the block appropriately to indicate you are providing a breakdown of existing building(s), their uses, and square footages.

Response: The "Building Schedule" has been renamed "Existing Building Information" and total square footage and building counts have been added.

We also request the following information as required by Section 5.8.4 of the UDO:

1. Provide a detailed breakdown on Sheet C-2 in the total number of employees/staff laid out as follows:
    a. Students per grade level,
    b. Teachers,
    c. Admin workers,
    d. Grounds/maintenance,
    e. Other Emerson Waldorf employees, including part-time, and
    f. Daycare employees as well as students.

    Please note: You will need to differentiate between the daycare staff and Emerson Waldorf staff as the there are different requirements associated with each entity (i.e. parking, special use permit standards, and state requirements etc.).

    Please provide a note on the site plan denoting the daycare operation is a permitted use of property subject to a previously issued Class B Special Use Permit by the County.

    The plan will need to note/label the 'daycare' area including: classroom(s), outdoor play area (and required sq. ft.), parking, etc. You also need to keep in mind nothing associated with this plan can reduce required play area (i.e. 75 sq. ft. outdoor play area per child) for the previously approved daycare use.

Response: "Existing Student & Staff Information" table has been added with the above information and notes as requested. Modifications to play area are not proposed on the masterplan. Should additions to students be made we request that the school provide for evidence of required area at the time of the Site Plan Approval.

2. Under the parking information provide additional detail on the size and dimensions of the parking spaces as required under Section 5.8.4 (A) (1) (a) of the UDO You will also to identify the uses of said spaces as follows:
    a. Number and location of visitor parking spaces by category (e.g. elementary school drop off);
    b. Number and location of teacher/employee parking spaces;
    c. Number and location of student parking; and
    d. Number and location of daycare parking spaces.

    Response: Parking Schedule on sheet C-4 has been updated as requested and additional note added regarding parking space size/dimensions.

3. Please provide a note on Sheet C-2 under the parking schedule indicating if there are busses and/or vans serving the school or not. If there are, you will need to identify and provide detail on the number of bus van parking spaces on-site.

    Response: A note has been added stating: "Note: The school does not provide bus transportation to or from the school. The school currently has 1 bus and 1 van that are used for designated trips only and not for daily pick up/drop off."

4. Please note the location of all existing student drop-off and pick-up points on Sheet C-2 as this is the current conditions sheet.

    Response: Existing student drop-off and pickup locations have been added as requested. Please note there are no pick up/drop off points for Early Childhood and Lower School students as their parents are required to park and walk them to their classes.

II. BIOLOGICAL INVENTORY:

Per Section 5.8.4 (A (1) (f) of the UDO you are required to provide a biological inventory for the properties subject to the permit application. This inventory has to be prepared in accordance with the standards detailed in Section 5.17.6 (A) (2) (b) of the UDO and is required to identify the following:

1. Habitat diversity,
2. Species diversity,
3. Species of special concern such as those designated as threatened or endangered,
4. Last known sighting,
5. Candidate species likely to be present which may warrant protection,
6. Specimen trees outstanding in size and/or species, and
7. The status and source of the information compiled in the inventory.

Response: See the Biological Inventory prepared by the Catena Group, dated March 2015, attached as Exhibit A. Also, please find the Forest Stewardship Plan, dated June 2014, attached as Exhibit B.

The biological inventory is also required to be accompanied by an analysis describing the following:

- Habitat integrity;
- Relationships between habitats and to ecological communities offsite;
- Any existing threats to flora and fauna; and
- Potential for habitat enhancement.

This inventory is required as part of the SUP application submittal. While Sheets C-2, C-3 and the Narrative cover some of these items, it does not address all of the required line items.

Response: See the Biological Inventory prepared by the Catena Group, dated March 2015, attached as Exhibit A. Also, please find the Forest Stewardship Plan, dated June 2014, attached as Exhibit B.

Please ensure all of the above are included or addressed with your next revision. Please also remove the old tree survey shown on sheets C-2 and C-3, which is now outdated. Provide an updated survey and tree stand descriptions to meet the above.

Response: Old trees shown on C-2 and C-3 have been removed as requested. See attached Forest Stewardship Plan (Exhibit B) for survey/tree stand descriptions and the Biological Inventory (Exhibit A) for additional detail on habitats.

Please also provide a Resource Management Plan as defined in Article 10 of the UDO and as required under Section 5.8.4 of the UDO.

Response: Please see Sheet C-6 "Landscape, Tree Preservation & Natural Resource Plan"

III. LANDSCAPING:

1. Provide a Landscape and Tree Preservation Plan as required in UDO Section 5.8.4 A (b) on a new sheet.

   The Master Site Plan will need to illustrate and label required zoning buffers and building setbacks as well as all identified tree protection areas.

   The plan should reference how the landscaping requirements are intended to be met. The current plan only implies tree plantings to meet the off-street parking areas.

   Please note we are not requiring the full blown landscaping plan as part of this submittal but we are requiring a detailed description/illustration of required buffers and a typical planned buffer planting scheme.

   We will also require you to identify and label all tree protection areas, limits of disturbance, etc.

Response: Please see Sheet C-6 "Landscape, Tree Preservation & Natural Resource Plan".
-Due to the Master Plan component of this SUP, the applicant requests that the existing buffers noted on the plans serve as all Primary Tree Protection Areas. Since the existing site is predominately wooded, it is the applicant's intention to provide for the level of detail needed for secondary tree protection areas on a site by site basis when submitting plans to Orange County Planning Department.
-Buffers & Setbacks are now shown. Should additional specific secondary tree protection areas be required to be committed to at this time, the applicant would request the County place conditions on the SUP to preserve all other vegetation until additional plans are

generated for each building noting the actual disturbance required for construction as well as disturbances needed for stormwater treatment.

2. Please add the following note(s) on this new landscaping sheet:

   a. There needs to be a general note added to this aforementioned new sheet indicating all development requirements associated with Section 6.8 shall be complied with,

Response: Note has been added as requested.

   b. Provide a note indicating that existing foliage will be protected in accordance with the provisions of Section 6.8, including the following specific references:

      1. Per Section 6.8.4 (A) (1) of the UDO all existing trees located within the Primary Tree Protection Area as defined within the UDO shall be protected. Please note we are asking for your to identify and label all tree protection areas,

Response: Per previous response, if this level of detail is required at this time we would propose to provide Primary Tree Protection Areas as shown and allow for Secondary Tree Protection Areas to be identified at the time of the Site Plan Approval.

      2. Per Section 6.8.4 (B) (1) add a note reading as follows:

Existing trees, regardless of size, shall not be cut or otherwise damaged or destroyed within a primary tree protection area except as shown on an approved Landscape and Tree Preservation Plan, plot plan, or site plan

Response: Primary Tree Protection Areas have been shown to allow for exceptions needed.

      3. Section 6.8.4 (B) (3) add a note reading as follows:

During construction activities, adequate protective measures shall be provided to minimize damage to existing trees and other vegetation.

Response: Note has been added as requested.

      4. Section 6.8.4 (B) (7) add a note reading as follows:

Signs shall be posted identifying the tree protection areas and shall state the area is not to be disturbed. Such protective devices shall effectively protect the critical root zones, trunks, and tops of trees to be retained and shall be maintained until all work has been completed.

Response: Note has been added as requested.

5. Please provide the following note:

   Native, non-invasive, and drought tolerant species shall be used where additional landscape areas are proposed.

Response: Note has been added as requested.

6. Add a note indicating that all site plans submitted to the County proposing development of buildings, consistent with this Master Plan, shall contain all required documentation demonstrating compliance with the specific landscaping and buffer regulations contained within Section 6.8 of the UDO.

Response: Note has been added as requested.

IV. SITE ACCESS:

1. Please evaluate the proposed ingress/egress for vehicular and pedestrian movements at New Jericho Road and on-site. Your evaluation should address staff concerns that:

   a. Left turn delays may create stacking onto the public right-of-way;
   Response: Per the Traffic Engineer, Jeff Hochanadel, "All movements at the intersection of New Jericho Road and Site Driveway 3 are projected to operate at a LOS A during the 2030 build-out AM and PM hours. With all queue stacking on-site, no significant queuing is projected along New Jericho Road for vehicles wishing to turn left into the site." Also, "all movements at the intersection of New Jericho Road / Millhouse Road are projected to operate at a LOS C or better during the 2030 build-out AM and PM peak hours. The longest queue projected to be experienced is along the southbound approach of New Jericho at Millhouse Road (59 feet, or 3 vehicles, during the AM peak hour)."

   b. The drop offs (aka "kiss and go") lane may create internal delays;
   Response: Drop off areas and lanes have been revised. See Sheet TP-1.

   c. The pedestrian crossing at Mill House Road to the athletic field may be unsafe and improperly located given the existing roadway and property topography;
   Response: This issue is being evaluated by NCDOT. The applicant is open to and willing to comply with any NCDOT mandates regarding this crossing.

   d. NC DOT and County staff are still reviewing the possible need for external traffic improvements (i.e. a turn land on Millhouse Road and/or New Jericho Road for example) as we continue to review the submitted Traffic Impact Assessment.
   Response: Noted.

2. Illustrate the appropriate sight distance triangles for all existing and proposed driveways and the proposed pedestrian crossing.
   Response: Site distance triangles have been added as requested on the entrances at Public Rights of Way.

3. Please show location of internal directional signage providing information to motorists and pedestrians on the location of parking, drop off areas, school buildings, facilities, etc.
   Response: Please see Sheet TP-1 for proposed directional signage.

4. Indicate AM/PM peak hour trip generation information on the cover sheet.
   Response: Please see Sheet TP-1 for trip generation information per MSTA.

5. Illustrate the drop-off and pick up areas with the relative amount of car storage.
   Response: Please see Sheet TP-1 for drop-off and pick up areas and car storage.

6. Indicate on-site and off-site (e.g. NCDOT) signage that will be proposed to avoid confusion and delays during student pick up drop off periods.
   Response: Please see Sheet TP-1 for proposed on-site directional signage. Off-site signage will be installed as needed per NCDOT direction.

7. Illustrate internal pedestrian walks ways and off-street parking cross walks (e.g. the crossing from the parking to the Gazebo/coffee stand student parent collection area.
   Response: Please see Sheet TP-1 for proposed cross walks. Please note that coffee stand has been eliminated to help improve traffic flow on-site.

8. Illustrate parent off-street parking areas (e.g. areas where parents park and escort children to Gazebo.
   Response: Please see Sheet TP-1 for proposed parking areas.

V. SOLID WASTE:

1. Request for master trash and recycling plan illustrating areas for solid waste pick and/or disposal areas. Note, this may be contracted privately but the areas need to be defined to ensure no site conflicts (e.g. utility lines and parking).

Response: Solid waste and recycling pickup is located just uphill from the existing lower school building next to the access road leading behind the building. Pickup is always done outside of school hours.

VI. PROGRAMMING:

1. Outline on the Master Plan (and in the narrative) activities beyond normal school operations that may occur (e.g. internal and/or external programs anticipated in the Gym, Eurhythmy, Auditorium and Arts Center, Ball field). This should demonstrate intensity, frequency, type of use and special provisions.

   For example, the Auditorium is envisioned to have XX specials events each year consisting of YY activities with ZZ participants.
   Response: Please see the narrative for requested information.

2. Illustrate number of seats and/or other performance standards used to meet off-site parking requirements (e.g. Auditorium: 200 seats. 50 spaces provided at rate of 1 parking space per 4 seats).
   Response: Please see the narrative for requested information.

VII. OFF-STREET LIGHTING:

1. Provide a Photometric Plan as required in UDO Section 6.11. The Plans should lighting for all outdoor areas (e.g. balls fields, trails and off street parking areas).
   Response: Due to the specificity required to produce lighting plans, the applicant would like to commit to at a minimum meeting the Orange County UDO standards for such lighting. The applicant would respectfully request that the county staff assess the need for lighting on a site by site basis upon the individual submittals of all proposed future buildings. Lighting will be pedestrian scale along walkways. Fixture design will be complementary to building architecture and will feature sustainable finishes to the greatest extent possible. The school does not anticipate providing ball field lighting for the existing play field across Millhouse Road from the main campus.

VIII. EMERGENCY SERVICES:

1. Please address Jason Shepherd's comment (via e-mail on January 5, 2015) regarding the narrative Section 3.1.10 Fire Protection.

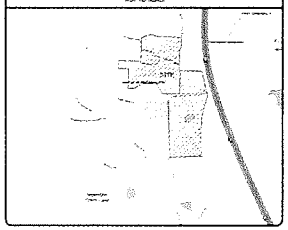
   "My recollection of my meeting did not indicate me saying that there are adequate water supplies for the property for future expansion. We currently have to my knowledge, appropriate water supply, but I stated that depending on future growth, future code changes and design, there is a possibility that a municipal water supply may be needed for fire protection of designed buildings. I cannot rule out design and code requirements."
   Response: Per a meeting with Jason Shepherd, the Orange County Fire Marshall, and follow-up correspondence with Chief Mike Tapp of the New Hope Fire Department, there is currently appropriate water supplies via utilizing nearby water points at ponds located on Blackwood Mountain Road and at Cornerstone Drive to accommodate fire response requirements for the existing school campus. As the school develops, there is no guarantee that additional supply and capacity needs will not require supplemental water supply from a municipal sources. This requirement and subsequent design of utilities (if necessary) will be provided at the individual site plan approval process.

TYPE "A" SPECIAL USE PERMIT SUBMITTAL
FOR
EMERSON WALDORF SCHOOL MASTERPLAN
6211 JERICHO ROAD
CHAPEL HILL, NC 27514

SHEET INDEX

COVER SHEET	C-1
EXISTING CONDITIONS & DEMOLITION PLAN	C-2
EXISTING CONDITIONS & DEMOLITION PLAN	C-3
MASTER SITE PLAN	C-4
MASTER SITE PLAN	C-5
LANDSCAPE, TREE PRESERVATION & NATURAL RESOURCE PLAN	C-6
TRAFFIC PLAN	TP-1

VICINITY MAP
NOT TO SCALE



OWNER / DEVELOPER:

THE WALDORF EDUCATIONAL ASSOCIATION OF NC
6211 JERICHO ROAD
CHAPEL HILL, NC 27514
(919) 967-1833 (PHONE)
(919) 967-2732 (FAX)
BEN NIVETT@EMERSONWALDORF.ORG (STEVE BENNETT)

CIVIL & SITE ENGINEER CONTACT:

SUMMIT DESIGN & ENGINEERING SERVICES
CHAD E. ABBOTT, PE
304 MEADOWLAND DRIVE
HILLSBOROUGH, NC 27278
(919) 732-3283 (PHONE)
(919) 732-6071 (FAX)
CHAD.ABBOTT@SUMMITDE.NET

SITE LOCATION MAP
NOT TO SCALE

PUBLIC SERVICE CONTACTS :

WELLS	ORANGE COUNTY ENVIRONMENTAL HEALTH 131 W. MARGARET LN, SUITE 100 HILLSBOROUGH, NC 27278 (919)245-2510	TELEPHONE	CENTURYLINK (800) 366-0107
SEPTIC SYSTEMS	ORANGE COUNTY ENVIRONMENTAL HEALTH 131 W. MARGARET LN, SUITE 100 HILLSBOROUGH, NC 27278 (919)245-2510	GAS	PSNC ENERGY BILLY BLUCK 66 NORTH CHATHAM PARKWAY CHAPEL HILL, NC 27517 (919)968-4674
EROSION CONTROL	ORANGE COUNTY PLANNING & INSPECTIONS EROSION CONTROL DIVISION WESLEY POOLE 131 W. MARGARET LN, SUITE 201 HILLSBOROUGH, NC 27278 (919)245-2542	RECYCLING	ORANGE COUNTY SOLID WASTE MANAGEMENT DEPT - JEFF SCOUTEN PO BOX 17177 CHAPEL HILL, NC 27516 (919)968-2788
ROADWAY	NCDOT - DIV 7 - DIST 1 121 E. CROSSNORE SQUARE DR GRAHAM, NC 27253-2616 (336)570-6600	PLANNING/ZONING	ORANGE COUNTY MICHAEL HARDEE 131 W. MARGARET LANE HILLSBOROUGH, NC 27278 (919)245-2575
ELECTRIC	DUKE ENERGY BONNIE CARTER 4812 HILLSBOROUGH RD DURHAM, NC 27705 (919)637-3347	STORMWATER	ORANGE COUNTY PLANNING & INSPECTIONS EROSION CONTROL DIVISION WESLEY POOLE 131 W. MARGARET LN, SUITE 201 HILLSBOROUGH, NC 27278 (919)245-2542

#	DATE	REVISIONS
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1		

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PROJECT MANAGER: CHAD E. ABBOTT
DRAWN BY: CHAD E. ABBOTT
CHECKED BY: CHAD E. ABBOTT

CALCULATED BY: CHAD E. ABBOTT
DATE: 10/01/14
SCALE: N/A

NOT FOR CONSTRUCTION

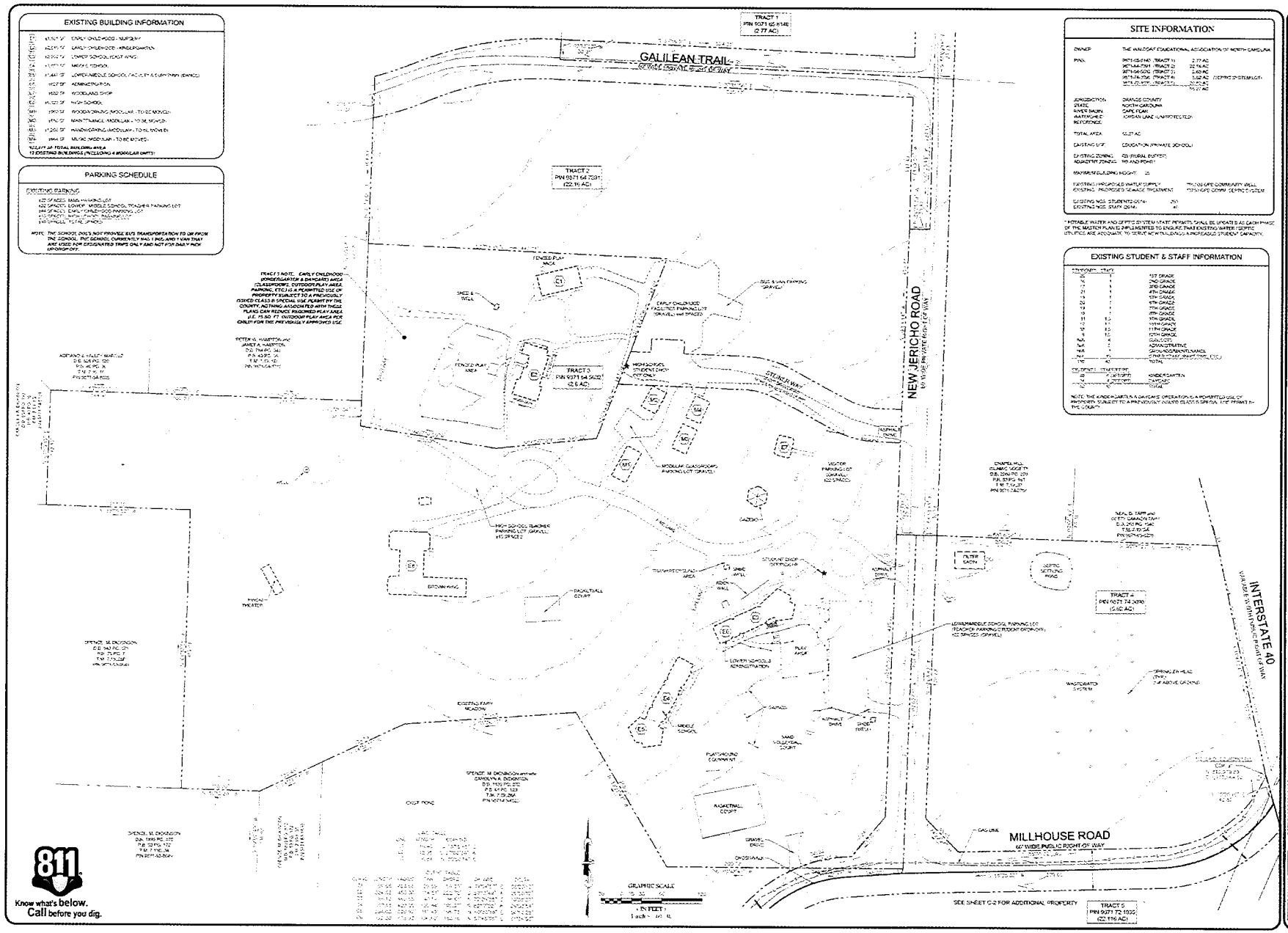
NORTH CAROLINA PROFESSIONAL SEAL 036042 ENGINEER CHAD E. ABBOTT

SUMMIT DESIGN AND ENGINEERING SERVICES
CHAPEL HILL, NC 919-968-4031 FAX 919-968-4032
304 MEADOWLAND DRIVE
HILLSBOROUGH, NC 27278
919-732-3283 FAX 919-732-6071
CHAD.ABBOTT@SUMMITDE.NET

TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
6211 HWY JERICHO ROAD
CHAPEL HILL NC 27516

TITLE SHEET

PROJECT NO. 14-0108
DRAWING NAME 14-0108_TS
SHEET NO. C-1



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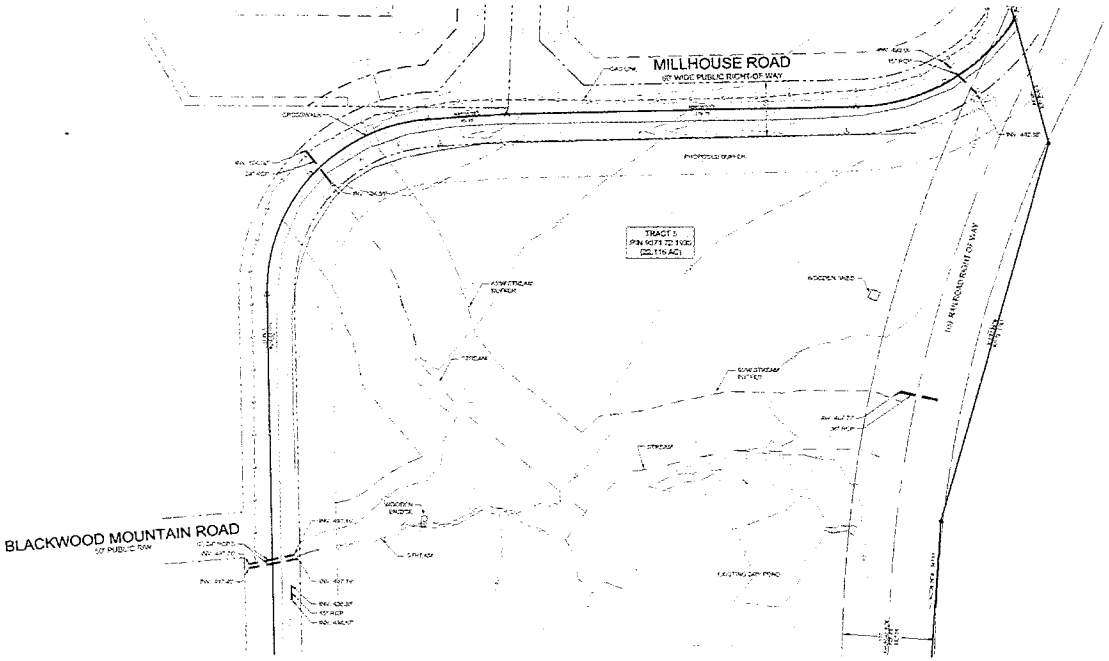
SUMMIT DESIGN AND ENGINEERING SERVICES

TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
10211 NEW JERICHO ROAD
CHAPEL HILL NC 27516

EXISTING CONDITIONS PLAN

PROJECT NO. 14-0108
DRAWING NAME 14-0108_XC
SHEET NO. C-2



Know what's below.
Call before you dig.

GRAPHIC SCALE
1 IN FEET 1

REVISIONS	DATE	BY
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SUMMIT DESIGN AND ENGINEERING SERVICES
[illegible]

REVISED PRELIMINARY PLAT
FOR COMMENTS (SUMMITS REF)
CLEARING AND GRADING (SUMMITS REF)

DRAWN: [illegible]
PROJECT: [illegible]
SCALE: 1" = 40'

NOT FOR CONSTRUCTION

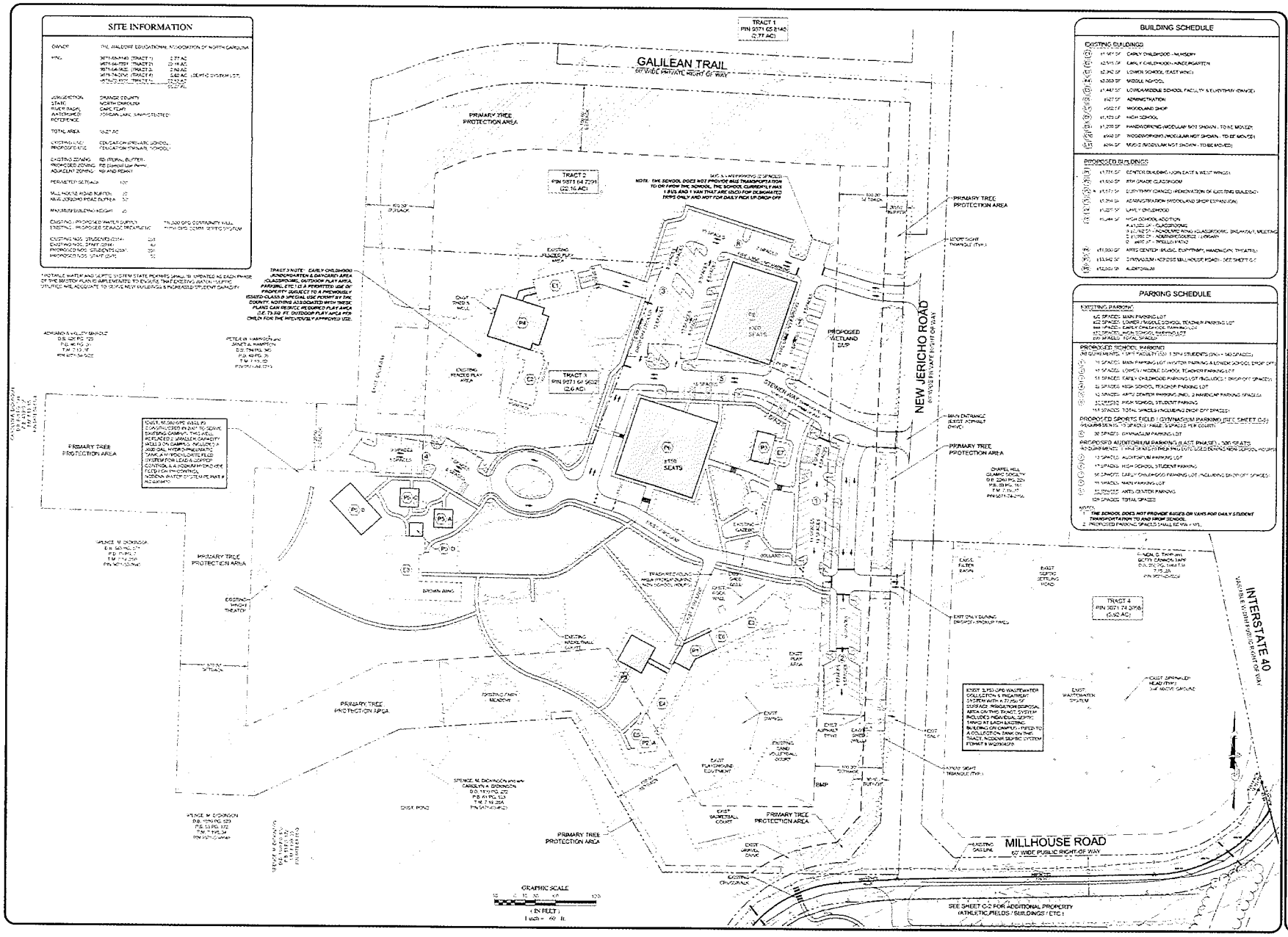
NORTH CAROLINA PROFESSIONAL SEAL 036342 ENGINEER CHAD C. ABBOTT

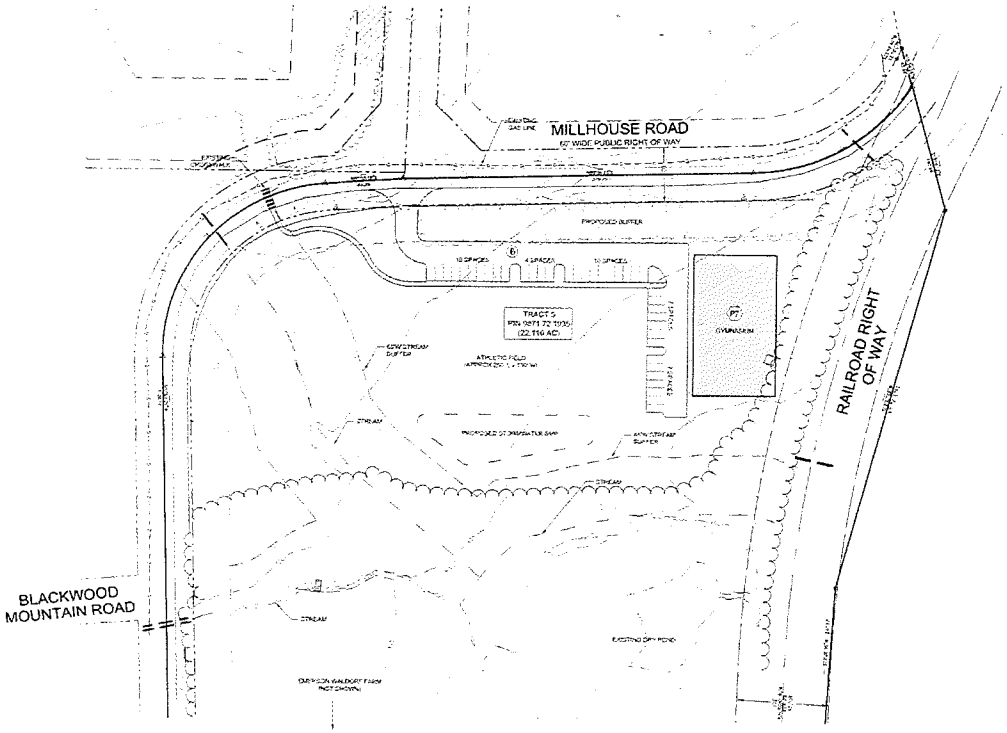
SUMMIT
DESIGN AND ENGINEERING SERVICES
[illegible]

TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
6211 NEW JERICHO ROAD
CHAPEL HILL, NC 27516

EXISTING CONDITIONS PLAN

PROJECT NO: 14-0108
DRAWING NAME: 14-0108_XC-2
SHEET NO: C-3


SITE INFORMATION
BUILDING SCHEDULE
PARKING SCHEDULE
GALILEAN TRAIL
NEW JERICHO ROAD
MILLHOUSE ROAD
INTERSTATE 40
PRIMARY TREE PROTECTION AREA
GRAPHIC SCALE
SEE SHEET C-2 FOR ADDITIONAL PROPERTY (ATHLETIC FIELDS / BUILDINGS / ETC.)
NOT FOR CONSTRUCTION
SUMMIT
TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
6211 NEW JERICHO ROAD
CHAPEL HILL NC 27516
MASTER SITE PLAN
14-0108
C-4



PROPOSED DEVELOPED PORTION OF TRACT 5

GRAPHIC SCALE

(IN FEET)

Know what's below. Call before you dig.

REVISIONS	DATE	BY
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NOT FOR CONSTRUCTION

SEAL 037843 1/1/15 CHAD E. ABBOTT

SUMMIT DESIGN AND ENGINEERING SERVICES

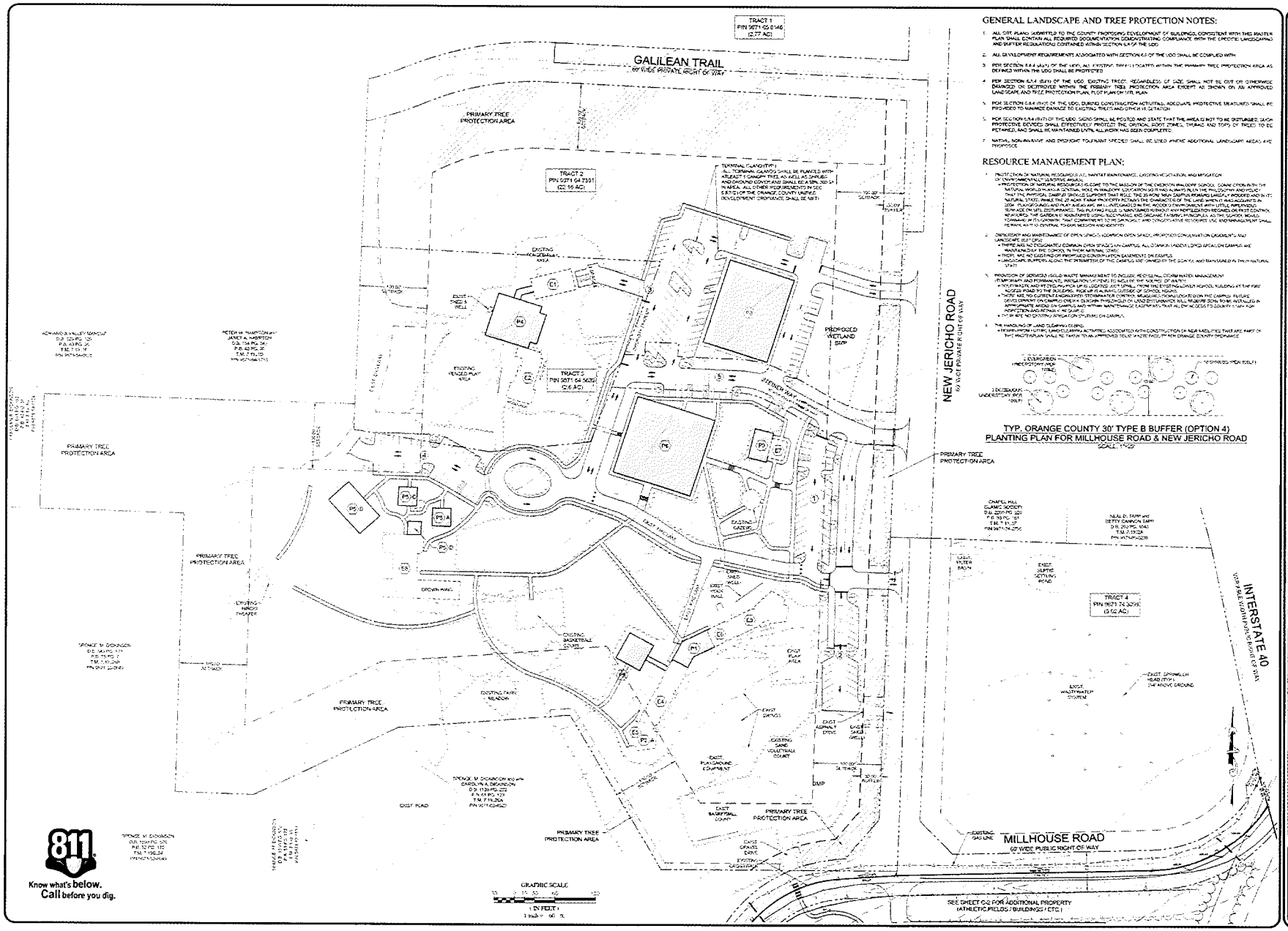
TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
6210 NEW JERICHO ROAD
CHAPEL HILL, NC 27516

MASTER SITE PLAN

PROJECT NO. 14-0108

DRAWING NAME 14-0108_S

SHEET NO. C-5



GENERAL LANDSCAPE AND TREE PROTECTION NOTES:

1. ALL SITE PLANS SUBMITTED TO THE COUNTY PROPOSING DEVELOPMENT OF BUILDINGS, CONSISTENT WITH THIS MASTER PLAN SHALL CONTAIN ALL REQUIRED DOCUMENTATION DEMONSTRATING COMPLIANCE WITH THE SPECIFIC LANDSCAPING AND BUFFER REGULATIONS CONTAINED WITHIN SECTION 6.8 OF THE LDO.
2. ALL DEVELOPMENT REQUIREMENTS ASSOCIATED WITH SECTION 6.5 OF THE LDO SHALL BE COMPLIED WITH.
3. PER SECTION 6.8.4 (6)(A) OF THE LDO, ALL EXISTING TREES LOCATED WITHIN THE PRIMARY TREE PROTECTION AREA AS DEFINED WITHIN THE LDO SHALL BE PROTECTED.
4. PER SECTION 6.7.4 (B)(1) OF THE LDO, EXISTING TREES, REGARDLESS OF SIZE, SHALL NOT BE CUT OR OTHERWISE DAMAGED OR DESTROYED WITHIN THE PRIMARY TREE PROTECTION AREA EXCEPT AS SHOWN ON AN APPROVED LANDSCAPE AND TREE PROTECTION PLAN, PLOT PLAN OR SITE PLAN.
5. PER SECTION 6.8.4 (B)(2) OF THE LDO, DURING CONSTRUCTION ACTIVITIES, ADEQUATE PROTECTIVE MEASURES SHALL BE PROVIDED TO MINIMIZE DAMAGE TO EXISTING TREES AND OTHER VEGETATION.
6. PER SECTION 6.8.4 (B)(3) OF THE LDO, SIGNS SHALL BE POSTED AND STATE THAT THE AREA IS NOT TO BE DISTURBED. SUCH PROTECTIVE DEVICES SHALL EFFECTIVELY PROTECT THE CRITICAL ROOT ZONES, TRUNKS AND TOPS OF TREES TO BE RETAINED, AND SHALL BE MAINTAINED UNTIL ALL WORK HAS BEEN COMPLETED.
7. NATIVE, NON-INVASIVE AND DROUGHT TOLERANT SPECIES SHALL BE USED WHERE ADDITIONAL LANDSCAPE AREAS ARE PROPOSED.

RESOURCE MANAGEMENT PLAN:

1. PROTECTION OF NATURAL RESOURCES (I.E., HABITAT MAINTENANCE, EXISTING VEGETATION, AND MITIGATION OF ENVIRONMENTALLY SENSITIVE AREAS)
   - PROTECTION OF NATURAL RESOURCES IS CORE TO THE MISSION OF THE ENDEAVOR WALDORF SCHOOL. COMPLIANCE WITH THE NATURAL WORLD WAS A CENTRAL HOLD IN WALDORF LOCATION SO IT HAS ALWAYS BEEN THE PHILOSOPHY AND POLICY THAT THE PHYSICAL CAMPUS SHOULD SUPPORT THAT ROLE. THE 25 ACRE MAIN CAMPUS REMAINS LARGELY WOODED AND IN ITS NATURAL STATE. WHILE THE 27 ACRE FARM PROPERTY RETAINS THE CHARACTER OF THE LAND WHEN IT WAS ACQUIRED IN 2004. PLANTGROWING AND PLAY AREAS ARE INTEGRATED IN THE WOODED ENVIRONMENT WITH LITTLE IMPLEMENTED SUN AGE ON SITE DISTURBANCE. THE PLAYING FIELD IS MAINTAINED WITHOUT ANY FERTILIZATION REGARDLESS ON PEST CONTROL NEEDS. THE GARDEN IS MAINTAINED USING NON-CHEMICAL AND ORGANIC FARMING PRINCIPLES AS THE SCHOOL WOULD FORMALIZE IT'S GROWTH. THAT COMMITMENT TO THE SPIRITUALLY AND CONSERVATIVE RESOURCE USE AND MANAGEMENT SHALL REMAIN AS IT IS DIVINAL TO OUR MISSION AND IDENTITY.
2. DEDICATION AND MAINTENANCE OF OPEN SPACE / RECREATION OPEN SPACE / PROPOSED CONSERVATION EASEMENTS AND LANDSCAPE BUFFERS
   - THERE ARE NO DESIGNATED COMMON OPEN SPACES ON CAMPUS. ALL COMMON UNDEVELOPED SPACE ON CAMPUS ARE MAINTAINED BY THE SCHOOL IN THEIR NATURAL STATE.
   - THERE ARE NO EXISTING OR PROPOSED CONSERVATION EASEMENTS ON CAMPUS.
   - LANDSCAPE BUFFERS ALONG THE PERIMETER OF THE CAMPUS ARE OWNED BY THE SCHOOL AND MAINTAINED IN THEIR NATURAL STATE.
3. PROVISION OF SERVICES (SOLID WASTE MANAGEMENT TO INCLUDE RESIDUAL STORMWATER MANAGEMENT (TEMPORARY AND PERMANENT), WATER NON-POTABLE, ETC INCLUDE THE SOURCE OF WATER)
   - WASTEWATER AND RECEIVING FOR LIFE SERVICE ARE USING FROM THE EXISTING WORLD SCHOOL BUILDING AT THE FIRE HOUSE ROAD TO THE BUILDING. PICK UP IS ALWAYS OUTSIDE OF SCHOOL HOURS.
   - THERE ARE NO CURRENT ENGINEERED STORMWATER CONTROL MEASURES FOUND LOCATION ON THE CAMPUS. FUTURE DEVELOPMENT ON CAMPUS ONLY A CURSOR THROUGHOUT ON LEND ESTUARIES WILL REQUIRE ZONE TO BE INSTALLED IN APPROPRIATE AREAS ON CAMPUS AND WITHIN MAINTENANCE EASEMENTS THAT ALLOW ACCESS TO COUNTY CAMPUS INSPECTIONS AND REPAIRS IF REQUIRED.
   - THERE ARE NO EXISTING IRRIGATION SYSTEMS ON CAMPUS.
4. THE HANDLING OF LAND DISTURBING DEBRIS
   - DEBRIS FROM NATURAL LANDSCAPING ACTIVITIES ASSOCIATED WITH CONSTRUCTION ON NEW MEDIFICE THAT ARE PART OF THIS MASTER PLAN SHALL BE TAKEN TO AN APPROVED SOLID WASTE FACILITY PER ORANGE COUNTY ORDINANCE

TYP. ORANGE COUNTY 30' TYPE B BUFFER (OPTION 4)
PLANTING PLAN FOR MILLHOUSE ROAD & NEW JERICHO ROAD
SCALE: 1"=20'

7		
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1	REVISIONS	DATE BY

COVER SHEET C-0.01
ADDITIONAL NOTES AND EXPORT REQUIREMENTS
PROJECT ENGINEER / ARCHITECT: CRAIG DAVIS ARCHITECTS / FRED STRAUSS CAMP
PROJECT MANAGER / LANDSCAPE ARCHITECT: CRAIG DAVIS ARCHITECTS / CAMP
DRAWN BY: CAMP
SCALE: 1"=40'

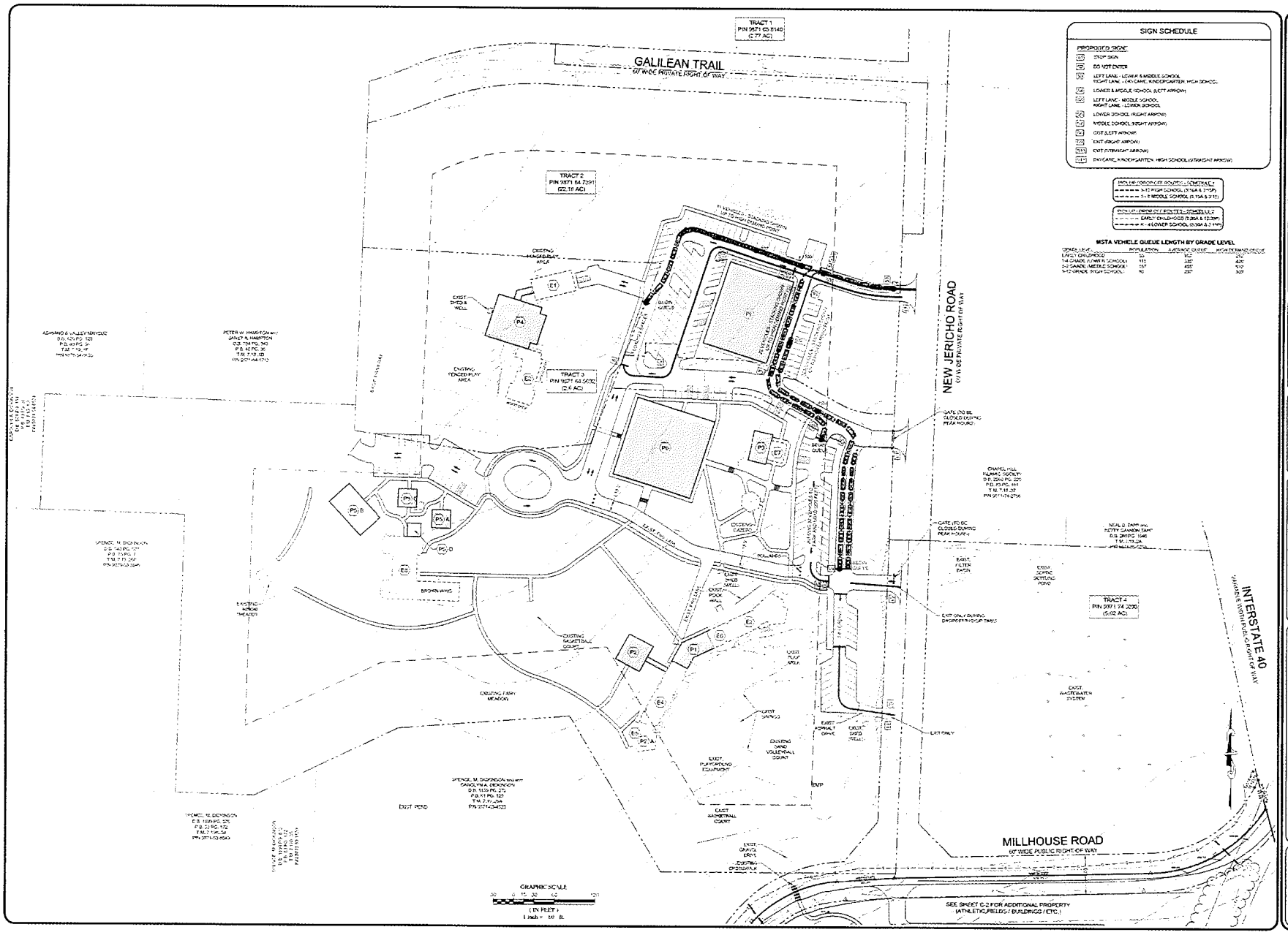
NOT FOR CONSTRUCTION
SEAL 035743 STATE OF NORTH CAROLINA PROFESSIONAL ENGINEER CHARLES E. ABBOTT

SUMMIT
PEOPLE AND COMMUNITY SERVICES
Creativity Inspired • Excellence Delivered
Summit Design and Engineering Services
Phone: 919-967-8201 Fax: 919-967-8405
www.summitdesign.com

TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
CITY: NEW JERICHO ROAD
CHAPEL HILL, NC 27516

LANDSCAPE, TREE PRESERVATION & NATURAL RESOURCE PLAN

PROJECT NO: 14-0108
DRAWING NAME: 14-0108_S
SHEET NO: C-6



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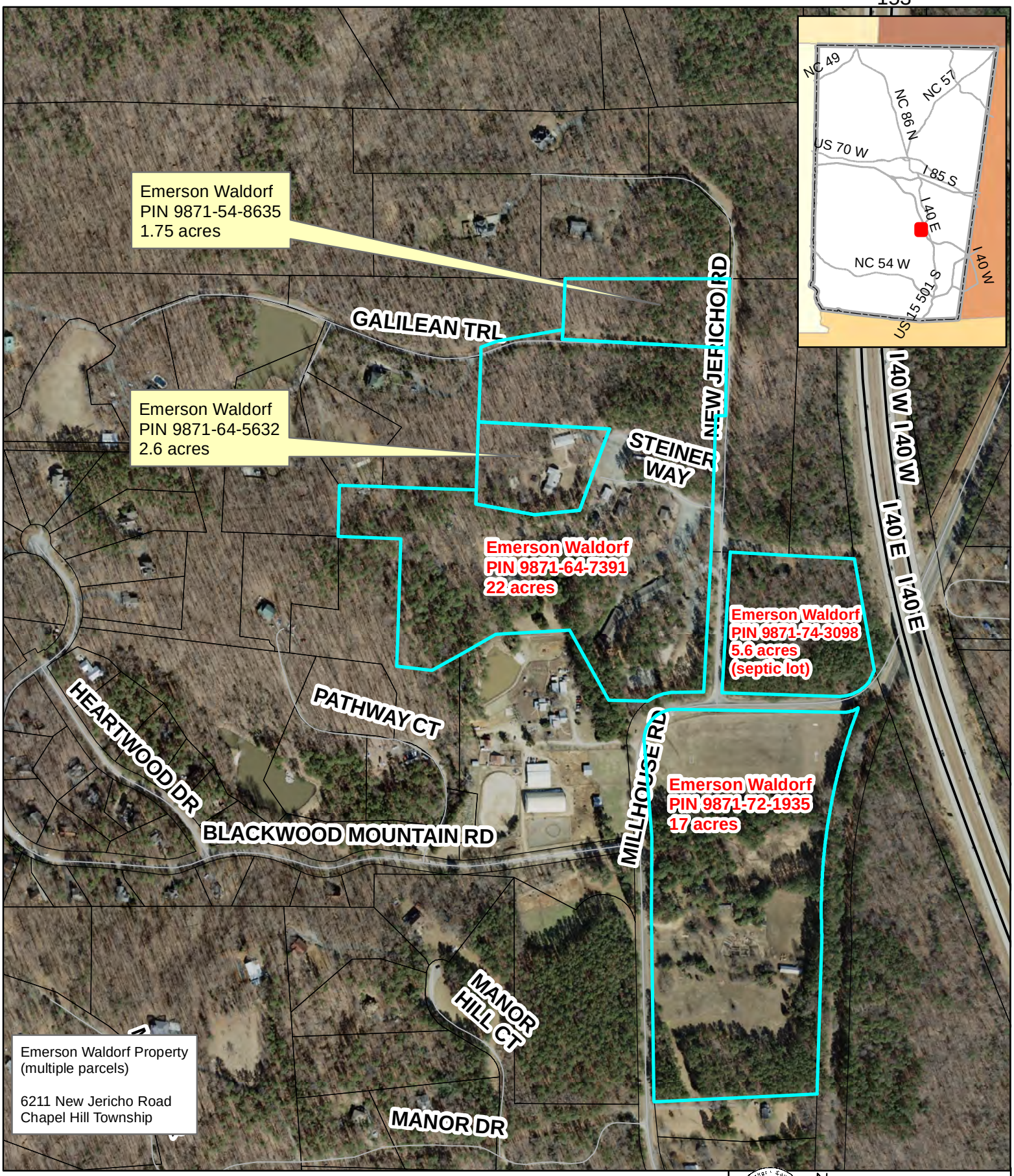
SUMMIT DESIGN AND ENGINEERING SERVICES

TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
6211 NEW JERICHO ROAD
CHAPEL HILL, NC 27516

TRAFFIC PLAN

PROJECT NO. 14-0108
DRAWING NAME 14-0108_S
SHEET NO. TP-1

Attachment 2 - Vicinity Map



Patrick R. Mallett

From: Rich Shaw
Sent: Thursday, May 14, 2015 1:43 PM
To: Patrick R. Mallett
Cc: Peter Sandbeck
Subject: DEAPR comments: Emerson Waldorf SUP

Patrick,

Thank you for the opportunity to review and comment on the proposed Class A SUP for the Emerson Waldorf School. The following are comments on behalf of the Department of Environment, Agriculture, Parks and Recreation (DEAPR):

Natural Resources
There is no significant natural heritage area known to exist on or adjacent to the subject property, however there is a stream that flows through the southernmost parcel (PIN X-1935) that should be protected from any future development activities. The stream appears (from aerial photography) to have forested buffer on both sides and it would be important to maintain (and possibly enhance) those buffers to protect water quality and stream habitats. The northernmost Waldorf properties are in fairly close proximity to a forested riparian corridor along New Hope Creek, which is located about 0.4 mile north of the Waldorf parcel on Gililean Trail. That section of New Hope Creek is identified as a significant wildlife corridor that links other protected open space properties. Maintaining the forest cover on the northernmost Waldorf parcels (as much as feasible) will contribute to the current relatively forested and open space character of that neighborhood, which also provides habitat to plants and wildlife that utilize the New Hope Creek corridor.

So no highly significant natural features that I'm aware of; the School and their contractors should just be mindful of the benefits of protecting the stream(s) and maintaining forest cover.

Historic and Cultural Resources
Based on Peter Sandbeck's review, there are no previously identified historic properties or resources located on those parcels.

However, there is a recorded historic farmstead, formally known as the Blackwood Farm (OR0432) but now better known as Spence's Farm, located immediately south of the subject property. The Blackwood Farm (PIN 9871634523) property consists of an early house (built c. 1825-50), plus several 19th century log and stone outbuildings, and thus represents a noteworthy agricultural complex from that period. Therefore, any proposed development activity should take into consideration its impact on this adjacent historic resource.

Also, given the proximity of the school parcels to the early farmstead, care should be taken to locate, identify and protect any potential human burial sites or cemeteries. The current Cemetery Census map does not show any identified burials on these parcels.

Please contact Peter or me if you have any questions.
Rich

Rich Shaw, Land Conservation Manager
Orange County
Department of Environment, Agriculture, Parks and Recreation

Patrick R. Mallett

From: Jeff Scouten
Sent: Thursday, May 14, 2015 1:29 PM
To: Patrick R. Mallett
Subject: Emerson Waldork School Master Plan SUP

Pat,
I have no current issues/concerns with the subject Emerson Waldorf School Master Plan SUP application at this time. Solid waste and recycling issues/concerns will be addressed at the time of site plan submission.
Thanks.

Jeff Scouten
Environmental Enforcement Supervisor
Orange County Solid Waste Management
P.O. Box 17177
Chapel Hill, NC 27516-7177
919-968-2788 x 107 (Office)
919-932-2900 (Facsimile)
jscouten@orangecountync.gov
http://orangecountync.gov/recycling/candd.asp

ORANGE COUNTY
NORTH CAROLINA

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Engineering / Erosion Control / Stormwater
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

MEMORANDUM

TO:	Michael Harvey
COPY TO:	Patrick Mallett
FROM:	Howard W. Fleming, Jr., PE, Engineering/Stormwater Supervisor
DATE:	05/12/15
PROJECT:	**Emerson Waldorf School**
SUBJECT:	**SUP Amendment** - DAC Review, May 7, 2015

EROSION & SEDIMENTATION / STORMWATER CONTROL COMMENTS:
Having reviewed the subject project, Erosion & Sedimentation Control / Stormwater staff members understand this project must proceed through certain discretionary actions in order to determine functional and economic viability, prior to the developers investing in more detailed design and subsequent jurisdictional submittals for compliance reviews and permits. That being stated, we find no fundamental objections to this project moving forward through discretionary approvals, subject to future submittals addressing the requirements in the Unified Development Ordinance pertaining to Erosion & Sedimentation Control and Stormwater.

Patrick R. Mallett

From: Jason Shepherd
Sent: Tuesday, May 12, 2015 8:25 PM
To: Michael Harvey; Sam M. Schultz; Patrick R. Mallett
Subject: Emerson Waldorf

The Fire Marshal Division has the following comment for the master plan proposal for this property:

With further development and design of larger facilities, future planning should not overlook the possibility of unforeseen code changes that would require sprinkler installation for new construction. This would require a reliable water source which is not currently available on-site.

Sent from my iPad

Patrick R. Mallett

From:	Edwards, Charles N <cnedwards@ncdot.gov>
Sent:	Friday, April 10, 2015 8:41 AM
To:	Chad Abbott; Jones, DeAngelo J
Cc:	Michael Harvey; Patrick R. Mallett; 'Jeff Hochanadel'; Kelly Sue Woody; 'Charles Viles'; Hinton, Kimberly D; Cranford, Joel C; Mcpherson, Dawn M; Stephanie Trueblood
Subject:	RE: 14-0108 Emerson Waldorf Master Plan SUP
Attachments:	Emerson Waldorf School 4-08-2015.pdf; TP-3 Schedule 3.pdf; TP-1 Schedule 1.pdf; TP-2 Schedule 2.pdf

Chad,

Per your request, District and MSTA staff have reviewed your revised site plan. The revisions appear to have substantially addressed the queuing and operational issues previously discussed. In the attached report, MSTA has provided additional recommendations intended to further improve operations on the site. This office has no objection to the master plan proceeding through the County SUP process subject to the applicant implementing these recommendations. Because the proposed new access lies beyond State maintenance limits, no driveway permit is required from this office. However, it remains the responsibility of the school to manage internal circulation and accommodate internal queues so as to not negatively impact the adjacent State roads. Any installation or work performed in the NCDOT right of way will require approval and execution of the appropriate encroachment agreement by this office. I appreciate the cooperation from the school and their consultants in working with the Department to arrive at an acceptable solution for accommodation of present and projected site traffic. Feel free to contact me if you have any questions.

C.N. Edwards, Jr. PE
District Engineer
P. O. Box 766
115 E. Crescent Square Drive
Graham, NC 27253

Phone(336) 570-6833
Fax (336) 570-6873

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

From: Chad Abbott [mailto:chad.abbott@summitde.net]
Sent: Wednesday, March 18, 2015 3:31 PM
To: Edwards, Charles N; Jones, DeAngelo J
Cc: 'Michael Harvey'; Patrick R. Mallett; 'Jeff Hochanadel'; Kelly Sue Woody; 'Charles Viles'
Subject: 14-0108 Emerson Waldorf Master Plan SUP

Chuck/DeAngelo,

I am going to wrap this project up as a result of Terry's departure from Summit. We have met with SEPI, our Clients and the County to go over what we think is a very viable and acceptable solution for addressing the MSTA comments and concerns. I was telling the county and the clients at our last meeting that typically, or at least in my experience in Division 5, the District Engineer submitted the plans/docs to MSTA for review, they returned their review comments to the District Engineer and the District Engineer decided which comments would be passed along to the applicant. That

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

April 8, 2015

In reply, refer to
File No. SCH-2014-054

MEMORANDUM

TO: Charles Edwards – District Engineer, Division Seven
Dawn McPherson – Division Traffic Engineer
Joel Cranford – Municipal and School Transportation Engineer

FROM: Kimberly Hinton - Municipal and School Transportation Project Engineer kdh

SUBJECT: Emerson Waldorf School Review of Revised Site Plan, Orange County

Municipal and School Transportation Assistance (MSTA) performed a review of the Revised Site Plan Emerson Waldorf School prepared by Summit Design and Engineering Services. Emerson Waldorf is a private school located in Chapel Hill in the northwest corner of the New Jericho Road (SR 1899) and Mill House Road (SR 1725) intersection. The school plans to construct several new buildings and increase student population by 92 students. This review is based on a maximum of 350 students in Early Childhood through twelve grades (Nursery – 12th). If the school is projected to accommodate a higher number of students than indicated, then further review will be required. The key dates regarding this development are as follows:

Received by This Office	11/06/2014	Sealed TIA	10/31/2014
MSTA Correspondence Sent	01/20/2015	Non Sealed Site Plan	12/01/2014
Received by This Office	03/20/2015	Non Sealed Revised Site Plan	03/16/2015

✓	The Site Plan does properly address the on-campus queue lengths for high traffic demand days.
X	Driveway 4 has three lanes, one exit lane and two entrance lanes. There is an internal conflict and possible weave section created with the 1-4 Loading and 5-8 Loading parents. This is considered a traffic safety concern.

Traffic queue lengths required for this school was provided in earlier correspondence and meetings as shown on **Figure 1**.

The Revised Site Plan shows a traffic safety concern entering Driveway 4. The intent of the two ingress lanes is to provide vehicle queue length for the 5 – 8 Loading parents. Recommendations are provided.

- Reduced Driveway 4 to two lanes (one ingress lane and one egress lane)
- Widen the school driveway (12 feet wide and 160 feet long) just before the 5 – 8 Loading Zone to implement a double queue process (two 12 feet wide lanes); it may be necessary for a staff member to be located at the Stop Line to direct double queued parents into the single lane parent loading zone.

MAILING ADDRESS:
MUNICIPAL AND SCHOOL TRANSPORTATION ASSISTANCE
1561 MAIL SERVICE CENTER
RALEIGH, NORTH CAROLINA 27699-1561

TELEPHONE: 919-773-2800
FAX: 919-771-2745
WEBSITE: WWW.NCDOT.ORG/~MSTA

LOCATION:
750 NORTH GREENFIELD PARKWAY
GARNER, NORTH CAROLINA 27529

The Early Childhood and High School share the same loading area. During the AM High School student loading begins 20 minutes before Early Childhood. During the PM, Early Childhood dismisses at 12:30 and the remaining grades dismiss at 3:15. Adequate parking is provided near the Early Childhood location.

School policy requires 1 – 4 Grade parents to park and walk their student into the school building. During the AM student loading time, the school provides coffee and a covered area near this parking lot for these parents to socialize. This activity will have parents parking for a longer time period indicating a higher need for parking. Similar schools have 43% to 67% of the parents bring their child to school in the AM equating to 50 to 77 vehicles. The Revised Site Plan provides 29 parking spaces. It is questionable if the school is providing adequate parking for this activity. If this becomes a traffic safety concern, the school can take corrective measures. A separate access lane is provided from Driveway 4 to this parking lot allowing access to other student loading areas. During the PM student loading time, similar schools are expected to have 18 parents waiting before dismissal.

The Revised Site Plan indicates Driveway 2 and Driveway 3 have gates. It is our understanding these driveways will be closed during the AM and PM student loading times to prevent parents from circumventing the intended student loading process.

We appreciate the opportunity to serve Emerson Waldorf School and hope you find our services helpful as together we continue to provide "Safe Roads to Safe Schools."

Enclosure

Municipal & School Transportation Assistance

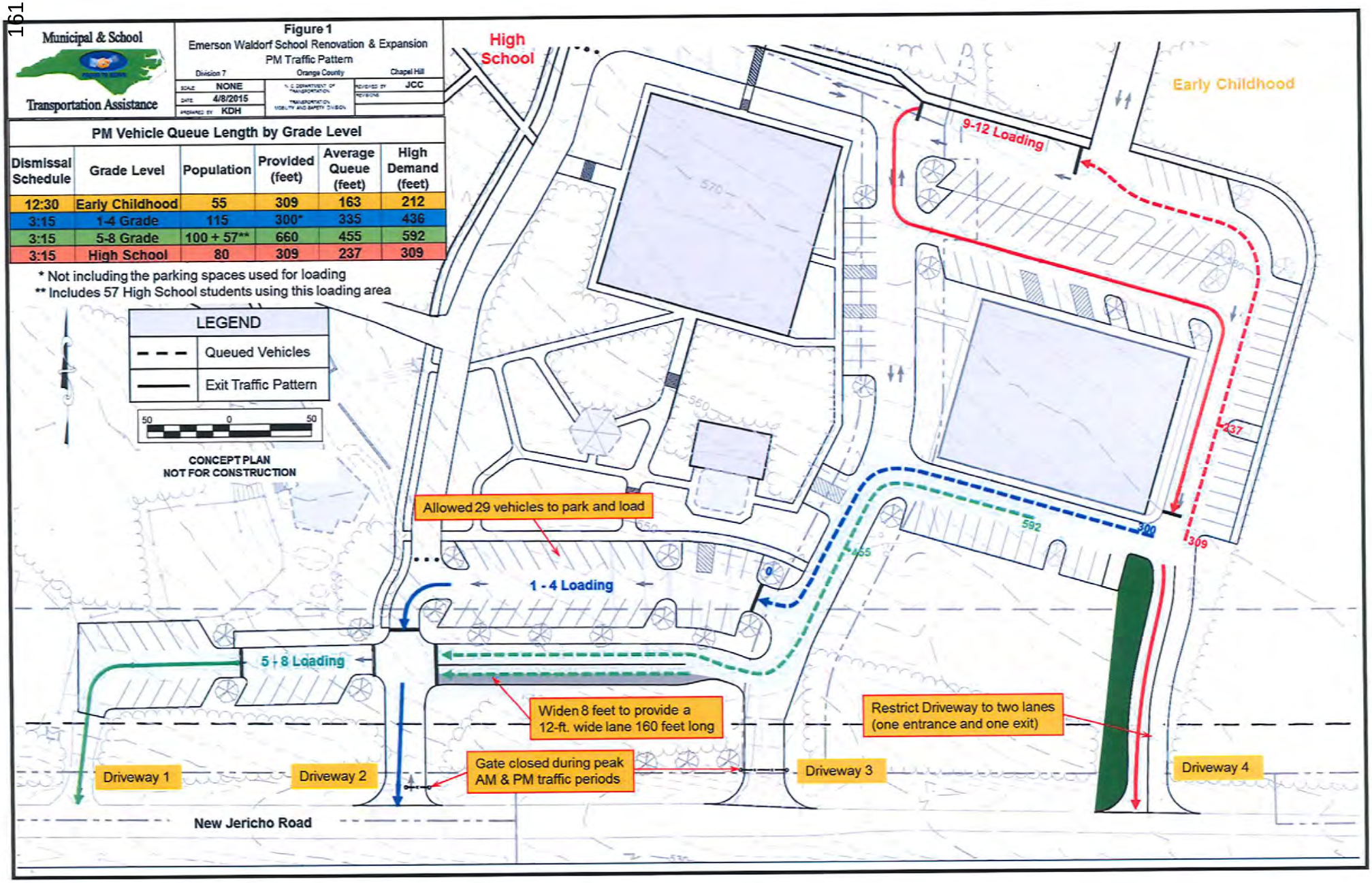
Figure 1
Emerson Waldorf School Renovation & Expansion
PM Traffic Pattern

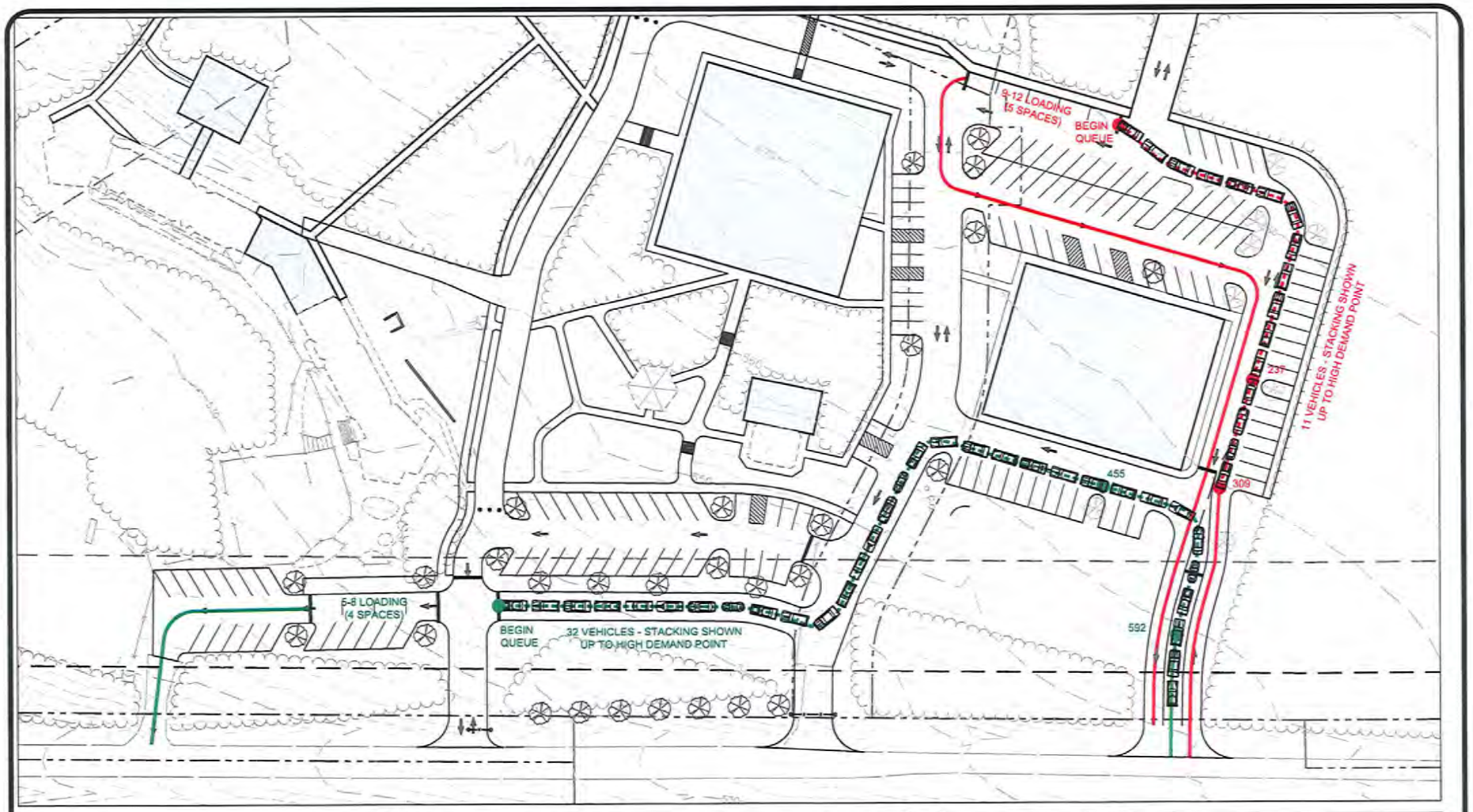
Division 7	Orange County	Chapel Hill
SCALE NONE	N.C. DEPARTMENT OF TRANSPORTATION TRANSPORTATION MOBILITY AND SAFETY DIVISION	REVIEWED BY JCC
DATE 4/8/2015		REVISIONS
PREPARED BY KDH		

PM Vehicle Queue Length by Grade Level

Dismissal Schedule	Grade Level	Population	Provided (feet)	Average Queue (feet)	High Demand (feet)
12:30	Early Childhood	55	309	163	212
3:15	1-4 Grade	115	300*	335	436
3:15	5-8 Grade	100 + 57**	660	455	592
3:15	High School	80	309	237	309

* Not including the parking spaces used for loading
** Includes 57 High School students using this loading area





SCALE
1" = 60'

FIRST ISSUE DATE
03-16-2015

PROJECT NO.
14-0108

SHEET NO.
TP-1

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EMERSON WALDORF SCHOOL TRAFFIC PATTERN PLANS

NEW JERICHO ROAD
ORANGE COUNTY, NORTH CAROLINA

DROP OFF ROUTES - AM SCHEDULE 1
- - - - - 9-12 HIGH SCHOOL (8:10 AM)
- - - - - 5 - 8 MIDDLE SCHOOL (8:15 AM)

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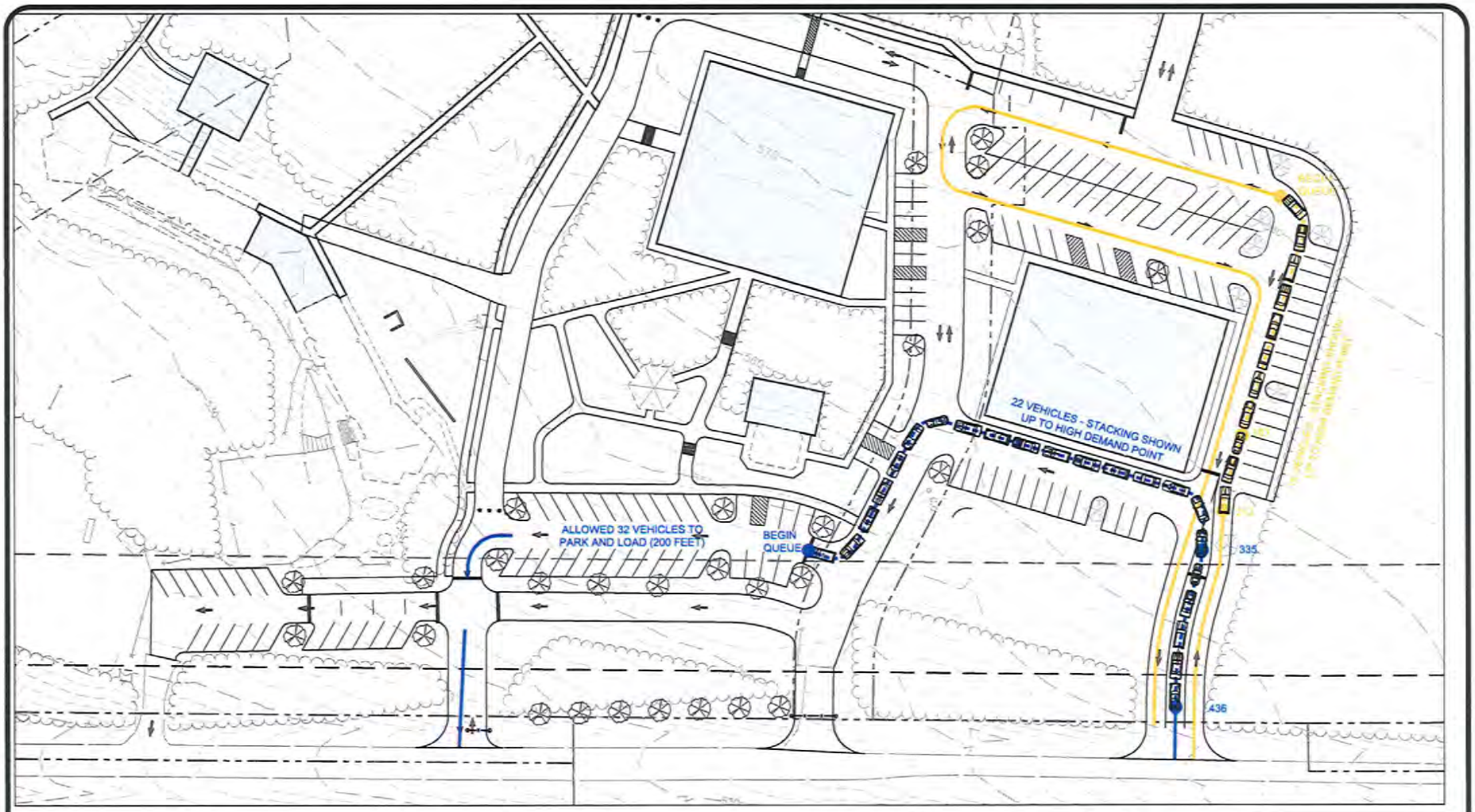

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EMERSON WALDORF SCHOOL TRAFFIC PATTERN PLANS

NEW JERICHO ROAD
ORANGE COUNTY, NORTH CAROLINA

DROP OFF ROUTES - AM SCHEDULE 2
- - - - - EARLY CHILDHOOD (8:30 AM)
- - - - - K - 4 LOWER SCHOOL (8:30 AM)

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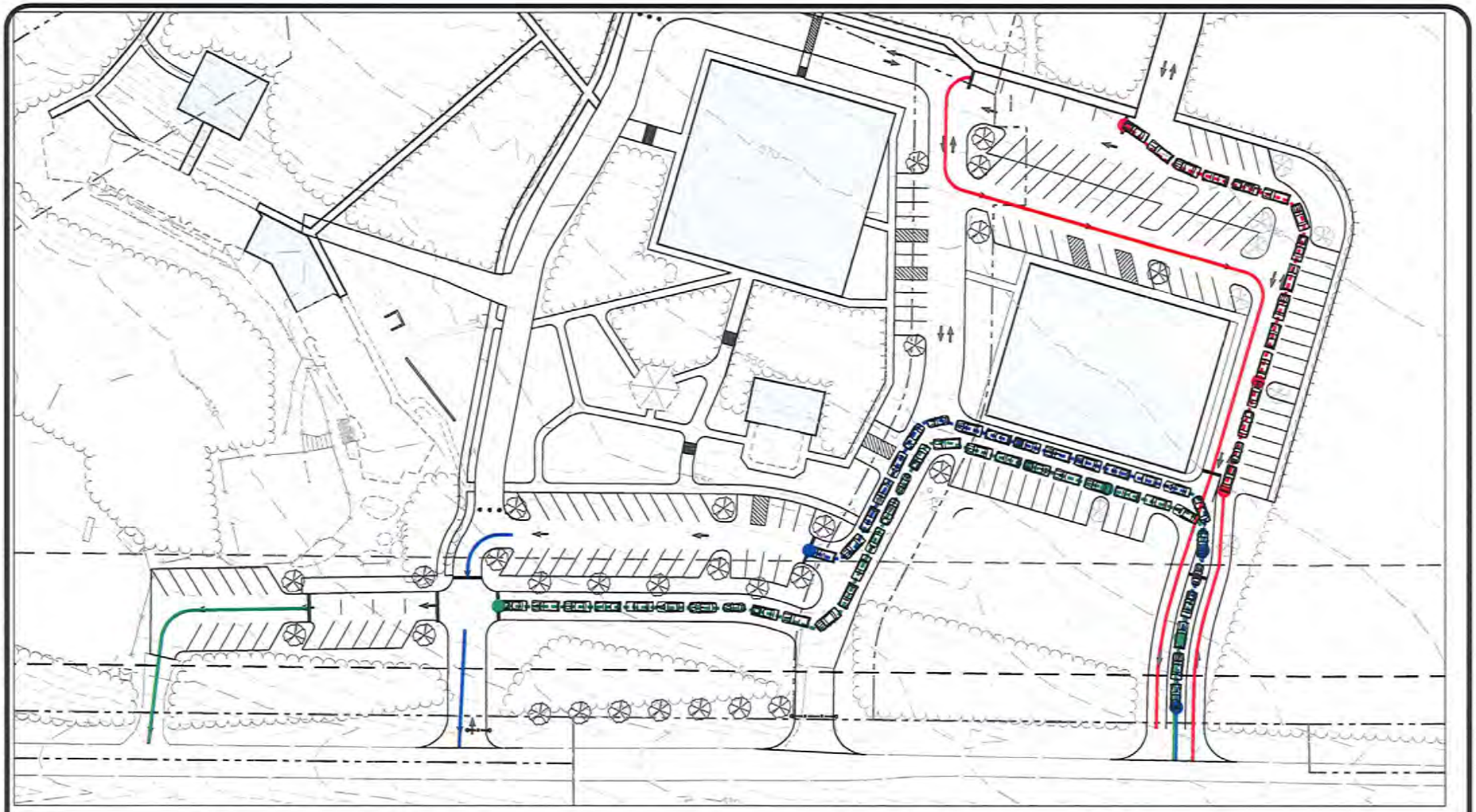

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EMERSON WALDORF SCHOOL TRAFFIC PATTERN PLANS

NEW JERICHO ROAD
ORANGE COUNTY, NORTH CAROLINA

PICK UP ROUTES - PM SCHEDULE 2

- 9-12 HIGH SCHOOL (3:15 PM)
- 5 - 8 MIDDLE SCHOOL (3:15 PM)
- K - 4 LOWER SCHOOL (3:15 PM)

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TOWN OF CHAPEL HILL
Planning and Sustainability

405 Martin Luther King Jr. Blvd.
Chapel Hill, NC 27514-5705

phone (919) 968-2728 *fax* (919) 969-2014
www.townofchapelhill.org

February 4, 2015

Mr. Michael D. Harvey
Planning Supervisor
Orange County Planning & Inspections Department
131 W. Margaret Lane, Suite 201
Hillsborough, NC 27278

Dear Mr. Harvey,

Thank you for the opportunity to review the Emerson Waldorf School Special Use Permit application. We have completed our review and would like to offer the following comments:

- We understand from the application narrative that faculty and students drive to the school; we would encourage carpooling and single occupancy vehicle alternatives
- We recommend including some bicycle parking with the development proposal
- We recommend additional signage and/or solar flashing beacons on Millhouse Road to alert motorists of the school zone and pedestrian crossings to and from the proposed gymnasium
- We recommend lowering the 30mph speed limit on Millhouse House Road near the school for added safety of students and faculty members
- It appears that the design may include a 'kiss and go' lane between Millhouse Road and the building. If so, we recommend that the applicant demonstrate that there is/are adequate vehicular stacking area(s) for this activity.
- There is a typographical labeling error on plan sheet C-5; there are 14 proposed parking spaces shown instead of 8

Please let me know if you have questions or I can provide any other assistance.

Sincerely,

Mary Jane Nirdlinger
Executive Director

ORANGE COUNTY
HEALTH DEPARTMENT
Improving health. Inspiring change.

November 19, 2014

To: Patrick Mallett

From: Albert Mills

Subject: Class A SUP amendment Emerson Waldorf School

Pat;

Emerson Waldorf School is served by a wastewater irrigation system permitted by NCDNR, Division of Water Resource (DWR), permit WQ0004508. The permitted flow is 3,750-gpd. Any proposed increases in classrooms and school population which would increase the daily wastewater flow need to be approved by DWR not Orange County Environmental Health.

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Administration
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

MEMORANDUM

TO: Michael Harvey, Current Planning Supervisor
FROM: Sam Schultz
DATE: April 10, 2015
SUBJECT: Class A SUP Emerson Waldorf – Neighborhood Information Meeting (NIM) Minutes

---

Attendees: Patrick Mallett, and Sam Schultz (Orange County staff), Terry Boylan (consultant with Summit), Charles Viles, Mark Hulbert, and Keith Bartholomew (Emerson Waldorf), and an adjacent property owner Mr. Dale Hammond of 6532 Millhouse Road.

The NIM commenced at 12:00 p.m. on April 10, 2015 within the lower level conference room of the West Campus office building at 131 West Margaret Lane. After waiting 5 minutes for additional attendees, staff began the meeting with an overview of the project for the benefit for those in attendance.

Upon staff completing their presentation, which focused on the process associated with the review and approval of Special Use Permits, Emerson Waldorf and there consultant addressed those in attendance of the specific elements of the project and the cadence of construction that would occur.

The only member of the public wanted clarification on the location of the proposed new buildings to ensure they were not going to be in close proximity to his property. The applicant reviewed the site plan with this individual and address this concern.

A question was asked about lighting, specifically focusing on the proposed new athletic complex along Millhouse Road. The concern was over the purported erection of athletic field lights. The applicant indicated they were not proposing any outdoor lighting as part of this project. Staff indicated any future development of outdoor athletic field lights would require a modification of the permit, which would have to be re-reviewed by the County in a public hearing.

There was general discussion related to the site plan. The lone member of the general public in attendance indicated he had no further concerns over the project. The meeting was adjourned at 1:30 p.m.

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Administration
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ORANGE COUNTY
NORTH CAROLINA

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Hillsborough, NC 27278

March 23, 2015

NOTICE OF NEIGHBORHOOD INFORMATION MEETING:

EMERSON WALDORF SCHOOL (Orange County Property Identification Numbers- PINs 9871- 64-7391; 9871-64-5632; 9871-65-8140; 9871-74-3098; and 9871-72-1935)

REVIEW OF CLASS A SPECIAL USE PERMIT (SUP) APPLICATION PROPOSING A MASTER PLAN FOR THE EMERSON WALDORF SCHOOL

To Whom It May Concern:

You are receiving this letter because you are listed as an owner of property within the 500 feet of the Emerson Waldorf School, which is located on a 54-acre campus at 6211 New Jericho Road, Chapel Hill, NC 27514. The Emerson Waldorf School is requesting to amend their current SUP to both modify and expand their existing campus. Part of their request is to have adopt a Master Plan for the school, which spells out the construction and location of new buildings and support facilities over the next 15-years. The Master Plan is envisioned to support an increase in student population to approximately 350 students by 2030.

The Orange County Unified Development Ordinance (UDO) requires that any SUP Application proposing the creation, modification or expansion of use that requires a SUP to hold a Neighborhood Information Meeting (NIM). This meeting is designed to allow property owners within 500 feet of the subject property to review and discuss the proposal with the applicant and/or their agents, as well as obtain an understanding of the SUP review and approval process. The NIM for this case will be held on Friday April 10, 2015 from 12:00-1:30pm at 131 West Margaret Lane, Hillsborough, NC 27278. See below for the location and additional details.

Please note, the Public Hearing for this item is not scheduled to occur until May 26, 2015, 2015. Additional notices shall be sent informing you of the date/location/time of this meeting.

The review of all SUP applications are carried out in a *quasi-judicial* format meaning that decisions relating to the approval or denial of an application are based solely on the sworn testimony of all parties involved with the case, both those for and against an application, as well as the review of competent material and substantial evidence submitted during the public hearing.

Quasi-judicial hearings, and decisions, require a 'fair trial standard' including accepting only competent, material and substantial evidence. Public comments in the form of sworn testimony meeting evidentiary standards can be accepted. Personal, anecdotal, or hearsay comments, however, shall not be accepted as they do not represent '*competent, material, and substantial evidence*'.

While County regulations and State law do not require that parties be represented by an attorney, it may be in your best interests to secure legal counsel to represent your interests at the hearing.

Further, the applicant has the burden of establishing, by the submission of competent material and substantial evidence, the existence of facts and conditions that demonstrate the projects compliance with the various requirements and standards detailed within the UDO. Those opposing approval of the application shall have the burden of establishing, also through the submission of competent material and substantial evidence, the specific manner in which the proposal does not satisfy the requirements for approval of the application.

Planning staff will provide additional information on the review of SUP applications at the NIM meeting.

The NIM has been scheduled as follows:

Date: Friday, April 10, 2015

Time: 12:00- 1:30 p.m.

Location: Lower Level – Conference Room Number 4
West Campus Office Building (W.C.O.B.)
131 West Margaret Lane
Hillsborough, North Carolina 27278

A Vicinity Map has been attached denoting the location of the West Campus Office Building.

If you require additional assistance, please contact a Department staff member at (919) 245-2575. Thank you for your attention to this matter.

Sincerely,

Michael D. Harvey AICP, CFO, CZO
Current Planning Supervisor
Orange County

Patrick Mallett
Planner II
Orange County

CC: File

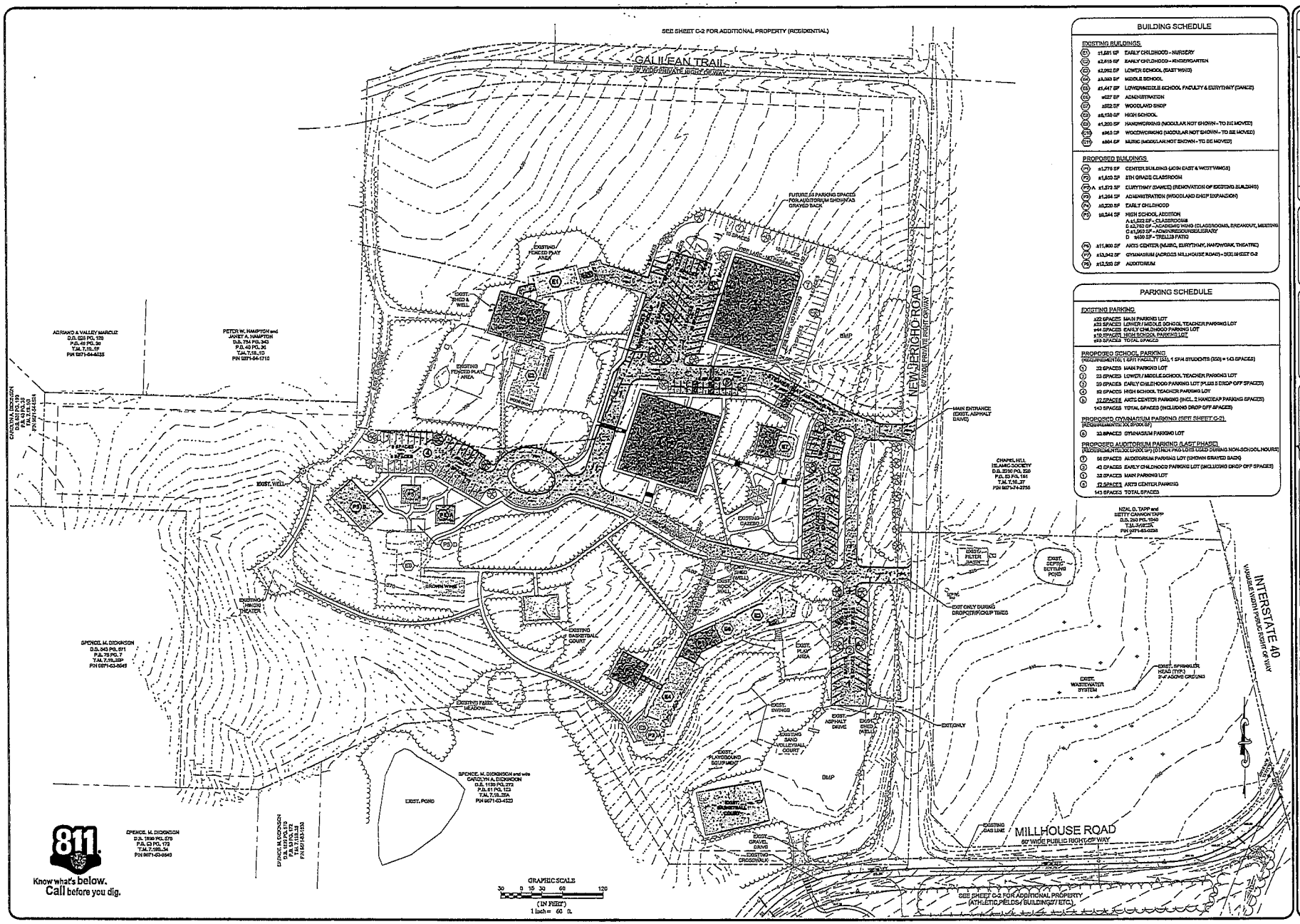
Exhibit : Color Areal Photo of Subject Property
Special Use Permit (S.U.P.) and Master Plan
Emerson Waldorf School

- USGS Stream
- Soils Survey Stream
- OC Updated Stream
- Stream Buffer 65ft
- Water Body Buffer 65ft
- Parcels
- Zoning
- Water Body
- Soils

N

1 Inch = 300 feet

0 75 150 Feet



BUILDING SCHEDULE

EXISTING BUILDINGS

(E1)	±1,691 SF	EARLY CHILDHOOD - NURSERY
(E2)	±2,818 SF	EARLY CHILDHOOD - KINDERGARTEN
(E3)	±2,993 SF	LOWER SCHOOL (EAST WING)
(E4)	±3,383 SF	MIDDLE SCHOOL
(E5)	±3,447 SF	LOWER/MIDDLE SCHOOL FACULTY & EURYTHMY (DANCE)
(E6)	±627 SF	ADMINISTRATION
(E7)	±832 SF	WOODLAND SHOP
(E8)	±6,130 SF	HIGH SCHOOL
(E9)	±1,200 SF	HANDWORKING (MODULAR NOT SHOWN - TO BE MOVED)
(E10)	±963 SF	WOODWORKING (MODULAR NOT SHOWN - TO BE MOVED)
(E11)	±864 SF	MUSIC (MODULAR NOT SHOWN - TO BE MOVED)

PROPOSED BUILDINGS

(P1)	±1,776 SF	CENTER BUILDING (JOIN EAST & WEST WINGS)
(P2)	±1,453 SF	5TH GRADE CLASSROOM
(P3)-A	±1,573 SF	EURYTHMY (DANCE) (RENOVATION OF EXISTING BUILDING)
(P4)	±1,264 SF	ADMINISTRATION (WOODLAND SHOP EXPANSION)
(P5)	±5,220 SF	EARLY CHILDHOOD
(P6)	±8,344 SF	HIGH SCHOOL ADDITION A ±1,522 SF - CLASSROOMS B ±2,782 SF - ACADEMIC WING (CLASSROOMS, BREAKOUT, MEETING) C ±1,063 SF - ADMIN/RECEPTION/LIBRARY D ±400 SF - TRELLIS PATIO
(P7)	±11,800 SF	ARTS CENTER (MUSIC, EURYTHMY, HANDWORK, THEATRE)
(P8)	±13,942 SF	GYMNASIUM (ACROSS MILLHOUSE ROAD) - SEE SHEET C-2
(P9)	±12,533 SF	AUDITORIUM

PARKING SCHEDULE

EXISTING PARKING

±22 SPACES	MAIN PARKING LOT
±33 SPACES	LOWER / MIDDLE SCHOOL TEACHER PARKING LOT
±44 SPACES	EARLY CHILDHOOD PARKING LOT
±10 SPACES	HIGH SCHOOL PARKING LOT
±109 SPACES	TOTAL SPACES

PROPOSED SCHOOL PARKING
(REQUIREMENTS: 1 SPA FACILITY (SA), 1 SPA STUDENTS (SS) = 143 SPACES)

1	33 SPACES	MAIN PARKING LOT
2	33 SPACES	LOWER / MIDDLE SCHOOL TEACHER PARKING LOT
3	39 SPACES	EARLY CHILDHOOD PARKING LOT (PLUS 5 DROP OFF SPACES)
4	32 SPACES	HIGH SCHOOL TEACHER PARKING LOT
5	12 SPACES	ARTS CENTER PARKING (INCL. 2 HANDICAP PARKING SPACES)
	143 SPACES	TOTAL SPACES (INCLUDING DROP OFF SPACES)

PROPOSED GYMNASIUM PARKING (SEE SHEET C-2)
(REQUIREMENTS: XX SP/XXX SF)

6	33 SPACES	GYMNASIUM PARKING LOT

PROPOSED AUDITORIUM PARKING (LAST PHASE)
(REQUIREMENTS: XXX SP/XX SF) (37 NEW PKG LOTS USED DURING NON-SCHOOL HOURS)

7	56 SPACES	AUDITORIUM PARKING LOT (SHOWN GRAVED BACK)
8	43 SPACES	EARLY CHILDHOOD PARKING LOT (INCLUDING DROP OFF SPACES)
9	33 SPACES	MAIN PARKING LOT
5	12 SPACES	ARTS CENTER PARKING
	143 SPACES	TOTAL SPACES

7			
6			
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1	...	REVISIONS	BY

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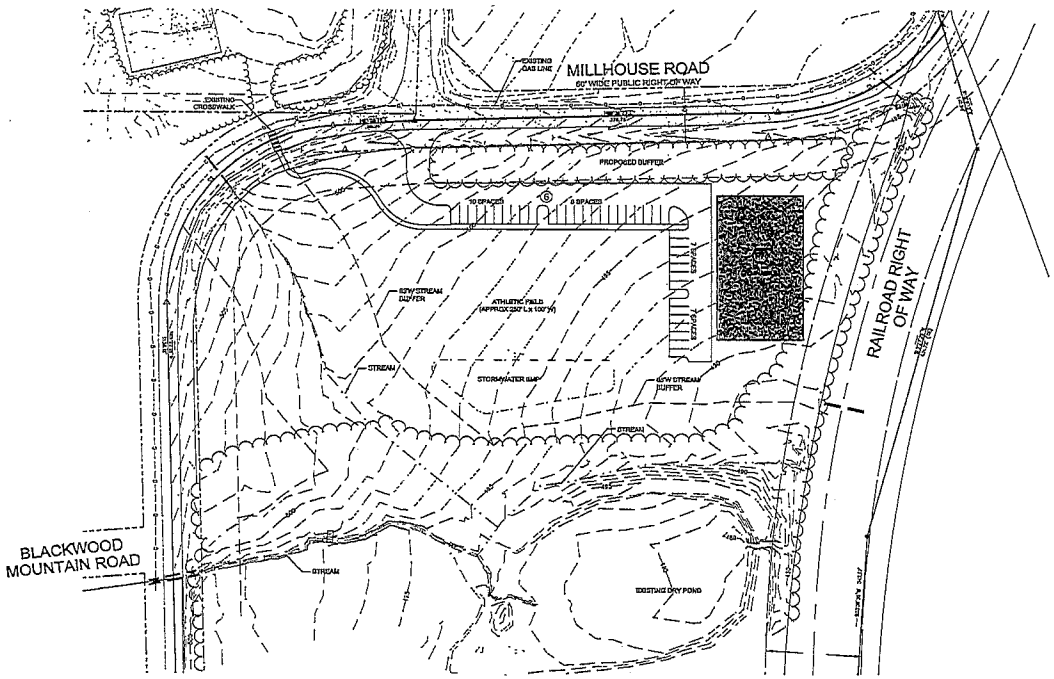
SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
6211 NEW JERICHO ROAD
CHAPEL HILL, NC 27516

MASTER PLAN

PROJECT NO. 14-0108
DRAWING NAME: 14-0108_S
SHEET NO. C-4



GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 60 ft.

811
Know what's below.
Call before you dig.

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1	--	--
2		
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DATE	BY	

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EMERSON WALDORF SCHOOL
6311 HEY MERCHO ROAD
CHAPEL HILL NC 27516

MASTER PLAN

PROJECT NO. 14-0108
DRAWING NAME: 14-0108_S
SHEET NO. C-5

Vicinity Map - West Campus Office Building (131 W. Margaret Lane)

Orange County Planning and Inspections Department

SPECIAL USE PERMIT FACT SHEET

The purpose of this fact sheet is to provide a breakdown of Orange County's Special Use Permit submittal and review process.

The information contained herein provides an explanation on the nature of the permit proceedings, the presentation of evidence, burden of proof, what constitutes testimony and who can present evidence, and your rights with respect to challenging a decision to either approve or reject a SUP application.

1. ***What is a Special Use Permit***?

   A Special Use Permit (SUP) is a permit allowing for the establishment of certain uses, in certain districts, that are considered worthy of additional scrutiny in their proposed location. Such uses typically require special review for design, location, and impact on surrounding properties.

   Orange County has 2 different categories of SUP, specifically:

   i. **Class A** reviewed and acted upon by the Board of County Commissioners (BOCC), with a recommendation from the Planning Board, and

   ii. **Class B** reviewed and acted upon by the Orange County Board of Adjustment.

2. ***What is considered a 'Special Use'?***

   A SUP is required for those specific land uses identified within the Orange County Unified Development Ordinance (UDO) Table of Permitted Uses contained within Section 5.2.

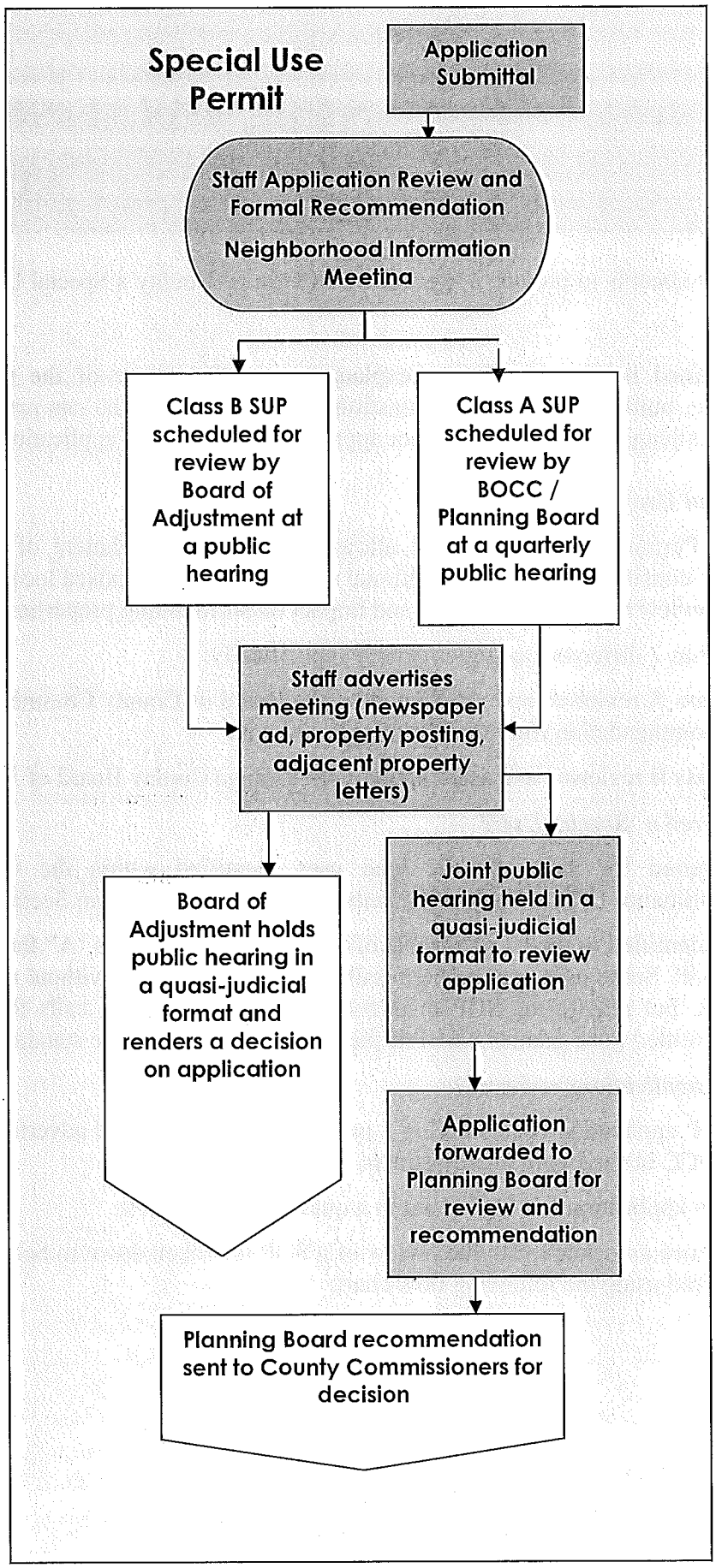
   These uses are identified in the UDO's Table of Permitted Uses with an 'A" for Class A SUP and a 'B' for a Class B SUP. Some uses may be permissible in certain districts without restriction (referred to as "uses by right"), but require the SUP in districts where their impact calls for special consideration. Applicants are entitled to be granted a SUP if they can show that specific standards would be met.

3. ***When are such applications reviewed?***

   Review of a SUP application occurs during a previously scheduled and advertised public hearings held by either the BOCC or the Board of Adjustment.

   The review of an application is a carried out in a quasi-judicial process.

   The typical cadence associated with the review of a SUP is broken down in Section 2.7 of the UDO and can be summarized using the following flow chart:


Special Use Permit
Application Submittal
Staff Application Review and Formal Recommendation
Neighborhood Information Meeting
Class B SUP scheduled for review by Board of Adjustment at a public hearing
Class A SUP scheduled for review by BOCC / Planning Board at a quarterly public hearing
Staff advertises meeting (newspaper ad, property posting, adjacent property letters)
Board of Adjustment holds public hearing in a quasi-judicial format and renders a decision on application
Joint public hearing held in a quasi-judicial format to review application
Application forwarded to Planning Board for review and recommendation
Planning Board recommendation sent to County Commissioners for decision

4. ***What does quasi-judicial process mean?***

Quasi-judicial decisions arise in a variety of local government settings.

During a quasi-judicial hearing, the Board (i.e. BOCC or Board of Adjustment) responsible for rendering a decision acts much like a panel of judges. The Board hears factual evidence and sworn testimony presented at the public hearing and then makes a determination on whether the permit can be issued based on the competent, substantial, and material evidence presented.

Put differently a quasi-judicial decision is one that requires the board hearing the matter to find facts and make decisions by applying those facts to the standards in the Unified Development Ordinance.

5. ***Who may speak or present evidence at the public hearing?***

Both individual applicants and those individuals supporting, or opposed to, the application are encouraged to attend. Individuals may represent themselves or be represented by an attorney and they may have expert witnesses testify for them.

The cost for attorneys or expert witnesses is borne by the individual seeking counsel or expert testimony, not the County. The County will not pay for, or reimburse, expenses incurred by an individual in their quest to support or oppose a SUP application.

While not required by State or County regulations, all parties with an interest in a SUP application are strongly advised to have an attorney represent them.

Engineers, architects, real estate agents, planners and other non-attorneys may only appear as expert witnesses; they may not represent an applicant or those opposed to an application.

Only those with standing may speak or present evidence.

6. ***What are the responsibilities of the applicant?***

The applicant bears the ultimate responsibility for producing and submitting competent, substantial, and material evidence for the body reviewing the application to conclude the proposal complies with applicable County regulations.

If they fail to submit evidence demonstrating compliance, the request is denied.

If, however, the applicant proves they comply, and there is insufficient evidence submitted to the board hearing the case demonstrating they do not comply, the applicant is entitled to have the application approved.

7. ***What standards must be met by the applicant?***

All applicants must show compliance with the General Standards for all SUPs, as detailed within Section 5.3.2 of the UDO, and any specific development standards associated within the proposed use.

The General Standards, as contained in Section 5.3.2, read as follows:

> *(a) The use will maintain or promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted;*
>
> *(b) The use will maintain or enhance the value of contiguous property (unless the use is a public necessity, in which case the use need not maintain or enhance the value of contiguous property); and*
>
> *(c) The location and character of the use, if developed according to the plan submitted, will be in harmony with the area in which it is to be located and the use is in compliance with the plan for the*

physical development of the County as embodied in these regulations or in the Comprehensive Plan or portion thereof, adopted by the Board of County Commissioners

8. ***How are decisions made?***

Members of the board rendering the decision must make their decision solely on the competent, material and substantial evidence presented at the hearing, both for and against an application.

Members cannot consider information obtained through independent research or undisclosed *ex parte* communications, meaning members cannot have private discussions with individuals who support or object to a specific application.

9. ***What exactly is ex-parte communication and why is it not allowed?***

Persons affected by a decision have the legal right to hear all of the information presented to members of a board who will be rendering a decision on an SUP application, specifically they have a right to know all of the "facts" being considered.

Therefore members of the decision-making body are not allowed to discuss the case or gather evidence outside of the hearing (what the courts term *ex parte* communication). Only facts presented to the full board at the hearing may be considered.

This is an important point to remember when such applications are being reviewed. Members of the board rendering the decision are prohibited from discussing the matter or receiving comment on a proposal.

These members are not trying to be rude or unsympathetic to your concerns. They are prohibited from engaging in the conversation in the first place as they are required to guarantee an impartial hearing where the 'facts' are weighed as they are presented as to whether or not an application should be granted.

10. ***You previously indicated decisions are based on evidence. Does this mean those presenting evidence at a SUP hearing have to be under oath?***

In a word, yes. All testimony, including from County staff, offered during the public hearing where a SUP is reviewed must be under oath.

All persons wishing to speak will be given a reasonable time in which to be heard, however groups are encouraged to select a spokesperson to speak for the group in order to avoid repetitive testimony.

11. ***Can people just speak to offer their opinion on the application?***

Inflammatory, irrelevant, repetitive and incompetent testimony and hearsay is not permitted and the chairman of the board hearing the matter has the right to limit and restrict such comments during the public hearing.

For more information please refer to Section 2.7.7 (D) of the UDO.

12. ***What constitutes 'competent, substantial, and material evidence' allowing for the approval or a denial of a SUP?***

Breaking down what constitutes evidence can best be summarized as follows:

i. Competent evidence: legally admissible under the rules of evidence unless admitted without objection, or appears to be sufficiently trustworthy and is admitted under such circumstances that it is reasonable for the decision-making body to rely upon it. Evidence that can be subjected to cross-examination, inspection, explanation and rebuttal (i.e. expert testimony).

For example a realtor who has professional experience and accreditation can offer an opinion if a specific project will or will not impact the value of adjacent property. An individual with no background in the field cannot offer a 'competent' opinion on the

subject. In this case it would not be considered as 'competent' evidence and would be inadmissible.

ii. Substantial evidence: evidence that which a 'reasonable mind' would regard as sufficiently supporting a specific result.

Would this persuade the average person to make a certain conclusion? Does it do more than speculate?

iii. Material evidence: evidence that is relevant to the issue being considered.

For example if a board is reviewing an application for a kennel (i.e. a place where dogs/cats are housed and cared for a period of time) an individual who is opposed may submit documentation denoting noise complaints from other kennels throughout Orange County. This could be construed as 'material evidence'.

Documentation denoting animals have died in kennels throughout the county and, as a result, this specific application should be denied is not relevant to the case at hand as it has no specific relationship to what is being proposed. This would be deemed immaterial evidence and would not be admissible.

As a general rule, anyone with knowledgeable information (i.e. relevant) to the case may provide factual information, but only experts may provide opinion testimony.

Even expert testimony must be competent (i.e. the expert has qualifications relevant to the issue) and material before the decision-making board can rely on it.

Hearsay evidence is testimony that the witness does not know of his or her own personal knowledge, including that which someone else told the witness and the use or introduction of signed petitions and letters.

The board may only hear testimony that focuses on the applicable standards and criteria established in the UDO. Unless they are a qualified expert, witnesses are not competent to testify about the impact of a proposed land use on the value of nearby property, the danger to public safety resulting from increases in traffic or other matters that require special training or expertise like the level of noise that will be generated.

13. ***Can conditions be imposed on a SUP?***

Generally, the board hearing the application may attach conditions to the approval of an SUP as it relates to compliance with applicable standards. For example, a condition may require the applicant to increase the size of a required setback or land use buffer in order to ensure the project complies with that specific standard as detailed within the UDO. The Board cannot impose conditions addressing an issue not related to an existing standard such as establishing hours of operation, color of buildings, etc.

Conditions cannot require the applicant to take action with regard to a piece of property that is not a part of the application being considered, and conditions cannot require the alteration of a special use permit previously issued to a third party.

14. ***Is there a record of the proceedings?***

Complete records must be kept of the hearings. Detailed minutes must be kept noting the identity of witnesses and giving a complete summary of their testimony. Any exhibits presented are retained by the board and become a part of the file on that case. An audio recording of the hearing is also made.

15. ***How are parties notified of the decision?***

The board rendering a decision on the application is required to make a formal decision on the application (i.e. approve or deny) in writing and shall be based on the determination of facts and their application to the specific standards for the particular use and the general standards contained in the

UDO. This includes providing specific details on the board's conclusions on each applicable standard for a given SUP. Even if the application is denied, there is an obligation to make a detailed finding identifying the evidence utilized to deny the application.

The written decision must be signed and becomes effective upon filing with the Planning Department. A copy of the written decision must be delivered to the applicant, property owner, and others as required by State law.

16. ***Are decisions on SUP applications subject to further review?***

Yes. Decisions of the BOCC or Board of Adjustment on a SUP application are subject to by the Superior Court. Appeal applications must be filed within 30 days with the court from the date the decision is made available. Please refer to NCGS 160A-393 and Section 2.12.5 (A) of the UDO for additional information.

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MEMORANDUM

TO: Michael Harvey, current Planning Supervisor
FROM: Sam Schultz
DATE: January 8, 2014
SUBJECT: Class A SUP Emerson Waldorf – Neighborhood Information Meeting Minutes

---

Attendees: Michael Harvey, Patrick Mallett, and Sam Schultz (Orange County staff), Terry Boylan (consultant with Summit), Charles Viles, Mark Hulbert, and Keith Bartholomew (Emerson Waldorf).

Staff opened the doors to the first floor meeting room and insured access doors were open at the front of the building at 5:00 PM. NIM signs were also posted at the doors directing the public to the conference room. The front doors were periodically checked throughout the meeting to insure access for the public and to check for anyone looking for the meeting.

5:30 pm representatives from Emerson Waldorf and there consultant were ready to present to the public.

5:45 pm with no members of the public having arrived, Michael started the meeting by giving a synopsis of the process of how a Neighborhood Information Meeting (NIM) works and the next steps in the Special Use Permit (S.U.P.) process.

5:55 pm Michael completed his synopsis of the NIM process and opened the floor to question. No questions were asked and the representatives thanked Michael for the presentation and explanation.

With no members of the public and no additional questions about the project from any party it was decided to use the time, awaiting any members of the public, to briefly discuss the mornings DAC review of the project. The Emerson Waldorf representatives were informed that the comments would be finalized in an official letter mailed to them; however this would allow for discussion on items to provide greatly clarity.

7:05 pm with no members of the public having attended and no further items to discuss the meeting was adjourned.

Emerson Waldorf Neighborhood Information Meeting
Jan 8, 2015 (Mailed Dec 17, 2015)

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Chapel Hill, NC 27516

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D Neal & Betty Tapp
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Chapel Hill, NC 27514

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Hillsborough, NC 27278

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TAL LLC
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Manor Hills Homeowners Assoc.
6601 Manor Hill Ct.
Chapel Hill, NC 27516

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Samual C. & Carolyn Griffin
1415 Manor Dr.
Chapel Hill, NC 27516

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Chapel Hill, NC 27514

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City,

Daniel S. & Victoria J. Widman1004
Blackwood Mtn. Rd.
Chapel Hill, NC 27516

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6106 Cornerstone Rd.
Chapel Hill, NC 27516

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City, State,

Dale W. & Emily Kay Hammond
6532 Millhouse Rd.
Chapel Hill, NC 27516

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David S. & JoAnna M. Swanson
6407 Millhouse Rd.
Chapel Hill, NC 27516

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Attachment 5

ORANGE COUNTY PLANNING & INSPECTIONS DEPARTMENT

Craig N. Benedict, AICP, Director

Administration
(919) 245-2575
(919) 644-3002 (FAX)
www.co.orange.nc.us

131 W. Margaret Lane
Suite 201
P O Box 8181
Hillsborough, NC 27278

CERTIFICATION OF MAILING

CLASS A SPECIAL USE PERMIT – EMERSON WALDORF
ORANGE COUNTY, NORTH CAROLINA

I, Michael D. Harvey, Current Planning Supervisor with Orange County, North Carolina, DO HEREBY CERTIFY that in accordance with the provisions of Section 2.7.5 of the Orange County Unified Development Ordinance (UDO) I have mailed, or have caused to be mailed, a Notice of Public Hearing regarding the processing of a Class A Special Use Permit application submitted by The Emerson Waldorf School of 6211 New Jericho Road proposing the modification/expansion of an existing private on several parcels of property identified utilizing Orange County Parcel Identification Numbers (PINs) 9871- 64-7391; 9871-64-5632; 9871-65-8140; 9871-74-3098; and 9871-72-1935, within the Chapel Hill Township of Orange County.

The owners were identified according to the Tax Records and as required by Section 2.7.5 of the UDO.

The mailed notice specified the date, time, place and subject of the Public Hearing.

WITNESS my hand, this 8th day of May, 2015.

Michael D. Harvey, AICP
Current Planning Supervisor

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Current Planning
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

May 8, 2015

Subject: NOTICE OF PUBLIC HEARING – Review of a Special Use Permit (Class A) application submitted by Emerson Waldorf to allow for the modification/expansion of their existing campus located at 6211 New Jericho Road

Dear Property Owner:

The Orange County Planning Department has received a Special Use Permit (Class A) application, submitted by Emerson Waldorf, to modify/expand their existing 54 acre campus located at 6211 New Jericho Road within the Chapel Hill Township of the County.

The campus, further identified utilizing Orange County Parcel Identification Number(s) (PIN):

- 9871- 64-7391;
- 9871-64-5632;
- 9871-65-8140; 9871-74-3098; and
- 9871-72-1935

are zoned Rural Buffer (RB). Please refer to the attached vicinity map for additional site information and location details.

The applicant is requesting to amend their existing permit by having the County adopt a comprehensive master plan spelling out the construction and location of new buildings and support facilities over the next 15-years. The plan(s) are envisioned to support an increase in student population for the school to accommodate approximately 350 students by 2030.

In accordance with Section 2.7 of the Orange County Unified Development Ordinance (UDO), the County is required to notify property owners within 500 feet of the request that an application has been filed and that a Public Hearing will be conducted as part of the review process. The Public Hearing for this item is scheduled for **May 26, 2015**.

As a property owner within 500 feet of the request, you have the right to address the Board of County commissioners (BOCC) and Planning Board concerning this request.

The Public Hearing to review this case is scheduled for **Tuesday, May 26, 2015 at 7:00 p.m. in Orange County Whitted Human Services Center Complex, 300 West Tryon Street, Hillsborough, NC 27278**. The case will be referred to the Orange County Planning Board for its review and recommendation with the BOCC taking final action on the application at a future meeting.

It should be remembered that the review of all SUP applications are carried out in a *quasi-judicial* format, meaning that decisions relating to the approval or denial of a application are based solely on the sworn testimony of all parties involved with the case, both those for and against an application, as well as the review of competent material and substantial evidence submitted during the public hearing.

While County regulations and State law do not require that parties be represented by an attorney, it may be in your best interests to secure legal council to represent your interests at the hearing.

Further the applicant has the burden of establishing, by the submission of competent material and substantial evidence, the existence of facts and conditions that demonstrate the projects compliance with the various requirements and standards detailed within the Orange County Unified Development Ordinance (UDO). Those opposing approval of the application shall have the burden of establishing, also through the submission of competent material and substantial evidence, the specific manner in which the proposal does not satisfy the requirements for approval of the application.

As previously indicated, the BOCC shall render a decision only on the sworn testimony of all parties and on the competent material and substantial evidence submitted during the hearing.

Agenda packet materials for the May 26, 2015 Quarterly Public Hearing shall be posted on the Orange County website by May 15, 2015 and can be found at the following link: http://www.orangecountync.gov/departments/board_of_county_commissioners/agendas.php.

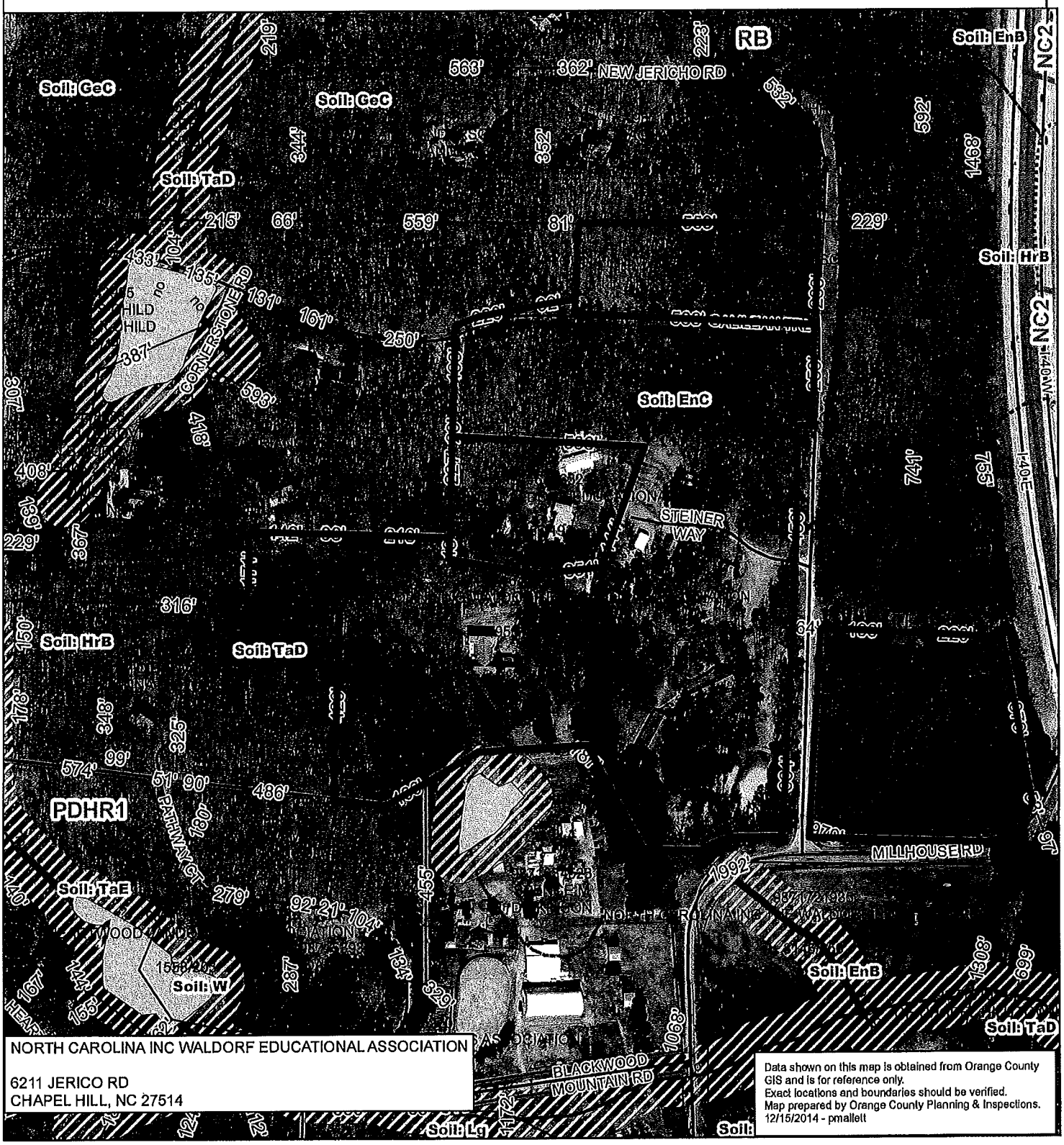
If you have any questions concerning this request, please contact staff at (919) 245-2575.

Sincerely,

Michael D. Harvey, AICP, CFM, CZO
Orange County Planning

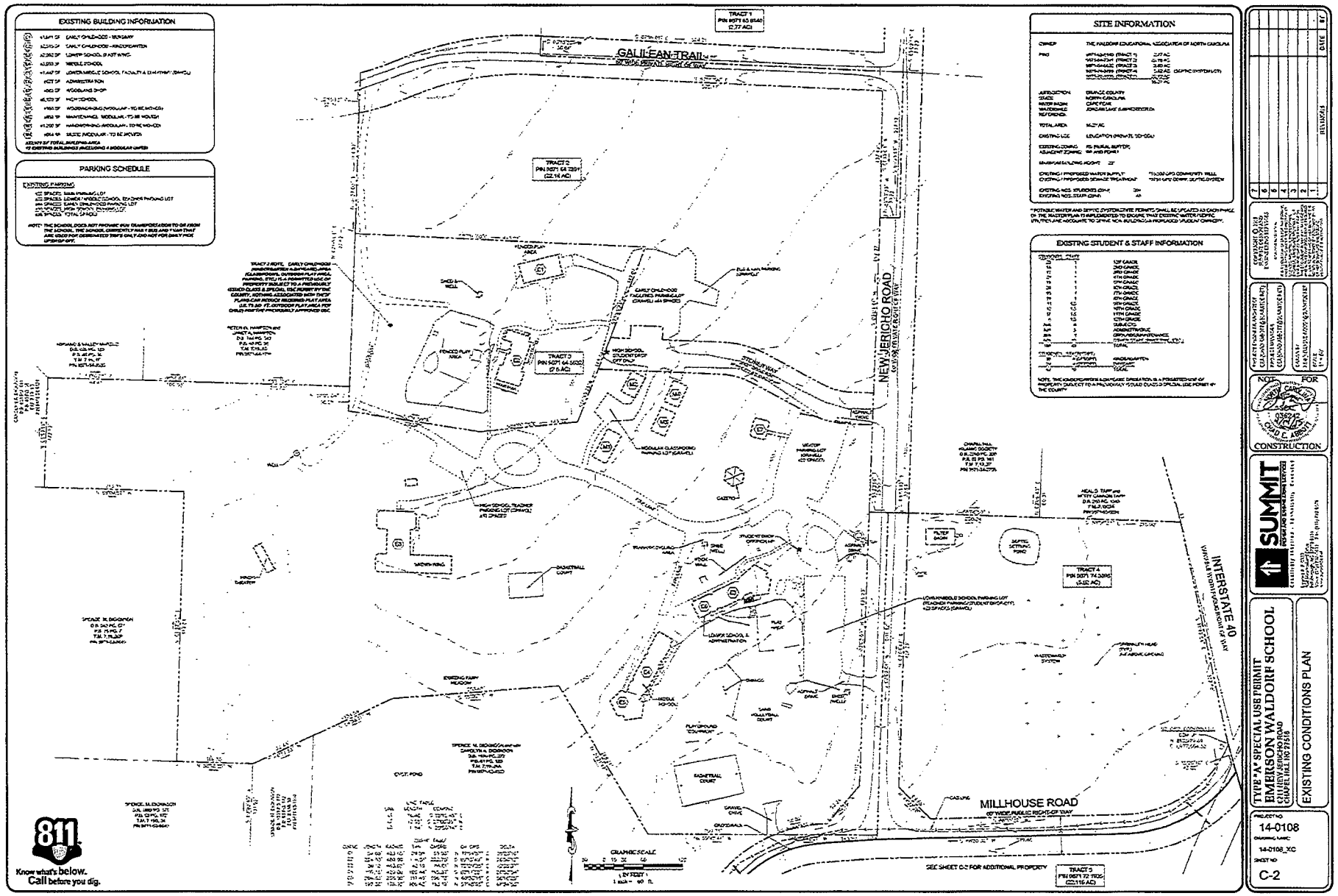
Attachments: Preliminary Site Plan
Vicinity Map of Property
Vicinity Map of Meeting Location

Exhibit B: Color Areal Photo of Subject Property
Special Use Permit (S.U.P.) and Master Plan
Emerson Waldorf School



— USGS Stream
--- Soils Survey Stream
▬ OC Updated Stream
Stream Buffer 65ft
Water Body Buffer 65ft
Parcels
Zoning
Water Body
Soils

1 Inch = 300 feet
0 75 150 Feet


EXISTING BUILDING INFORMATION
PARKING SCHEDULE
SITE INFORMATION
EXISTING STUDENT & STAFF INFORMATION
GALILEAN TRAIL
NEW JERICHO ROAD
MILLHOUSE ROAD
INTERSTATE 40
TRACT 1
TRACT 2
TRACT 3
TRACT 4
TRACT 5
SEE SHEET C-2 FOR ADDITIONAL PROPERTY
GRAPHIC SCALE
811
Know what's below.
Call before you dig.
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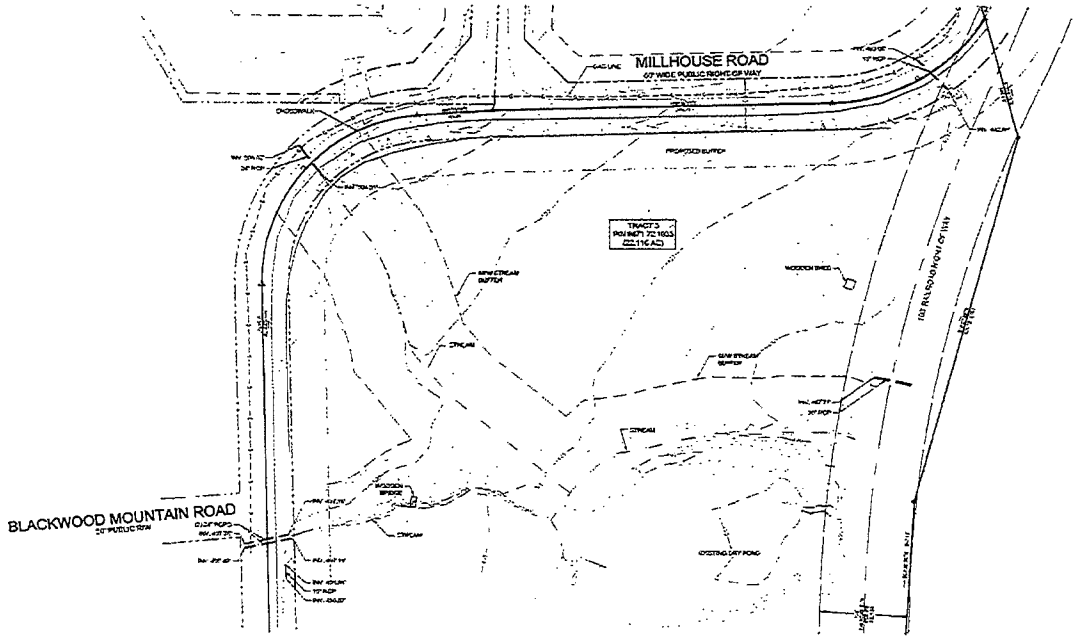
SUMMIT
TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
EXISTING CONDITIONS PLAN
14-0108
C-2



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GRAPHIC SCALE

TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
6211 NEW ASHFORD ROAD
CHAPEL HILL, NC 27516

EXISTING CONDITIONS PLAN

SUMMIT
CONSULTING, INC.

NOT FOR CONSTRUCTION

PROJECT NO. 14-0108
DRAWING NAME 14-0108_XC-2
SHEET NO. C-3

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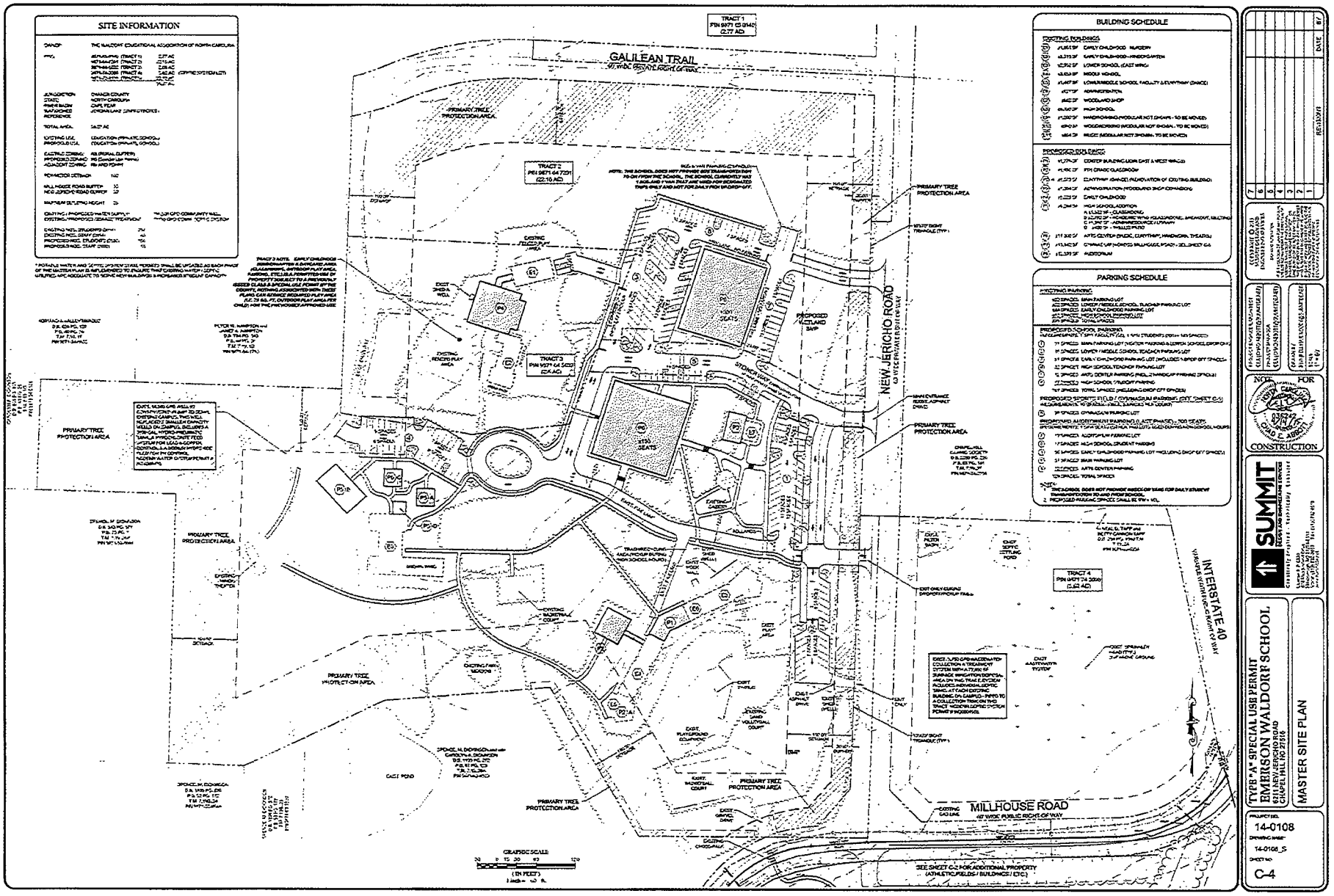
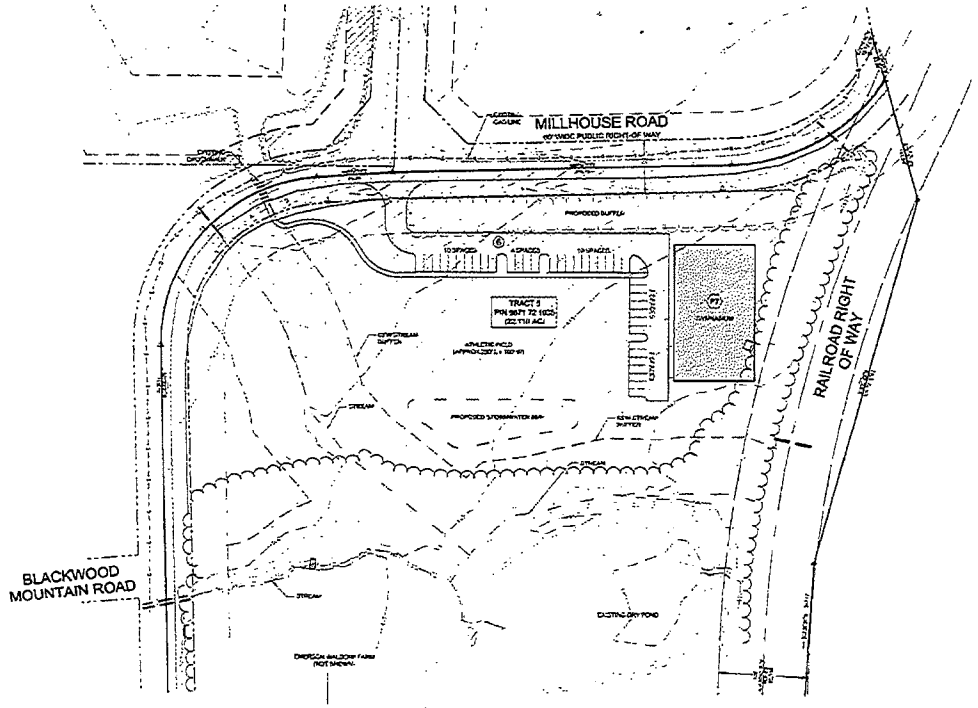
1	REVISIONS	DATE


SITE INFORMATION
BUILDING SCHEDULE
PARKING SCHEDULE
GALILEAN TRAIL
NEW JERICHO ROAD
MILLHOUSE ROAD
INTERSTATE 40
PRIMARY TREE PROTECTION AREA
TRACT 1
TRACT 2
TRACT 3
TRACT 4
PROPOSED WETLAND BMP
GRAPHIC SCALE
SEE SHEET C-2 FOR ADDITIONAL PROPERTY (ATHLETIC FIELDS / BUILDINGS / ETC.)
SUMMIT
CONSTRUCTION
TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
6211 NEW JERICHO ROAD
CHAPEL HILL, NC 27516
MASTER SITE PLAN
14-0108
C-4



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GRAPHIC SCALE

TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
6211 NEW JERICHO ROAD
CHAPEL HILL NC 27516

MASTER SITE PLAN

SUMMIT DESIGN AND ENGINEERING GROUP

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PROJECT NO. 14-0108
DRAWING NAME 14-0108_S
SHEET NO. C-5

NO.	DATE	BY
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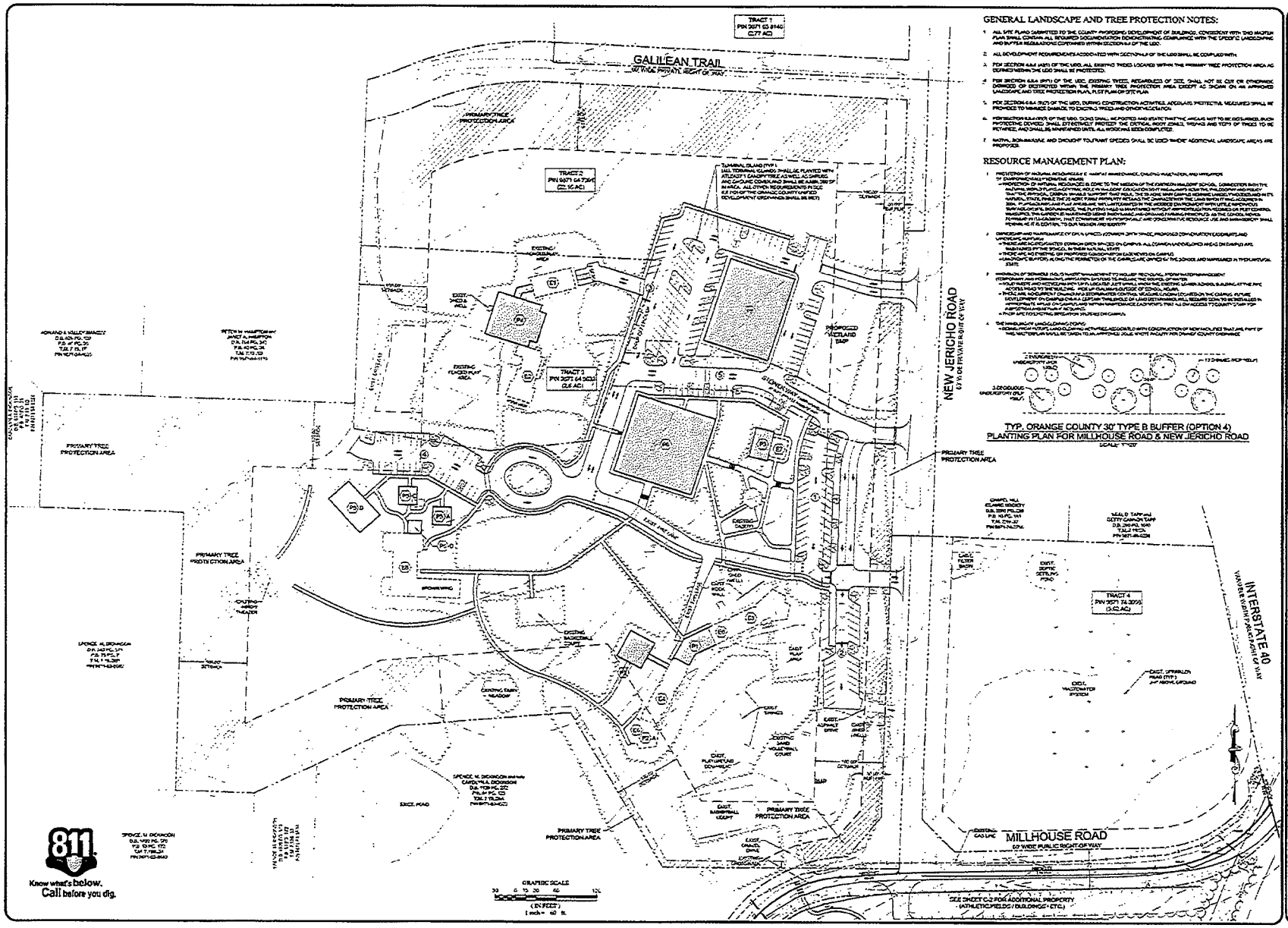

GENERAL LANDSCAPE AND TREE PROTECTION NOTES:

1. ALL SITE PLANS SUBMITTED TO THE COUNTY PROPOSING DEVELOPMENT OF BUILDINGS, CONSISTENT WITH THIS MASTER PLAN SHALL CONTAIN ALL REQUIRED DOCUMENTATION DEMONSTRATING COMPLIANCE WITH THE SPECIFIC LANDSCAPING AND BUFFER REGULATIONS CONTAINED WITHIN SECTION 6.8 OF THE UDO.
2. ALL DEVELOPMENT REQUIREMENTS ASSOCIATED WITH SECTION 6.8 OF THE UDO SHALL BE COMPLIED WITH.
3. PER SECTION 6.8.4 (A)(1) OF THE UDO, ALL EXISTING TREES LOCATED WITHIN THE PRIMARY TREE PROTECTION AREA AS DEFINED WITHIN THE UDO SHALL BE PROTECTED.
4. PER SECTION 6.8.4 (B)(1) OF THE UDO, EXISTING TREES, REGARDLESS OF SIZE, SHALL NOT BE CUT OR OTHERWISE DAMAGED OR DESTROYED WITHIN THE PRIMARY TREE PROTECTION AREA EXCEPT AS SHOWN ON AN APPROVED LANDSCAPE AND TREE PROTECTION PLAN, PLOT PLAN OR SITE PLAN.
5. PER SECTION 6.8.4 (B)(2) OF THE UDO, DURING CONSTRUCTION ACTIVITIES, ADEQUATE PROTECTIVE MEASURES SHALL BE PROVIDED TO MINIMIZE DAMAGE TO EXISTING TREES AND OTHER VEGETATION.
6. PER SECTION 6.8.4 (B)(3) OF THE UDO, DURING CONSTRUCTION ACTIVITIES, ADEQUATE PROTECTIVE MEASURES SHALL BE PROVIDED TO MINIMIZE DAMAGE TO EXISTING TREES AND OTHER VEGETATION.
7. NATIVE, NON-INVASIVE AND DROUGHT TOLERANT SPECIES SHALL BE USED WHERE ADDITIONAL LANDSCAPE AREAS ARE PROPOSED.

RESOURCE MANAGEMENT PLAN:

1. PROTECTION OF NATURAL RESOURCES & HABITAT MAINTENANCE, CHECKING VEGETATION, AND WILDLIFE
   - PROTECTION OF NATURAL RESOURCES IS CORE TO THE MISSION OF THE CARRBORO MONTESSORI SCHOOL. CONNECTION WITH THE NATURAL WORLD, ORGANIZING WHOLE NATURAL BODY CONDITIONS WITH MORE CLARITY, SUPPORTING PHILOSOPHY AND HOLISTIC PRINCIPLES, CREATING WHOLE ENVIRONMENTS, AND ENCOURAGING CHILDREN TO BE ACTIVELY ENGAGED IN ITS NATURAL STATE, PRACTICE THE 10 HOUR FIRST PRIORITY RETAINS THE CONTRACTOR TO THE LAND WITH IT WHICH OCCURRED IN ITS 2004. PLANTING MAPS AND PLAN AVAILABLE WITH LANDSCAPE ARCHITECT ON THE ARCHITECT ON PROJECT WITH ACTUAL CONDITIONS, SURVEYING, SOIL BIOMAINTENANCE, THE PLANTING HALO IS MAINTAINED WITHOUT ABSTRACTION FROM NATURE OR PERFECTION. WHEREVER THIS SURFACE IS MAINTAINED USING ENVIRONMENTAL AND ORGANIC FARMING PRINCIPLES AS THE SCHOOL NATURAL PLANNING WITH CLASSROOM, THAT CONVENIENCE YOU PROFOUNDLY AND CONSTRUCTIVE RESOURCE USE AND MANAGEMENT SHALL REMAIN AS IT IS EXISTING, TO OUR MISSION PRESENTATION
2. OWNERSHIP AND MAINTENANCE OF OPEN SPACES (COMMON SPACE, PROPOSED CONSTRUCTION EASEMENTS AND LANDSCAPE BUFFERS)
   - THESE ARE NOT DEDICATED COMMON OPEN SPACES ON CAMPUS. ALL COMMON LANDSCAPED AREAS ON CAMPUS ARE MAINTAINED BY THE SCHOOL, BY THEIR NATURAL STATE
   - THESE ARE ALL EXISTING OR PROPOSED CONSTRUCTION EASEMENTS ON CAMPUS
   - LANDSCAPE BUFFER ALONG THE PERIMETER OF THE CAMPUS ARE OPEN BY THE SCHOOL AND MAINTAINED IN THEIR NATURAL STATE
3. PRESERVATION OF SCHOOL FOOD, STORMWATER MANAGEMENT TO REDUCE RECEIVING WATER PRESERVATION
   - STORMWATER AND POTABLE WATER APPLICATION, DIVERSION TO REDUCE THE VOLUME OF WATER TO SOUTH WHERE AND POTABLE WATER WITH LINE LOCATED JUST WHERE WHERE THE EXISTING MONTESSORI SCHOOL BUILDING AT THE PIPE ACCESS ROAD TO THE BUILDING. FOR UP DURING NIGHTS OUTSIDE OF SCHOOL HOURS
   - THESE ARE NON-SPECIFIC FOR ANY STORMWATER CONTROL MEASURES NOW LOCATED ON THE CAMPUS. FUTURE DEVELOPMENT ON CAMPUS CAN ALSO CAPTURE THE PURPOSE OF LAND DISTURBANCE WILL REQUIRE SOON TO BE INSTALLED IN APPROPRIATE AREAS ON CAMPUS AND WITHIN MAINTENANCE EASEMENTS THAT ALL ON ACCESS TO COUNTY CAMPUS FOR ADDITIONAL PURPOSE ACQUIRED.
   - FROM APPLICATION OF IRRIGATION SYSTEMS ON CAMPUS
4. USE WITHIN BUFFER LANDSCAPING ZONING
   - ACCESS OF FUTURE LAND DEVELOPING ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF NEW FACILITIES THAT ARE PART OF THE MASTER PLAN SHALL BE CARRIED TO OUR APPROVED JOINT SITE PLAN WITH FOR ORANGE COUNTY ORDINANCE

TYP. ORANGE COUNTY 30' TYPE B BUFFER (OPTION 4)
PLANTING PLAN FOR MILLHOUSE ROAD & NEW JERICHO ROAD
SCALE: 1"=20'

REVISIONS	DATE	BY
1		
2		
3		
4		
5		
6		
7		

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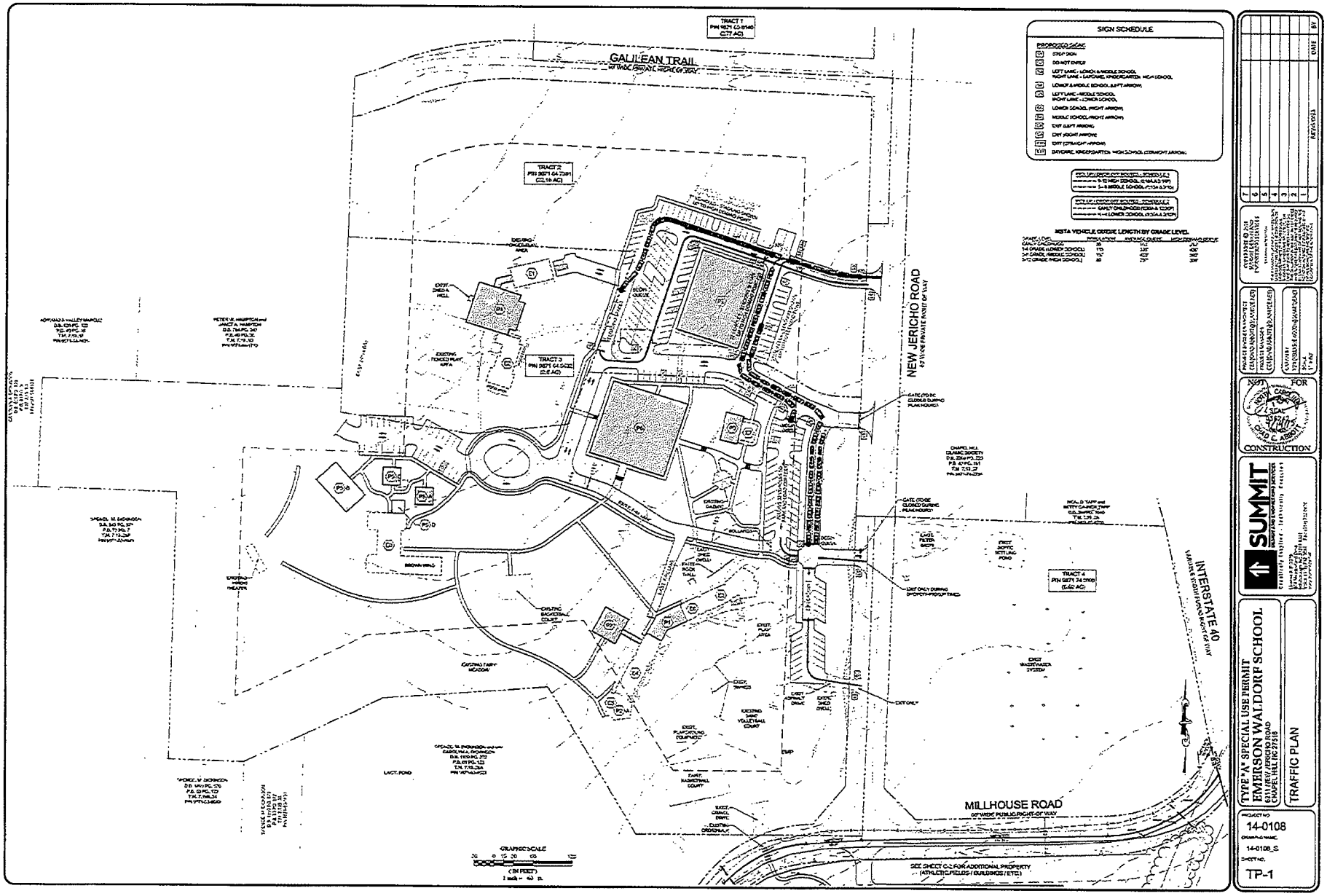
SUMMIT DESIGN AND ENGINEERING SERVICES
Creativity Inspired • Personally Engineered

TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
BUILDING 1 - 1500 MILLHOUSE ROAD
CHAPEL HILL, NC 27516

LANDSCAPE, TREE PRESERVATION & NATURAL RESOURCE PLAN

PROJECT NO: 14-0108
DRAWING NAME: 14-0108_S
SHEET NO: C-6


GALILEAN TRAIL
NEW JERICHO ROAD
INTERSTATE 40
MILLHOUSE ROAD
SIGN SCHEDULE
TYPE "A" SPECIAL USE PERMIT
EMERSON WALDORF SCHOOL
TRAFFIC PLAN
SUMMIT
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14-0108
TP-1

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8352 BROOKSVILLE RD.
CHAPEL HILL, NC 27514
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7014 2870 0001 5742 9270
ROBERT N. & KAREN B. DUROVICH
811 WOODLAND AVE.
CHAPEL HILL, NC 27516
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HEARTSWOOD LANDOWNERS ASSOCIATION, INC.
6113 HWY. 86
CHAPEL HILL, NC 27514
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DAVID S. & JOANNA M. SWANSON
6407 MILLHOUSE RD.
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DANIEL S. & VICTORIA J. WIDMAN
1004 BLACKWOOD MTN. RD.
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PETER W. & JANET A. HAMPTON
1301 GALILEAN TRAIL
CHAPEL HILL, NC 27514
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SPENCE M. DICKINSON
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CHAPEL HILL, NC 27516

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TERRY LEONARD
FUQUA, SR. & JR.
PO BOX 1299
HILLSBOROUGH, NC 27278

EWS

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ADAL HAMMOUD
& ANIL SWAMI
105 TURVEY CT.
CHAPEL HILL, NC 27514

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ASSOCIATION
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& ADRIANO
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ORANGE COUNTY
BOARD OF COMMISSIONERS AND
PLANNING BOARD
QUARTERLY PUBLIC HEARING
ACTION AGENDA ITEM ABSTRACT
Meeting Date: May 26, 2015

Action Agenda Item No. C-2

SUBJECT: Zoning Atlas Amendment: Conditional Zoning –Master Plan Development Conditional Zoning District (MPD-CZ) Hart's Mill

DEPARTMENT: Planning and Inspections **PUBLIC HEARING: (Y/N)** Yes

ATTACHMENTS:

1. Application Package
2. Property and Vicinity Map
3. Staff Comments
4. Notes from Neighborhood Information Meeting
5. Notification Materials and Certification

Under Separate Cover – Full Scaled Copy of Project Site Plan

INFORMATION CONTACT:

Michael D. Harvey, Planner III (919) 245-2597
Craig Benedict, Director (919) 245-2575

PURPOSE: To hold a public hearing and receive comment on a request to rezone a 112 acre parcel of property to Master Plan Development – Conditional Zoning (MPD-CZ) district in accordance with the provisions of Section 2.9.2 of the Unified Development Ordinance (hereafter 'UDO').

BACKGROUND: On December 19, 2014 staff received a request from Ms. Alana Ennis and Hart's Mill LLC to rezone approximately 112 acres of property:

From: Rural Residential (R-1), Upper Eno Protected Watershed Protection Overlay District, Special Flood Hazard Area (SFHA) Overlay District.

To: Master Plan Development Conditional Zoning (MPD-CZ), Upper Eno Protected Watershed Protection Overlay District, Special Flood Hazard Area (SFHA) Overlay District.

for the purpose of developing Hart's Mill Village, a 34 unit residential farm community. This request was withdrawn and resubmitted on March 6, 2015 with a revised site plan and narrative.

The basic facts concerning the current application are as follows:

Applicant(s):

Alana Ennis
4209 Pin Oak Drive
Durham, NC 27707

Hart's Mill LLC
Katy Ansardi
PO Box 2844
Chapel Hill, NC 27515

Agent(s): Michael Hughes (Engineer)
8112 Orange Grove Road
Chapel Hill, NC 27516

Location: Along Frazier Road (SR 1310) approximately 2,900 feet south of the intersection of Frazier and Lebanon Road (SR 1306). Please refer to the property vicinity map contained within Attachment 2 for additional detail.

Parcel Information:

a. **PIN**: 9835-74-8573.

b. **Size of parcel**: 112 acres.

c. **Zoning of parcels**: Rural Residential (R-1), Upper Eno Protected Watershed Protection Overlay District, Special Flood Hazard Area (SFHA) Overlay District.

   Based on the watershed overlay designation the property is limited to 12% impervious surface (585,486 square feet).

d. **Township**: Cheeks.

e. **Future Land Use Map Designation**: 20 Year Transition.

f. **Growth Management System Designation**: Urban.

g. **Existing Conditions/Physical Features**: Varying topography with significant wooded areas and water features (i.e. ponds and streams).

   The parcel is currently being used to support agricultural operations.

h. **Roads**: Vehicular access to the parcel is via Frazier Road.

i. **Water and Sewer:** The applicant is proposing to extend a water line, serviced by Orange Alamance Water System Incorporated, to serve the project. Individual wells may be installed for irrigation purposes (i.e. farm irrigation).

   Wastewater is proposed to be handled through the development of a septic system(s) located on the eastern portion of the project, off-site from the proposed residential units.

Surrounding Land Uses:

a. **NORTH**: Undeveloped property, agricultural operations, single-family residential properties zoned Rural Residential (R-1) with lots ranging from 2 to 100 acres in area.

b. **SOUTH**: Undeveloped property, agricultural operations, single-family residential properties zoned Rural Residential (R-1) with lots ranging from 5 to 10 acres in area.

c. **EAST**: Undeveloped property, agricultural operations, single-family residential properties zoned Rural Residential (R-1) with lots ranging from 50 to 60 acres in area.

d. **WEST**: Frazier Road, single-family residential properties zoned Rural Residential (R-1) with lots ranging from 1 to 3 acres in area.

Conditional Zoning (CZ) Process: The process involves the approval of a rezoning petition and a site plan allowing for the development of a specific land use on a parcel of property. Applications are processed in a legislative manner (i.e. does not require sworn testimony or evidence) and decisions are based on the BOCC's determination that the project is consistent with the purpose and intent of the Comprehensive Plan.

Development Process, Schedule, and Action: The typical cadence for the review of a CZ application is:

- **First Action** – Planning staff schedules a Neighborhood Information Meeting (NIM).

  Staff Comment – DONE. This meeting was held on April 8, 2015. A synopsis of comments from this meeting is contained within Attachment 4.

- **Second Action** – The BOCC and Planning Board review the application at 1 of 4 joint Quarterly Public Hearings.

  Staff Comment – The public hearing is scheduled for May 26, 2015. Supporting documentation was not ready for the project to be presented at the February 19, 2015 Quarterly Public Hearing, which was cancelled due to weather.

- **Third Action** – The Planning Board makes a recommendation on the proposal.

  Staff Comment – The Planning Board is slated to review this item at its July 2015 regular meeting.

- **Fourth Action** – The BOCC receives the Planning Board recommendation and makes a decision.

  Staff Comment – Staff anticipates the BOCC receiving this item at its September 1, 2015 regular meeting for final action.

Per Section 2.9.2 (F) (3) of the UDO, mutually agreed upon conditions can be imposed as part this process only if they address:

1. The compatibility of the proposed development with surrounding property,
2. Proposed support facilities (i.e. roadways and access points, parking, pedestrian and vehicular circulation systems, screening and buffer areas, etc.) and/or
3. All other matters the County may find appropriate or the petitioner may propose.

If approved, the Zoning Atlas will be amended and the zoning designation of the property shall be changed to MPD-CZ. It should be noted this change will not exempt the property from complying with applicable overlay district standards (i.e. watershed or flood hazard). Development of the property, specifically allowable land uses, will be in accordance with the newly created zoning district in accordance with the approved site plan and any imposed conditions.

The applicant shall be required to submit a final site plan in accordance within Section 2.5 of the UDO. This is so staff can verify all imposed conditions are adhered to and allow for final peer review by members of the Development Advisory Committee (DAC) as detailed within Section 1.9 of the UDO. There is no additional site plan review fee assessed to the applicant.

Proposal: The proposed project is a village style development with approximately 34 dwelling units and involves the preservation of the majority of the property as vegetative open space and farm area (i.e. pasture and crop production).

Residences are proposed to range from 1 to 4 bedroom units clustered around a pedestrian trail in the middle of the property surrounded by identified open space/farm areas. A common house, a shared facility approximately 3,000 sq. ft. in area, is proposed to be developed as a place where residents and their guests can meet for community meals, entertainment, and mail pick-up.

The project will not involve the creation of individual parcels/lots for these residences. The applicant is proposing to establish a condominium association where homeowners will own the actual residential unit and then own a 'share' of the overall development. Hart's Mill LLC will be the primary property owner and assume the responsibility for the perpetual maintenance of the property.

***STAFF COMMENT**:* As previously indicated the property is located within a Transition Land Use Category allowing for the submittal of the MPD-CZ application. The project is not required to go through a Class A Special Use Permit review process as a major subdivision creating more than 20 lots as individual parcels of property are not being created for the proposed residences. The applicant, however, has voluntarily submitted documentation detailing compliance with applicable standards at staff's request.

Access: Access shall be off of Frazier Road. The applicant is proposing the development of a single driveway for vehicular ingress/egress with parking areas for residents and guests. Individual dwelling units are accessible through a pedestrian path, which will be designed to accommodate emergency vehicles (i.e. fire trucks and ambulances) in the event of an emergency.

***STAFF COMMENT**:* Both Planning and NC Department of Transportation (NC DOT) staff have reviewed the proposal and are satisfied with the proposed road layout. Extension of the right-of-way to serve adjacent properties is not viable given the presence of streams and/or floodplains and existing lot layouts. Please refer to Attachment 3 for correspondence between NC DOT and the applicant concerning this project.

In discussing the project with Mr. Jason Shepard of the Orange County Emergency Services Department, he has requested a condition be placed on the project that final roadway layout, including widths and access points, be approved by the Fire Marshal's office as part of the final site plan review process. Planning staff concurs with the recommended condition.

Utilities: The project is proposed to be served by septic systems located towards the eastern portion of the property. A formal decision has not been made if this is to be accomplished by individual, or a combined, septic system. The system will be reviewed and approved by the State.

A water line, maintained by Orange Alamance Water System, shall provide potable water for the project. Individual wells may be installed to serve as irrigation for crop/farm land. The line, proposed to be 6 inches in diameter, will tie into an existing 6 inch line along Frazier Road.

***STAFF COMMENT**:* A recommended condition of approval is that proposed septic system layout shall consist of individual septic systems and that Orange County Environmental Health, Planning, and the Attorney's office shall review and approve the various wastewater easements for the system prior to the BOCC taking action on the application.

With respect to the serving of the property via the proposed 6 inch line staff has some concerns over the ability of the system to support proposed fire hydrants. As detailed within Attachment 3 the Fire Marshal, Mr. Jason Shepard, has requested additional detail on the proposed line.

Planning staff has discussed concerns over the sizing of the line with the applicant's engineer as well. Unfortunately as there is only an existing 6 inch water line to serve the project, placing a larger line within the Hart's Mill development will only result in poor water quality for residents.

Staff has asked the developer to provide additional detail on the water line for presentation at the public hearing.

Stormwater Drainage: The applicant has tentatively identified a stormwater drainage plan allowing for the natural infiltration of runoff on-site.

***STAFF COMMENT**:* Staff has completed a preliminary review of the proposed stormwater drainage system. A recommended condition of approval for this project is the applicant secure all necessary Erosion Control and Stormwater Management permits prior to the commencement of earth disturbing activities. The applicant has been made aware of this potential condition and has expressed no reservations.

Land Use Buffers: The applicant is proposing to maintain/provide the following land use buffers:

- 20 Foot Type A buffer along Frazier Road and the perimeter of the proeprty,
- A buffer along the eastern property line incorporating required buffers from identified streams and floodplains consistent with the provisions of Section 6.13 of the UDO.

The applicant is proposing to cluster trees in the proposed land use buffer areas. Existing foliage along the perimeter of the property shall also be preserved to avoid conflicts with adjacent property owners.

***STAFF COMMENT**:* Staff has completed a preliminary review of the proposed land use buffers and finds them consistent with UDO requirements. We are, however, requesting additional detail on plantings for proposed residential lots and along the various internal roadways.

Solid Waste: Orange County Solid Waste has requested additional detail on how the applicant will dispose of waste. The site plan does not provide sufficient detail on dumpster or trash receptacle location and does not provide information on how trash will be removed. Please refer to Attachment 3 for additional detail.

Analysis: As required under Section 2.9.2 (E) of the UDO, the Planning Director is required to: '*cause an analysis to be made of the application'* and pass that analysis on to the reviewing body. In analyzing this request, the Planning Director offers the following:

1. The application has been deemed complete in accordance with the submittal requirements of Section 2.9.2 (C) of the UDO.

2. The proposal appears consistent with the various goals outlined within the Comprehensive Plan concerning development, including:
    a. Land Use Overarching Goal: *Coordination of the amount, location, pattern, and designation of future land uses, with availability of County services and facilities sufficient to meet the needs of Orange County's population and economy consistent with other Comprehensive Plan element goals and objectives.*
    b. Land Use Goal 2: *Land uses that are appropriate to on-site environmental conditions and features and that protect natural resources, cultural resources, and community character.*
    c. Land Use Goal 3: *A variety of land uses that are coordinated within a program and pattern that limits sprawl, preserves community and rural character, minimizes land use conflicts, supported by an efficient and balanced transportation system.*
3. The applicant is proposing a density limit for the project of 1 dwelling unit for every 3 acres of property. The current zoning would potentially allow 1 unit for every 40,000 sq. ft. of property.
4. Staff has determined that the proposed development is consistent with existing and anticipated development within the area and the various land uses associated with the project are compatible.
5. The applicant has proposed the development of a solar array on the property. Staff has determined the array will have to comply with permitting requirements detailed within Section 5.2.1 *Table of Permitted Uses* and 5.9.6 of the UDO. This means the proposed array will require the issuance of a Class B Special Use Permit.

    Staff recommends a condition be imposed indicating that any solar facility developed on the property shall be required to obtain all required authorizations prior to earth disturbing activity. The applicant is aware of the recommended condition and has agreed.

Neighborhood Information Meeting: A neighborhood information meeting for the project was held on April 8, 2015 in accordance with Section 2.9.2 (D) of the UDO. A synopsis of concerns can be found within Attachment 4.

Notification Requirements: Per Sections 2.9.2 of the UDO, staff has caused a notice of this hearing to be published: '*as least twice in a newspaper of public circulation in the County*' for two (2) successive weeks: *' no less than ten (10) days nor more than twenty-five (25) days'* before the public hearing. The legal ad was published accordingly.

On May 8, 2015 staff sent written notice by certified mail to all adjacent property owners located within 500 feet of the subject property as required by Section 2.8.7 of the UDO. On May 15, 2015 staff posted a sign on the property providing a notice of the date, time, and location of the public hearing.

Attachment 5 contains the Notification and Certification of mailing.

FINANCIAL IMPACT: This request has been reviewed by various County departments who have determined that the approval or denial of the request would not create the need for additional funding for the provision of County services. Costs associated with advertising, including the public hearing notice and mailings, were paid by the applicant in accordance with the adopted Orange County Fee Schedule.

RECOMMENDATION: The Planning Director recommends the Board:

1. Receive the rezoning application,
2. Conduct the Public Hearing and accept public, BOCC and Planning Board comments on the application,
3. Refer the matter to the Planning Board with a request that a recommendation be returned to the County Board of Commissioners in time for the **September 1, 2015** BOCC regular meeting, and
4. Adjourn the public hearing until **September 1, 2015** in order to receive the Planning Board's recommendation and any submitted written comments.

Attachment 1

Orange County Planning and Inspections Department

APPLICATION FOR ZONING ATLAS AMENDMENT CONDITIONAL ZONING REQUEST

APPLICANT INFORMATION:

Date: March 6, 2015

Applicant: Hart's Mill, LLC

Phone: 919.747.3750

Address: PO Box 2844

Chapel Hill, NC 27515-2844

Cell Phone:

E-mail: katy@resultworks.com

PROPERTY SUBJECT TO REQUEST:

Parcel Identification Number (PIN): 9835748573

Address of property: 1023 Frazier Rd, Mebane, NC

Owner of property: Alana Ennis, 4209 Pin Oak Dr, Durham, NC

Current Zoning Designation: R-1

Requested Zoning Designation: MPD-CZ

**** If Applicant/Owner are different people, include a signed, notarized, statement indicating that the owner has authorized the applicant to submit the request. In cases where there are multiple property owners, please attach an additional document containing their signatures authorizing the submission of the application or other legal documentation establishing the applicants right to file on their behalf. ****

SUBMITTAL INFORMATION - Section 2.8.3 of the Unified Development Ordinance (UDO)

1) A Map, at a legible scale, showing the property(s) subject to the request. A map may be procured at the Planning Department for a fee in accordance with the adopted Orange County Fee Schedule
2) A legal description of the property(s) proposed for rezoning
3) A list showing the names and addresses of all adjacent property owners within 500 feet of the subject property.
4) A detailed narrative denoting the following:
   a. The alleged error in the Zoning Atlas (if any) that will be corrected by the proposed request.
   b. The changed, or changing, conditions (if any) that makes the proposed amendment reasonable necessary to promote the public health, safety, and general welfare.
   c. How the proposed amendment is consistent with, or carries out the intent and purpose of, the Orange County Comprehensive Plan,

In addition to these general requirements, **Section 2.9.2** of the UDO requires all Conditional Zoning to submit the following additional information:

1) A site plan prepared in accordance with the provisions of Section 2.5 of the UDO including the following information:
   a. A detailed description of the proposed use of property including an outline of the proposed operational characteristics of the proposed development.
   b. A detailed traffic survey, regardless of the estimated number of trips per day, prepared in accordance with all applicable North Carolina Department of Transportation requirements or standards as well as Section 6.17 of the UDO.
   c. The appropriate environmental document prepared in accordance with Section 6.16 of the UDO,

d. A landscape plan showing the location of on-site significant trees; proposed screening, buffers, and landscaping; and any proposed treatment of any existing natural feature

e. A summary of utility services

f. A schedule for construction/development of the property.

g. Other required information identified by staff as part of the pre-application conference, and

2) The filing fee per the adopted Orange County fee schedule in affect as of the date of the application.

**** NOTE: Please see attached documentation for submittal and process information associated with a Conditional Zoning request ****

I (we), the undersigned, have been made aware of the process for the review and action associated with a Conditional Use application and understand only completed applications, containing all information required by the Orange County UDO shall be reviewed and acted upon by the County.

Further I (we) understand that any assistance I (we) may receive from County staff in preparing this application in no way guarantees a favorable recommendation by staff on the merits of this proposal nor does it guarantee an approval of the proposed atlas amendment by the County.

Hart's Mill, LLC
Applicant

Managing Member Date: 3/6/2015

Applicant

Date:

AUTHORIZATION FOR
SUBMITTAL OF
CONDITIONAL USE REZONING REQUEST

I, Alana Ennis, am the sole owner of the property located at 1023 Frazier Rd. Mebane, NC and identified by PIN 9835748573.

I hereby grant permission to Hart's Mill, LLC to submit a Conditional Use Rezoning Request, and any other applications related to such a request, to Orange County, NC.

Alana Ennis _____ 3.5.15
Alana Ennis
4209 Pin Oak Dr.
Durham, NC 27707

Date

==========

I certify that the following person personally appeared before me this day, acknowledging to me that he or she voluntarily signed the foregoing document for the purpose stated therein and in the capacity indicated.

This the 5 day of March 2015

Orange Co, NC (Place Seal Here)

Terry A. Bailey, Notary Public

My commission expires: 10-30-2019

TERRY A. BAILEY
NOTARY
PUBLIC
ORANGE COUNTY, NC

Hart's Mill

Master Plan Development Conditional Zoning Request

NARRATIVE

INTRODUCTION

Hart's Mill is a farm-based residential development taking shape near Mebane, NC which seeks to create a compact village-style neighborhood with a high quality of life while minimizing resource use and preserving the majority of the land in agriculture, woodlands, and open space. The initiative is being led by a group of local residents who intend to live at Hart's Mill.

Hart's Mill has been founded with the intention of modeling integrated, low-impact approaches to residential development and land stewardship. Elements of this goal include:

- adoption of the best site and building design principles and practices for reducing use of energy, water, and other resources
- management of the land for diversified food and timber production, wildlife habitat, recreation, research and education
- opportunities for aging in place within a vibrant multi-generational community
- accessibility to flexible, affordable housing options
- onsite opportunities for farm and home-based employment

PURPOSE AND INTENT

The applicant wishes to develop 32 homes and accessory structures in conjunction with a farm on a 112-acre parcel of land in Orange County located off Frazier Rd between Mebane and Efland.

The property is identified as PIN 9835748573 (see Figure 1) and is currently zoned Rural Residential (R-1). It has historically been used for pasture, crops, forestry and recreation. With the exception of a small unoccupied house which is scheduled for demolition, there are no buildings located on the property. The surrounding area is also zoned R-1 and current land uses include single family residential, agriculture, and forestry.

The applicant is seeking to rezone the parcel to Master Plan Development Conditional Zoning (MPD-CZ) in order to develop a compact village-style pedestrian community that will provide for more efficient land use, protect water quality, significantly reduce impacts on resources and public services compared with conventional residential development, and allow for the majority of the land to permanently remain as open space.

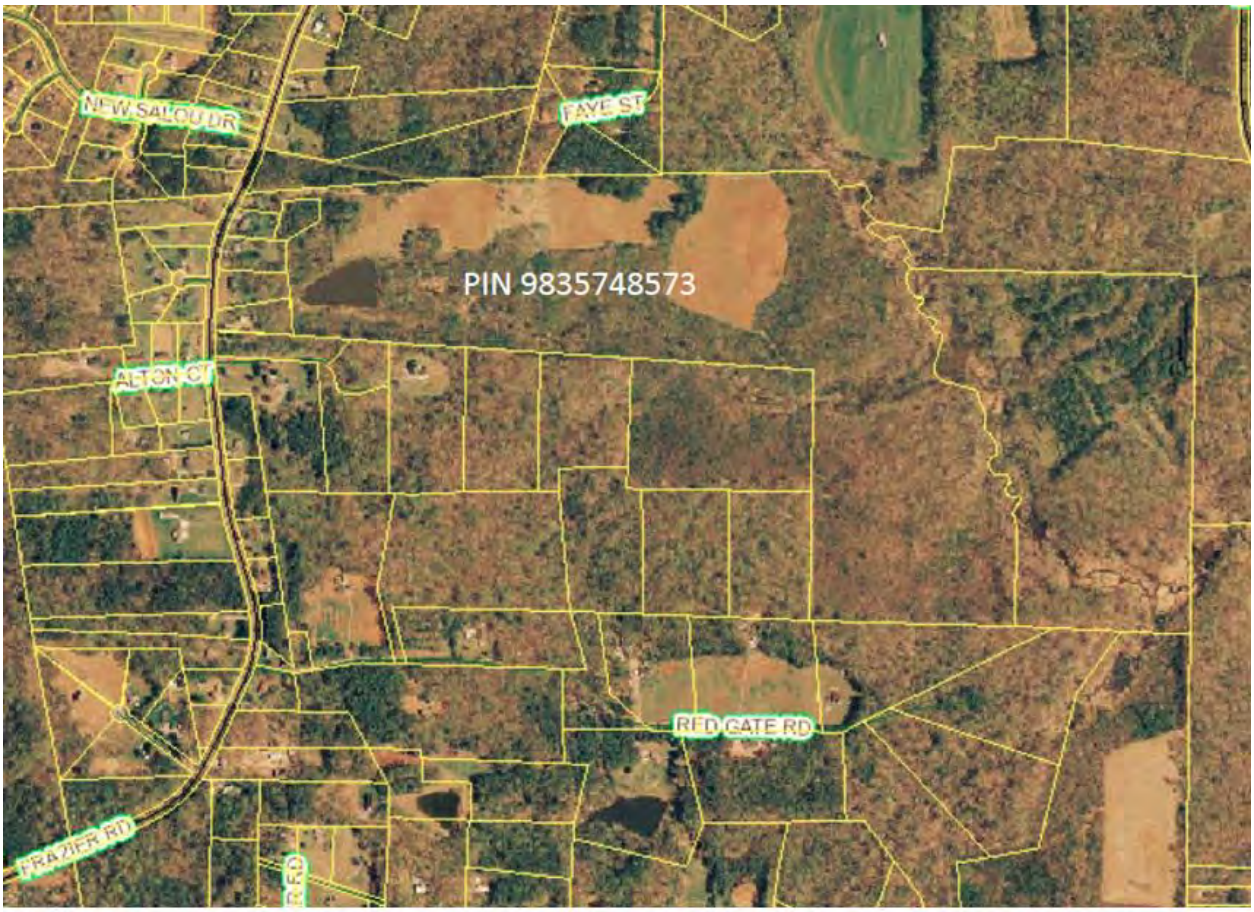


Figure 1 – Subject Property and Surrounding Parcels

DEVELOPMENT DESCRIPTION

Overview

The Hart's Mill site is comprised of 112 acres of gently sloping woodland, pasture, field and streams. The applicant has worked with planning and permaculture professionals at Village Habitat Design and Living Systems Design to develop a concept master plan which embodies long-term conservation, restoration and stewardship of the land, as well as low-impact residential development. A major portion of the site will be permanently protected for agricultural, forestry and natural habitat uses through easements, deed restrictions and/or trusts. A compact village of small homes and accessory buildings is planned which will cover only about 15 to 20% of the site on the west side near the entrance to Frazier Road. Two additional homes associated with the farm are planned for the east side of the property, along with a barn, garage, workshop, and shed to support agriculture and forestry activities. Utilizing permaculture principles throughout the site for residential landscaping as well as food and timber production, a diverse and sustainable ecosystem of plants and animals is envisioned that will provide a degree of self-sufficiency for the residents.

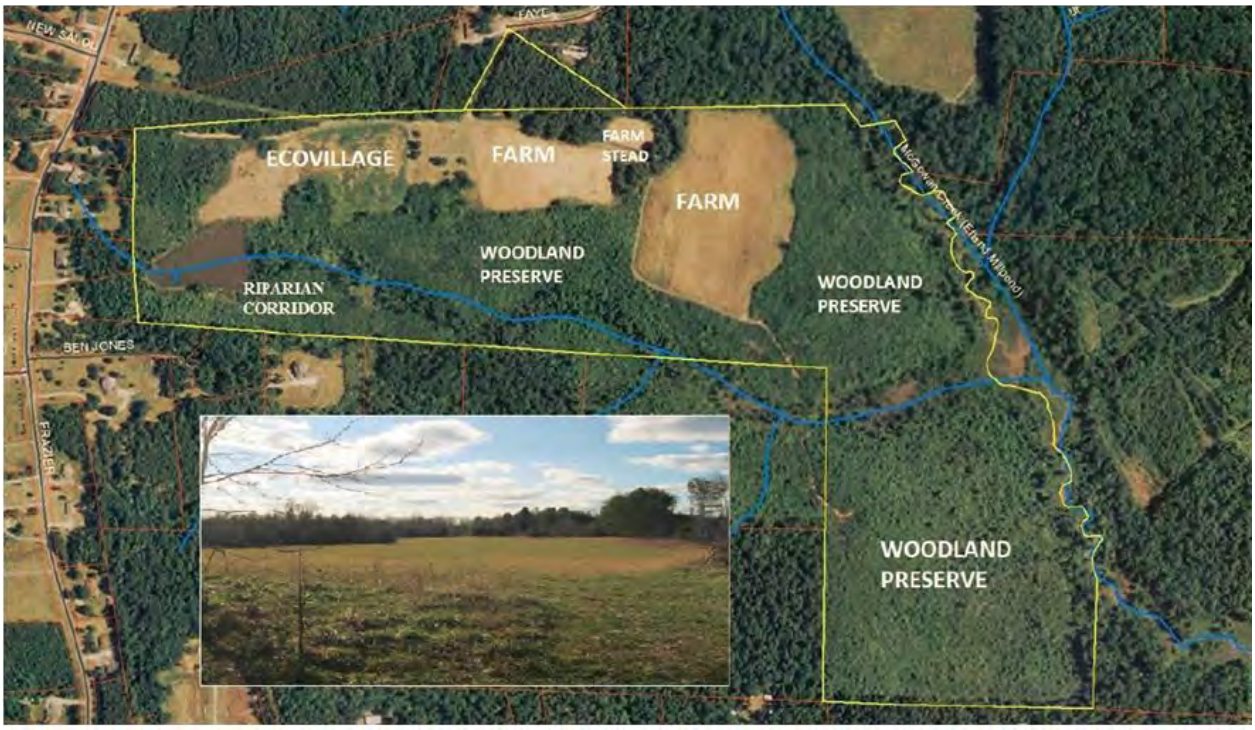


Figure 2 – Proposed Land Uses

The Hart's Mill Master Site Plan elements include:

Hart's Mill Facilities Summary					
		Approx SF			Approx SF
Residential Village			**Farmstead**		
1	Common House	3,000	2	Farm House	3,600
9	1-Bedroom House	6,400	1	Barn / Garage	2,910
10	2 Bedroom House	13,000	1	Washing/Packing Shed	640
8	3 Bedroom House	14,400	1	Woodworking Shop	900
1	4 Bedroom House	2,000	1	Pottery Studio & Kiln	600
2	5 Bedroom Shared House	5,600	1	Camping Area (up to 6 sites)	
Accessory Structures			**Admin/Education Building (Future)**		
	Solar arrays (ground-mounted)	8,000	1	Office/Meeting/Media Building	2,200
	Parking area covers	5,000			
2	Art studios	700			

Residential Village

The Hart's Mill village proper will consist of 28 single family and duplex houses ranging from very small one bedroom units to modest 2- and 3-bedroom homes. Two shared homes, each consisting of 3 to 5 private suites and common cooking/dining/laundry facilities, will offer flexible housing options for residents aging in place and those with fewer financial resources.

The homes will be clustered along a pedestrian lane that will also serve as emergency access, while maintaining views and immediate access to the open space surrounding the village. The concept of clustering homes is a sound approach that reduces the use of land and other resources. Socially, clustering homes encourages awareness of neighbors, safety and collaborative activity, such as gardening, meals, sharing tools, and carpooling. The common areas nestled among and around the homes will become a natural play space for children. Sensitive architectural and site design creates a hierarchy of livable private, semi-private and public spaces for residents. Covered and uncovered parking will be kept to the edges of the village, primarily along the northern field road to the farm.

Opportunities for residents to pursue both hobby and professional arts and crafts will be enhanced by the inclusion of a few small studio spaces within the village. A woodworking shop and pottery studio/kiln are planned a short distance away at the farmstead. All of these accessory uses will be on a small scale and none will involve onsite retail sales.

Unlike conventional subdivisions, where the development model calls for the creation of individual parcels of property developed independently from one another, this project incorporates the principal of condominium ownership allowing for individual ownership of units while the 'community' owns and maintains the property as a whole. This model provides the necessary guarantees to ensure the perpetual maintenance, care, promotion of vision, and preservation of the site in perpetuity and is vital to ensuring the affordability of individual units consistent with the submitted application.

Accessory Facilities

The Common House will be a shared facility of approximately 3000 square feet for community meals, entertainment, meetings, guest rooms, arts & crafts, laundry and mail pick up. This facility will provide services and amenities for residents that will allow for smaller private homes and sharing of tools, equipment and appliances, thereby reducing both costs and environmental footprint for these households. It will be located centrally within about 600 feet of most of the homes for easy access by foot. The Common House will be used primarily by Hart's Mill residents and their personal guests.

A future administration and education building of about 2200 square feet is planned to the west of the village proper off the entrance road. This facility is expected to house small administrative offices for onsite farm operations and community management, as well as a few "work-almost-from-home" office spaces for residents, and a small meeting space suitable for groups of up to 15 people. This facility will enable Hart's Mill to better carry out its educational mission, and will help residents earn a living on-site, thereby reducing their need to commute.

Utilities

Water Supply. Potable water service for domestic use will be provided by the Orange-Alamance Water System, and may be supplemented by one or more wells for farm or other non-domestic water uses.

Sewer & Wastewater. Wastewater will be treated onsite with a community underground drip irrigation system in a field to the east of the village proper. The majority of the site has deep soils suitable for disposal fields and there is ample space—well in excess of the minimum required repair area—for expansion or relocation of the fields, if needed.

Power. Electricity will be generated onsite with both a ground-mounted photovoltaic (PV) system of up to 100 kW and smaller building-integrated systems. These will be both grid-tied and stand-alone systems. The long-term goal is for the community to produce as much or more electricity than it uses.

Operations

Hart's Mill is somewhat unique in that the developers of the community are also its future residents. Therefore, more continuity of the intentions and guiding principles embodied in the master plan is ensured than would typically be the case.

For the past two years, the members of Hart's Mill have successfully managed operations and decision-making by employing Dynamic Self-Governance (or Sociocracy). The process was developed by a Dutch electrical engineer in the 1970s and was the governance model adopted in the Netherlands in divisions of Shell, Heineken, Mars, and Pfizer. Based on management principles of transparency, equivalence and effectiveness, Dynamic Governance is being adopted by many organizations and communities in the United States seeking a fair and efficient process to replace dysfunctional management systems. Hart's Mill is committed to the use of Dynamic Governance and has invested in continuing training for its members.

From its inception, Hart's Mill has been envisioned with an ownership structure that will keep all of the land in common ownership while allowing for individual ownership interest in homes. At this point, we expect that the community will be legally organized under North Carolina condominium statutes. Responsibility for the management of the common areas of the land, as well as all community infrastructure and activities, will fall under the Hart's Mill Condominium Association (HMCA). The Association will set guidelines, enter into agreements, and monitor performance for non-residential uses of the common area such as farming, timber, recreation and conservation. Individual homeowners will be responsible for maintaining limited common areas immediately adjacent to their homes under guidelines set by the association.

Hart's Mill will also include up to two small group homes, each with 3 to 5 private suites sharing a kitchen, laundry, dining and sitting area. These homes are intended for residents who wish to age in place without the responsibility of maintaining an entire house on their own, potential permanent residents who want to get to know the community, farm interns, and residents who may be in transition for other reasons. These two homes may be owned and managed by the HMCA or by a housing cooperative made up of residents.

Agriculture and Forestry

The property on which Hart's Mill will be located has historically been used for pasture, field crops and forestry. Keeping the majority of the land in these uses is important to both the current owner, whose family has owned the property since 1962, and the founders of Hart's Mill.

In addition to the preservation of historic land uses, the purposes of the farm at Hart's Mill include:

- Supply community residents with a portion of their food and fiber needs
- Provide employment and internship opportunities related to agriculture and silviculture
- Explore and model low impact, sustainable and restorative land stewardship practices

Farm and woodland operations will be directed and monitored by the Hart's Mill Community Association in accordance with its guidelines. While some future Hart's Mill residents have expressed a desire to actively participate in the work of operating the farm, we plan to enter into agreements with one or more professional farm and forest managers. We prefer that these individuals reside in the community, and at the same time, we realize that this may not be possible in the short term or for every situation.

Sites for two houses on the east end of the property have been identified for the possible future need for additional housing with closer proximity to farm operations. Water supply and septic for these homes would be separate from the community systems.

The farm at Hart's Mill will produce a wide range of crops such as vegetables, fruits, nuts, berries, and mushrooms in an integrated, permaculture-based system for residents and for sale off-site. There will be no facilities for onsite sales.

While most crops will be field-grown, a few greenhouses and hoop houses will be utilized to extend the growing season and range of crops. We will also raise pastured animals to supply eggs, milk, meat, and fiber primarily for use by residents. The number of animals on the site will be strictly limited to the carrying capacity of the pastures with minimal supplemental feed. There will be no confined animal feeding operations (CAFOs) at Hart's Mill.

As part of our mission is to provide a model for sustainable land stewardship, we will invite small groups of visitors to experience and learn about integrated farming and silviculture practices from time to time. Since we will also live at Hart's Mill, the number and frequency of these visits will be limited to a level that does not interfere with residents' privacy and enjoyment of the land.

FINDINGS OF FACT

While we are not applying for a subdivision of property, thereby creating the need to go through the Class A Major Subdivision Special Use Permit review process, we have been encouraged by staff to provide a synopsis of our project's compliance with existing permit requirements/objectives. To that

end we offer the following information on how this project will be consistent with the typical findings of fact associated with a Special Use Permit.

GENERAL STANDARDS

1) The use will maintain and promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted.

The Hart's Mill development will promote the public health, safety and general welfare with careful and responsible design, construction and long-term use and stewardship of the land. As a mission-driven community, we seek to go well beyond the minimum standards and embrace the broader goals of sustainability as described in the Orange County UDO, *Section 1.3 - Toward a Sustainable Future*:

> *"An emerging point of consensus in Orange County is that we need to move toward becoming a sustainable community. Sustainability is defined as aligning our built environment and socioeconomic activities with the natural systems that support life. The design of a sustainable community in Orange County means that this Comprehensive Plan will strive, in its implementation, to link the economy, the environment and social equity to improve the vitality of all three of these domains."*

The Hart's Mill community has been conceived and designed to not only embody sustainability, but to also be a model and educational resource for the larger community. Specific elements include but are not necessarily limited to:

Stormwater. A low impact approach to stormwater management will be used that aims to maintain the total stormwater volume at predevelopment conditions and go beyond minimum requirements for new development for compliance with Jordan Lake Rules.

Water efficiency. Demand on regional water supply will be minimized by utilizing ultra-low flow fixtures and conservation practices. To the maximum extent feasible, water that is collected onsite will be used for non-potable uses.

Wastewater. Wastewater will be responsibly handled onsite with a carefully designed and monitored subsurface drip irrigation system. Domestic wastewater volumes will be minimized through use of efficient plumbing fixtures and water conservation practices.

Energy. Energy efficiency—both the embodied energy to extract, process, transport and install building materials and the operating energy to provide services such as heating/cooling and power—is a key objective for Hart's Mill. To reduce operating energy, we will go beyond minimum building code requirements to design high performance buildings that incorporate techniques such as super-insulated building envelopes, passive solar orientation and features, and daylighting. Solar thermal and solar electricity generation will further reduce non-renewable energy use.

Materials efficiency. Green building materials will be utilized including certified renewable, recycled, recyclable, reusable, and locally/regionally sourced products. Solid waste will be minimized

through onsite solutions such as composting and recycling of not only mandatory recyclables but also comprehensive collection of all recyclable and reusable materials.

Indoor Quality. Building products, design and construction techniques will be selected to provide comfort, well-being, and productivity of occupants, especially for indoor air, thermal and lighting quality. This will include reduction in volatile organic compounds and other air impurities, and control of moisture accumulation/water intrusion that could lead to mold growth and other microbiological concerns.

Transportation. Hart's Mill will actively promote ride sharing and plans to maintain at least one community-owned vehicle, thereby reducing the need for residents to own extra private vehicles for occasional use. The community will endeavor to provide many opportunities for multigenerational onsite living and working that minimize the need for commuting, running errands, and seeking entertainment and other social needs off site.

2) The use will maintain or enhance the value of contiguous property.

An assessment of potential economic impact on surrounding properties and the community as a whole was conducted by Scott Dorsett, a Realtor and real estate appraiser based in Hillsborough, NC. He states in his letter of finding dated May 3, 2015, *"I see no adverse effect on any surrounding properties, and to the contrary: this community, once completed will be a thriving, productive, environmentally efficient, tax paying entity that Orange County can be proud of. …Hart's Mill may very well serve as a blueprint for future communities in the County."*

3) The location and character of the use, if developed according to the plan submitted, will be in harmony with the area in which it is to be located and the use is in compliance with the plan for the physical development of the county as embodied in these regulations or in the Comprehensive Plan, or portion thereof, adopted by the Board of Commissioners.

This proposal conforms to the vision and goals for the area surrounding the property as set forth in the Orange County Land Use Plan. The Cheeks Township area is identified in the Comprehensive Plan as one of the fastest growing areas of the County. The subject site is located in a 20-year Transition Area, which is defined in the Comprehensive Plan as "an area changing from rural to urban in form and density" and for which "all densities of residential development would be appropriate."

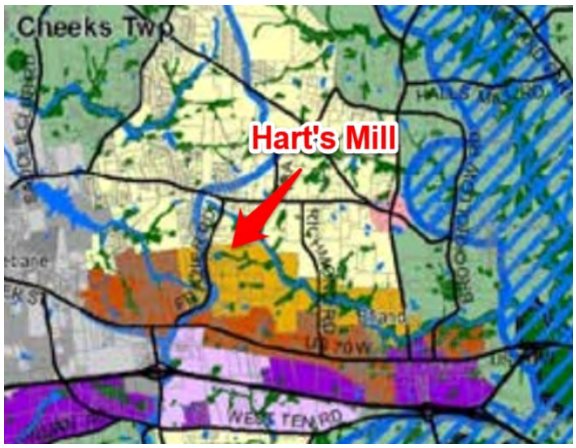


Figure 3 – Land Use Plan detail

With its unique blend of compact site plan, variety of housing choices, low-impact development, onsite food production, and open space preservation, the proposed development plan for Hart's Mill offers a model for bridging rural and urban development that is consistent with the County's vision for this area.

SPECIFIC STANDARDS OF EVALUATION

Land Use Intensity / Preservation of Natural State

The conservation, preservation and restoration of healthy natural systems on the land are a central guiding principle for Hart's Mill. The buildings of the village are tightly clustered to minimize the total developed area of the site. More than 80% of the property will permanently remain in pasture, farm, woodlands and streams. The community is exploring the optimal mix of legal mechanisms to protect the land in perpetuity.

In a letter from Rich Shaw of the Orange County Department of Environment, Agriculture, Parks & Recreation date 12/9/2014, he states, *"Your intention to leave more than 80% of the property in agriculture, woodlands and protected streams will contribute to the current forested and open space character of the neighborhood east of Frazier Road, which also provides habitat to plants and wildlife that utilize the McGowan Creek corridor."*

As indicated herein, the developed residential component of the project will occupy a maximum of 20% or approximately 22 acres of property. The remaining acreage shall be preserved as dedicated open space and farm land.

The proposed project will effectively double the normal open space area achieved via County subdivision policies and reduce the overall development potential of the site. This will, in turn, reduce the need to disturb existing property for the installation of infrastructure (i.e. roadways, pedestrian access ways, etc.) and allow for a greater percentage of the parcel to be left untouched.

Density is being reduced dramatically beyond what is typically allowed within established zoning to ensure promotion of our primary goal: residential development that is integrated with, rather than at the expense of, the natural environment.

As we understand the provisions of the County's UDO there are land use intensity ratios for all general use zoning districts. Based on our proposal, Hart's Mill will be observing the following land use intensity ratios, based on current definitions:

- Proposed Maximum Allowable Floor Area Ratio (i.e. the cumulative amount of floor area for the project): 0.080
- Proposed Open Space Ratio: 0.83

Enhancement of Residential Privacy

Careful attention will be given to providing reasonable visual, lighting and acoustic privacy for adjacent residential properties.

The Hart's Mill village center is located well away from the public right of way and the few adjacent homes to the north and west. A mixed buffer of evergreen and deciduous trees and shrubs will be located along the north property line from the west entrance on Frazier Rd to the east of the village center. A dense stand of trees is already growing in much of the buffer area.

The gentle southern-facing slope of the property provides additional visual separation between the village and adjacent properties to the north. The dense wooded area around the protected pond and stream on the southern boundary provide a large permanent buffer to adjacent properties to the south.

Architectural Design Standards

In the design of our homes at Hart's Mill, we are striving to embody many aspirations – a low ecological footprint, affordability, community interaction, good health and delightful spaces for everyday living. Architectural design will be guided by standards and principles that have been adopted by the community founders through a series of workshops and meetings. The core overarching principles are:

Simplicity: Simple home designs speak to an aesthetic which is not pretentious or wasteful. They are honest and practical. They cost less to build. They provide a restrained backdrop for riotous gardens and a canvas for human creativity. "Simple" doesn't mean plain or boring. Much as great artists such as Matisse and Picasso pared away the excess to capture the essence of their subjects, and traditional Japanese art and gardens express so much beauty with just a few masterful strokes, simple homes can be elegant and graceful.

Place. We live in the Southern Piedmont. Summers are hot and humid; winters are cold and wet. Traditional regional architecture responds to the local climate with features such as high ceilings, covered porches, louvered window shades, "dogtrots" to direct breezes and cupolas to exhaust hot air. While modern building science has greatly improved building performance, many of these simple passive design techniques reflected in regional architecture are still useful. Culturally, incorporating elements that evoke regional architectural style into our designs also connects us to this place.

Delight. Buildings are not simply functional boxes in which we go about the daily tasks of living. They are also imbued with characteristics that influence our state of mind and our spirit. Certain styles of houses and neighborhoods resonate deeply with us as feeling like "home" and provide a psychological sense of peace and security. Every home should have an element of delight—some design features and bits of whimsy that make us smile.

Environmental impact: We seek to reduce our negative impacts on water, energy, pollution and waste to the extent feasible while living a modern lifestyle. Architectural design will be guided by standards which place a strong emphasis on energy efficiency, renewable energy, sustainable and non-toxic materials, durability and indoor air quality.

By far, the greatest ecological impact of our homes over their very long lifetime is energy use for heating and cooling. No matter how green the fuel used, there is an environmental impact. Therefore, a "prime directive" for our homes must be the most efficient building envelopes (walls, roof, doors & windows) that are affordable and practical for our climate. A second, and no less important, directive is that our homes must be designed and oriented to respond to the sun and wind. All homes should be at least "sun tempered," receiving part of their heating from the sun in cool weather and being shaded from glare and overheating in the warm months.

We will utilize green building materials including certified renewable, recycled, recyclable, reusable, and locally/regionally sourced products. Construction waste will be minimized. Building products, design and construction techniques will be selected to provide comfort, well-being, and productivity of occupants, especially for indoor air, thermal and lighting quality; reduce volatile organic compounds and other air impurities, and control moisture accumulation/water intrusion that could lead to mold growth and other microbiological concerns.

Ultra-low flow plumbing fixtures will be specified to reduce water demand and wastewater volumes.

Landscaping, Buffers and Tree Protection

The principles and practices of permaculture will guide not only agriculture and silviculture operations, but also landscaping and gardens throughout the community. The design principles which are the conceptual foundation of permaculture were derived from the science of systems ecology and study of pre-industrial examples of sustainable land use. Permaculture draws from several disciplines including organic farming, agroforestry, integrated farming, sustainable development, and applied ecology.

Permaculture design emphasizes patterns of landscape, function, and species assemblies. The focus of permaculture, therefore, is not on each separate element, but rather on the relationships created among elements by the way they are placed together; the whole becoming greater than the sum of its parts. Permaculture design seeks to minimize waste, human labor, and energy input by building systems with maximal benefits between design elements to achieve a high level of synergy.

The majority of the development will be located in areas that are now open field, which will greatly minimize clearing. A section of small trees will be removed on the southern side of the village and the edges of the adjacent wooded area will be thinned to create a transition zone of mixed pasture and trees. A large specimen oak at the high point of the site will be preserved as a central feature of the village green. Unfortunately, several adjacent large trees have been severely damaged by weather, age and disease, and cannot be saved.

With regard to buffering Hart's Mill from neighboring parcels, there are few homes immediately adjacent to the site, and the majority of those are on the western end. Existing trees on the western and southern property lines will remain undisturbed, continuing to provide a substantial visual barrier for homes in that area. The greatest disturbance will be along the northern boundary on the western end of the property where the entrance road will be built. There is currently an approximately 15 ft. wide buffer of small to medium trees between the northern boundary and an existing unpaved driveway. We

will attempt to preserve as many of those trees as possible, but it is inevitable that some will be removed in the course of road construction.

New plantings of deciduous and evergreen materials ranging in size from small/medium shrubs to large shrubs and understory trees to large shade trees will replace and augment existing vegetation in a 20' ft. wide buffer area along the northern side of the entrance road. Native and non-invasive adapted plant species will be used.

A landscape buffer will continue along the northern boundary as the entrance road transitions to an unpaved gravel road, with particular attention to the areas closest to the two homes at the end of Faye Street which abut the subject site. Both homes are on wooded lots, and neither is currently visible from the site.

Parking, Loading and Circulation

Access to the property will be via a private Class A road connecting to Frazier Road on the western end. The master plan indicates a paved entrance road approximately 650 ft. long which terminates in a loop of sufficient radius to accommodate emergency vehicles and delivery trucks. From that point, there are two separate roads: a paved pedestrian and emergency access lane through the middle of the residential area, and a gravel road running roughly parallel to the pedestrian lane along the northern boundary, then continuing east to the farmstead.

Small parking areas are distributed along the western and northern edges of the village proper with a total of 60 parking spaces for residents and their guests. Some of the parking areas may be covered. Residents walk to their homes on surfaced and lighted pathways. One or two electric carts will be provided for those with temporary or permanent conditions which would make walking difficult. Hand carts will also be available for heavy or bulky items.

It should be noted that the founders of Hart's Mill worked with Village Habitat Design to develop the initial site plan concepts and schematic design. The issues of circulation and parking have been discussed extensively by the members and have been informed by the expertise of Village Habitat. So while the parking and circulation layout may be unconventional, they are the result of a lengthy and carefully considered process.

Water Supply

The Orange-Alamance Water System has approved water service to the community from its line on Frazier Rd. An approval letter is included as an addendum. Water supply may be supplemented by a community well for farm or other non-domestic water uses.

Hart's Mill has a goal of reducing water demand by at least 50% compared to conventional residential neighborhoods. Developments similar to Hart's Mill have achieved as much as 70% demand reductions. In addition to requiring that all plumbing fixtures meet or exceed EPA Water Sense standards, conservation practices will be actively promoted. Landscape design strategies will be utilized to reduce irrigation needs, and rainwater catchment will provide supplemental non-potable water.

Sanitary Sewer / Wastewater System

A schematic design for sanitary sewer and a subsurface drip irrigation system have been prepared by Tetra Tech. Plans for the Hart's Mill community include residential housing with 67 total bedrooms (when full build-out is achieved), a common house with kitchen and washing machines (for those without a washing machine in their private residence), and an approximately 2,000 square foot education building with no kitchen and seating for 20 people. Additionally, up to four small workshops with sinks only may be developed in the future. Standard design flow rates for each facility type and for the entire system are summarized in the table below, based on the requirements of 15A NCAC 18A .1949.

Facility	#	Unit	Unit flow (gpd)	Total flow (gpd)	Comments
Bedrooms	67	Bedroom	120/bedroom	8040	
Common	134	People	5/meal	670	Kitchen, for grease trap sizing only (assuming 2 people per bedroom)*
Education building	20	People	10/person	200	Based on school design flow requirements
Workshops	4	Building	120/building	480	Based on minimum flow rate per building
			TOTAL	8720	

** The flow attributed to the common house has not been added to the total system flow, since this house will only be used by residents of the village. A grease trap sized to handle the potential kitchen flow rate will be provided for pretreatment.*

A preliminary soil and site evaluation report has been prepared by Agri-Waste Technology (AWT), Inc. (Apex, NC), and dated January 12, 2014. The report identifies, describes, and delineates areas suitable or provisionally suitable for onsite wastewater dispersal. Areas identified with the deepest soils were prioritized for siting the active drain fields for the proposed system. The report also recommended a conventional long term application rate (LTAR) of 0.25 gpd/sf, which is the midpoint LTAR for Type IV (clayey) soil types, per 15A NCAC 18A .1955.

The proposed system for Hart's Mill includes the use of subsurface drip irrigation for the dispersal of septic tank effluent. Drip irrigation was selected because of its various advantages over other methods of gravity or pressure dispersal, including:

- Shallow dispersal depth which allows for better treatment in the soil and vegetative uptake;
- Low-impact installation without damaging existing landscapes, trees, and other natural site features;
- Very low instantaneous loading rates with effluent dispersed more evenly over the drainfield area, again improving treatment in the soil and hydraulic performance.

To determine preliminary drip irrigation system sizing, the approval document for Innovative Wastewater System No. IWWS-1993-1-R7A, American Perc-Rite Subsurface Drip System, Anaerobic, was consulted. This approval document specifies a LTAR range of 0.15-0.05 gpd/sf (area basis) for Type IV

soils. Assuming a mid-point LTAR for the system (consistent with AWT's soil report) results in a preliminary LTAR of 0.10 gpd/sf, which was used along with the design flow to size the active and repair areas. The active drip zones were laid out using standard Perc-Rite design criteria, prioritizing areas on pastureland on the east side of the site, which feature relatively deep soils and can be laid out with vegetated strips between zones. Repair area has been designated on pastureland west of the active drip zones and east of the village.

The small development footprint relative to the size of the parcel, large areas of suitable soils, and active use and monitoring of the entire property by residents and farmers are factors that mitigate risk.

Solid Waste

Hart's Mill will utilize extensive composting, recycling and reuse practices to cut solid waste by 50% or more compared with conventional residential developments. Similar communities have achieved reductions of as much as 75%.

A central collection point for pick-up of solid waste and recycling will be located to the west of the community along the entrance road for easy access by a commercial service. Garbage trucks will not be allowed within the village proper. The collection site will be built in compliance with Orange County requirements, including a concrete pad, screening and water supply for cleaning.

Fire Protection

Hart's Mill will be served by the Efland Fire Department. Fire hydrants in the village area will be installed according to applicable regulations. In addition, a standpipe will be installed in the pond located on the property with a gravel access road for emergency vehicles.

Emergency Access

Emergency access to village residences will be provided via a 20 ft. wide pedestrian road loop with limited vehicular access. Removable bollards at each end of the road will allow access for emergency and large delivery/service vehicles as needed, while prohibiting day-to-day passenger vehicles. The road cross section will consist of a 10 ft. wide asphalt and/or concrete surface with 5 ft. "grasscrete" shoulders on a 20 ft. wide compacted sand and gravel base.

Access to farm facilities, including two farmhouses, will be via an 18 ft. wide gravel road running parallel to the village pedestrian road.

Exterior Lighting

The location, type, height, size and direction of exterior lighting fixtures will be selected to minimize glare or direct illumination that interferes with adjacent properties. Exterior lighting will comply with

Orange County requirements to be “dark sky” friendly. Landscape lighting along walkways, the pedestrian street and near buildings will consist of low-level, energy-efficient fixtures that complement the architecture and are installed near the ground or below eye level. Building-mounted exterior lighting fixtures will be carefully positioned to avoid glare and interference with adjacent properties or homes within the village.

Signage

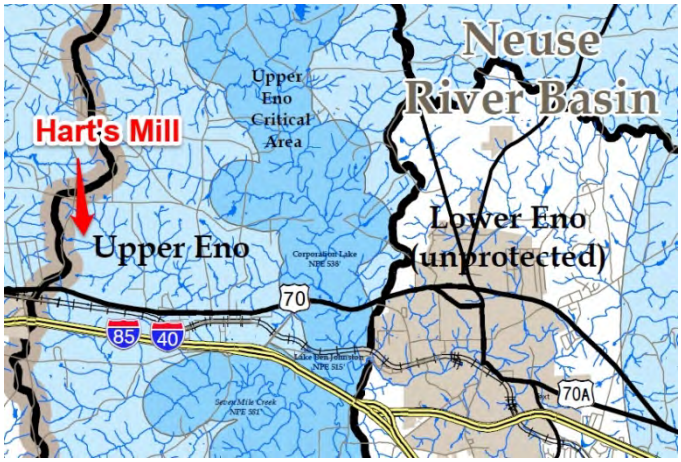
A ground mounted double-sided identification sign for the community will be located at the entrance on Frazier Road and will be installed according to Orange County requirements. The sign will be constructed of wood with a masonry base, and will not exceed 32 square feet in area or six feet in height. Any lighting will be provided with energy-efficient LED fixtures and will be carefully placed to avoid glare for motorists or nearby residents.

Stream Buffers

The subject property abuts two streams—McGowan Creek, which forms the eastern boundary of the parcel, and an unnamed stream which flows from a spring-fed pond located on the western side of the property and flows east across the southern edge into McGowan Creek.

The land surrounding both streambeds is heavily wooded and will remain so after development. Stream buffers will exceed the minimum required by North Carolina and Orange County regulations.

Storm Water Management



The subject property lies within the Neuse River Basin and the Upper Eno Protected Area. The small footprint of the Hart’s Mill development keeps the ration of impervious surface well below the 12% threshold for the Upper Eno Protected Area.

An integrated storm water management plan utilizing Low Impact Design (LID) principles and practices will be developed for Hart’s Mill.

Low Impact Design is a comprehensive technology-based approach to managing stormwater. Stormwater is managed in small, cost-effective landscape features located on each lot rather than being conveyed and managed in large, costly pond facilities located at the bottom of drainage areas. The source control concept is quite different from conventional treatment (pipe and pond stormwater management site design). Hydrologic functions such as infiltration, frequency and volume of discharges, and groundwater recharge can be maintained with the use of reduced impervious

surfaces, functional grading, open channel sections, disconnection of hydrologic flow paths, and the use of bioretention/filtration landscape areas. LID also incorporates multifunctional site design elements into the stormwater management plan. Such alternative stormwater management practices as on-lot micro storage, functional landscaping, open drainage swales, reduced imperviousness, flatter grades, increased runoff travel time, and depression storage can be integrated into a multifunctional site design.

Erosion Control

All construction will be carefully and thoughtfully planned to preserve existing landforms and vegetation to the greatest extent possible. A formal erosion control and sedimentation control plan will be submitted for review and approval by the County prior to any land disturbance associated with future site improvements or buildings.

Environmental Impact Assessment

A separate environment assessment report has been submitted in conjunction with this application.

A search of federal and state environmental databases conducted by Tetra Tech indicates no known environment hazards on or immediately surrounding the site. A copy of the search results and conclusions can be found in the environmental assessment report.

The Orange County Department of Environment, Agriculture, Parks & Recreation (DEAPR) has also searched the County's environment databases. Rich Shaw writes:

> *There is no significant natural heritage area (SNHA) known to exist on or adjacent to the subject property, however the perennial stream that flows through the length of the tract and McGowan Creek (which forms the eastern boundary) are significant water resources and wildlife corridors that should be protected from any future development activities. Both the stream and McGowan Creek appear to have intact forested buffers that are important to maintain (and possibly enhance) to protect water quality and stream habitats. Both streams are sources of public drinking water for the Orange-Alamance Water System, which operates from Corporation Lake located downstream of the subject property. McGowan Creek is a significant wildlife corridor that links other protected open space properties. There appears to be a healthy population of beaver that utilize the corridor and provide additional habitat due to the flooding conditions that they create.*

In addition, a copy of the Forest Stewardship Plan prepared in 2013 with assistance from Eno River Association has been provided with this application.

Cultural and Archeological Resources

Aside from a small abandoned house at the Frazier Road entrance slated for demolition, there are currently no permanent structures on the property. The land has been used for farming, pasture and timber in the past. An old farmhouse and barns were demolished a number of years ago.

In a letter from Rich Shaw of the Orange County Department of Environment, Agriculture, Parks & Recreation date 12/9/2014, he states, "There are no previously identified historic properties or resources located on the subject parcel or on adjacent parcels." He goes on to say that, "The current Cemetery Census map does not show any identified burials on this parcel."

Traffic Impact Analysis

A traffic impact analysis has been prepared by Michael Hughes, PE in accordance with NCDOT and Orange County requirements.

ADDITIONAL INFORMATION

ANTICIPATED REGULATORY CONDITIONS

This request involves the rezoning of the property to what County planning staff has continuously referred to as the Hart's Mill Master Planned Conditional Zoning District. To this end the following general development regulations are being proposed for the project:

1. Permitted residential density for project: 1 dwelling unit for every 3 acres of property

2. Allowable Land Uses:
    a. Residential: including single-family, two-family (i.e. duplex) and group residential units with a cap of 34 residential dwelling units developable within the zoning district.
    b. Community House with common facilities including, but not limited to: clothes washing facilities, mail room, activity room, and community kitchen limited to a total square footage of 3,500 sq. ft.
    c. Administrative office including meeting facilities for local residents.
    d. Farm operations including:
        i. 2 barns
        ii. 2 garages for farm equipment/vehicle storage
        iii. Produce processing (washing/packing area)
        iv. Greenhouses &/or hoop houses
        v. Woodworking shop
        vi. Pottery studio with kiln
    e. Accessory uses for residential area shall include:
        i. Maximum of 2 art/hobby studios for residential use not to exceed a total square footage of 1,000 sq. ft. per building
        ii. Each residence shall be allowed to operate a minor home occupation in accordance with applicable County application and development standards
        iii. Parking area/garages
        iv. Electric car/golf cart charging stations
3. Setbacks:
    a. No structure shall be located within 100 ft. of the perimeter of the property line.

b. Setback for individual residential structures from identified residential spaces:
   i. Front Yard: 10 ft.
   ii. Side Yard: 10 ft.
   iii. Rear Yard: 10 ft.
c. All structures shall comply with minimum spacing requirements established within NC State Building Code for separation between structures.

4. Minimum Percentage of Open Space for project: 80% or 89 acres. Farm/pasture operations, as well as off-site septic areas, shall be allowed within this open space area.
5. Provision of waste disposal services: Wastewater shall be disposed on via a shared septic area as denoted on the plan approved by the Orange County Health Department and the State of North Carolina.
6. Access: access to the project shall be through a single access point on Frazier Road. No additional vehicular access points shall be developed.
7. Parking: all vehicles shall be parked in designated areas as identified on the site plan. A total of 60 parking spaces shall be provided for residents and their guests
8. Hart's Mill shall abide by the following dimensional ratios:
   a. Maximum Allowable Floor Area Ratio (i.e. the cumulative amount of floor area for the project): 0.080
   b. Proposed Open Space Ratio: 0.83

NOTIFICATION OF PUBLIC

A list of property owners within 500' of the subject property for notification of public hearings is attached as an addendum to this document.

An initial public information meeting was held on April 8, 2015 at Orange County offices on Margaret Lane in Hillsborough and was attended by staff members as well as Hart's Mill representatives. Two additional public meetings were advertised and held independently by the applicant, one on April 28 at the Mebane Public Library, and the other on May 3 at Lake Michael. A cumulative total of 15 people from neighboring properties attended the three meetings. Questions concerning use of the land, size and types of buildings, traffic, noise, odor (from farm activities), demographics of future residents, and water sources were raised and addressed to the satisfaction of the majority of attendees. A number of people expressed support for the project.

DEVELOPMENT SCHEDULE

Construction of site infrastructure and the initial group of homes is anticipated to begin approximately 12 months after master site plan approval. Full build-out is projected to take up to 5 years.

Construction and installation of farm infrastructure – barn, hoop house, fencing, well, etc. – is expected to begin within 6 months of approval. A single residence with a standalone well and septic system may be constructed within the first year prior to development of the community infrastructure to facilitate

farm operations.

SCOTT W. DORSETT • REALTOR • REAL ESTATE APPRAISER • CONSULTANT
P.O. Box 987, Hillsborough, NC 27278 • (919) 880-9600

To: Orange County Board of Adjustment

From: Scott W. Dorsett

Date: May 3, 2015

Re: Hart's Mill Village & Farm

I have personally inspected the subject proposed site (Orange County PIN #9835-74-8573), thoroughly reviewed the proposed concept/site plan and the subject's Master Plan Development. The purpose of all of my efforts was to assess the impact of Hart's Mill on the surrounding properties and the community as a whole. My client for this assignment is Hart's Mill LLC.

To summarize the plan, it can be explained as a self-sufficient agricultural village, free of the traffic, congestion, and typical problems that one would typically associate with a new development. The layout and design are efficient, the impact on surrounding properties is virtually non-existent, and the design and layout of the homes and community buildings are well thought out and practical.

I see no adverse effect on any surrounding properties, and to the contrary: this community, once completed will be a thriving, productive, environmentally efficient, tax paying entity that Orange County can be proud of. I have never seen a more impressive development plan with well thought out design, and Hart's Mill may very well serve as a blueprint for future communities in the County. The only negative aspect that I see in this entire project is the fact that I was not the person who came up with the concept. As a dairy farmer's son, born and raised five minutes from the subject site, I am proud this community will be in the Efland area.

Please call with any questions, and I am thankful for the opportunity to give you my opinion on this project.

Respectfully Submitted,

Scott W. Dorsett

TETRA TECH

March 16, 2015

Ms. Katherine Ansardi
Hart's Mill, LLC
P.O. Box 2844
Chapel-Hill, NC 27615-2844

Subject: Summary of Environmental Data Resources Report, Harts Mill Village, 1031 Frazier Road, Mebane, North Carolina 27302

Dear Ms. Ansardi:

A review of standard federal and state environmental record sources pertaining to the above referenced Site and surrounding area was conducted using Environmental Data Resources (EDR) on-line database services on March 9, 2015. The EDR Geocheck Report was generated using the minimum search distances recommended in the ASTM 1527-13 Standard. At the request of Hart's Mill, LLC, a site inspection was not completed as part of this investigation. A summary of the EDR data is provided below:

Site: The Site was not identified in the federal or federal databases searched. A list of the databases searched is provided within the EDR Report attached to this letter.

Federal Databases: The Site was identified not identified in the federal databases reviewed.

State Databases: The Site was not identified in the federal databases reviewed.

Abutting Properties: No Abutting Properties to the Site were identified in either the federal or state databases.

Sanborn Fire Insurance Maps: The Site is an unmapped property.

Building Report: There are no building reports on record.

Environmental Liens: There are no environmental liens associated with the property. It should be noted that a 50 year chain of title was not conducted as part of this investigation.

Historical Topographic Maps: Historical Topographic Maps from 1968, 1994, and 2002 were reviewed. Each of the maps indicated that the Site was wooded property with a pond created sometime between 1955 and 1968 along the western boundary of the Site. The surrounding areas are a mixture of undeveloped, wooded land and residential homes.

Historical Aerial Photographs: Historical Aerial Photographs from 1955, 1975, 1982, 1993, 1998, 1905, 2005, 2006, 2008, 2009, 2010, and 2012 were reviewed. In 1955 the Site and surrounding area consists of wooded land. By 1975, a pond located near the western boundary of the Site is present. In the period from 1982 through 2012 the Site remains wooded with the pond located along the western boundary of the Site.

Tetra Tech Engineering, P.C.
One Park Drive, Suite 200, P.O. Box 14409, Research Triangle Park, NC 27709
Tel 919.485.2070 Fax 919.485.8280 victor.damato@tetratech.com

CONCLUSIONS AND RECOMMENDATIONS

Tetra Tech has reviewed an EDR Geocheck Report for property located at 10301 Frazier Road, Mebane, North Carolina. This review has revealed no environmental conditions in connection with the property. Therefore, the results of this assessment do not indicate the need for further investigation.

If you have any questions regarding this summary, please contact me at (412) 920-8639.

Sincerely,
Tetra Tech Engineering, P.C.

Victor A. D'Amato

Victor D'Amato, PE
Vice President

cc: Raymond R. Orloski

Attachments: EDR reports

Frazier Road
1031 Frazier Road
Mebane, NC 27302

Inquiry Number: 4227876.2s
March 09, 2015

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
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Physical Setting SSURGO Soil Map	A-5
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Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

1031 FRAZIER ROAD
ORANGE County, NC 27302

COORDINATES

Latitude (North):	36.0939000 - 36˚ 5' 38.04''
Longitude (West):	79.2148000 - 79˚ 12' 53.28''
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	660716.8
UTM Y (Meters):	3995638.0
Elevation:	726 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	36079-A2 EFLAND, NC
Most Recent Revision:	2002

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20120531
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List

EXECUTIVE SUMMARY

Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent NPL

NC HSDS ..... Hazardous Substance Disposal Site

State- and tribal - equivalent CERCLIS

SHWS ..... Inactive Hazardous Sites Inventory

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... List of Solid Waste Facilities
OLI ..... Old Landfill Inventory

State and tribal leaking storage tank lists

LUST ..... Regional UST Database

EXECUTIVE SUMMARY

LUST TRUST State Trust Fund Database
LAST Leaking Aboveground Storage Tanks
INDIAN LUST Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST Petroleum Underground Storage Tank Database
AST AST Database
INDIAN UST Underground Storage Tanks on Indian Land
FEMA UST Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL No Further Action Sites With Land Use Restrictions Monitoring

State and tribal voluntary cleanup sites

INDIAN VCP Voluntary Cleanup Priority Listing
VCP Responsible Party Voluntary Action Sites

State and tribal Brownfields sites

BROWNFIELDS Brownfields Projects Inventory

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI Open Dump Inventory
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
HIST LF Solid Waste Facility Listing
SWRCY Recycling Center Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL Clandestine Drug Labs
US HIST CDL National Clandestine Laboratory Register

Local Land Records

LIENS 2 CERCLA Lien Information

Records of Emergency Release Reports

HMIRS Hazardous Materials Information Reporting System
IMD Incident Management Database
SPILLS Spills Incident Listing
SPILLS 90 SPILLS 90 data from FirstSearch
SPILLS 80 SPILLS 80 data from FirstSearch

EXECUTIVE SUMMARY

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
UIC	Underground Injection Wells Listing
DRYCLEANERS	Drycleaning Sites
NPDES	NPDES Facility Location Listing
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
Financial Assurance	Financial Assurance Information Listing
LEAD SMELTERS	Lead Smelter Sites
COAL ASH	Coal Ash Disposal Sites
EPA WATCH LIST	EPA WATCH LIST
US FIN ASSUR	Financial Assurance Information
US AIRS	Aerometric Information Retrieval System Facility Subsystem
COAL ASH DOE	Steam-Electric Plant Operation Data
PCB TRANSFORMER	PCB Transformer Registration Database
2020 COR ACTION	2020 Corrective Action Program List
PRP	Potentially Responsible Parties

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR US Hist Auto Stat	EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST	Recovered Government Archive Leaking Underground Storage Tank

EXECUTIVE SUMMARY

RGA HWS..... Recovered Government Archive State Hazardous Waste Facilities List
RGA LF..... Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 4227876.2S

Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Hazardous Substance Disposal Sites

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Frazier Road	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: 1031 Frazier Road Mebane NC 27302	CONTACT: Ray Orloski INQUIRY #: 4227876.2s
LAT/LONG: 36.0939 / 79.2148	DATE: March 09, 2015 1:14 pm

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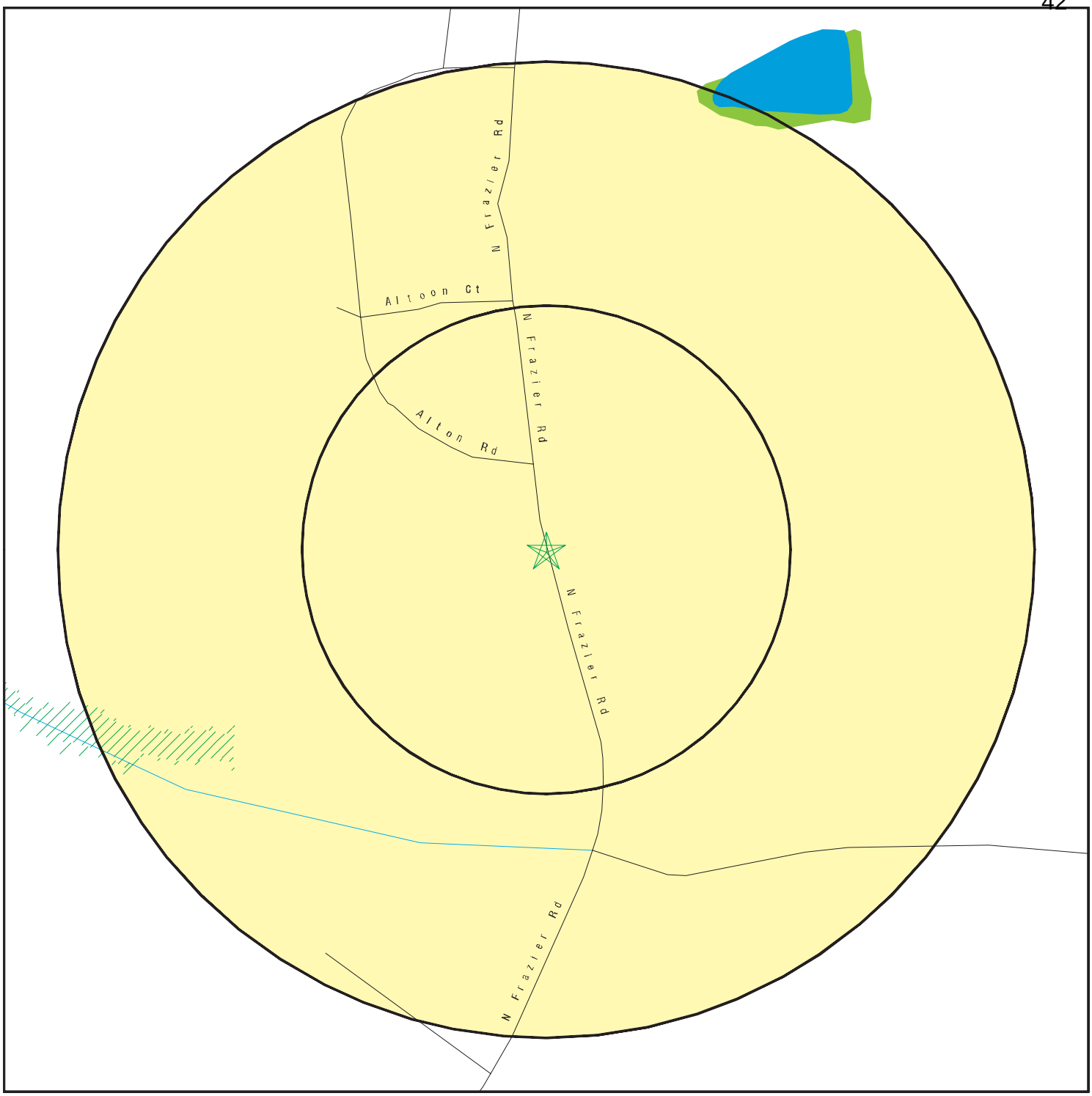
DETAIL MAP - 4227876.2S



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Hazardous Substance Disposal Sites

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SITE NAME: Frazier Road ADDRESS: 1031 Frazier Road Mebane NC 27302 LAT/LONG: 36.0939 / 79.2148	CLIENT: Tetra Tech NUS, Inc. CONTACT: Ray Orloski INQUIRY #: 4227876.2s DATE: March 09, 2015 1:15 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
NC HSDS	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
OLI	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LUST TRUST	0.500		0	0	0	NR	NR	0
LAST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
HIST LF	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
IMD	0.500		0	0	0	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
SPILLS 80	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LUST	TP		NR	NR	NR	NR	NR	0
RGA HWS	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

NO SITES FOUND

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/16/2014	Source: EPA
Date Data Arrived at EDR: 01/08/2015	Telephone: N/A
Date Made Active in Reports: 02/09/2015	Last EDR Contact: 01/08/2015
Number of Days to Update: 32	Next Scheduled EDR Contact: 04/20/2015
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 02/27/2015
Number of Days to Update: 94	Next Scheduled EDR Contact: 06/08/2015
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/21/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/07/2014	Telephone: 703-603-8704
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 01/09/2015
Number of Days to Update: 13	Next Scheduled EDR Contact: 04/20/2015
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 02/27/2015
Number of Days to Update: 94	Next Scheduled EDR Contact: 06/08/2015
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/03/2014
Date Data Arrived at EDR: 12/12/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 48

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 37

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

State- and tribal - equivalent NPL

HSDS: Hazardous Substance Disposal Site

Locations of uncontrolled and unregulated hazardous waste sites. The file includes sites on the National Priority List as well as those on the state priority list.

Date of Government Version: 08/09/2011
Date Data Arrived at EDR: 11/08/2011
Date Made Active in Reports: 12/05/2011
Number of Days to Update: 27

Source: North Carolina Center for Geographic Information and Analysis
Telephone: 919-754-6580
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Biennially

State- and tribal - equivalent CERCLIS

SHWS: Inactive Hazardous Sites Inventory

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 12/17/2014
Date Made Active in Reports: 01/21/2015
Number of Days to Update: 35

Source: Department of Environment, Health and Natural Resources
Telephone: 919-508-8400
Last EDR Contact: 12/17/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: List of Solid Waste Facilities

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/30/2014
Date Made Active in Reports: 01/21/2015
Number of Days to Update: 22

Source: Department of Environment and Natural Resources
Telephone: 919-733-0692
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Semi-Annually

OLI: Old Landfill Inventory

Old landfill inventory location information. (Does not include no further action sites and other agency lead sites).

Date of Government Version: 01/05/2015
Date Data Arrived at EDR: 01/16/2015
Date Made Active in Reports: 02/16/2015
Number of Days to Update: 31

Source: Department of Environment & Natural Resources
Telephone: 919-733-4996
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Regional UST Database

This database contains information obtained from the Regional Offices. It provides a more detailed explanation of current and historic activity for individual sites, as well as what was previously found in the Incident Management Database. Sites in this database with Incident Numbers are considered LUSTs.

Date of Government Version: 02/06/2015
Date Data Arrived at EDR: 02/11/2015
Date Made Active in Reports: 02/16/2015
Number of Days to Update: 5

Source: Department of Environment and Natural Resources
Telephone: 919-733-1308
Last EDR Contact: 02/11/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

LUST TRUST: State Trust Fund Database

This database contains information about claims against the State Trust Funds for reimbursements for expenses incurred while remediating Leaking USTs.

Date of Government Version: 01/09/2015
Date Data Arrived at EDR: 01/13/2015
Date Made Active in Reports: 02/16/2015
Number of Days to Update: 34

Source: Department of Environment and Natural Resources
Telephone: 919-733-1315
Last EDR Contact: 01/13/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LAST: Leaking Aboveground Storage Tanks
A listing of leaking aboveground storage tank site locations.

Date of Government Version: 02/06/2015
Date Data Arrived at EDR: 02/11/2015
Date Made Active in Reports: 02/16/2015
Number of Days to Update: 5

Source: Department of Environment & Natural Resources
Telephone: 877-623-6748
Last EDR Contact: 02/11/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 19

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 11/14/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 87

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/04/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 10

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 12

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Petroleum Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 02/06/2015
Date Data Arrived at EDR: 02/11/2015
Date Made Active in Reports: 02/16/2015
Number of Days to Update: 5

Source: Department of Environment and Natural Resources
Telephone: 919-733-1308
Last EDR Contact: 02/11/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

AST: AST Database
Facilities with aboveground storage tanks that have a capacity greater than 21,000 gallons.

Date of Government Version: 12/18/2014
Date Data Arrived at EDR: 12/22/2014
Date Made Active in Reports: 01/20/2015
Number of Days to Update: 29

Source: Department of Environment and Natural Resources
Telephone: 919-715-6183
Last EDR Contact: 12/18/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Semi-Annually

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 8

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 12

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/04/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 10

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/13/2014
Date Data Arrived at EDR: 11/18/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 83

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 11/14/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 87

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: No Further Action Sites With Land Use Restrictions Monitoring
A land use restricted site is a property where there are limits or requirements on future use of the property due to varying levels of cleanup possible, practical, or necessary at the site.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 12/17/2014
Date Made Active in Reports: 01/21/2015
Number of Days to Update: 35

Source: Department of Environment, Health and Natural Resources
Telephone: 919-508-8400
Last EDR Contact: 12/17/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Responsible Party Voluntary Action Sites
Responsible Party Voluntary Action site locations.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 12/17/2014
Date Made Active in Reports: 01/21/2015
Number of Days to Update: 35

Source: Department of Environment and Natural Resources
Telephone: 919-508-8400
Last EDR Contact: 12/17/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Semi-Annually

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/31/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Projects Inventory
A brownfield site is an abandoned, idled, or underused property where the threat of environmental contamination has hindered its redevelopment. All of the sites in the inventory are working toward a brownfield agreement for cleanup and liabitliy control.

Date of Government Version: 12/01/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/21/2015
Number of Days to Update: 13

Source: Department of Environment and Natural Resources
Telephone: 919-733-4996
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/22/2014
Date Data Arrived at EDR: 12/22/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 38

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWRCY: Recycling Center Listing

A listing of recycling center locations.

Date of Government Version: 02/04/2015
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 02/16/2015
Number of Days to Update: 11

Source: Department of Environment & Natural Resources
Telephone: 919-707-8137
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

HIST LF: Solid Waste Facility Listing

A listing of solid waste facilities.

Date of Government Version: 11/06/2006
Date Data Arrived at EDR: 02/13/2007
Date Made Active in Reports: 03/02/2007
Number of Days to Update: 17

Source: Department of Environment & Natural Resources
Telephone: 919-733-0692
Last EDR Contact: 01/19/2009
Next Scheduled EDR Contact: 04/19/2009
Data Release Frequency: Quarterly

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 12/01/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 70

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Quarterly

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 12/01/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 70

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

IMD: Incident Management Database
Groundwater and/or soil contamination incidents

Date of Government Version: 07/21/2006
Date Data Arrived at EDR: 08/01/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 22

Source: Department of Environment and Natural Resources
Telephone: 919-733-3221
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SPILLS: Spills Incident Listing
A listing spills, hazardous material releases, sanitary sewer overflows, wastewater treatment plant bypasses and upsets, citizen complaints, and any other environmental emergency calls reported to the agency.

Date of Government Version: 12/17/2014
Date Data Arrived at EDR: 12/19/2014
Date Made Active in Reports: 01/21/2015
Number of Days to Update: 33

Source: Department of Environment & Natural Resources
Telephone: 919-807-6308
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Varies

SPILLS 80: SPILLS80 data from FirstSearch
Spills 80 includes those spill and release records available from FirstSearch databases prior to 1990. Typically, they may include chemical, oil and/or hazardous substance spills recorded before 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 80.

Date of Government Version: 06/14/2001
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 09/27/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/03/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 12/30/2014
Date Data Arrived at EDR: 12/31/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/06/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 01/29/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/31/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/16/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 21

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 12/04/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/07/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/16/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: EPA
Telephone: (404) 562-9900
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/24/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Biennially

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UIC: Underground Injection Wells Listing
A listing of uncerground injection wells locations.

Date of Government Version: 02/10/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 22

Source: Department of Environment & Natural Resources
Telephone: 919-807-6412
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Varies

DRYCLEANERS: Drycleaning Sites
Potential and known drycleaning sites, active and abandoned, that the Drycleaning Solvent Cleanup Program has knowledge of and entered into this database.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 12/23/2014
Date Made Active in Reports: 01/21/2015
Number of Days to Update: 29

Source: Department of Environment & Natural Resources
Telephone: 919-508-8400
Last EDR Contact: 12/23/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Varies

NPDES: NPDES Facility Location Listing
General information regarding NPDES(National Pollutant Discharge Elimination System) permits.

Date of Government Version: 02/02/2015
Date Data Arrived at EDR: 02/04/2015
Date Made Active in Reports: 02/16/2015
Number of Days to Update: 12

Source: Department of Environment & Natural Resources
Telephone: 919-733-7015
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: N/A

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Financial Assurance 2: Financial Assurance Information Listing

Information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 10/02/2012
Date Data Arrived at EDR: 10/03/2012
Date Made Active in Reports: 10/26/2012
Number of Days to Update: 23

Source: Department of Environmental & Natural Resources
Telephone: 919-508-8496
Last EDR Contact: 01/16/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

Financial Assurance 3: Financial Assurance Information

Hazardous waste financial assurance information.

Date of Government Version: 09/19/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/14/2014
Number of Days to Update: 25

Source: Department of Environment & Natural Resources
Telephone: 919-707-8222
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Sites

A listing of coal combustion products distribution permits issued by the Division for the treatment, storage, transportation, use and disposal of coal combustion products.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/04/2009
Date Made Active in Reports: 08/17/2009
Number of Days to Update: 13

Source: Department of Environment & Natural Resources
Telephone: 919-807-6359
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/11/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 21

Source: Department of Environment & Natural Resources
Telephone: 919-733-1322
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 11/21/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 02/06/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 02/06/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environment, Health and Natural Resources in North Carolina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Environment, Health and Natural Resources
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environment, Health and Natural Resources in North Carolina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/24/2013
Number of Days to Update: 176

Source: Department of Environment, Health and Natural Resources
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environment, Health and Natural Resources in North Carolina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/20/2013
Number of Days to Update: 172

Source: Department of Environment, Health and Natural Resources
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2015
Date Data Arrived at EDR: 02/04/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 23

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/04/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/21/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/19/2015
Next Scheduled EDR Contact: 05/04/2015
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 08/13/2014
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 08/07/2014
Number of Days to Update: 48

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Facility List
Source: Department of Health & Human Services
Telephone: 919-662-4499

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Department of Environment & Natural Resources
Telephone: 919-733-2090

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

FRAZIER ROAD
1031 FRAZIER ROAD
MEBANE, NC 27302

TARGET PROPERTY COORDINATES

Latitude (North):	36.0939 - 36˚ 5' 38.04''
Longitude (West):	79.2148 - 79˚ 12' 53.28''
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	660716.8
UTM Y (Meters):	3995638.0
Elevation:	726 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	36079-A2 EFLAND, NC
Most Recent Revision:	2002

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

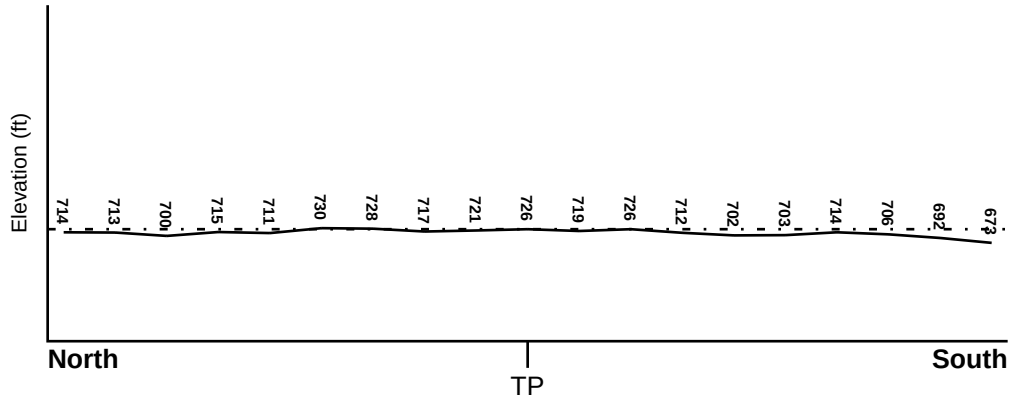
TOPOGRAPHIC INFORMATION

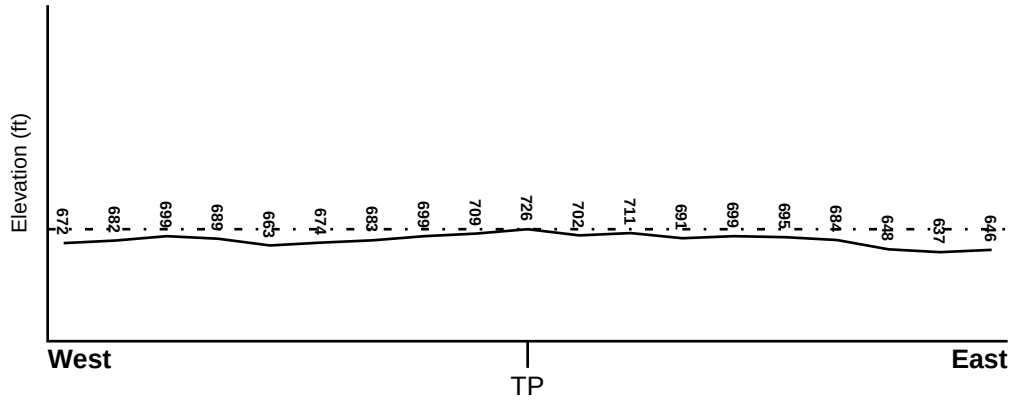
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General North

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 726 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
ORANGE, NC	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 37135C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
EFLAND	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

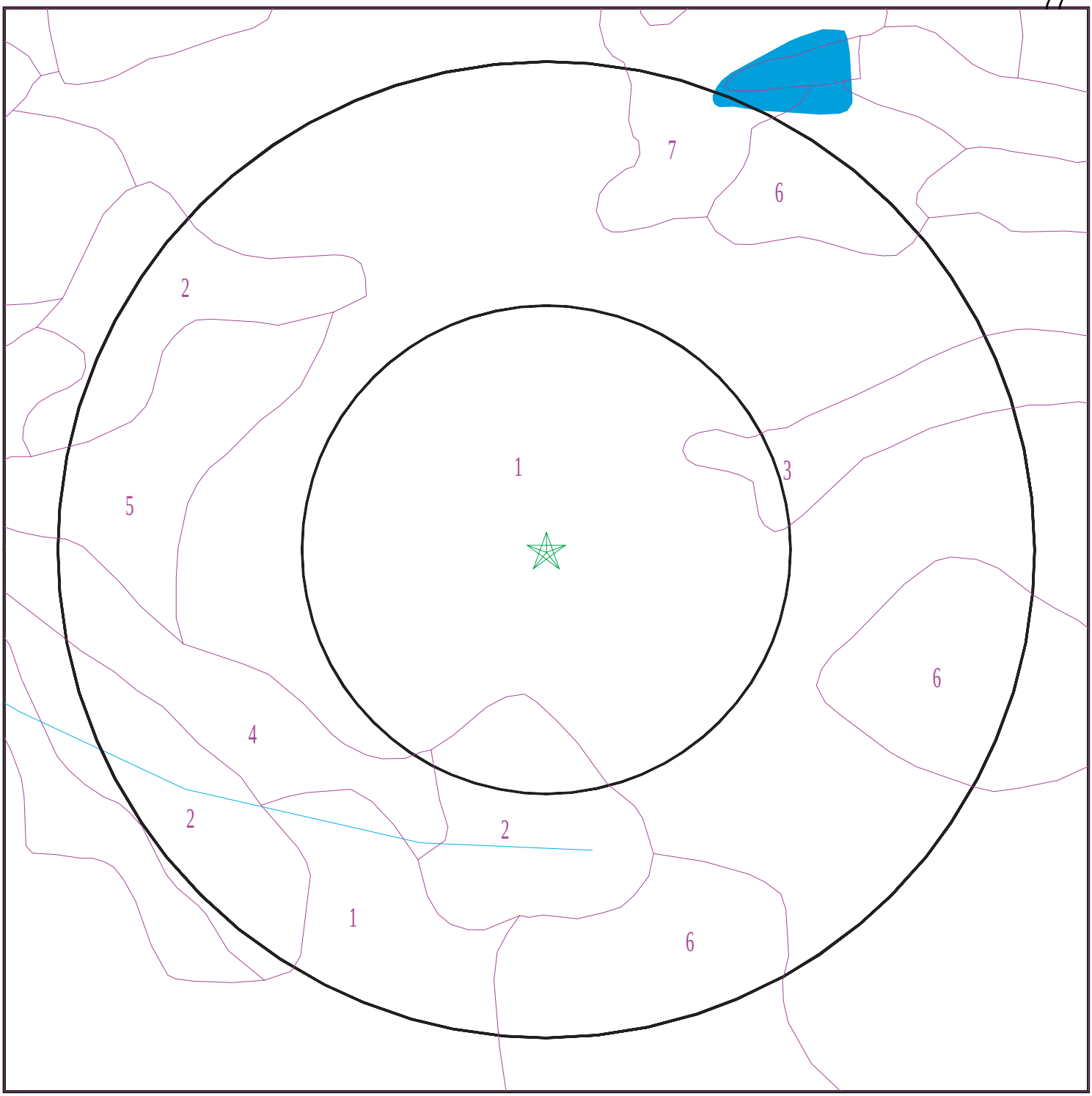
Era:	Paleozoic
System:	Ordovian
Series:	Lower Paleozoic granitic rocks
Code:	Pzg1 *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4227876.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: Frazier Road ADDRESS: 1031 Frazier Road Mebane NC 27302 LAT/LONG: 36.0939 / 79.2148	CLIENT: Tetra Tech NUS, Inc. CONTACT: Ray Orloski INQUIRY #: 4227876.2s DATE: March 09, 2015 1:15 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Georgeville

Soil Surface Texture: silt loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6 Min: 4.5
2	7 inches	61 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
3	61 inches	78 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 4.5

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: Lignum

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 53 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	1 inches	11 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.2 Min: 2
3	11 inches	38 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 5.5 Min: 4.5
4	38 inches	55 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5
5	55 inches	78 inches	weathered bedrock	Not reported	Not reported	Max: 14 Min: 0	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 3

Soil Component Name: Georgeville

Soil Surface Texture: silt loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6 Min: 4.5
2	5 inches	35 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 4.5
3	35 inches	78 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 4.5

Soil Map ID: 4

Soil Component Name: Enon

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 42 Min: 14	Max: 6.5 Min: 5.1
2	7 inches	11 inches		Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 6.5 Min: 5.1
3	11 inches	33 inches		Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 7.8 Min: 5.1
4	33 inches	74 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 1.4	Max: 7.8 Min: 6.1

Soil Map ID: 5

Soil Component Name: Orange

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 127 inches

Depth to Watertable Min: > 61 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.1
2	5 inches	24 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
3	24 inches	42 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 5.6
4	42 inches	44 inches	weathered bedrock	Not reported	Not reported	Max: 0.42 Min: 0.01	Max: Min:

Soil Map ID: 6

Soil Component Name: Herndon

Soil Surface Texture: silt loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 4.5
2	38 inches	44 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 3.6
3	44 inches	78 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 3.6
4	3 inches	7 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 4.5
5	7 inches	38 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 3.6

Soil Map ID: 7

Soil Component Name: Herndon

Soil Surface Texture: silt loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 4.5
2	3 inches	7 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 4.5
3	7 inches	38 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 3.6
4	38 inches	44 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 3.6
5	44 inches	78 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 5.5 Min: 3.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS40000893551	0 - 1/8 Mile WSW
A2	USGS40000893565	0 - 1/8 Mile WNW
3	USGS40000893701	1/2 - 1 Mile NE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

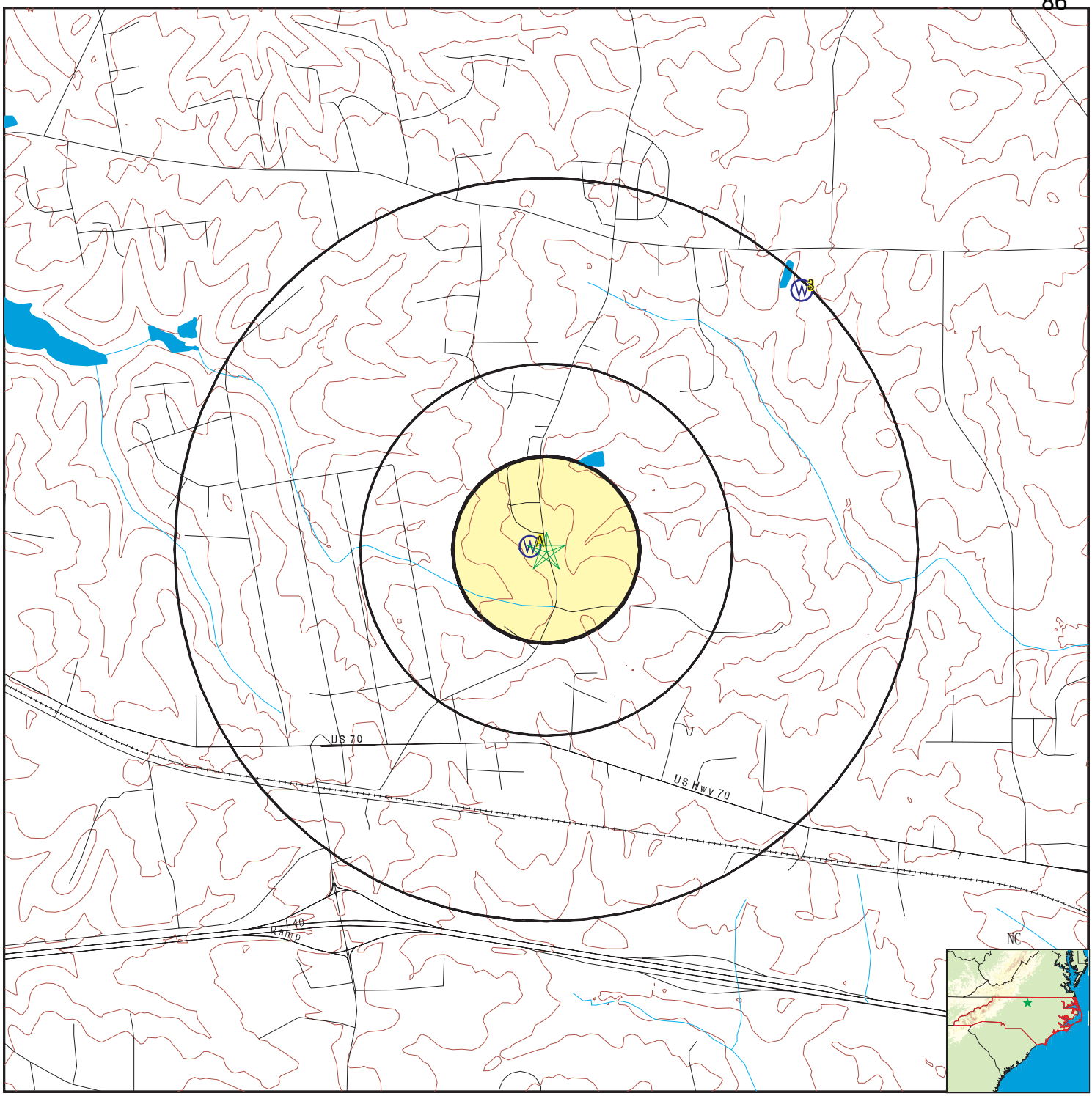
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 4227876.2s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Wildlife Areas
Natural Areas
Rare & Endangered Species

N

SITE NAME: Frazier Road	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: 1031 Frazier Road Mebane NC 27302	CONTACT: Ray Orloski
LAT/LONG: 36.0939 / 79.2148	INQUIRY #: 4227876.2s
	DATE: March 09, 2015 1:15 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation	Database	EDR ID Number
A1 **WSW** **0 - 1/8 Mile** **Lower**	**FED USGS**	**USGS40000893551**

Org. Identifier:	USGS-NC		
Formal name:	USGS North Carolina Water Science Center		
Monloc Identifier:	USGS-360537079125701		
Monloc name:	OR-502		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	03030002	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.09375
Longitude:	-79.2155716	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	735
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Piedmont and Blue Ridge crystalline-rock aquifers		
Formation type:	Felsic Metaigneous Rock		
Aquifer type:	Not Reported		
Construction date:	19960822	Welldepth:	185
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1996-08-22	25	

A2 **WNW** **0 - 1/8 Mile** **Higher**	**FED USGS**	**USGS40000893565**

Org. Identifier:	USGS-NC		
Formal name:	USGS North Carolina Water Science Center		
Monloc Identifier:	USGS-360539079125701		
Monloc name:	OR-503		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	03030002	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.0943056
Longitude:	-79.2155716	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	735
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Piedmont and Blue Ridge crystalline-rock aquifers		
Formation type:	Felsic Metaigneous Rock		

Aquifer type:	Not Reported		
Construction date:	19961023	Welldepth:	365
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

3
NE
1/2 - 1 Mile
Lower

FED USGS **USGS40000893701**

Org. Identifier:	USGS-NC		
Formal name:	USGS North Carolina Water Science Center		
Monloc Identifier:	USGS-360614079121001		
Monloc name:	OR-263		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	03020201	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.1040279
Longitude:	-79.2025158	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	690
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Piedmont and Blue Ridge crystalline-rock aquifers		
Formation type:	Felsic Metaigneous Rock		
Aquifer type:	Not Reported		
Construction date:	19930622	Welldepth:	300
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1993-06-22	30.0	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: NC Radon

Radon Test Results

Num Results	Avg pCi/L	Min pCi/L	Max pCi/L
3	1.90	0.3	4.4

Federal EPA Radon Zone for ORANGE County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 27302

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.300 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Department of Environment & Natural Resources
Telephone: 919-733-2090

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

RADON

State Database: NC Radon
Source: Department of Environment & Natural Resources
Telephone: 919-733-4984
Radon Statistical and Non Statiscal Data

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Frazier Road
1031 Frazier Road
Mebane, NC 27302

Inquiry Number: 4227876.3
March 09, 2015

Certified Sanborn® Map Report

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

3/09/15

Site Name:
Frazier Road
1031 Frazier Road
Mebane, NC 27302

Client Name:
Tetra Tech NUS, Inc.
Foster Place VII
Pittsburgh, PA 15220

EDR Inquiry # 4227876.3

Contact: Ray Orloski

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Certified Sanborn Results:

Site Name: Frazier Road
Address: 1031 Frazier Road
City, State, Zip: Mebane, NC 27302
Cross Street:
P.O. # 100-RTP-T32904.02
Project: Frazier Road
Certification # B83F-469B-B75E

Sanborn® Library search results
Certification # B83F-469B-B75E

UNMAPPED PROPERTY

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- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

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Frazier Road
1031 Frazier Road
Mebane, NC 27302

Inquiry Number: 4227876.8
March 09, 2015

EDR Building Permit Report

Target Property and Adjoining Properties

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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About This Report

Executive Summary

Findings

Glossary

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR BUILDING PERMIT REPORT

About This Report

The EDR Building Permit Report provides a practical and efficient method to search building department records for indications of environmental conditions. Generated via a search of municipal building permit records gathered from more than 1,600 cities nationwide, this report will assist you in meeting the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

Building permit data can be used to identify current and/or former operations and structures/features of environmental concern. The data can provide information on a target property and adjoining properties such as the presence of underground storage tanks, pump islands, sumps, drywells, etc., as well as information regarding water, sewer, natural gas, electrical connection dates, and current/former septic tanks.

ASTM and EPA Requirements

ASTM E 1527-13 lists building department records as a "standard historical source," as detailed in § 8.3.4.7: "Building Department Records - The term building department records means those records of the local government in which the property is located indicating permission of the local government to construct, alter, or demolish improvements on the property." ASTM also states that "Uses in the area surrounding the property shall be identified in the report, but this task is required only to the extent that this information is revealed in the course of researching the property itself."

EPA's Standards and Practices for All Appropriate Inquires (AAI) states: "§312.24: Reviews of historical sources of information. (a) Historical documents and records must be reviewed for the purposes of achieving the objectives and performance factors of §312.20(e) and (f). Historical documents and records may include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records."

Methodology

EDR has developed the EDR Building Permit Report through our partnership with BuildFax, the nation's largest repository of building department records. BuildFax collects, updates, and manages building department records from local municipal governments. The database now includes 30 million permits, on more than 10 million properties across 1,600 cities in the United States.

The EDR Building Permit Report comprises local municipal building permit records, gathered directly from local jurisdictions, including both target property and adjoining properties. Years of coverage vary by municipality. Data reported includes (where available): date of permit, permit type, permit number, status, valuation, contractor company, contractor name, and description.

Incoming permit data is checked at seven stages in a regimented quality control process, from initial data source interview, to data preparation, through final auditing. To ensure the building department is accurate, each of the seven quality control stages contains, on average, 15 additional quality checks, resulting in a process of approximately 105 quality control "touch points."

For more information about the EDR Building Permit Report, please contact your EDR Account Executive at (800) 352-0050.

EDR® Environmental Data Resources Inc

BUILD FAX PROPERTY HISTORY

EXECUTIVE SUMMARY: SEARCH DOCUMENTATION

A search of building department records was conducted by Environmental Data Resources, Inc (EDR) on behalf of Tetra Tech NUS, Inc. on Mar 09, 2015.

TARGET PROPERTY

1031 Frazier Road
Mebane, NC 27302

SEARCH METHODS

EDR searches available lists for both the Target Property and Surrounding Properties.

RESEARCH SUMMARY

Building permits identified: **NO PERMITS IDENTIFIED**

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

BUILDING DEPARTMENT RECORDS SEARCHED

Name: Alamance County
Years: 1981-2011
Source: Alamance County Inspections Department, HAW RIVER, NC
Phone: (336) 570-4059

Name: Burlington
Years: 1980-2008
Source: Burlington Inspection Division, Burlington, NC
Phone: (336) 222-5090

TARGET PROPERTY FINDINGS

TARGET PROPERTY DETAIL

1031 Frazier Road
Mebane, NC 27302

No Permits Found

ADJOINING PROPERTY FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

No Permits Found

GLOSSARY

General Building Department concepts

- **ICC:** The International Code Council. The governing body for the building/development codes used by all jurisdictions who've adopted the ICC guidelines. MOST of the US has done this. Canada, Mexico, and other countries use ICC codes books and guides as well. There are a few states who have added guidelines to the ICC codes to better fit their needs. For example, California has added seismic retrofit requirements for most commercial structures.
- **Building Department (Permitting Authority, Building Codes, Inspections Department, Building and Inspections):** This is the department in a jurisdiction where an owner or contractor goes to obtain permits and inspections for building, tearing down, remodeling, adding to, re-roofing, moving or otherwise making changes to any structure, Residential or Commercial.
- **Jurisdiction:** This is the geographic area representing the properties over which a Permitting Authority has responsibility.
- **GC:** General Contractor. Usually the primary contractor hired for any Residential or Commercial construction work.
- **Sub:** Subordinate contracting companies or subcontractors. Usually a "trades" contractor working for the GC. These contractors generally have an area of expertise in which they are licensed like Plumbing, Electrical, Heating and Air systems, Gas Systems, Pools etc. (called "trades").
- **Journeymen:** Sub contractors who have their own personal licenses in one or more trades and work for different contracting companies, wherever they are needed or there is work.
- **HVAC (Mechanical, Heating & Air companies):** HVAC = Heating, Ventilation, and Air Conditioning.
- **ELEC (Electrical, TempPole, TPole, TPower, Temporary Power, Panel, AMP Change, Power Release):** Electrical permits can be pulled for many reasons. The most common reason is to increase the AMPs of power in an electrical power panel. This requires a permit in almost every jurisdiction. Other commons reason for Electrical permits is to insert a temporary power pole at a new construction site. Construction requires electricity, and in a new development, power has yet to be run to the lot. The temporary power pole is usually the very first permit pulled for new development. The power is released to the home owner when construction is complete and this sometimes takes the form of a Power Release permit or inspection.
- **"Pull" a permit:** To obtain and pay for a building permit.
- **CBO:** Chief Building Official
- **Planning Department:** The department in the development process where the building /structural plans are reviewed for their completeness and compliance with building codes
- **Zoning Department:** The department in the development process where the site plans are reviewed for their compliance with the regulations associated with the zoning district in which they are situated.
- **Zoning District:** A pre-determined geographic boundary within a jurisdiction where certain types of structures are permitted / prohibited. Examples are Residential structure, Commercial/Retail structures, Industrial/Manufacturing structures etc. Each zoning district has regulations associated with it like the sizes of the lots, the density of the structures on the lots, the number of parking spaces required for certain types of structures on the lots etc.
- **PIN (TMS, GIS ID, Parcel#):** Property Identification Number and Tax Map System number.
- **State Card (Business license):** A license card issued to a contractor to conduct business.
- **Building Inspector (Inspector):** The inspector is a building department employee that inspects building construction for compliance to codes.
- **C.O.:** Certificate of Occupancy. This is the end of the construction process and designates that the owners now have permission to occupy a structure after its building is complete. Sometimes also referred to as a Certificate of Compliance.

GLOSSARY

Permit Content Definitions

- Permit Number: The alphanumerical designation assigned to a permit for tracking within the building department system. Sometimes the permit number gives clues to its role, e.g. a "PL" prefix may designate a plumbing permit.
- Description: A field on the permit form that allows the building department to give a brief description of the work being done. More often than not, this is the most important field for EP's to find clues to the prior use(s) of the property.
- Permit Type: Generally a brief designation of the type of job being done. For example BLDG-RES, BLDG-COM, ELEC, MECH etc.

Sample Building Permit Data

Date: Nov 09, 2000
Permit Type: Bldg -
New Permit Number: 101000000405
Status: Valuation: $1,000,000.00
Contractor Company: OWNER-BUILDER
Contractor Name:

Description: New one store retail (SAV-ON) with drive-thru pharmacy. Certificate of Occupancy.

Frazier Road
1031 Frazier Road
Mebane, NC 27302

Inquiry Number: 4227876.7
March 09, 2015

EDR Environmental Lien and AUL Search

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

The EDR Environmental LienSearch™ Report

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

1031 Frazier Road
Frazier Road
Mebane, NC 27302

RESEARCH SOURCE

Source 1:

Orange County Recorder
Orange, NC

PROPERTY INFORMATION

Deed 1:

Type of Deed:	General Warranty Deed
Title is vested in:	Alana Ennis
Title received from:	Kimberly Ann Vincent et al
Deed Dated	3/31/2014
Deed Recorded:	3/31/2014
Book:	5770
Page:	504
Volume:	NA
Instrument:	20140331000051790
Docket:	NA
Land Record Comments:	see exhibit
Miscellaneous Comments:	NA
Legal Description:	see exhibit
Legal Current Owner:	Alana Ennis
Parcel # / Property Identifier:	9835748573
Comments:	see exhibit

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

Deed Exhibit 1

20140331000051790 1/2

20140331000051790 DEED
Bk:RB5770 Pg:504
03/31/2014 04:23:43 PM 1/2

FILED Deborah B. Brooks
Register of Deeds, Orange Co.NC
Recording Fee: $26.00
NC Real Estate TX: $173.00

DUMMY C= 9835647838
MERGED = 9835748578

PREPARED BY/RETURN TO: John D. Loftin, Attorney at Law, PO Box 733, Hillsborough, NC 27278

NORTH CAROLINA, ORANGE COUNTY GENERAL WARRANTY DEED

THIS DEED, MADE AND ENTERED INTO THIS THE 31 DAY OF MARCH, 2014. BY AND BETWEEN

KIMBERLY ANN VINCENT, unmarried,
KENNETH R. WOODS, SR. and wife,
LEATRICE WOODS

PARTY OF THE FIRST PART AND EXCISE TAX: $173.00

ALANA ENNIS
4209 Pin Oak Drive
Durham, North Carolina 27707

PARTY OF THE SECOND PART, WITNESSETH:

THAT THE SAID PARTY OF THE FIRST PART, IN CONSIDERATION OF THE SUM OF TEN DOLLARS AND OTHER GOOD, VALUABLE AND SUFFICIENT CONSIDERATIONS PAID BY THE SAID PARTY OF THE SECOND PART, THE RECEIPT OF WHICH IS HEREBY ACKNOWLEDGED, HAS BARGAINED AND SOLD AND BY THESE PRESENTS DOES BARGAIN, SELL AND CONVEY UNTO THE SAID PARTY OF THE SECOND PART AND HIS HEIRS AND ASSIGNS ALL THAT CERTAIN TRACT OR PARCEL OF LAND IN CHEEKS TOWNSHIP, ORANGE COUNTY, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

Containing .85 acres and being designated as "Area C," as shown on Plat of Survey titled "Recombination Property Surveyed for Alana Ennis," dated _____, by Alois Callemyn and duly recorded in the Orange County Registry at Plat Book 112, Page 128. The aforesaid .85 acres shall be merged with existing tract; together with a perpetual right of ingress, egress and regress along a 50' private right of way as shown on said plat.

TO HAVE AND TO HOLD THE AFORESAID TRACT OR PARCEL OF LAND AND ALL PRIVILEGES AND APPURTENANCES THEREUNTO BELONGING TO THE SAID PARTY OF THE SECOND PART AND HIS HEIRS AND ASSIGNS IN FEE SIMPLE FOREVER, EXCEPT AS SET FORTH ABOVE.
AND THE SAID PARTY OF THE FIRST PART DOES CONVENANT THAT HE IS SEIZED OF SAID PREMISES IN FEE SIMPLE AND HAS THE RIGHT TO CONVEY THE SAME IN FEE SIMPLE; THAT THE SAME ARE FREE FROM ENCUMBRANCES EXCEPT AS SET FORTH ABOVE; AND THAT HE WILL WARRANT AND DEFEND THE SAID TITLE TO THE SAME AGAINST THE CLAIMS OF ALL PERSONS WHOMSOEVER.
WHEREVER USED HEREIN, THE SINGULAR NUMBER SHALL INCLUDE THE PLURAL, THE PLURAL THE SINGULAR, AND THE USE OF ANY GENDER SHALL BE APPLICABLE TO ALL GENDERS, AS THE CONTEXT MAY INDICATE.

IN TESTIMONY WHEREOF THE SAID PARTY OF THE FIRST PART HAS HEREUNTO SET HIS HAND AND SEAL THE DAY AND YEAR FIRST ABOVE WRITTEN.

20140331000051790
RB5770 505 2/2

_____(SEAL)
KIMBERLY ANN VINCENT

_____(SEAL) _____(SEAL)
KENNETH R. WOODS, SR. LEATRICE WOODS

==========

STATE OF NORTH CAROLINA COUNTY OF ORANGE

I, Barbara A. Merritt, A NOTARY PUBLIC OF SAID COUNTY, DO HEREBY CERTIFY THAT KIMBERLY ANN VINCENT, GRANTOR, PERSONALLY APPEARED BEFORE ME THIS DAY AND ACKNOWLEDGED THE DUE EXECUTION OF THE FOREGOING DEED.

WITNESS MY HAND AND NOTARIAL SEAL, THIS THE 31 DAY OF March, 2014.

MY COMMISSION EXPIRES: 9-1-17

BARBARA A. MERRITT NOTARY PUBLIC ORANGE COUNTY, NC

_____(SEAL)
NOTARY PUBLIC

STATE OF NORTH CAROLINA COUNTY OF ORANGE

I, Barbara A. Merritt, A NOTARY PUBLIC OF SAID COUNTY, DO HEREBY CERTIFY THAT KENNETH R. WOODS, SR. AND LEATRICE WOODS, GRANTORS, PERSONALLY APPEARED BEFORE ME THIS DAY AND ACKNOWLEDGED THE DUE EXECUTION OF THE FOREGOING DEED.

WITNESS MY HAND AND NOTARIAL SEAL, THIS THE 31 DAY OF March, 2014.

MY COMMISSION EXPIRES: 9-1-17

BARBARA A. MERRITT NOTARY PUBLIC ORANGE COUNTY, NC

_____(SEAL)
NOTARY PUBLIC

Frazier Road
1031 Frazier Road
Mebane, NC 27302

Inquiry Number: 4227876.6
March 09, 2015

The EDR Property Tax Map Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Property Tax Map Report

Environmental Data Resources, Inc.'s EDR Property Tax Map Report is designed to assist environmental professionals in evaluating potential environmental conditions on a target property by understanding property boundaries and other characteristics. The report includes a search of available property tax maps, which include information on boundaries for the target property and neighboring properties, addresses, parcel identification numbers, as well as other data typically used in property location and identification.

NO COVERAGE

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Frazier Road
1031 Frazier Road
Mebane, NC 27302

Inquiry Number: 4227876.4
March 09, 2015

EDR Historical Topographic Map Report

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

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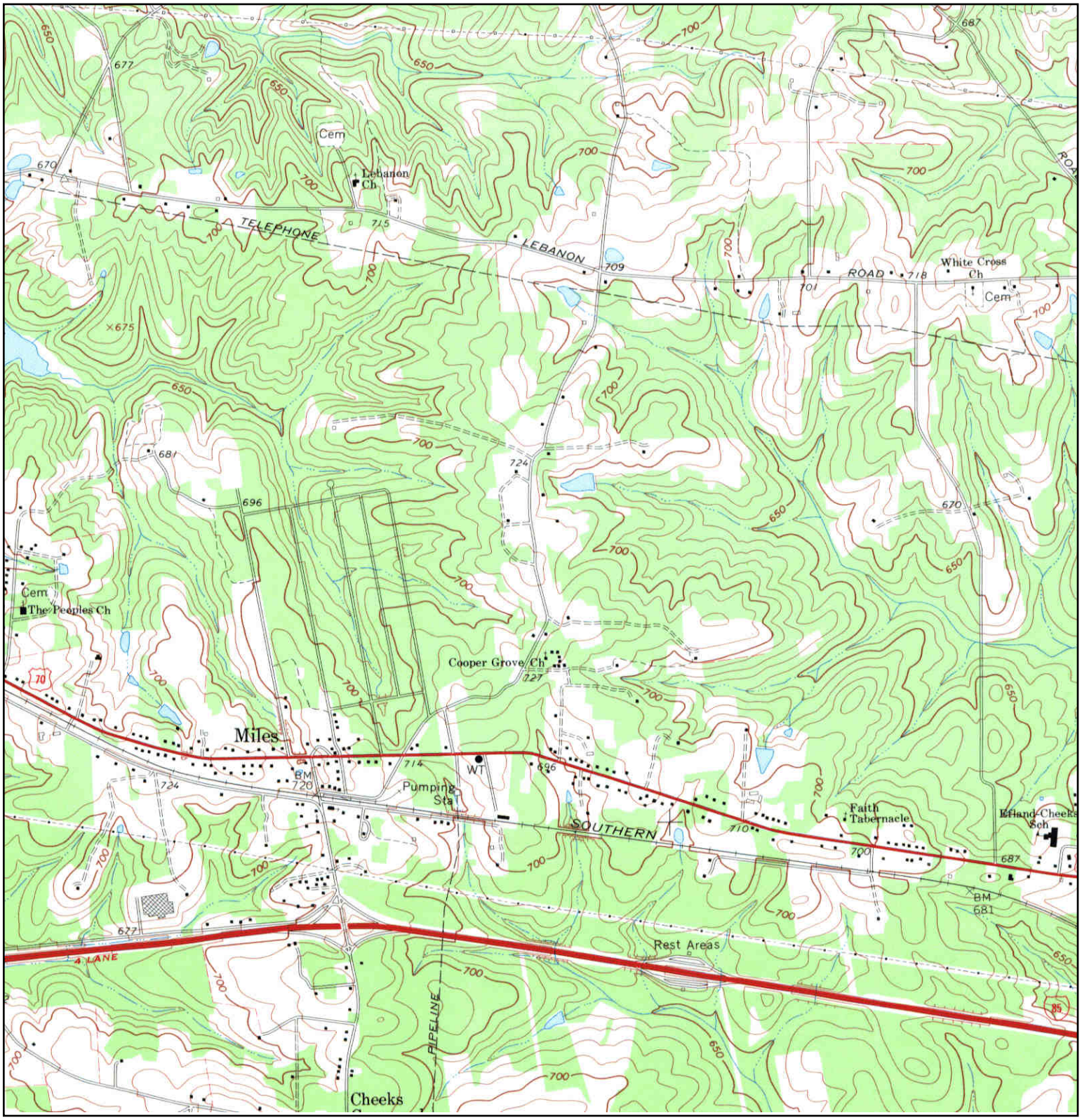
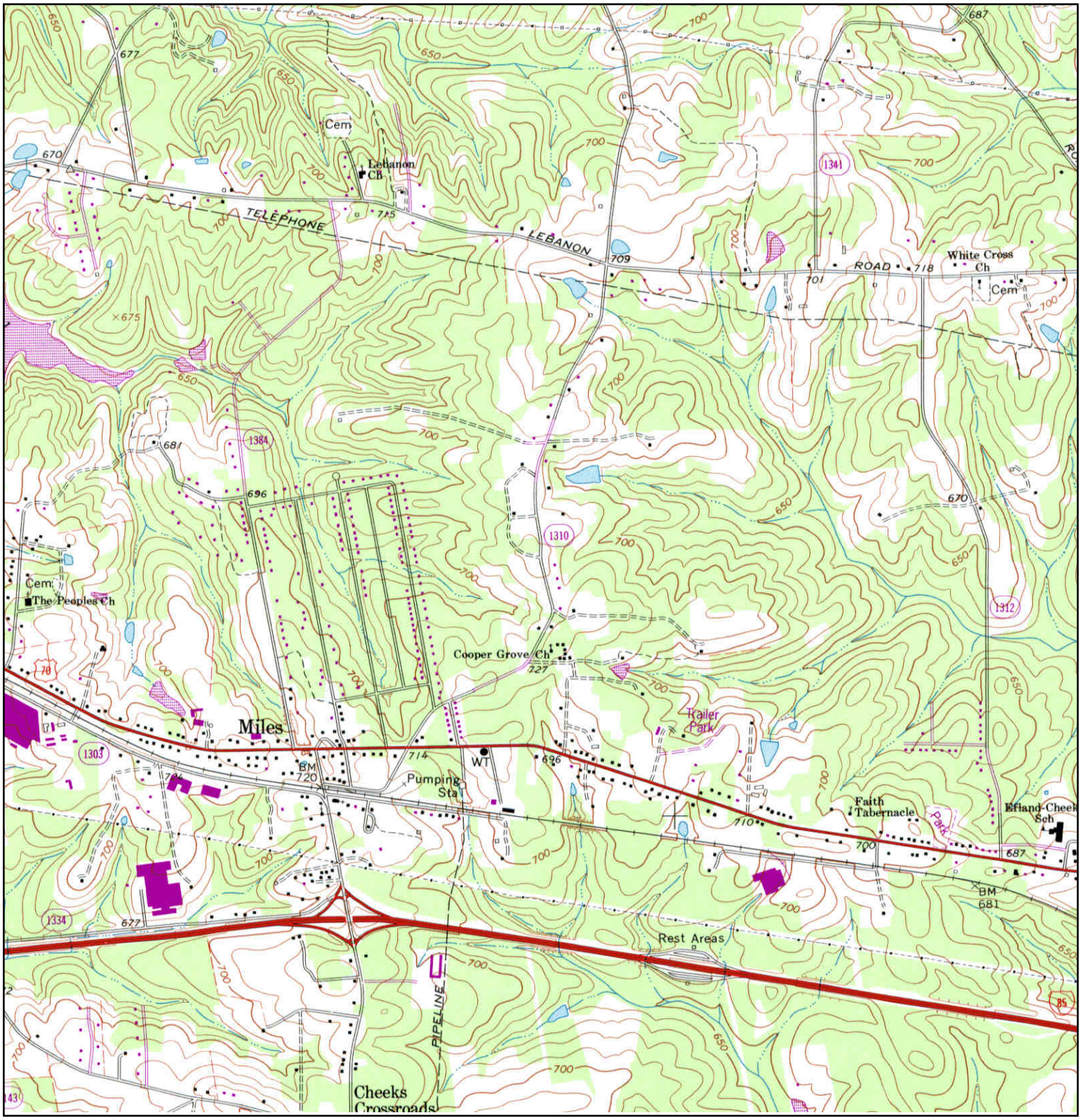
Historical Topographic Map



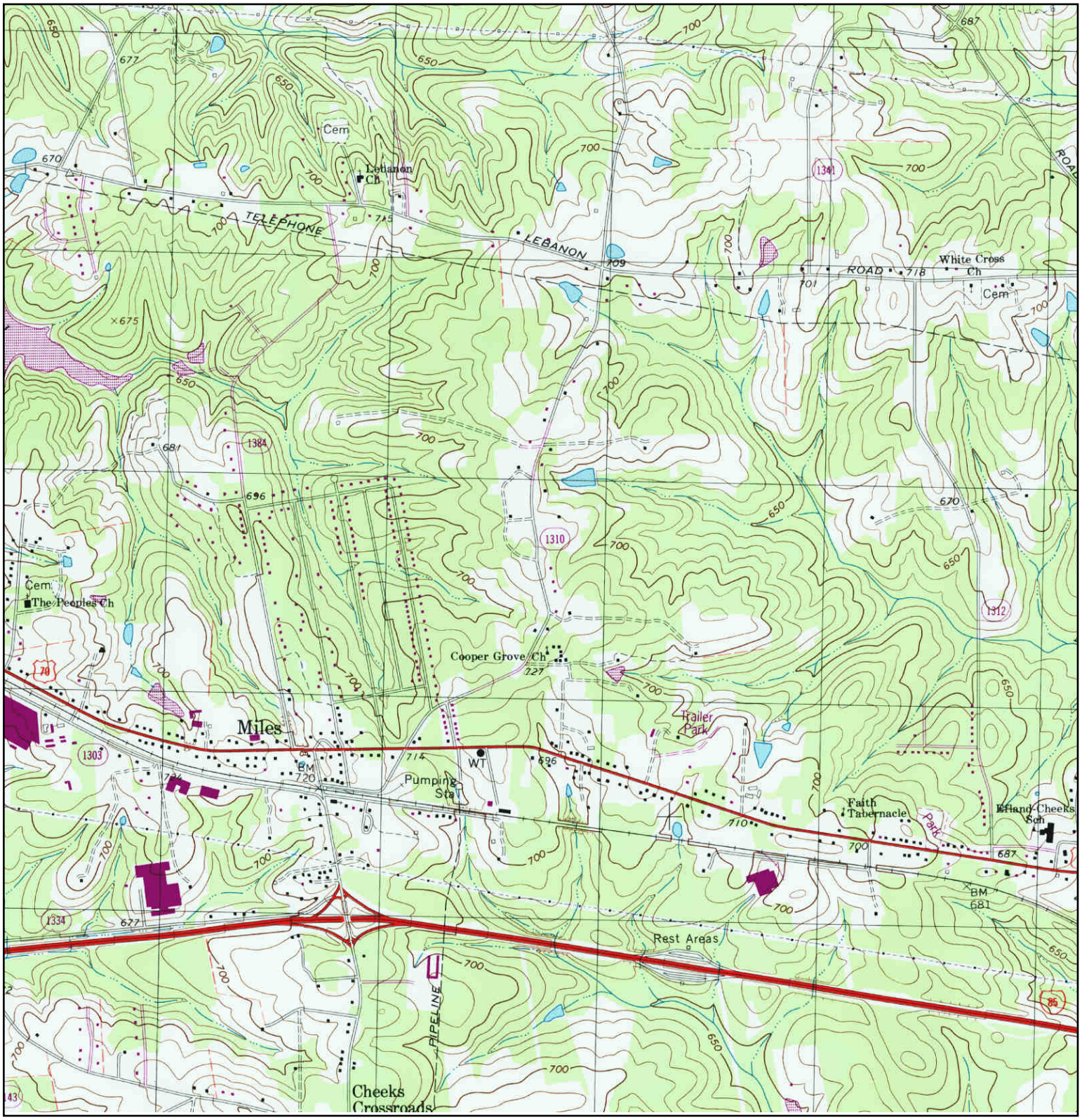
N	TARGET QUAD NAME: EFLAND MAP YEAR: 1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Frazier Road ADDRESS: 1031 Frazier Road Mebane, NC 27302 LAT/LONG: 36.0939 / -79.2148	CLIENT: Tetra Tech NUS, Inc. CONTACT: Ray Orloski INQUIRY#: 4227876.4 RESEARCH DATE: 03/09/2015

Historical Topographic Map



N	TARGET QUAD NAME: EFLAND MAP YEAR: 1994 REVISED FROM :1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Frazier Road ADDRESS: 1031 Frazier Road Mebane, NC 27302 LAT/LONG: 36.0939 / -79.2148	CLIENT: Tetra Tech NUS, Inc. CONTACT: Ray Orloski INQUIRY#: 4227876.4 RESEARCH DATE: 03/09/2015

Historical Topographic Map



N	TARGET QUAD NAME: EFLAND MAP YEAR: 2002 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Frazier Road ADDRESS: 1031 Frazier Road Mebane, NC 27302 LAT/LONG: 36.0939 / -79.2148	CLIENT: Tetra Tech NUS, Inc. CONTACT: Ray Orloski INQUIRY#: 4227876.4 RESEARCH DATE: 03/09/2015

Frazier Road
1031 Frazier Road
Mebane, NC 27302

Inquiry Number: 4227876.12
March 10, 2015

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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Date EDR Searched Historical Sources:

Aerial Photography March 10, 2015

Target Property:

1031 Frazier Road

Mebane, NC 27302

Year	***Scale***	***Details***	***Source***
1955	Aerial Photograph. Scale: 1"=500'	Flight Date: March 29, 1955	USGS
1975	Aerial Photograph. Scale: 1"=500'	Flight Date: November 16, 1975	USGS
1982	Aerial Photograph. Scale: 1"=500'	Flight Date: March 28, 1982	USGS
1993	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: March 01, 1993	USGS/DOQQ
1998	Aerial Photograph. Scale: 1"=750'	Flight Date: April 02, 1998	EDR
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2008	Aerial Photograph. Scale: 1"=500'	Flight Year: 2008	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	USDA/NAIP

INQUIRY #: 4227876.12
YEAR: 1955
= 500'
N
EDR

INQUIRY #: 4227876.12
YEAR: 1975
= 500'
N
EDR

INQUIRY #: 4227876.12
YEAR: 1982
= 500'
N
EDR

INQUIRY #: 4227876.12
YEAR: 1993
= 500'
N
EDR

INQUIRY #: 4227876.12
YEAR: 1998
= 750'
N
EDR

INQUIRY #: 4227876.12
YEAR: 2005
= 500'
N
EDR

INQUIRY #: 4227876.12
YEAR: 2006
= 500'
N
EDR

INQUIRY #: 4227876.12
YEAR: 2008
= 500'
N
EDR

INQUIRY #: 4227876.12
YEAR: 2009
= 500'
N
EDR

INQUIRY #: 4227876.12
YEAR: 2010
= 500'
N
EDR

INQUIRY #: 4227876.12
YEAR: 2012
= 500'
N
EDR

Environmental Assessment

Proposed Hart's Mill Site

1023 Frazier Rd, Orange County, NC

April 2015

PURPOSE

The purpose of this assessment is to evaluate the subject property for the presence of recognized environmental conditions. A residential development is planned for a portion of the site.

SITE DESCRIPTION

Location and Legal Description

The subject property of 112 acres is located in western Orange County approximately two miles northwest of Efland, NC. The primary access is from Frazier Road between Lebanon Road and Hwy 70. The parcel is identified by Property Identification Number (PIN) 9835748573. The most recent survey (2014) by ENT Land Surveys is recorded in Plat Book 114 page 81.

Site and Vicinity Characteristics

Vicinity

The subject property is located in an area of mixed uses including single family residential, farm and forest. The area is experiencing increased residential development and is anticipated to shift from a rural to more urban character over the next 20 years in the Orange County Land Use Plan.

Wetlands

Wetlands are a significant feature on this property. It encompasses land to the west of McGowan Creek including portions of a small unnamed tributary which flows from the pond east into the main channel. The majority of McGowan Creek and the lower portions of the drainage from the pond are inhabited by

American beavers. The construction of beaver dams back up water in these lower areas, raising the water table, and flooding large areas of the creek bottoms. These wetlands are helping to protect water quality in McGowan Creek and beyond, and are providing unique habitats for wetland plant communities as well as waterfowl and other wildlife species.

Plant Communities

The property totals 112 acres, of which approximately 88 acres are forested. The remainder is composed of cultivated fields, hayfields, and a small farm pond. Cropland, pasture, wetlands, riparian areas, and multiple ages of mixed species forest provide a mosaic of habitats on this property. Because of this diversity in both landforms and land-uses, this property has the potential to support a wide range of species and communities.

RECORDS REVIEW

Physical Setting & Soils

The elevation ranges from 636 feet above sea level where McGowan Creek leaves the property at the southeastern corner, up to 730 feet on a broad ridge top on the northwestern corner. Generally the topography is gently rolling and slopes rarely exceed fifteen percent. The exception to this rule is a limited area of land paralleling the main channel of McGowan Creek, where the land drops sharply to the floodplain and slopes up to fifty percent are present. A copy of a topographic map for the site and immediate area pulled from the Orange County Geographic Information System is included as Figure 1.

Based on soil surveys conducted by the Natural Resource Conservation Service, most of the soils on the property consist of well-drained clay and silt loams in the series Georgeville, Cecil, Enon, and Herndon. Many of these soils have been heavily impacted by agricultural use over the last few centuries. The creek bottoms and floodplains are dominated primarily by Chewacla series loam. In general, these soils are somewhat poorly drained, moderately deep, and highly productive. A soils map can be found in the Forest Stewardship Plan in the appendices.

Standard Environmental Records

A review of standard federal and state environmental record sources pertaining subject site and surrounding area was conducted using Environmental Data Resources (EDR) on-line database services on March 9, 2015. The EDR Geocheck Report was generated using the minimum search distances recommended in the ASTM 1527-13 Standard. A summary of the EDR data is provided below:

<u>Site:</u> The Site was not identified in the federal or state databases searched. A list of the databases searched is provided within the attached EDR Report

<u>Federal Databases:</u> The Site was identified not identified in the federal databases reviewed.

<u>State Databases:</u> The Site was not identified in the state databases reviewed.

<u>Abutting Properties:</u> No Abutting Properties to the Site were identified in either the federal or state databases.

Sanborn Fire Insurance Maps: The Site is an unmapped property.

Building Report: There are no building reports on record.

Environmental Liens: There are no environmental liens associated with the property.

Historical Use Information

Limited Chain of Title

Grantor	Grantee	Date	Book	Page
Nathaniel Suitt Catherine M. Suitt	Lee W. Settle Ruby Faye Settle	Apr 23, 1962	192	165
Lee W. Settle Judy H. Settle	Ruby Faye (Settle) Hurt	Feb 27 1985	504	532
Ruby Faye Hurt	Alana M. Ennis	Mar 15, 1991	901	453
Kimberly Ann Vincent Kenneth R. Woods Leatrice Woods	Alana M. Ennis	Mar 31, 2014	RB5770	504

Historical Topographic Maps: Historical Topographic Maps from 1968, 1994, and 2002 were reviewed. Each of the maps indicated that the Site was wooded property with a pond created sometime between 1955 and 1968 along the western boundary of the Site. The surrounding areas are a mixture of undeveloped, wooded land and residential homes.

Historical Aerial Photographs: Historical Aerial Photographs from 1955, 1975, 1982, 1993, 1998, 2005, 2006, 2008, 2009, 2010, and 2012 were reviewed. In 1955 the Site and surrounding area consists of wooded land. By 1975, a pond located near the western boundary of the Site is present. In the period from 1982 through 2012 the Site remains wooded with the pond located along the western boundary of the Site.

Orange County DEAPR Assessment

Orange County Department of Environment, Agriculture, Parks & Recreation conducted a preliminary assessment of the natural and cultural resources on or adjacent to the subject property in the fall of 2014. Excerpts from their letter dated 12/9/2014 and attached to this report include the following statements:

> *Natural Resources: There is no significant natural heritage area (SNHA) known to exist on or adjacent to the subject property, however the perennial stream that flows through the length of*

the tract and McGowan Creek (which forms the eastern boundary) are significant water resources and wildlife corridors that should be protected from any future development activities.

Cultural Resources: There are no previously identified historic properties or resources located on the subject parcel or on adjacent parcels. The current Cemetery Census map does not show any identified burials on this parcel.

FOREST STEWARDSHIP PLAN

A Forest Stewardship Plan was prepared in 2013 by Richard Sanders with support from the USDA Forest Service, the NC Forest Service and the Eno River Association. A copy of the plan is included in the appendices. Forest management objectives for the subject property identified in the plan include:

- Protection and enhancement of soil and water resources
- Generation of income from sound silviculture practices
- Conservation of open space through sale of development rights
- Facilitation of application of permaculture principles and practices
- Maintenance and improvement of wildlife habitat
- Family legacy

The plan also addresses several elements of natural resources including soil and water, biological diversity, aesthetic quality, recreation, timber, fish and wildlife, threatened and endangered species, forest health, archeological, cultural & historic sites, wetlands, fire, carbon cycle, and silvopasture/agroforestry.

SITE RECONNAISSANCE

Past and Current Land Use

According the current land owner, Alana Ennis, the land has previously been used for farming and timber. It has been in her immediate family since 1962, and Ms. Ennis has owned the property since 1991, so she has firsthand knowledge. This statement is supported by historical aerial photographs.

The land is currently being used for farming and timber, as well as recreational activities such as hiking. The developer of the proposed community, Hart's Mill, LLC, holds a lease on the property as well as an option to purchase. Members of the group have spent considerable time on the site for maintenance, social activities, gardening and clearing trails. These activities have provided ample opportunities for observation of soils, flora, fauna and artifacts.

Woodland

Much of the property was heavily cutover in the late 1990's. Following this timber harvest, a site prep burn was conducted to remove logging slash and facilitate artificial regeneration of loblolly pines, which were planted around 1999. Overall, the pines have performed well, reaching heights of about 40 feet

and diameters averaging 7 inches. Some older trees on the property include those left around the old home site, a narrow and patchy buffer along the riparian areas, and residual timber where quality was somewhat poorer. A few small areas of older pines remain along the northern boundary of the property.

Some mixed hardwoods are present in the canopy including white oak, willow oak, black oak, southern red oak, sweet gum, winged elm and red maple. Red mulberry, American holly, American beech, and Florida dogwood are present in the midstory. Along the edges with the field, many invasive plants are present, including, tree-of-heaven, common privet, Japanese stiltgrass, multiflora rose, and Japanese honeysuckle.

Structures

The only structure currently located on the property is an unoccupied 845 SF house at the Frazier Road entrance. Based on examination of historical aerial photos and conversations with neighbors, the house was probably built in the early 1960s. The building is in very poor structural condition and has no historical or cultural significance. The property owner is planning to demolish the building within the next 90 days. The septic system that served the house has been closed in accordance with Orange County standards and inspected by the OC Health Department. Two adjacent wells have been temporarily capped and are slated to be permanently closed by the property owner in accordance with Orange County standards for well abandonment.

Historical aerial photographs show a house and several farm buildings located at the high point of the property in 1955 and through the mid-1990s. It appears that the buildings were demolished in the late 1990s or early 2000s. A few small chunks of concrete are the only remaining evidence on the site.

Storage Tanks

No underground or above-ground storage tanks are in evidence, or were reported historically, on the subject property.

Utilities

There is a power pole with an active meter located at the north property line near the secondary access from Faye Street. In addition, there is an LED street light at the drive gate near the Frazier Road entrance.

Threatened and Endangered Species

A comprehensive assessment of threatened and endangered species populations has not been conducted. However, during a number of formal and informal evaluations of the property by foresters and biologists, no known endangered or threatened species have been found. Hart’s Mill is exploring a partnership with Elon University to place motion-activated cameras at various locations on the site for ongoing monitoring of wildlife.

CONCLUSION

In summary, the subject property has been historically used for low intensity farming and timber operations. It has been owned by the same family for over 50 years. Searches of federal, state and local databases have not revealed any recognized environmental conditions on the site or in the immediate vicinity. Accounts from the owner and long-time neighbors, as well as historical topographic maps and aerial photos support the assumption that there have not been any uses of the land that would create lasting environmental concerns.

While degraded by years of agricultural and timber operations, the soils, topography, hydrology and plant communities on the property offer tremendous potential for restoring and maintaining a diverse, healthy ecosystem for food & timber production, wildlife habitat and recreation.

APPENDICES

Site Photographs

Topographic Map

Aerial Photo

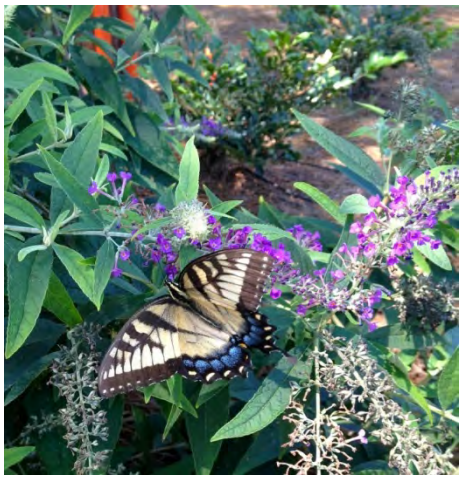
EDR Report

DEAPR Letter

Chain of Title Documents

Forest Stewardship Plan

Site Photographs



Orange County, NC GIS

Topographic Map - Ennis Property

Orange County, NC GIS

Aerial Photo - Ennis Property

1 inch = 1000 feet
Orange County, North Carolina.

ORANGE COUNTY

Department *of* Environment, Agriculture, Parks & Recreation

MEMORANDUM

To: Katy Ansardi, *Managing Member, Hart's Mill, LLC*

From: Rich Shaw, *DEAPR Land Conservation Manager*
Peter Sandbeck, *DEAPR Cultural Resources Coordinator*

Date: December 9, 2014

Re: Preliminary Assessment of the Hart's Mill Property

DEAPR staff has completed a preliminary assessment of the natural and cultural resources known to exist on or adjacent to your Hart's Mill property (PIN 9835748573).

Natural Resources: There is no significant natural heritage area (SNHA) known to exist on or adjacent to the subject property, however the perennial stream that flows through the length of the tract and McGowan Creek (which forms the eastern boundary) are significant water resources and wildlife corridors that should be protected from any future development activities. Both the stream and McGowan Creek appear to have intact forested buffers that are important to maintain (and possibly enhance) to protect water quality and stream habitats. Both streams are sources of public drinking water for the Orange-Alamance Water System, which operates from Corporation Lake located downstream of the subject property. McGowan Creek is a significant wildlife corridor that links other protected open space properties. There appears to be a healthy population of beaver that utilize the corridor and provide additional habitat due to the flooding conditions that they create.

Your intention to leave more than 80% of the property will be left in agriculture, woodlands and protected streams will contribute to the current forested and open space character of the neighborhood east of Frazier Road, which also provides habitat to plants and wildlife that utilize the McGowan Creek corridor.

Cultural Resources: There are no previously identified historic properties or resources located on the subject parcel or on adjacent parcels. Since the Forest Management Plan makes reference to an old home site on the high ground near the center of the parcel, we would like to know about any possible physical remains of that home site, and seek permission from the owners to document or photograph any remaining structures or objects.

Also, care should be taken to locate, identify and protect any potential human burial sites or cemeteries. The current Cemetery Census map does not show any identified burials on this parcel.

If you have questions please contact Rich at 919-245-2514 or Peter at 919-245-2517.

(4/3/62)

Deed Book 192 p. 165

This Deed, made this 23rd day of April, 1962 by Nathaniel Suitt and wife, Catherine M. Suitt, of Orange County, North Carolina and husband Lee W. Settle

hereinafter called Grantor, to Ruby Faye Settle/ of Alamance County, North Carolina,

hereinafter called Grantee.

The designations Grantor and Grantee as used herein shall include singular, plural, masculine, feminine, or neuter as required by the context.

WITNESSETH: That the Grantor, in consideration of $10.00 and other valuable consideration to him paid by the Grantee, the receipt of which is acknowledged, has bargained and sold, and by these presents does bargin, selland convey to the Grantee, his heirs, successors, and assigns, all of the following described real property:

A certain tract or parcel of land lying and being in Cheeks Township, Orange County, North Carolina, more particularly described as follows:

Adjoining the lands of O. Woods, Carl White Estate, and McGowan Street and more particularly described as follows: BEGINNING at an iron stake on the North side of the farm road, in O. Woods South property line and designated as the Control corner of the plat hereinafter referred to; running thence S. 1° 0' W. 798 feet to an iron stake; thence with the North property line of the Carl White Estate's line, S. 83° 0' E. 2,930 feet to a rock pile and corner; thence with White's line, S. 3° 15' W. 1,365 ft. to rock and pointers; thence S. 85° 45' E. 1,110 ft. to an iron and rock pile corner; thence N. 3° 0' E. 551 ft. to an iron stake; thence continuing N. 3° 0' E. 64 ft. to the center of McGowan Street; thence with the meanderings of McGowan Street, in a Northwesterly direction to pointers in A. T. Wright's South property line; thence with the South property line of A. T. Wirght, Miller and O. Woods, S. 89° 30' W. 3,017 feet to the BEGINNING and Containing 111.5 acres, more or less, according to the survey and plat of F. M. Carlisle, made April 3, 1951, entitled "Property of Nathaniel Suitt and wife," recorded in Plat Book 4, at page 165, Orange County Registry.

This conveyance is made subject to a deed of trust from Nathaniel Suitt and wife, Catherine M. Suitt, to _____, Trustee, securing a nde to _____ in the sum of $_____ and _____ recorded in Book 112, page 347, which party of second part agrees to pay.

The above property was conveyed to the Grantor by See Book No. page

TO HAVE AND TO HOLD said real property, with all privileges, and appurtenances thereunto belonging, to the said Grantee, his heirs, successors, and assigns forever.

The Grantor covenants that he is seized of said real property in fee, and has the right to convey the same in fee simple; that the same is free from all encumbrances (with any exceptions above stated); and that he will warrant and defend the title to same against the claims of all persons whomsoever.

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

Nathaniel Suitt (SEAL)

Catherine M. Suitt (SEAL)

Witness his mark:
Robert J. Phelps

STATE OF NORTH CAROLINA, COUNTY OF ALAMANCE

I, Robert J. Phelps, a Notary Public of said County, do hereby certify that Nathaniel Suitt and wife, Catherine M. Suitt

personally appeared before me this day and acknowledged the due execution of the foregoing deed. Witness my hand and official seal, this 23rd day of April, 1962.

Robert J. Phelps Notary Public

My Commission Expires: 1/10/63

STATE OF NORTH CAROLINA, COUNTY OF Orange

The foregoing certificate(s) of Robert J. Phelps a Notary (or Notaries) Public of the governmental units designated is (are) adjudged to be correct. Let said deed and this certificate be registered.

This the 14 day of March, 1963.

Jane M. Miller Deputy Clerk of Superior Court

Filed for registration on the 14th day of March, 1963, at 3:30 o'clock P. M. and duly recorded in the Office of the Register of Deeds of Orange County, North Carolina, in Book of Deeds

2/27/85

BOOK 504 PAGE 532

FILED
BOOK/FILE 504 PAGE # 532

MAR 1 2 08 PM '85

BETTY JANE MATHEWS
REGISTER OF DEEDS
ORANGE COUNTY, N.C.

R/S Paid None

Excise Tax

Recording Time, Book and Page

Tax Lot No. 1 3 12 11 Parcel Identifier No. 9835-94-5500

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

by .....

Mail after recording to Ruby Faye Hurt, c/o Clyde T. Rollins, Suite 407, Gate City Building 201 W. Market St., Greensboro, N.C. 27401

This instrument was prepared by Clyde T. Rollins, Attorney at Law, Greensboro, NC

Brief description for the Index 111.5 Ac tract

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of February, 19 8 5, by and between

GRANTOR	GRANTEE
Lee W. Settle and wife, Judy H. Settle	Ruby Faye Hurt (formerly Ruby Faye Settle)

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

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

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

Adjoining the lands of O. Woods, Carl White Estate, and McGowan Street and more particularly described as follows: BEGINNING at an iron stake on the North side of the farm road, in O. Woods South property line and designated as the Control corner of the plat hereinafter referred to; running thence S. 1° 0' W. 798 feet to an iron stake; thence with the North property line of the Carl White Estate's line, S. 83° 0' E. 2,930 feet to a rock pile and corner; thence with White's line, S. 3° 15' W. 1,365 ft. to rock and pointers, thence S. 85° 45' E. 1,110 ft. to an iron and rock pile corner; thence N. 3° 0' E. 551 ft. to an iron stake; thence continuing N. 3° 0' E. 64 ft. to the center of McGowan Street; thence with the meanderings of McGowan Street, in a Northwesterly direction to pointers in A.T. Wright's South property line; thence with the South property line of A.T. Wright, Miller and O. Woods, S. 89° 30' W. 3,017 feet to the BEGINNING and containing 111.5 acres, more or less, according to the survey and plat of F.M. Carlisle, made April 3, 1951, entitled "Property of Nathaniel Suitt and wife," recorded in Plat Book 4, at page 165, Orange County Registry.

RECEIVED
MAR - 1

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

BOOK 504 PAGE 533

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 192 at Page 114

A map showing the above described property is recorded in Plat Book 4 page 165

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

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

Easements, restrictions and rights-of-way of record and 1984 ad valorem taxes.

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

USE BLACK INK ONLY

(Corporate Name)

By: _____

_____ President

ATTEST:

_____ Secretary (Corporate Seal)

Lee W. Settle (SEAL)
LEE W. SETTLE

Judy H. Settle (SEAL)
JUDY H. SETTLE

_____ (SEAL)

_____ (SEAL)

SEAL-STAMP

NORTH CAROLINA, Orange County.

Use Black Ink

I, a Notary Public of the County and State aforesaid, certify that LEE W. SETTLE AND WIFE, JUDY H. SETTLE Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 27 day of February, 19 85.

My commission expires: May 30, 1988. Diane R. Throneburg Notary Public

SEAL-STAMP

NORTH CAROLINA, _____ County.

Use Black Ink

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

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

My commission expires: _____ Notary Public

The foregoing Certificate(s) of Diane R. Throneburg, Notary Public of Orange County, N. C.

is/~~are~~ certified to be correct. This instrument and this certificate are duly registered at the date and time and in the Book and Page shown on the first page hereof.

This the 1st day of Mar., 1985. Betty June Hayes, REGISTER OF DEEDS FOR Orange COUNTY

By Geraldine H. Weathers ~~Deputy~~/Assistant - Register of Deeds

POOLE PRINTING CO., INC. P.O. BOX 17378 RALEIGH, N.C. 27619

N.C. Bar Assoc. Form No. 3 © 1976, Revised 1977.

Printed by Agreement with the N.C. Bar Assoc.-1981.

3/15/91

STATE OF NORTH CAROLINA

Real Estate Excise Tax

MAR 18 '91

P.O. 11224

200.00

LEE W. SETTLE, P.A.
Attorneys at Law
105 South Fourth Street
Mebane, N. C. 27302

BOOK 901 PAGE 453

FILED
BOOK 901 PAGE 453

MAR 18 12 42 PM '91

BETTY PINE HARRIS
REGISTER OF DEEDS
ORANGE COUNTY, N.C.

200.00

Excise Tax

Recording Time, Book and Page

Tax Lot No. 3.12..11 Parcel Identifier No. 9835-94-5500

Verified by County on the day of , 19

by

Mail after recording to Grantee: Alana M. Ennis 7305 Big Horn Drive Hillsborough, NC 27278

This instrument was prepared by Lee W. Settle, P.A.

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 15th day of March, 19 91, by and between

GRANTOR	GRANTEE
RUBY FAYE HURT (SINGLE)	ALANA M. ENNIS 7305 Big HORN DRIVE Hillsborough, NC 27278

19910318000027940 DEED
Bk: RB901 Pg: 453
3/18/1991 1/2

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

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

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

A certain tract or parcel of land lying and being in Cheeks Township, Orange County, North Carolina and:

Containing 111.5 acres, more or less, according to the survey and plat of F.M. Carlisle, made April 3, 1951, entitled "Property of Nathaniel Suitt and wife", recorded in Plat Book 4, at Page 165, Orange County Registry, the same being incorporated herein by reference.

There is included in this conveyance a right of way granting right of ingress, egress and regress, over and upon the property hereinafter described to-wit:

Twenty-five (25) feet on either side of the following described line, to-wit:

BEGINNING at an iron stake in the center line of NCSR 1306 (Lebanon Road), said stake being located S. 82 deg. 12' 17" E. 250 ft. from an iron stake which is located at the northeast corner of Wedgewood Subdivision; said Beginning point also located N. 82 deg. 12' 17" W. 458.75 ft. from the northwest corner of Weldon Wright property, (Lot No. 2), as shown in Plat Book 7, at Page 52, Orange County Registry; running thence S. 01 deg. 23' 14" E. approximately 2500 ft. to the western line of the Nathaniel Suitt property as shown in Plat Book 4, at Page 165, Orange County Registry.

BOOK 901 PAGE 454

901 454 2/2

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

.....

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

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

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

Subject to all restrictions, easements and rights of way of record, if any.

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

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Ruby Faye Hurt (SEAL)

Ruby Faye Hurt (Single)

..... (SEAL)

..... (SEAL)

..... (SEAL)

SEAL-STAMP

Use Black Ink

NORTH CAROLINA, COUNTY OF Alamance

I, Kris L. Hubbard, a notary public of said county do hereby certify that Ruby Faye Hurt (Single) ..... Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 15th day of March, 19 91

My commission expires: 08-27-94 Kris L. Hubbard Notary Public

SEAL-STAMP

Use Black Ink

NORTH CAROLINA, COUNTY OF .....

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

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

My commission expires: ..... Notary Public

The foregoing Certificate(X) of Kris L. Hubbard, a Notary Public of Alamance County, N. C.

is XX certified to be correct. This instrument and this certificate are duly registered at the date and time and in the Book and Page shown on the first page hereof.

This the 18th day of March, 1991.

Betty June Hayes, REGISTER OF DEEDS FOR Orange COUNTY

By Deborah B. Brown Deputy/~~Assistant~~ Register of Deeds

20140331000051790 1/2

20140331000051790 DEED
Bk:RB5770 Pg:504
03/31/2014 04:23:43 PM 1/2

FILED Deborah B. Brooks
Register of Deeds, Orange Co.NC
Recording Fee: $26.00
NC Real Estate TX: $173.00

DUMMY C= 9835647838
MERGED = 9835748578

PREPARED BY/RETURN TO: John D. Loftin, Attorney at Law, PO Box 733, Hillsborough, NC 27278

NORTH CAROLINA, ORANGE COUNTY GENERAL WARRANTY DEED

THIS DEED, MADE AND ENTERED INTO THIS THE 31 DAY OF MARCH, 2014. BY AND BETWEEN

KIMBERLY ANN VINCENT, unmarried,
KENNETH R. WOODS, SR. and wife,
LEATRICE WOODS

PARTY OF THE FIRST PART AND EXCISE TAX: $173.00

ALANA ENNIS
4209 Pin Oak Drive
Durham, North Carolina 27707

PARTY OF THE SECOND PART, WITNESSETH:

THAT THE SAID PARTY OF THE FIRST PART, IN CONSIDERATION OF THE SUM OF TEN DOLLARS AND OTHER GOOD, VALUABLE AND SUFFICIENT CONSIDERATIONS PAID BY THE SAID PARTY OF THE SECOND PART, THE RECEIPT OF WHICH IS HEREBY ACKNOWLEDGED, HAS BARGAINED AND SOLD AND BY THESE PRESENTS DOES BARGAIN, SELL AND CONVEY UNTO THE SAID PARTY OF THE SECOND PART AND HIS HEIRS AND ASSIGNS ALL THAT CERTAIN TRACT OR PARCEL OF LAND IN CHEEKS TOWNSHIP, ORANGE COUNTY, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

Containing .85 acres and being designated as "Area C," as shown on Plat of Survey titled "Recombination Property Surveyed for Alana Ennis," dated _____, by Alois Callemyn and duly recorded in the Orange County Registry at Plat Book 112, Page 128. The aforesaid .85 acres shall be merged with existing tract; together with a perpetual right of ingress, egress and regress along a 50' private right of way as shown on said plat.

TO HAVE AND TO HOLD THE AFORESAID TRACT OR PARCEL OF LAND AND ALL PRIVILEGES AND APPURTENANCES THEREUNTO BELONGING TO THE SAID PARTY OF THE SECOND PART AND HIS HEIRS AND ASSIGNS IN FEE SIMPLE FOREVER, EXCEPT AS SET FORTH ABOVE.
AND THE SAID PARTY OF THE FIRST PART DOES CONVENANT THAT HE IS SEIZED OF SAID PREMISES IN FEE SIMPLE AND HAS THE RIGHT TO CONVEY THE SAME IN FEE SIMPLE; THAT THE SAME ARE FREE FROM ENCUMBRANCES EXCEPT AS SET FORTH ABOVE; AND THAT HE WILL WARRANT AND DEFEND THE SAID TITLE TO THE SAME AGAINST THE CLAIMS OF ALL PERSONS WHOMSOEVER.
WHEREVER USED HEREIN, THE SINGULAR NUMBER SHALL INCLUDE THE PLURAL, THE PLURAL THE SINGULAR, AND THE USE OF ANY GENDER SHALL BE APPLICABLE TO ALL GENDERS, AS THE CONTEXT MAY INDICATE.

IN TESTIMONY WHEREOF THE SAID PARTY OF THE FIRST PART HAS HEREUNTO SET HIS HAND AND SEAL THE DAY AND YEAR FIRST ABOVE WRITTEN.

20140331000051790
RB5770 505 2/2

_____(SEAL)
KIMBERLY ANN VINCENT

_____(SEAL) _____(SEAL)
KENNETH R. WOODS, SR. LEATRICE WOODS

==========

STATE OF NORTH CAROLINA COUNTY OF ORANGE

I, Barbara A. Merritt, A NOTARY PUBLIC OF SAID COUNTY, DO HEREBY CERTIFY THAT KIMBERLY ANN VINCENT, GRANTOR, PERSONALLY APPEARED BEFORE ME THIS DAY AND ACKNOWLEDGED THE DUE EXECUTION OF THE FOREGOING DEED.

WITNESS MY HAND AND NOTARIAL SEAL, THIS THE 31 DAY OF March, 2014.

MY COMMISSION EXPIRES: 9-1-17

BARBARA A. MERRITT NOTARY PUBLIC ORANGE COUNTY, NC

_____(SEAL)
NOTARY PUBLIC

STATE OF NORTH CAROLINA COUNTY OF ORANGE

I, Barbara A. Merritt, A NOTARY PUBLIC OF SAID COUNTY, DO HEREBY CERTIFY THAT KENNETH R. WOODS, SR. AND LEATRICE WOODS, GRANTORS, PERSONALLY APPEARED BEFORE ME THIS DAY AND ACKNOWLEDGED THE DUE EXECUTION OF THE FOREGOING DEED.

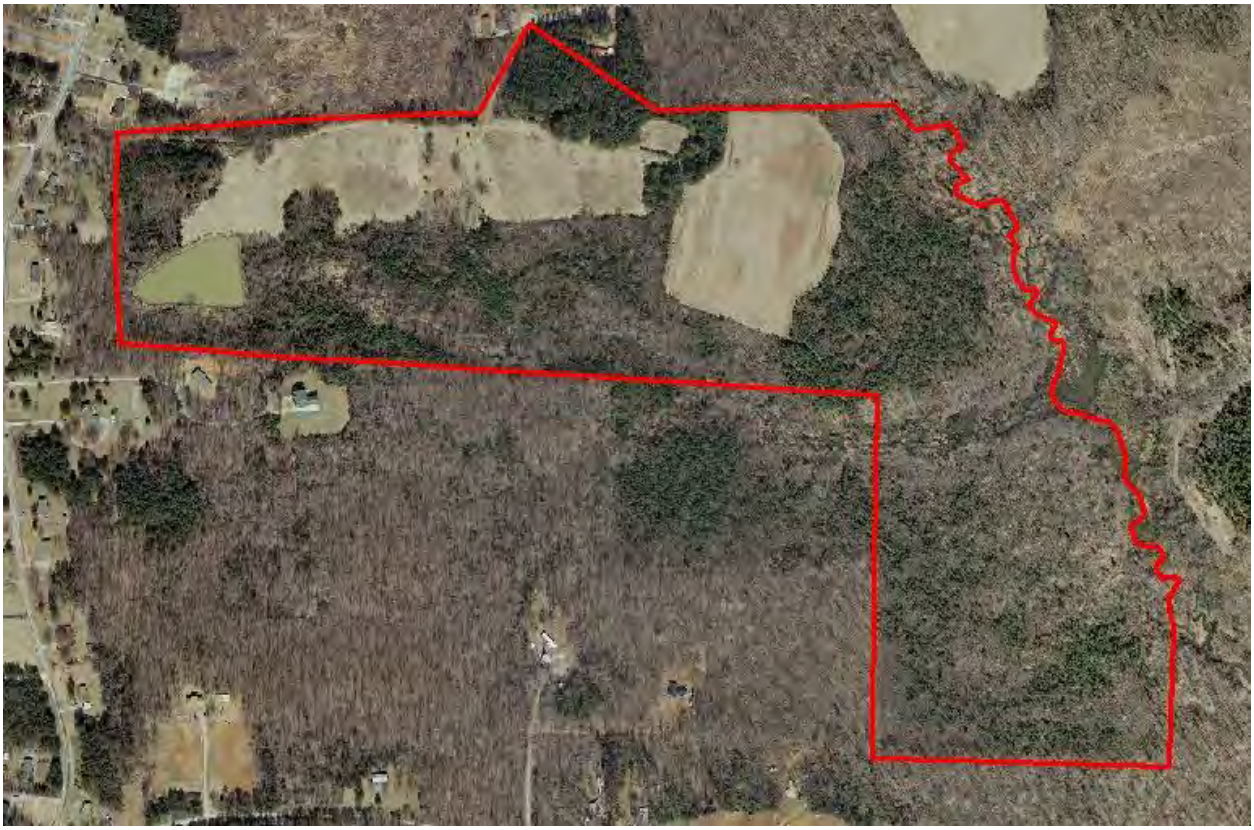
WITNESS MY HAND AND NOTARIAL SEAL, THIS THE 31 DAY OF March, 2014.

MY COMMISSION EXPIRES: 9-1-17

BARBARA A. MERRITT NOTARY PUBLIC ORANGE COUNTY, NC

_____(SEAL)
NOTARY PUBLIC

A Forest Stewardship Plan for the Property of Alana Ennis



Prepared by Richard Sanders, NCRF #1564

January, 2013

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Introduction

The Forest Stewardship Program is a cooperative project between the USDA Forest Service and, for this property, the North Carolina Forest Service. The purpose of the program is to "enable active, long-term management of non-industrial private forestlands." The North Carolina Forest Service facilitates development of comprehensive multi-resource management plans to assist landowners in managing their property for multiple objectives. Forest Stewardship Plans motivate landowners to become more active in planning and managing their forests, greatly increasing the likelihood that their forests will remain intact, productive and healthy, and that the social, economic, and environmental benefits of these lands will be sustained for future generations.

This Forest Stewardship Plan was prepared, with funding through The Eno River Association, for the property of Alana Ennis. The purpose of the plan is to provide an evaluation of the current condition of the property and recommendations for management action to best achieve the landowner's objectives.

General Location and Property Description

The subject property is located in western Orange County approximately two miles northwest of Efland, NC. The property consists of two parcels located to the east of Frazier Rd. with limited access off the end of Faye St., a private road. The property totals 114.175 acres, of which 92.3 are forested. The remainder is composed of cultivated fields, hayfields, and a small farm pond.

The property encompasses land to the west of McGowan Creek including portions of a small unnamed tributary which flows east into the main channel. McGowan Creek is a tributary of the Eno River which joins the Little River, feeds Falls Lake, then forms the Neuse River.

The elevation ranges from 636 feet above sea level where McGowan Creek leaves the property at the southeastern corner, up to 730 feet on a broad ridgetop on the northwestern corner. Generally the topography is gently rolling and slopes rarely exceed fifteen percent. The exception to this rule is a limited area of land paralleling the main channel of McGowan Creek, where the land drops sharply to the floodplain and slopes up to fifty percent are present.

Landowner Objectives

Forest management objectives are the overarching goals that the landowner wishes to work towards. Setting realistic and well-defined objectives is the first step in determining the direction that management will take. Ms. Ennis' objectives include:

1) **Protection and enhancement of soil and water resources:** Growing trees almost always improves soil tilth, stability, water holding capacity, and fertility. Threats to soil and water quality most often occur during or after poorly executed forest management practices as erosion from forest roads, chemical run-off, compaction from logging equipment, or damage to stream banks. Protecting soil and water through the implementation of Best Management Practices (BMPs) and thoughtful harvest planning can reduce negative impacts on and off the property and is an important consideration with any management activity.
2) **Generation of income from sound silvicultural practices:** Long-term forest management for income not only includes the planning of timber harvests, but also the implementation of strategies for promoting the most profitable species for each site and controlling competing species that may reduce stem quality and growth rates in crop trees. Frequently seen only as a source of income, well planned harvesting operations often present the best opportunities to achieve other forest management objectives as well.
3) **Conservation of open space through the sale of development rights:** Conservation of working lands is important for the long-term prosperity of our region. As more and more productive farm and forestland is converted to residential or commercial uses, the remaining lands become more critical both for the environmental services they provide and their contribution to the rural economies that the region depends on. For the private landowner, conservation frequently means making a personal commitment to maintain their property in an agricultural or forested state. This commitment can often be leveraged to generate cost-share assistance from government agencies, income from NGO's for the purchase of development rights, or to take advantage of tax incentives.
4) **Facilitate the use of permaculture concepts:** Permaculture is a system of ecological design that builds on the relationships between living things to create low maintenance horticulture systems modeled on natural ecosystems. In essence, permaculture is applied ecology with a focus on achieving productive and stable systems to sustain human life. Many permaculture writings focus more heavily on food production than on timber production, but the principles are transferrable. Experimentation with production models is completely compatible with the other management objectives and almost unlimited opportunities are present on this property for agroforestry, forest gardening, and production of non-timber forest products.
5) **Maintenance and improvement of wildlife habitat:** Healthy, well managed forests provide habitat for a wide variety of game and non-game wildlife species. In central North Carolina, common species include white-tailed deer, wild turkey, woodcock, bobcat, beaver, as well as many species of woodpeckers, waterfowl, raptors, songbirds, small mammals, reptiles, amphibians, insects and other invertebrates. Typically,

manipulation of the plant communities to provide a high diversity of habitats is a good strategy for accomplishing this objective. If a particular species is of concern, forest management can be tailored to provide the necessary elements for that species.

6) **Family legacy:** Including family legacy as a management objective exemplifies American tradition and sustainable forestry. Throughout history, property owners have gained immeasurable satisfaction from living, working, and playing on their own land. Ensuring that this satisfaction is transferrable to the next generation requires that current management decisions do not forfeit future potential for short term gains. Just as important as managing for long-term productivity is cultivating in future landowners a connection to, and a sense of responsibility for the property.

Forest Stewardship Resource Elements

The following thirteen (13) natural resource elements are addressed in all Forest Stewardship Management Plans when they are present and/or applicable to the landowner and the management of their property:

This portion of the document provides information on the 13 required Forest Stewardship Program natural resource elements. This plan may not address one or more of these resource elements if they were not observed on the property or were not identified as one of the land owner's management objectives. For more information, contact the author of this plan or local NC Forest Service (NCFS) office. Additional information and brochures may be available through NCFS offices or at: http://www.ncforestservice.gov/publications.htm

Soil and Water

Soil fertility is of major importance when it comes to forest management. Just as fertile soil is needed to produce high quality agricultural crops, specific soil conditions are required to grow good quality timber stands. Soil requirements vary by tree species and in the forestry field, soil productivity is expressed as "Site Index." Site index (SI) is the measure of height growth in a tree species over a 25 or 50-year period. Soil type and conditions will influence management strategies and production potential. It is important to understand the nature of a tract's soils, as their characteristics may require different types of management. Information on local soils and accompanying data can be found on the Natural Resources Conservation Service (NRCS) website: http://soils.usda.gov/

All forestry activities must protect water quality and comply with, among others, the North Carolina Forest Practices Guidelines Related to Water Quality (FPGs). Refer to the following website on FPGs: http://ncforestservice.gov/publications/Forestry%20Leaflets/WQ01.pdf . NCFS personnel can perform FPG site inspections upon request.

Additionally, the state and some local governments have also established rules to protect vegetated riparian buffers found along streams, rivers, and reservoirs in various parts of North

Carolina. Refer to the following website to view these buffer rules:
http://ncforestservice.gov/water_quality/buffer_rules.htm

This plan will address the water bodies that should be protected during forest management activities. This may include the establishment of streamside management zones (SMZs), which are meant to prevent sedimentation and maintain healthy water temperatures. Proper pre-harvest planning prior to cutting timber can help ensure protection of both soil and water resources. Information on forestry activities and water quality issues can be found on the NCFS website:
http://ncforestservice.gov/water_quality/water_quality.htm

Soil and Water on This Property: The majority of the soils on the property consist of well-drained clay and silt loams in the series Georgeville, Cecil, Enon, and Herndon. Many of these soils have been heavily impacted by agricultural use over the last few centuries. Most of the upland areas are best suited to production of a mixture of pine and upland hardwood tree species.

The creek bottoms and floodplains are dominated primarily by Chewacla series loam. In general, these soils are somewhat poorly drained, moderately deep, and highly productive. Wetness and occasional flooding limited agricultural use of these areas in the past, but evidence of timber harvesting during wet conditions is evident in some areas where rutting has occurred. The Chewacla soils are best suited to production of hardwood tree species including tulip poplar, bottomland oaks, sycamore, elm and black walnut.

The major hydrologic features on the property include: McGowan Creek, a small unnamed tributary of McGowan Creek, and a small farm pond located at the head of the tributary. The waterways have been dammed extensively by beavers which have several lodges on the property. The majority of McGowan Creek is impounded into several ponds and the lower portion of the tributary is heavily impounded as well.

Where the creek bottoms are narrower and beaver activity is not influencing hydrology, many of the stream banks are steep and incised. This degradation is a result of past agricultural practices. Nonetheless, the hydrologic function of the property is largely intact and with good planning, negative off-site impacts can be avoided.

Biological Diversity

Biodiversity is the variety of life (including diversity of species, genetic diversity and diversity of ecosystems) and the processes that support it. Landowners can contribute to the conservation of biodiversity by managing for a diversity of habitats. It is important to select management options that offer the greatest opportunities for promoting wildlife habitat and conserving biodiversity while fulfilling other land ownership objectives. Some of these options include, but are not limited to:

1. Managing stand-level habitat features.
2. Promoting *aquatic* and riparian areas.
3. Managing landscape features.
4. Conserving rare species and communities.
5. Protecting special features and sites.
6. Developing partnerships with natural resource agencies and conservation organizations.

For more information on managing for biological diversity, refer to the following website: http://www.fs.fed.us/ecosystemservices/biodiversity.shtml

Biological Diversity on This Property: Cropland, pasture, wetlands, riparian areas, and multiple ages of mixed species forest provide a mosaic of habitats on this property. Because of this diversity in both landforms and land-uses, this property has the potential to support a wide range of species and communities. Protection of riparian areas, ponds, and active beaver populations will help protect biodiversity, wildlife habit, soil and water resources, and aesthetics simultaneously. This combined with forest management that attempts to maintain high productivity, mixed species stands, and multiple stages of stand development, will likely increase the species and community richness on the property.

Aesthetic Quality

By definition aesthetic quality (pleasing in appearance) means different things to different people. It can be anything from buffering a timber harvest from a busy road to managing for an open forest understory that is enjoyable to walk through. There are numerous management techniques that may be employed to achieve the landowner's desired level of aesthetic quality and many are discussed at the following websites:

- www.ncrs.fs.fed.us/pubs/viewpub.asp?key=4866.
- http://ncforestservice.gov/fsandfl/stewardship_aesthetics.htm

Aesthetic Qualities on This Property: The pastoral and wooded setting, well buffered from surrounding roads and residential development define the aesthetics for this property. Highlighting the diversity of habitats and the working landscape, while avoiding the negative visual impacts of forest management operations, will be the challenge. Visual disturbances can be mitigated by reducing the size of major canopy disturbances, buffering higher use areas from timber harvests, and feathering the edges between different land-uses. Some management operations may disturb the aesthetic qualities in the short term, but will improve aesthetics and meet other objectives over time.

Focusing on management of the edges between forest and agricultural land will improve aesthetics and mitigate future disturbances. Managing these edges using permaculture principles can also help to create a transition zone between agricultural and potential residential areas of the property. Many species of native trees and shrubs that provide benefits such as showy flowers, brilliant fall colors, or evergreen foliage are already present in the forest or commercially available. These species could be favored or planted along edges to improve aesthetics and ease transitions.

Recreation

Management practices which enhance recreation opportunities may be easy to implement depending on the types of forest-oriented recreational activities valued by the landowner. For tips on recreational management visit the following websites:

- Birding website (Partners in Flight): http://faculty.ncwc.edu/mbrooks/pif/bird%20profiles/bird_profiles.htm
- Trail construction/maintenance: http://www.ces.ncsu.edu/nreos/forest/woodland/won29.pdf
- Wildflowers: http://www.wncwildflowers.info/
- Wildlife viewing: http://www.ncwildlife.org/tarheelwildlife/documents/Tarheel_Wildlife.pdf
- Fishing/hunting: http://www.ncwildlife.org/
- Hiking/biking/horseback riding: http://www.naturalresources.msstate.edu/business/trail-riding.html

Recreation Opportunities on This Property: Numerous possibilities to facilitate recreational use of the property are present. The most obvious step that could be taken in the short term is to construct a network of trails that provides access to the woodland and allows the landowner and other users to more easily visit and monitor the majority of the property. Trails following the western bank of McGowan Creek and the northern bank of the drainage flowing from the farm pond would be an easy initial development. Depending on future needs or wishes, additional trails could be constructed that access the southern portion of the property. A trail system would provide a backbone for development of other recreational opportunities such as picnicking areas, bird watching or wildlife viewing.

Timber

The Forest Stewardship Program assists landowners in sustainably managing their forest so they can be productive, vigorous and healthy. The type of management your forest will require is based on your management objectives, site capabilities and current condition of the forest. This plan will recommend practices to regenerate or initiate, tend, and harvest timber consistent with the long term objectives.

The land units used for timber management are called stands. In some cases stand boundaries

are clearly defined on the ground, particularly when an even aged stand developed naturally on an old agricultural field or when a uniform site was planted to a stand of loblolly pine. In other cases, where topography and soils are more variable and the impact of human activity less intense, species composition changes gradually and stand boundaries are less easily defined. For the purposes of this plan, stand boundaries were determined by slope, soils, species composition, access, and tree ages, and were mapped using 2010 aerial photographs and the Orange County GIS system parcels layer.

Timber on This Property: Much of the property is very well suited for timber production. The soil types and conditions on the majority of the upland sites lend themselves to production of pine and mixed hardwoods depending on slope position and aspect. The more concave sites and creek bottoms will be most productive growing stands of bottomland hardwoods and species that can tolerate a high water table.

Much of the property was heavily cutover in the late 1990's. Following this timber harvest, a site prep burn was conducted to remove logging slash and facilitate artificial regeneration of loblolly pines, which were planted around 1999. The pines have performed well on the higher and drier sites, but competition from less desirable species is inhibiting growth in many of the wetter areas. Some older trees on the property include those left around the old homesite, a narrow and patchy buffer along the riparian areas, and residual timber where quality was somewhat poorer. A few small areas of older pines remain along the northern boundary of the property.

For this property, timber management will be focused primarily on the upland sites with rotation lengths between 30 and 60 years. The emphasis in these areas will be on restoring mixed species stands, cultivating the current timber crop to ensure success of desirable species, and maintaining high growth rates. These upland areas represent the greatest potential for income generation on the property and this income can be used to drive sustainable management on the entire property. Some timber harvesting, during management activities in the upland stands, may be recommended in the other areas to achieve the other objectives for the property.

Fish and Wildlife

Fish and other aquatic species depend on healthy water quality and quantity. Forest management decisions have a direct impact on both of these. Proactive and positive things landowners can do include establishing streamside management zones (SMZs), preventing or mitigating sources of sedimentation, and leaving un-mown areas around ponds. Landowners that have water bodies present on their property may contact various natural resource professionals to obtain technical assistance on improvement, aquatic maintenance, and fish stocking. Visit the following website for information on pond management and fishing opportunities:
http://www.ces.ncsu.edu/nreos/wild/fisheries/mgt_guide/chapter1.html

Forestry activities and how they relate to water quality are discussed at:

http://ncforestservice.gov/water_quality/water_quality.htm

An explanation of streamside management zones is located at:

http://www.woodlandstewardseries.com/landowner-information-for-managing-woodland/documents/ExplainingStreamsideManagementZones.pdf

Wildlife has four basic requirements: food, cover, water and space. Different wildlife species require different stages of forest growth to meet these needs. For example, quail and partridge feed on seeds of annual and perennial weeds and grasses that occur in young stands of timber, where sunlight reaches the forest floor. This is early successional habitat. Pileated woodpeckers depend on dead and rotting trees found in mature forests. This is late successional habitat. Still other wildlife prefer mid-successional habitat. Several factors determine how many species a forest can support - plant cover, harvest operations, water resources and topography. Many properties may have woodland, streams, swamps, rivers, ponds, and areas that adjoin fields, pastures, roads and other openings. Managing these "edges" is crucial to abundant populations of some wildlife species. The relationship between vegetation management and wildlife species habitat is well established. Understanding relationships is the first step in determining how property can be managed to promote the intended species. For more information on managing fish and wildlife and ponds contact a Forest Stewardship Biologist at http://ncforestservice.gov/fsandfl/stewardship_contacts.htm or visit the North Carolina Wildlife Resources Commission webpage: http://www.ncwildlife.org/

Wildlife on This Property: As noted earlier, many habitat types are represented on the property and thus a high diversity of animal species inhabits the property as well. Several effective strategies that will maintain and enhance wildlife species on this property include:

-Managing for edge habitat with irregularly shaped harvest areas

-Maintaining scattered older mast producing trees across the forest

-Protecting the pond, riparian buffers, and beaver populations

-Cultivating soft mast producing species in the forest gardens and permaculture areas

-Reducing the mowing cycle to three years in some areas

-Attempting to maintain a mixture of young, middle-aged, and old timber stands

Threatened and Endangered Species

The North Carolina Natural Heritage Program provides information on state and federal threatened and endangered (T&E) plants and wildlife, habitats of particular conservation concern, and stewardship actions designed to benefit these important natural resources. The site has an online mapping tool, “The Virtual Workroom”, that can provide geographic information on T&E species and natural communities of concern that are within a 2-mile radius of a specified location. A searchable database that can provide county-level and US Geological Survey (USGS) information is also available. The North Carolina Natural Heritage Program lists T&E species information at the following websites:

- http://www.ncnhp.org/Pages/heritagedata.html
- http://www.ncnhp.org/Pages/guide.htm
- http://www.ncnhp.org/Images/2010%20Rare%20Animal%20List.pdf

Threatened and Endangered Species on This Property: A comprehensive assessment of threatened and endangered species populations was not conducted during the site visits for this Forest Stewardship Plan. During the evaluation of the property, no known endangered or threatened species were found.

Forest Health

A healthy forest is a forest that possesses the ability to sustain the unique species composition and processes that exist within it. The health of our forests must be maintained to ensure the survival of plant and animal species that make the forest their home, and to protect those processes that maintain a healthy environment. A healthy forest must also be able to accommodate the present and future needs of people for a variety of values, products, and services. Forest health protection issues are often directly related to the active management of insects and diseases, invasive plants and wildfire. Yearly inspections for signs of insects, diseases or invasive plant infestations should be completed by the landowner. More forest health information can be found on the following websites:

www.forestpests.org
http://www.fs.fed.us/foresthealth/
http://www.fs.fed.us/r8/foresthealth/

http://ncforestservice.gov/forest_health/forest_health.htm

Forest Health on This Property: Some losses due to insects and disease are normal throughout a forest's development, but in many cases management action is necessary to prevent insects, disease, or invasive plant species from greatly reducing the forests ability to realize the landowner's objectives. Over the next several decades invasive plant species and southern pine beetle will probably pose the greatest threats to forest health.

Non-native plant species threaten forest productivity across the continent and the problem is causing environmental and economic damage on a rapidly growing number of acres every year. Invasive plant species, once established, are capable of severely inhibiting natural regeneration, out-competing native tree species, and in some cases killing mature stands of timber. The best method to protect the long term productivity of the property from this threat is to monitor for and control invasive species infestations aggressively before they become well established. Specific species will be addressed later in the plan.

Southern Pine Beetle is an insect native to North Carolina that has become the most important insect pest for management of southern pines. The species is always present in areas where pines are growing, and under normal conditions trees' natural defenses prevent large scale mortality. When conditions are dry, growth rates are low, or stem densities are high, Southern

Pine Beetle infestations can become severe and widespread, killing pines on several hundred acres at a time. The best way for landowners to prevent large scale Southern Pine Beetle damage is by maintaining vigorous growth through all stages of stand development. Typically, a pre-commercial thinning by age fifteen, and commercial thinnings around ages twenty and thirty, will offer the remaining trees the resources necessary to keep their natural defenses high. Government cost share is frequently available for completion of pre-commercial thinning in plantations that meet certain criteria.

Archeological, Cultural and Historic Sites

Cultural resources refer to landscapes, structures, archeological artifacts, and vegetation that represent a culture or society. These remains are pieces of history that can provide a glimpse into the technology, culture, and environment of earlier societies and reveal much about our country's origins and development. Make sure you alert your forester or ranger to any such sites as they begin to develop your Forest Stewardship Plan. If you have specific questions about such sites, it may also be possible to work with a trained expert from the North Carolina Cultural Resources staff. It is especially critical to understand where such sites may be located prior to conducting ground disturbing projects. Information concerning Archeological, Cultural and Historic sites can be found at these websites:

- http://www.ces.ncsu.edu/forestry/resources/publications/documents/won45.pdf
- North Carolina Cultural Resources (http://www.ncdcr.gov/)
- North Carolina Office of Archives and History (http://www.history.ncdcr.gov/)

Archeological Cultural and Historical Sites on This Property: A comprehensive assessment of archeological, cultural, and historical sites was not conducted during the site visits for this Forest Stewardship Plan. There is clear evidence of past agricultural use, and an area that was probably an old homesite was noted near the center of the property. This area will be addressed in more detail later in the plan.

Wetlands

Wetlands are highly productive areas for timber production, water quality protection, wildlife habitat, and aesthetics. Due to their wet-natured soils and unique species composition, these ecosystems need to be managed carefully to maintain the full breadth of benefits that they provide. Some of the forestry activities done on "high ground" may still be carried out in wetland areas, but others practices may not. It is the responsibility of the landowner to understand the regulations related to forestry before engaging in forestry practices or contracting with a forest management service to work on their land. This can seem a daunting responsibility, especially when it comes to wetland areas, but many resources are available to answer questions. The NCFS; private consulting foresters; the NC Forestry Association; and the NC Forestry Extension Program can be good sources of information on allowable forestry practices in wetlands. The two primary agencies that regulate activities in wetlands are the NC Division of Water Quality and the US Corps of Engineers.

More information on North Carolina wetlands, as well as forestry activities that may be carried

out in them, can be found at these websites:
http://dcm2.enr.state.nc.us/wetlands/brochure.htm

http://ncforestservice.gov/publications/WQ0107/BMP_chapter06.pdf

Wetlands on This Property: Wetlands are a significant feature on this property. As mentioned earlier, the majority of McGowan Creek and the lower portions of the drainage from the pond are inhabited by American beavers. The construction of beaver dams back up water in these lower areas, raising the water table, and flooding large areas of the creek bottoms. These wetlands are helping to protect water quality in McGowan Creek and beyond, and are providing unique habitats for wetland plant communities as well as waterfowl and other wildlife species.

Any management action on the property should be planned to minimize negative impacts to these areas. Equipment should be largely restricted from the creek bottoms except during very dry weather and access the southern portion of the property should be limited to one stream crossing at the narrowest point in the channel. A temporary bridge mat or a permanent culvert crossing, with a device to prevent blockage by beavers, should be used for equipment access.

Fire

Prescribed fire is the planned use of fire under pre-determined weather and fuel conditions to obtain specific management objectives. This is also known as "controlled" burning, and when done correctly it mimics the frequent burning that used to occur in NC naturally. Prescribed burning is a critical management tool that benefits North Carolina's forests, wildlife and overall environment. It also helps reduce the devastating impacts of uncontrolled wildfire hazards. Prescribed fire is especially important in North Carolina due to the large amount of land lying in the Wildland/Urban Interface (WUI). The N.C. General Assembly recognized the importance of prescribed burning in the NC Prescribed Burning Act, which may be reviewed at the following website:
http://www.ncleg.net/EnactedLegislation/Statutes/PDF/ByArticle/Chapter_106/Article_80.pdf

The NC Forest Service and its partners train, plan and coordinate with local fire services before a prescribed fire is started in order to ensure that all burning regulations are obeyed. There are also private contract burners that provide this service in various parts of the state.

Additional information on prescribed burning may be found at:

http://ncforestservice.gov/Managing_your_forest/managing_your_forest.htm
http://www.ces.ncsu.edu/forestry/pdf/ag/AG-616.pdf
http://www.ncfirewise.org/
http://ncforestservice.gov/fire_control/fc_wui.htm

Prescribed Fire Opportunities on This Property: Historically, the upland areas of the property may have burned naturally, or as a result of human activities, every 5-15 years. Many ecologists attribute the decline of oak-hickory-pine forests in the Carolina piedmont to the disruption of this fire regime for the last century. Recently prescribed fires have become an

accepted and valuable management tool to restore ecosystem processes.

Prescribed fire has the potential to provide many benefits on the upland portions of the property. Burning these mixed stands after the first commercial thinning would help to control undesirable native and non-native species, allow for development of grasses and herbaceous plants in the understory, promote development of oak and hickory regeneration, and improve wildlife habitat by providing sources of browse, soft mast, and cover on the forest floor.

Carbon Cycle

All forest plants and soils "store" carbon, so your management influences the natural cycles of that storage in both living and dead plant material. The removal of carbon from the atmosphere is the process of carbon sequestration. Trees are roughly 50% carbon, based on dry weight. Certain forest management practices can promote more plant growth per acre. Timber harvests can lead to durable wood products that store carbon for long periods of time. Carbon sequestration rates can be increased by maintaining forest health, replanting areas that have been harvested and actively managing a dynamic growing forest.

In recent years, programs dealing with "carbon sequestration", "carbon credits" and "biomass" have been in the news. While the resulting financial benefit to forest landowners is still in question, this may still be a topic to watch. The amount of carbon credits on a property can be computed based on a forest inventory. Age, stocking levels, species and site index are factors that can affect this inventory. Many consulting foresters can complete the base-line inventory for an associated fee. Prior to engaging in carbon markets, landowners need to consider the commitment period, contracts, associated fees, market access, inventory methods, aggregators, certification programs, afforestation and required silvicultural treatments. More information on this topic can be found at:

http://www.ces.ncsu.edu/forestry/programs/woody_biomass/pubs_and_research.php

Carbon Cycle on This Property: At this time, opportunities to participate in carbon markets are limited for this property. As the climate change issue evolves in the future, opportunities may become more certain. Until then, sustainable forest management should be practiced for the multitude of other benefits it provides.

Range/Silvopasture/Agroforestry

Silvopasture dates back to when humans first started burning and thinning forests to promote forage for the animals they relied on for food. The practice is increasingly popular in the South as a way to supplement timber income on small pine plantations and some hardwood stands. Trees can provide longer-term returns from saw logs for lumber, while livestock in a rotational grazing system provides steady annual income. There can be, however, problems with combining the two management schemes if it is not done correctly. Before any new silvopasture

system is established, landowners should thoroughly explore the associated economic and environmental considerations along with local land use, zoning, cost-share program, and tax regulations. Forest and agricultural land may have separate zoning and land-use regulations accompanied by tax assessments. Environmental requirements (ex. planting trees, stream-side protection, and wildlife habitat maintenance) also may vary with land use.

More information on silvopasture may be found at these websites:
http://www.srs.fs.usda.gov/compass/issue15/03pastures.html;
http://www.srs.fs.usda.gov/compass/issue15/03top.html
http://www.silvopasture.org/pdf_content/silvopasture_handbook.pdf
http://www.srs.fs.usda.gov/compass/issue15/03what.html

Range/Silvopasture on This Property: At this time, livestock are not grazed on the property. If, the need to graze the woodland arises in the future, this issue can be addressed.

Forest Stand Evaluations and Recommendations

Stand 1

Stand 1 is located on the northeast portion of the property between a 10 acre cultivated field, the riparian area along McGowan Creek, and the tributary flowing from the west. Located on top of a broad ridgetop, slopes are relatively gentle and rarely exceed 10 percent, except along the border with Stand 7 where they increase somewhat. Soils are Georgeville and Cecil series and were probably cultivated and grazed heavily in the past. The convex site and well drained, but somewhat degraded, soils are ideal for production of loblolly pine with associates of upland hardwoods. After a rotation of pine, site quality will probably improve to the point where a shift toward upland hardwoods can be considered. The fifty year site index for loblolly pine is 100 feet.

This area was a hardwood stand that was clearcut in 1999, burned, and planted to loblolly pine immediately following the harvest. Overall, the pines have performed well, reaching heights of about 40 feet and diameters averaging 7 inches. Some mixed hardwoods are present in the canopy including white oak, willow oak, black oak, southern red oak, sweet gum, winged elm and red maple. Red mulberry, American holly, American beech, and Florida dogwood are present in the midstory.

Along the edges with the field, many invasive plants are present, including, tree-of-heaven, common privet, Japanese stiltgrass, multiflora rose, and Japanese honeysuckle. Within the stand, tree-of-heaven and princesstree have reached the canopy and are producing seed and competing with more desirable species.

Some damage to the pine stems on the southern boundary has occurred from the beaver populations in Stand 7. See Figure 1

Figure 1: Beaver damage on southern edge of Stand 1

Access to the stand is excellent from the field edge and slope will not limit management.

The following table offers a general summary of the stand:

Stand 1	Acreage: 13	Age: 14
Site		
Soils:	Georgeville, Cecil	
Slope:	0%-10%	
Aspect:	East	
Landform:	Convex	
Site Index:	100	for loblolly pine
Vegetation		
Primary Tree Species:	loblolly pine	
Secondary Tree Species:	upland oaks, red maple	
Stocking:	fully stocked: 150 square feet per acre	
DBH of timber species:	7	
Shrubs:	sumac, blackberry (declining)	
Herbs:	grasses, forbs (declining)	
Vines:	catbrier, grapes	
Advance Regeneration:	NA	
Invasive Plants:	tree-of-heaven, princesstree, multiflora rose, Japanese honeysuckle, Japanese stiltgrass	

Recommendations:

The invasive trees in the canopy should be cut and the stumps should be treated with a 25% solution of a triclopyr herbicide to prevent resprouting. It is likely that after this treatment, little invasive species control will be necessary within the stand as the pines will probably shade out most of the species in the understory over the next several years. This can be completed in-house or a licensed pesticide applicator can be hired to do the work.

In about 8 years or sooner if volumes allow, a commercial thinning should be conducted. Residual basal areas should be determined just before the thinning is conducted. This thinning will help to maintain high growth rates in the pines, and can also be used to promote hardwood mast producers in the canopy. This thinning, if marketed with pulpwood harvests and improvement work in other stands, should generate modest returns which could be used to finance stewardship work on other portions of the forest. This sale should be negotiated on a per unit basis with a reputable pulpwood buyer.

After the first thinning, another thinning will probably be necessary around age thirty.

Stand 2

Stand 2 is located on the southern portion of the property, to the west of McGowan Creek and to the south of the tributary. Slopes are relatively moderate, mostly under 10 percent and the landform is rolling, containing both concave and convex sites which face northeast. Soils are Georgeville series, and portions of the stand may have been cultivated in the past (but not to the extent as in Stand 1). Fifty year site index for loblolly pine is 90 feet.

Like Stand 1, this hardwood stand was clearcut in 1999, burned, and planted to loblolly pine immediately following harvest. Hardwood stump sprouts have competed effectively with the pines in many areas and the hardwood species are playing an important role in the canopy in these areas. White oak, black oak, southern red oak, and hickories occupy the higher slopes, while tulip poplar, sweetgum and elm are competing on the wetter sites. The hardwood stems are typically between 3 and 5 inches DBH and multiple sprouts have grown from the cut stumps. Where pines are dominant, they have reached diameters averaging 6 inches.

Access to the stand is limited by the required crossing of the riparian area. This limitation, along with the low pine volumes, may reduce options for management, especially improvement harvesting or commercial thinnings.

The following table offers a general summary of the stand:

Stand : 2	Acreage: 26	Age: 14
Site		
Soils:	Georgeville	
Slope:	0-15%	
Aspect:	northeast	
Landform:	rolling: gentle ridges and drains	
Site Index:	90	for loblolly pine
Vegetation		
Primary Tree Species:	mixed oaks, tulip poplar, loblolly pine	
Secondary Tree Species:	red maple, American beech, sweetgum, hickories	
Stocking:	120 square feet per acre	
DBH of timber species:	3”-6”	
Shrubs:	sumac, blackberry (declining)	
Herbs:	grasses, forbs (declining)	
Vines:	catbrier, grapes	
Advance Regeneration:	NA	
Invasive Plants:	multiflora rose, Japanese honeysuckle	

Recommendations:

If possible, the stand should be thinned in about 8 years along with Stand 1. If a timber crop worth managing can be cultivated in the pines, the pines and hardwoods can be more easily managed in the future.

If commercial thinning is not economically feasible, one alternative is to complete a crop-tree-release treatment where desirable species of good stem quality are selected and released through mechanical removal of competing trees and vines. The treatment should select for loblolly pine and well-formed oaks on the upland sites and for loblolly pine and tulip poplar on the lower sites. Stump sprouts should be approached by removing all but the best quality stem. Ideally, this work could be completed in-house over several years.

The other alternative is to allow this stand to grow on its own until enough volume is present to justify a commercial harvest. This may not be until the stand is thirty or forty years old, between the years 2030 and 2040. At this time a commercial removal of pine and hardwood pulp should be feasible if markets persist.

Stand 3

This stand is located along both sides of the small tributary flowing from the pond on the west end of the property. Slopes are moderate, mostly under 10 percent and the landform is rolling, containing both concave and convex sites which face either north or south. Soils are primarily Georgeville series, but some Herndon soils are present on the western end. The soils have been used heavily in the past, both cultivated and grazed, though some areas were likely too wet for cultivation. The fifty year site index for loblolly pine is 90 feet.

This stand was about 40 years old at the time of the last harvest, and probably established on an old pasture in the 1960's. A mixed stand of pine, sweetgum, and tulip poplar with a fairly diverse mid-story, the previous stand was nearly clearcut, burned, and planted to loblolly pine, like Stands 1 and 2. Some exceptionally poor quality residual stems were left standing along the field edges and on the wetter sites. The success of the pine has been patchy with pine density higher on the better drained sites, and lower elsewhere. To the south of the stream, white oak, southern red oak, maple and hickory are the dominant hardwoods and to the north of the stream, sweet gum, tulip poplar, red maple, and winged elm are dominant.

Access to the stand is good except for the areas to the south of the stream. A temporary crossing on this stretch should not be difficult and if properly installed will have minimal impact on water quality. Wet soils in some areas will require limiting equipment use within the stand to dry weather.

The following table offers a general summary of the stand:

Stand : 3	Acreage: 16.7	Age: 14
Site		
Soils:	Georgeville	
Slope:	5-15%	
Aspect:	south and north	
Landform:	rolling: lower slopes and drains	
Site Index:	90	for loblolly pine
Vegetation		
Primary Tree Species:	loblolly pine, mixed oaks, sweetgum	
Secondary Tree Species:	tulip poplar, red maple, hickories	
Stocking:	120 square feet per acre	
DBH of timber species:	3-7”	
Shrubs:	blueberry, blackberry	
Herbs:	grasses and forbs (declining)	
Vines:	catbrier, grapes	
Advance Regeneration:	NA	
Invasive Plants:	multiflora rose, Japanese stiltgrass, Japanese honeysuckle	

Recommendations:

It is likely that portions of this stand can be thinned during the work in Stand 1, 8 years from now. Wherever economically operable, pine densities should be reduced to maintain high growth rates. Because the upland sites are more suited to timber production than the lower areas, it is important to produce a renewable timber crop where feasible to fund good management on the balance of the property.

Stand 4

Stand 4 is the 8 acre riparian zone surrounding the tributary to the east of the pond. Slopes are gentle, rarely exceeding 5%. Chewacla soils dominate the creek bottom, with a few areas where the upland soils extend into the stand as well. These areas were probably rarely cultivated, but livestock grazed the bottoms extensively in the past and the stream channel is somewhat incised in places. American beavers move up and down the stream channel and several old, filled-in ponds are present. An active population uses the area immediately below the farm pond heavily.

Like Stand 3, 30-40 year old timber was removed in the late nineties, but pines were either not planted or quickly died in the wet soils. The stand is dominated by hardwoods, mostly sweetgum, black willow, tulip poplar, eastern sycamore, red maple, and occasional oaks. Timber production potential in this area is low because of beaver damage, high densities of low value species, and an abundance of vines in the canopy.

The stand is providing excellent wildlife habitat. The beaver activity provides a constant supply of young tree sprouts and several areas of open, grassy cover. Common cattails, rushes, sedges, and bunch grasses are all present to varying degrees. Many of the older trees left along the stream channel are providing den sites, feeding sites for insects and birds, and some canopy structure as well. Native grapes are common and an excellent source of soft mast within the stand. Smooth alder is scattered throughout the stand providing some winter food sources and good bank stabilization.

Non-native species, Japanese stiltgrass and multiflora rose are both inhibiting growth of more desirable native plants, particularly where more sun is reaching the forest floor.

The following table offers a general summary of the stand:

Stand : 4	Acreage: 8	Age: 14
Site		
Soils:	Chewacla	
Slope:	0-55	
Aspect:	east	
Landform:	concave: creek bottom	
Site Index:	100	for tulip poplar
Vegetation		
Primary Tree Species:	sweetgum, tulip poplar, red maple	
Secondary Tree Species:	winged elm, hickories, oaks	
Stocking:	80 square feet per acre	
DBH of timber species:	3”-6”	
Shrubs:	smooth alder	
Herbs:	grasses, sedges, rushes, forbs	
Vines:	grapes, catbrier	
Advance Regeneration:	NA	
Invasive Plants:	Japanese stiltgrass, multiflora rose	

Recommendations:

Little action is necessary in the short term for this stand to continue providing its non-timber benefits. Roses could be removed from the stand using mechanical or chemical control, but the Japanese stiltgrass is not feasible to control.

A trail following the southern stream bank east from the pond, crossing the stream at the approximate midpoint of the stand, and following the northern bank to the southern edge of Stand 1 would make an excellent route for easy hiking, viewing wildlife or wildflowers, or monitoring the property.

Stand 5

Stand 5 is 5 acres on the northwest property corner. The land slopes gently to the southeast with slopes to 10%. Though the stand is small, the soils are diverse. It contains Herndon, Cecil, Appling, Enon, and Georgeville. The stand was probably cultivated in the past, was definitely grazed heavily, and has been abandoned for agriculture over the last 25 years.

Trees established naturally on old pastureland beginning in the early nineties and a mixture of early successional hardwoods and pines have slowly colonized the site. The stand contains Virginia and loblolly pines between 6 and 14 inches DBH, sweetgum, tulip poplar, and black cherry between 4 and 12 inches DBH, and scattered eastern red cedar throughout.

Goldenrod, broom sedge, and tall fescue are still present in some areas as well as scattered patches of blackberries. These areas of early successional habitat located close to the farm pond are used heavily by small mammals, birds, and insects.

Multiflora rose, common privet, Japanese honeysuckle and Japanese stiltgrass are all present.

The following table offers a general summary of the stand:

Stand : 5	Acreage: 5	Age: 10-25
Site		
Soils:	diverse upland soils	
Slope:	0-10%	
Aspect:	southeast	
Landform:	gently rolling sideslope	
Site Index:	90	For loblolly pine
Vegetation		
Primary Tree Species:	loblolly pine, Virginia pine, sweet gum	
Secondary Tree Species:	tulip poplar, black cherry, eastern red cedar	
Stocking:	Patchy, 50-140 square feet per acre	
DBH of timber species:	4-14 inches	
Shrubs:	blackberry	
Herbs:	fescue, broom sedge, goldenrod	
Vines:	grapes, catbrier	
Advance Regeneration:	NA	
Invasive Plants:	Multiflora rose, Japanese honeysuckle, common privet Japanese stiltgrass	

Recommendations:

This stand does not warrant intensive timber management. During future thinnings elsewhere on the property, Virginia pine and sweetgum could be removed from the stand as pulpwood which would create growing space for more desirable species, improving aesthetics and wildlife habitat.

If, during future farming or forestry activities, gaps of early successional habitat can be created or perpetuated by removal of timber, this should be considered. Another option may be using a heavy duty bush-hog. There are some younger patches within the stand that could be mowed once every three to five years.

Stand 6

Stand 6 is 6 acres located on the northern portion of the property and includes the smaller parcel. Located on Georgeville soils on the top of the main ridge, slopes are nearly flat throughout. The fifty year site index for loblolly pine is 100.

The stand is composed of two separate age classes of pine, but should be managed as one unit in the future. The northern portion is about thirty five year old planted loblolly that has never been thinned. The southern portion is about fifty years old and established on old fields, but was not cut during the last harvest. Diameters in the younger trees are between 7 and 16 inches and the older trees are between 14 and 20 inches. Understory and mid story hardwoods include red maple, sourwood, sweetgum, and tulip poplar.

Figure 2: Stand 6 needs thinning

Except for Japanese stiltgrass, few invasive plants are present within the stand. The southern boundary, however, contains tree-of-heaven which will begin producing seed soon.

The following table offers a general summary of the stand:

Stand : 6	Acreage: 6	Age: 35 and 50
Site		
Soils:	Georgeville	
Slope:	0-5%	
Aspect:	NA	
Landform:	convex: broad ridgetop	
Site Index:	100	for Loblolly pine
Vegetation		
Primary Tree Species:	loblolly pine	
Secondary Tree Species:	red maple, sweetgum, tulip poplar	
Stocking:	200 square feet per acre	
DBH of timber species:	7”-20”	
Shrubs:	NA	
Herbs:	grasses and forbs	
Vines:	NA	
Advance Regeneration:	red maple, sweetgum	
Invasive Plants:	tree-of-heaven, Japanese stiltgrass	

Recommendations:

If the small acreage is not a limiting factor, the stand should be thinned as soon as possible (see figure 2 above). Trees up to 12 inches should be removed from the northern portion, leaving mostly trees from 12-16 inches with excellent form. The southern portion should be thinned for quality, removing the poorest quality trees. This thinning should be negotiated on a per unit basis with a reputable timber buyer. This thinning will allow for resumed diameter growth in the remaining trees and make a sale of mature sawtimber possible in about 15 years.

Stand 7

Stand 7 is located along the eastern boundary of the property, following McGowan Creek and encompassing 13 acres of creek bottom land and the somewhat steeper land between the Georgeville and Chewacla soils. The site is extremely productive with a fifty year site index of 110 feet for tulip poplar.

What merchantable timber was present in the stand was removed in the late nineties with the exception of trees immediately adjacent to the stream channel and trees of exceptionally poor quality. The stand now contains two age classes of trees. The first is composed of larger residual trees, mostly between 80 and 100 years old, including tulip poplar, American beech, sweetgum and red maple. Where the land drops sharply to the creek bottom, older American beech, upland oaks, and tulip poplar are common with the more water tolerant trees growing adjacent to the streams. The younger cohort regenerated naturally after the last harvest and is now between 1 and 12 years old.

The beaver population in this stand is high and these animals are a major force of change here, actively expanding their territory and changing the vegetation and hydrology. Ponds, active and abandoned, are present throughout the stand (see figure 3 below). The active ponds are providing excellent habitat for waterfowl, fish, reptiles and amphibians. The abandoned ponds are becoming re-vegetated with diverse early successional wetland plant species and providing a unique cover type on the property, used by a wide variety of animal species.

Figure 3: Active beaver pond, lodge in front left

The beavers have recently cleared several areas on higher ground for food and materials, creating areas that are actively regenerating to hardwood stump sprouts, but also contain a diverse layer of more upland bunch grasses and forbs.

Invasive plant species are playing a major role in the ecology of the stand, competing for growing space throughout the majority of the bottomland. Japanese stiltgrass has formed a dense mat over many of the recently flooded soils. Japanese honeysuckle is in the crowns of many of the younger trees and recent sprouts. Multiflora rose is present along the margins between the wetlands and uplands and is thriving in the high light environment.

The following table offers a general summary of the stand:

Stand : 7	Acreage: 13	Age: 1-12 and 80-100
Site		
Soils:	Chewacla	
Slope:	0-50%	
Aspect:	east	
Landform:	concave: wide creek bottom	
Site Index:	110	for tulip poplar
Vegetation		
Primary Tree Species:	tulip poplar, sweetgum, American beech, red maple	
Secondary Tree Species:	black willow, hickory, box-elder, oaks	
Stocking:	patchy, 0-100 square feet per acre	
DBH of timber species:	NA	
Shrubs:	smooth alder, sumac, blackberry	
Herbs:	rushes, sedges, grasses, forbs	
Vines:	grapes, catbrier	
Advance Regeneration:	NA	
Invasive Plants:	tree-of-heaven, Japanese stiltgrass, Japanese honeysuckle, common mullein	

Recommendations:

The best use of this stand is as protected wetlands. The hydrology, unique plant communities, high wildlife value, and the soil and water quality protection attributes make leaving this stand largely un-managed a good option. Additionally, because of the dynamics of this ecosystem, with the changing water levels and the beaver impacts, investing in vegetation management is a highly uncertain proposition.

Improving wildlife habitat with plantings, wood duck box installations, or invasive species control could be considered. Encouraging human use of the area through trail construction or installation of a bird blind for wildlife viewing is another option. Otherwise this stand should remain undisturbed.

Stand 8

Stand 8 includes four small areas located mostly along field edges where existing vegetation or other current conditions make good opportunities for installation of permaculture projects. The following is a description of each small area and initial ideas for development.

a. This area is 0.7 acres located in a low wet spot that extends into the southwestern edge of the hayfield. The area was probably abandoned for hayfield because of wet soils which made mowing difficult. Hardwood tree species established in this area and most of these were harvested in 1999. The current stand contains high densities of sweetgum, but also scattered persimmon, pecan, and walnut.

   Removing all sweetgums, all invasive plant species, and cutting vines from the remaining trees would allow for these species to grow well and begin to produce fruit, probably within a few years. The wetter conditions in the understory would be good for berry production on the edges where more light is available and mushroom cultivation on the interior of the unit.

b. This 0.9 acre area encompasses the southern portion of the old homesite. The location is relatively high and dry and centrally located. Several scattered older open-crown trees cover the majority of this area, including a 47 inch white oak, a 36 inch pecan with a large spreading crown, and a 36 in black walnut. Under the larger trees, a dense stand of tree-of-heaven has developed as well as smaller walnuts and pecans.

   The tree-of-heaven here needs to be removed. Mechanical removal of trees and stumps followed by frequent mowing would be effective if the area will be closely monitored and managed in the future. Otherwise, a cut stump treatment with a triclopyr based herbicide should be considered. This work will greatly improve the aesthetics in this highly visible area, preserve the integrity of the remains of the homesite, and facilitate future establishment of other productive trees and shrubs.

Figure 4: Stand 8b, large mast producers over tree-of-heaven midstory

c. This 0.4 acre area is a small finger of hayfield surrounded by taller pines.

   This area might make a good place to establish a permaculture project beginning from something of a clean slate. The higher light environment would allow for quick establishment of a wide variety of crops.

d. This is 0.2 acres of pure tree-of-heaven located on the southern edge of the cultivated field. Somewhat wetter soils, probably damaged during logging, allowed the species to quickly outcompete native tree species here after the last timber harvest.

   Intensive management will be necessary here to eliminate the threat posed by the tree-of-heaven. Establishment of a forest garden in this area would necessitate high labor inputs early on and would allow for removal of this forest health threat while simultaneously achieving the permaculture goal.

Figure 5: Stand 8d, pure tree-of-heaven. Stand 1 back left.

Stand 9

This area includes a 12 acre hayfield (9a) and a 10 acre cultivated field (9b). Management of these units is not within the scope of this plan. Nonetheless, it should be noted that the invasive species issues on the property are spreading from the margins of the agricultural land. The ease of access and high visibility makes effective control within reach at this time. An investment now, removing seed producing populations first and moving towards eradication of the invasive trees will go a long way towards protecting the long-term productivity of the entire property.

Stand 10

The farm pond, 2.5 acres, is a positive feature on the landscape that should be maintained and protected. Resources are available from NRCS, NC Cooperative Extension, and the NC Wildlife Resources Commission regarding management of farm ponds.

Figure 6: Farm pond with Stand 3 in background, smooth alder in right foreground

Conclusion

While there are numerous challenges to overcome, this property still maintains good potential to effectively meet Ms. Ennis' objectives. Generally the recommendations for the next twenty years are geared towards investments in forest health and improving long term timber potential. The diversity of this tract makes it feasible to manage for multiple objectives, none of which is mutually exclusive, and with proper management we can achieve the goals of protection of soil and water, timber income, conservation, permaculture, wildlife habitat, and family legacy.

Cost-share opportunities are available for many of the recommended actions including wildlife habitat improvement, invasive species control, wetland management, and when the time comes, reforestation and pre-commercial thinning of pine stands. Before investing in any of these projects, the cost share opportunities should be researched. The Natural Resource Conservation Service, The North Carolina Forest Service, The Wildlife Resources Commission, and the Soil and Water Conservation District are all good sources of cost-share funding.

A consulting forester created this plan, and can assist with plan execution. Many actions can be completed or subcontracted by the landowner, but a consulting forester can contract for improvement work, invasive species control, tree and boundary marking, and ensure that harvesting operations are lucrative, silviculturally sound, and achieve the landowner's objectives.

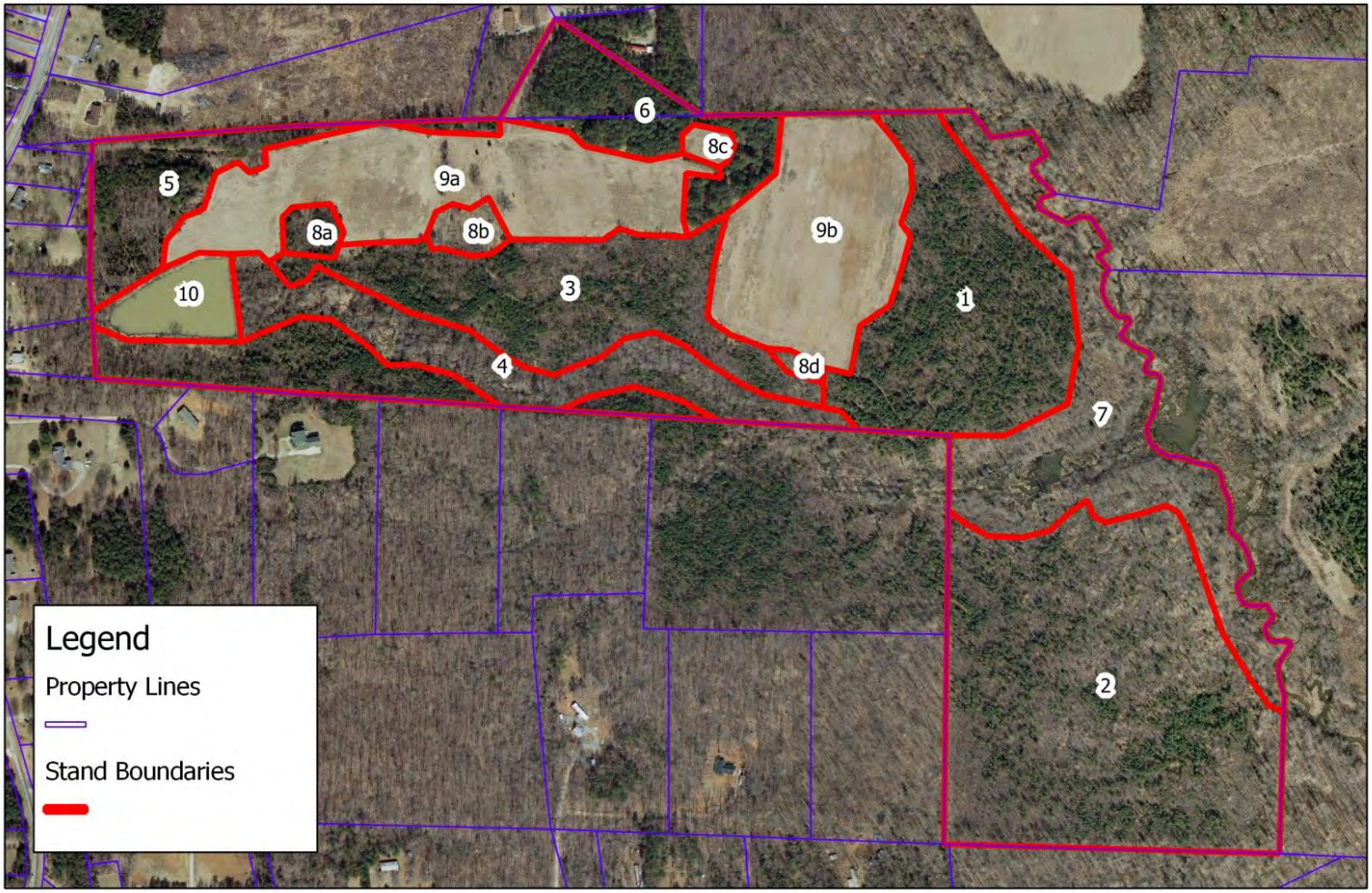
Forest management plans are working documents, recommending actions within the next decade or two to achieve results over the next century or two. This plan should be considered a proposal subject to change as objectives, conditions (environmental, economic and regulatory), and ownership change. Recommended management actions are outlined in the table below.

Upcoming Forest Management

Stand	Management Action	When
1	Cut stump treatment of invasive tree species First commercial thinning of loblolly pine Consider 2nd commercial thinning of loblolly pine	2013-2015 2020-2023 2030-2033
2	Consider first commercial thinning of pine and hardwood or non-commercial crop-tree-release treatment or no action	2020-2023
3	First commercial thinning of loblolly pine Consider 2nd commercial thinning of pine and hardwood	2020-2023 2030-2033
4	Consider trail construction	2013-2020
5	Consider partial mowing Consider pulpwood harvest of Virginia pine and sweetgum	every 3-5 years 2030-2033
6	Consider thinning if feasible	2013-2014
7	Consider habitat improvement or trail construction	2013-2020
8	Begin installation/maintenance of permaculture systems	2013-????
9	Invasive species control	2013-????

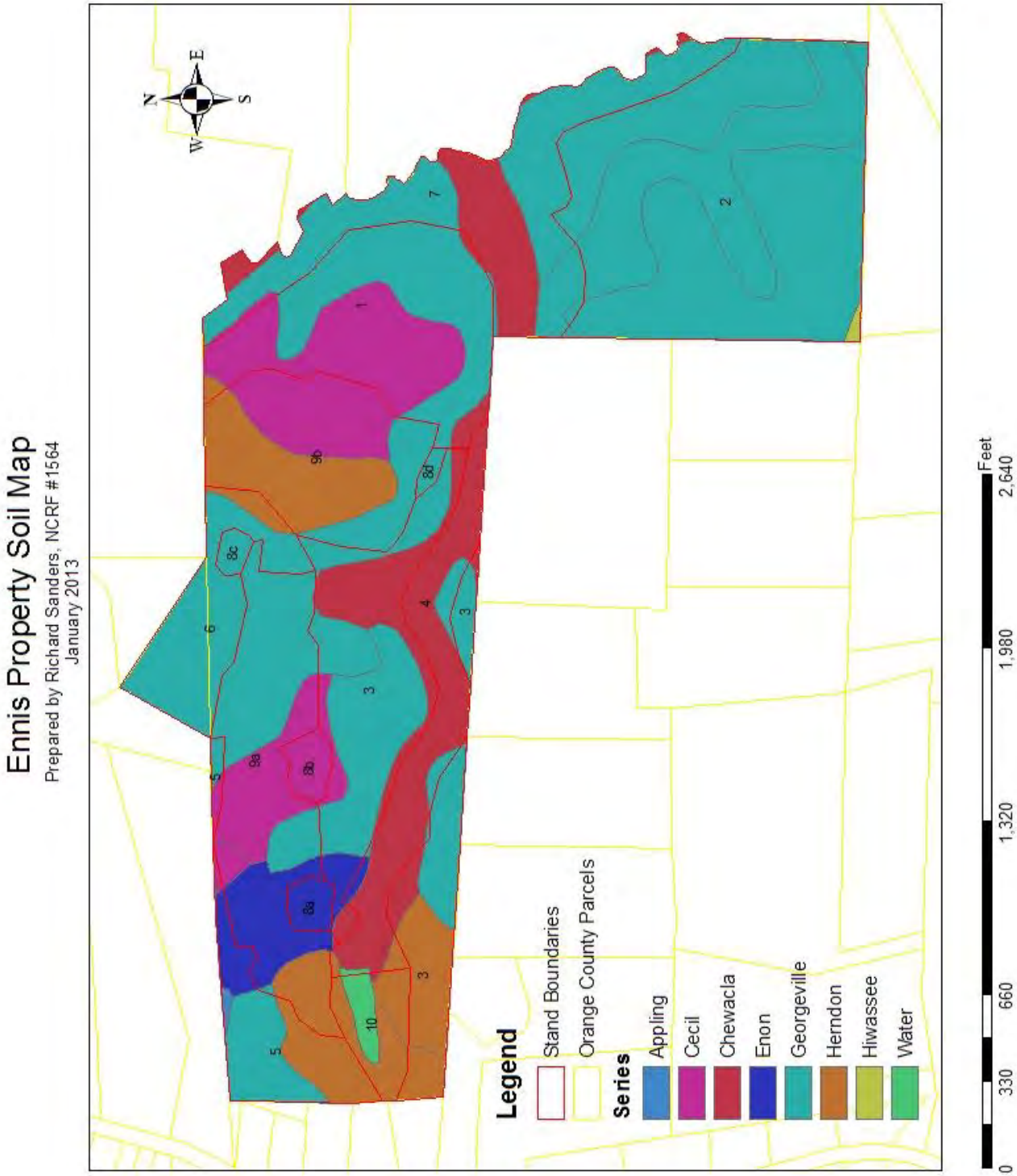
Ennis Property Stand Map

Prepared by Richard Sanders, NCRF #1564



0 330 660 990 1320 feet

N


Ennis Property Soil Map
Prepared by Richard Sanders, NCRF #1564
January 2013
N
E
S
W
Legend
Stand Boundaries
Orange County Parcels
Series
Appling
Cecil
Chewacla
Enon
Georgeville
Herndon
Hiwassee
Water
0
330
660
1,320
1,980
2,640
Feet

Appendix Material List

Silviculture Terminology
A Management Guide for Invasive Plants in Southern Forests
Timber Sales: A Planning Guide for Landowners
The Southern Pine Beetle Prevention Program and You

Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 North Salem Street
Suite 203
Apex, NC 27502
919-859-0669
www.agriwaste.com

LICENSED SOIL SCIENTIST
JEFF VAUGHAN
1227
STATE OF NORTH CAROLINA

Soil Suitability for Domestic Sewage Treatment and Disposal Systems

Frazier Road
PIN #9835945500,
Mebane, NC
Orange County

Prepared For:	Ms. Alana Ennis, Owner
XCOPY:	Ms. Katy Ansardi, Hart's Mill
Prepared By:	Jeff Vaughan, Ph.D., L.S.S. Senior Agronomist/Soil Scientist
	Chris McGee, L.S.S. Associate Agronomist/Soil Scientist
	Julie Peele Environmental Technician
Report Date:	January 12, 2014

Engineers and Soil Scientists
Agri-Waste Technology, Inc.
501 North Salem Street
Suite 203
Apex, NC 27502
919-859-0669
www.agriwaste.com

Soil Suitability for Domestic Sewage Treatment and Disposal Systems
Frazier Road, Mebane, NC (Orange County)

PREPARED FOR: Ms. Alana Ennis, Owner

XCOPY: Ms. Katy Ansardi, Harts Mill

PREPARED BY: Jeff Vaughan
Chris McGee
Julie Peele

DATE: January 12, 2014

Soil suitability for domestic sewage treatment and disposal systems was evaluated on January 2, 3, and 6, 2014, for property located on Frazier Road near Mebane, NC. Jeff Vaughan, Chris McGee, Trent Bostic, and Jesse Vaughan of Agri-Waste Technology, Inc. (AWT) conducted the soil evaluation. The detailed soil evaluation of the land area will follow. Property reference maps, provided by Ms. Katy Ansardi, are in Attachment 1. A review of the soil and landscape characteristics that dictate soil suitability for domestic sewage treatment and disposal systems can be found in Attachment 2.

The total property area is approximately 112 acres, but only about 70 acres were evaluated. The property is partially wooded, partially in cropland, and partially in pastureland. There are numerous drainage features, a pond, 2 creeks, and a small structure on the property (Attachment 3).

Soil Suitability for Domestic Sewage Treatment and Disposal Systems

The aerial maps in Attachment 3 detail the approximate property boundaries, soil boring locations, soil types, and soil areas for septic systems. Soil borings were flagged in the field with blue ribbon (24"+ of provisionally suitable soil), blue/red ribbon (18-23" of provisionally suitable soil), red ribbon (12-17" of provisionally suitable soil), and yellow ribbon (less than 12" of provisionally suitable soil). Approximately 63 soil borings were advanced on the property and the soil examined (Attachment 3). A portion of the property contained drainage features, complex topography, vehicle paths, and/or unsuitable soils and, thus, are unsuitable for septic systems. However, this evaluation was merely a preliminary review to determine what potential this land might have for domestic sewage treatment and disposal systems. Therefore, specific types of septic systems, exact locations of future drainfields and repair areas, plus buffers from property lines (current and potential future lot lines), building foundations, wells, etc. are not fully

considered. These things will need to be more fully considered as the plans develop for the potential future of this site. It is likely that additional soil evaluations will be required once lot layouts are considered and developed for this property so that septic system types and the location of a septic drainfield can be more fully and appropriately considered.

Two areas (see map in Attachment 3) exhibited soil characteristics and soil depths (24" or greater) that are provisionally suitable for conventional or shallow conventional trench septic systems. These areas are approximately 1,687,249ft^2 and 32,147ft^2, respectively.

Typical profile descriptions of the provisionally suitable soil for this property are in Attachment 4. Two distinct soil profiles were observed in the soil borings on the property: a deep red clay subsoil or a shallower red clay subsoil.

The provisionally suitable soil borings had the following characteristics. No restrictive horizons were found in any provisionally soil borings within 36" of the soil surface. Soil texture was provisionally suitable and was estimated to be silt loam to sandy loam near the soil surface (A horizons) and clay in the subsoil (B horizons). Soil structure was provisionally suitable and was estimated to be granular near the soil surface (A horizons) and subangular blocky in the subsoil (B horizons). Clay mineralogy was provisionally suitable with very friable to firm moist soil consistence and non-sticky to sticky and non-plastic to plastic wet soil consistence. Indications of saprolite were detected in some soil borings, but were not dominant in profiles.

The major soil types on this property are Appling sandy loam (map symbol ApB), Cecil fine sandy loam (map symbols CfB and CfC), Chewacla loam (map symbol Ch), Enon loam (map symbol EnB), Georgeville silt loam (map symbols GeB and GeC), and Herndon silt loam (map symbols HrB and HrC). The Orange County Soil Survey indicates that moderate (Appling, Cecil, Georgeville, and Herndon) to severe (Chewacla and Enon) limitations exist for septic systems installed in these soils types (Attachment 5).

The land area required for a conventional or shallow conventional septic system is calculated based on the size of the proposed home and the Long-Term Acceptance Rate (LTAR) of the soil. The LTAR range for the provisionally suitable soils on this property is 0.1 – 0.4 GPD/ft^2 based on the most restrictive soil texture in the subsoil. Table 1 below presents estimated conventional or shallow conventional septic system land area requirements for several home sizes and LTAR's on this property. The LTAR suggested by AWT for a majority of the provisionally suitable soil is 0.25 GPD/ft^2, but the final LTAR for specific septic system types and septic drainfield locations will be set by the Orange County Health Department. The detailed computations are in Attachment 6.

Table 1. Estimated Conventional Septic System Land Requirements (including repair area) for Several Home Sizes and Long-Term Acceptance Rates (LTAR) on this Property.

House Size	Long-Term Acceptance Rate (LTAR)	Area Required for Conventional Septic System	Minimum Area Required for Innovative Conventional Septic System
	-----GPD/ft^2-----	-----ft^2-----	-----ft^2-----
3 bedrooms	0.1 – 0.4	6,750 – 32,400	8,100 – 24,300
3 bedrooms	0.25	~10,800	~7,020
4 bedrooms	0.1 – 0.4	9,000 – 43,200	6,750 – 32,400
4 bedrooms	0.25	~14,400	~10,800
5 bedrooms	0.1 – 0.4	11,250 – 54,000	8,438 – 40,500
5 bedrooms	0.25	~18,000	~13,500

Conclusions

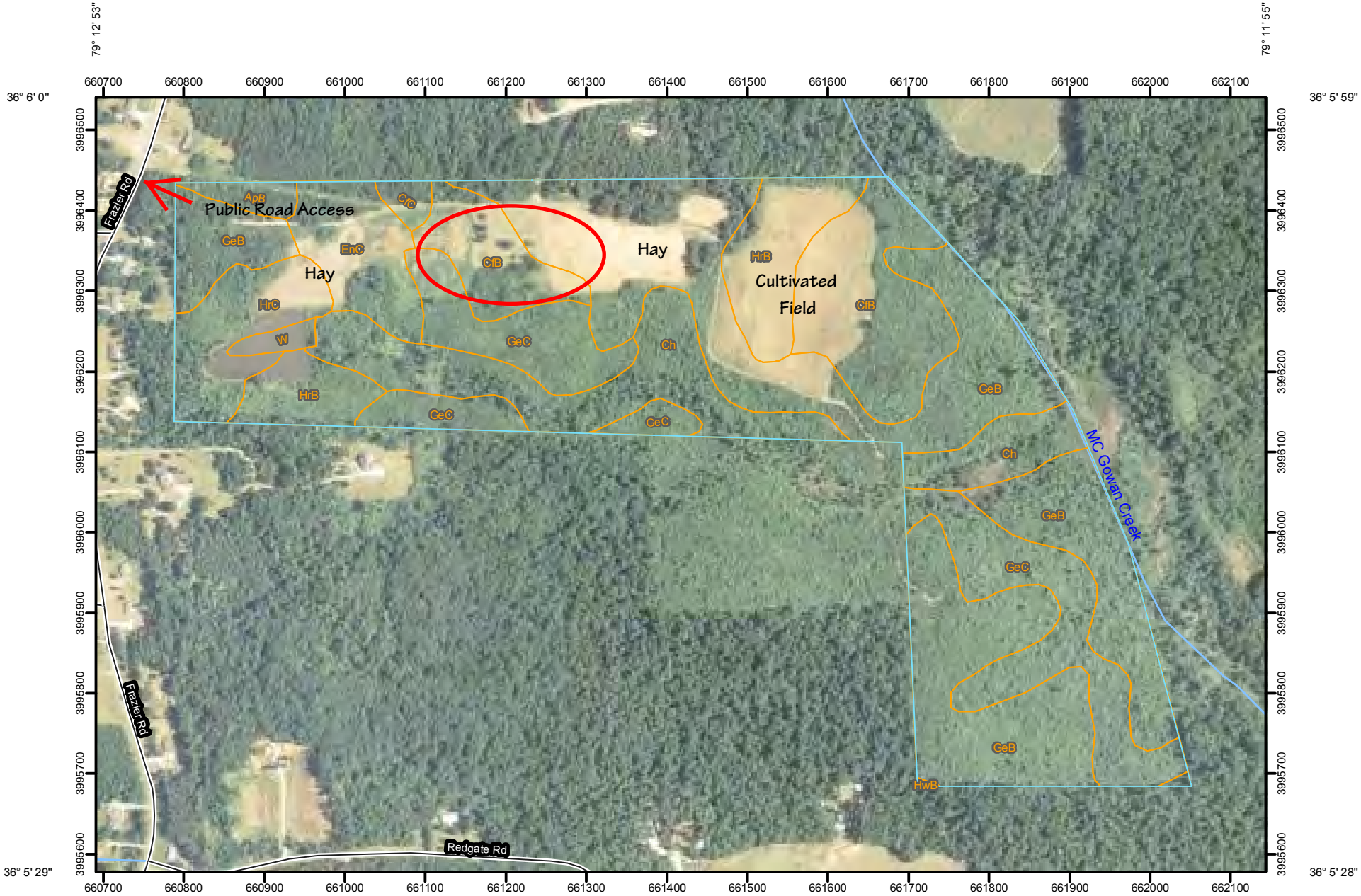
Based on the results of this evaluation, the installation of conventional or shallow conventional septic systems seems very probable on this property in the areas designated on the maps in Attachment 3.

We appreciate the opportunity to assist you in this matter. Please contact us with any questions, concerns, or comments.

ennis

ATTACHMENT 1: Property Reference Maps

Soil Map—Orange County, North Carolina
(Ennis Property - Efland)



Map Scale: 1:6,890 if printed on A size (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 350 700 1,400 2,100

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Gully

Short Steep Slope

Other

Political Features

Cities

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

MAP INFORMATION

Map Scale: 1:6,890 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

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 accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

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

Soil Survey Area: Orange County, North Carolina
Survey Area Data: Version 11, Feb 19, 2010

Date(s) aerial images were photographed: 6/16/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

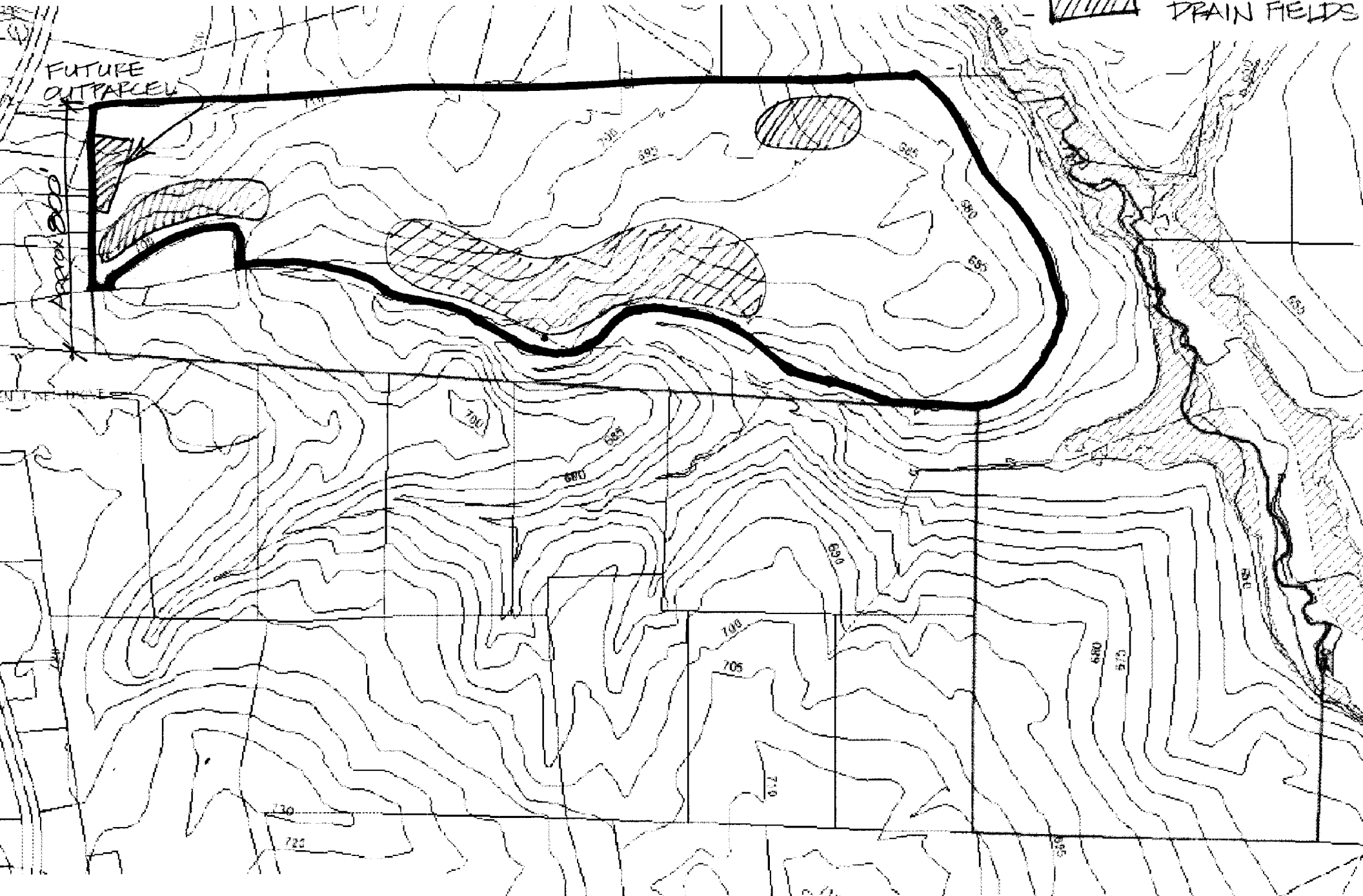
Orange County, North Carolina (NC135)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
ApB	Appling sandy loam, 2 to 6 percent slopes	1.1	1.0%
CfB	Cecil fine sandy loam, 2 to 6 percent slopes	14.1	12.7%
CfC	Cecil fine sandy loam, 6 to 10 percent slopes	0.8	0.7%
Ch	Chewacla loam, 0 to 2 percent slopes, frequently flooded	13.6	12.3%
EnC	Enon loam, 6 to 12 percent slopes	5.3	4.8%
GeB	Georgeville silt loam, 2 to 6 percent slopes	44.0	39.7%
GeC	Georgeville silt loam, 6 to 10 percent slopes	17.4	15.7%
HrB	Herndon silt loam, 2 to 6 percent slopes	8.2	7.4%
HrC	Herndon silt loam, 6 to 10 percent slopes	5.7	5.1%
HwB	Lloyd clay loam, 2 to 6 percent slopes	0.0	0.0%
W	Water	0.7	0.6%
Totals for Area of Interest		**110.7**	**100.0%**

EXHIBIT 'B'
ENNIS/HART'S MILL PROPERTY

SCALE: Approx. 1" = 400'

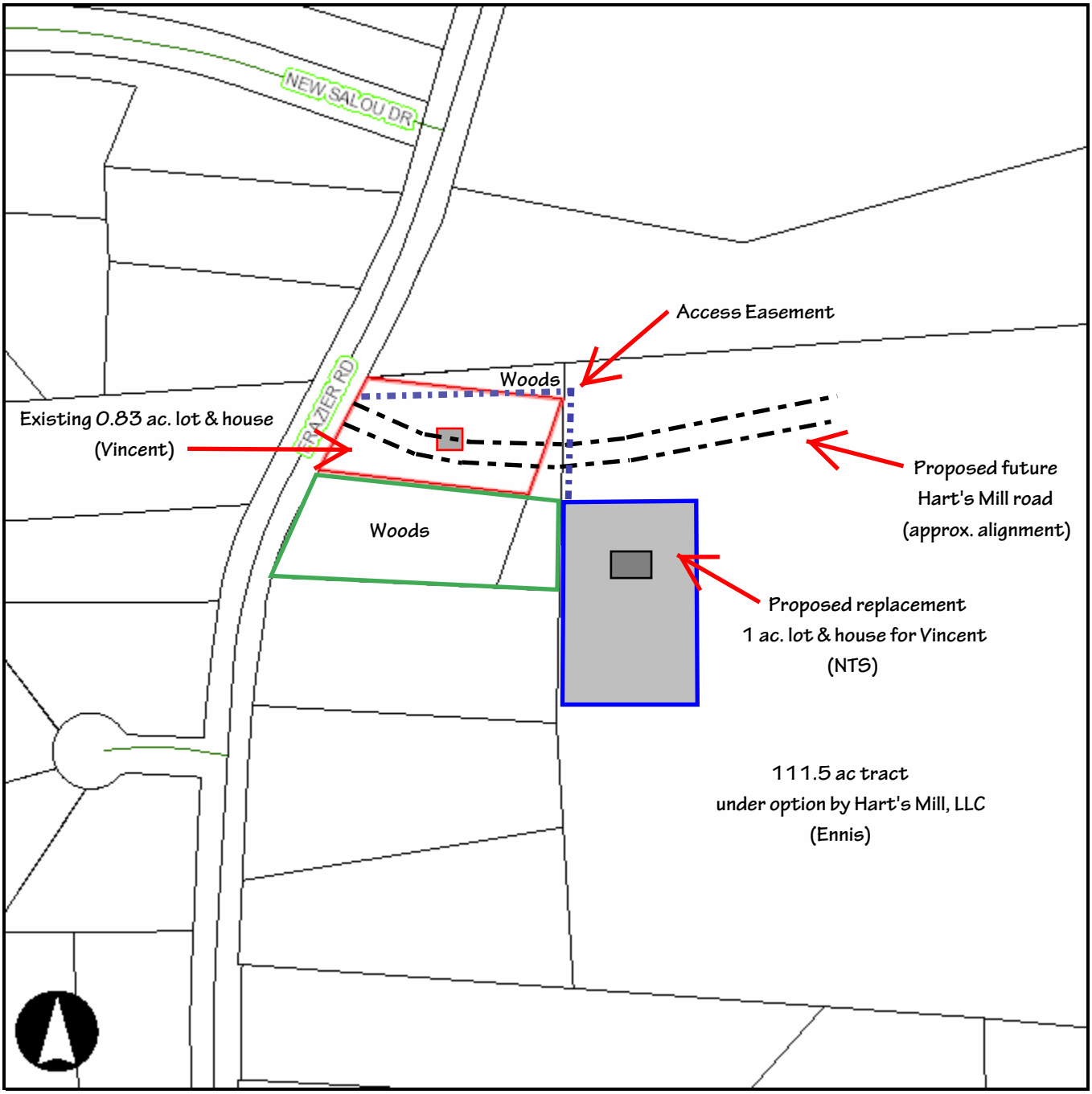
TEST AREA

POTENTIAL DRAIN FIELDS



Orange County, NC GIS

Vincent Property



1 inch = 200 feet
Created on 12/8/2013. Orange County, North Carolina.

ATTACHMENT 2: Review of Rules Pertaining to Domestic Sewage Treatment and Disposal Systems

Five categories of soil and landscape characteristics are evaluated to determine soil suitability for domestic sewage treatment and disposal systems and include: topography and landscape position, soil morphological characteristics, soil wetness conditions, soil depth, and restrictive horizons. The soil and landscape characteristics found in a particular location dictate the type(s) of domestic sewage treatment and disposal system that can be used on a parcel of land. The detailed rules can be found in Section .1900 – Sewage Treatment and Disposal Systems as Amended by the Orange County Board of Health, but a general review of the five categories and other relevant rules can be found in the sections below.

.1940 TOPOGRAPHY AND LANDSCAPE POSITION
Uniform slopes less than 15 percent are considered suitable, uniform slopes between 15 and 30 percent are considered provisionally suitable, and slopes greater than 30 percent are considered unsuitable for domestic sewage treatment and disposal systems. Complex slope patterns and slopes dissected by gullies and ravines are considered unsuitable for domestic sewage treatment and disposal systems. Depressions and wetlands are also considered unsuitable for domestic sewage treatment and disposal systems.

.1941 SOIL MORPHOLOGICAL CHARACTERISTICS
Sandy and coarse loamy textured soils (sand, loamy sand, sandy loam, and loam) are considered suitable for domestic sewage treatment and disposal systems. Fine loamy and clayey textured soils (silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay) are considered provisionally suitable for domestic sewage treatment and disposal systems.

Crumb, granular, and single-grained soil structures are considered suitable for domestic sewage treatment and disposal systems. Blocky soil structures are considered provisionally suitable for domestic sewage treatment and disposal systems. Platy, prismatic, and massive soil structures are considered unsuitable for domestic sewage treatment and disposal systems.

Slightly expansive clay mineralogy is considered suitable for domestic sewage treatment and disposal systems. Slightly expansive clay minerals exhibit loose, very friable, friable, or firm moist soil consistence. Expansive clay mineralogy is considered unsuitable for domestic sewage treatment and disposal systems. Expansive clay minerals exhibit very firm or extremely firm moist soil consistence. Organic soils are considered unsuitable for domestic sewage treatment and disposal systems.

.1942 SOIL WETNESS CONDITIONS
Soil wetness conditions are caused by seasonal high water table, perched water table, tidal water, seasonally saturated soils, or lateral water movement. Soil wetness conditions are indicated by soil colors, either in mottles or mass, with a chroma of 2 or less according to the Munsell color charts. Soil wetness conditions detected 48 inches in depth or deeper are considered suitable for domestic sewage treatment and disposal systems. Soil wetness conditions detected between 36 to 48 inches in depth are considered provisionally suitable for domestic sewage treatment and disposal systems. Soil wetness conditions detected 36 inches in depth or shallower are considered unsuitable for domestic sewage treatment and disposal systems.

.1943 SOIL DEPTH
Soil depths to rock, parent material, or saprolite greater than 48 inches are considered suitable for domestic sewage treatment and disposal systems. Soil depths to rock, parent material, or saprolite between 36 and 48 inches are considered provisionally suitable for domestic sewage treatment and disposal systems. Soil depths to rock, parent material, or saprolite less than 36 inches are considered unsuitable for domestic sewage treatment and disposal systems. Saprolite has a massive, rock-controlled structure, and retains the mineral arrangement of its parent rock in at least 50 percent of its volume. Saprolite only forms from metamorphic and igneous rock parent materials and is typically referred to as "rotten rock".

.1944 RESTRICTIVE HORIZONS
Restrictive horizons are capable of perching ground water or sewage effluent and are strongly compacted or cemented. Restrictive horizons resist soil excavation or augering. Soils with restrictive horizons three inches or more in thickness at depths greater than 48 inches are considered suitable for domestic sewage treatment and disposal systems. Soils with restrictive horizons three inches or more in thickness at depths between 36 and 48 inches are considered provisionally suitable for domestic sewage treatment and disposal systems. Soils with restrictive horizons three inches or more in thickness at depths less than 36 inches are considered unsuitable for domestic sewage treatment and disposal systems.

.1950 LOCATION OF SANITARY SEWAGE SYSTEMS
No area for domestic sewage treatment and disposal system installation (or repair in Wake County) may be disturbed by clearing, excavation, filling, vehicle or equipment traffic, or storage of building materials.

.1947 DETERMINATION OF OVERALL SITE SUITABILITY
.1948 SITE CLASSIFICATION
All of the criteria for the five categories above are to be determined and classified as suitable, provisionally suitable, or suitable according to the respective rules described above. If all criteria are classified the same, that overall site classification will prevail. If there is a variation in the classification of several criteria, the most limiting classification will be used to determine the overall site classification.

A suitable classification generally indicates soil and landscape conditions favorable for the operation of a domestic sewage treatment and disposal system or slight limitations that can be readily overcome by proper design and installation. A provisionally suitable classification indicates soil and/or landscape conditions have moderate limitations for the operation of a domestic sewage treatment and disposal system, but modifications and careful planning, design, and installation can result in satisfactory system function. An unsuitable classification indicates severe soil and/or landscape limitations for the operation of a domestic sewage treatment and disposal system.

SUMMARY
Suitable/provisionally suitable landscapes and soils to a depth of 36 inches can, in general, be used for conventional gravity driven septic systems. Suitable/provisionally suitable landscapes and soils to a depth of 24 –36 inches can, in general, be used for alternative septic systems such

as shallow conventional and low pressure pipe systems, among others. All alternative systems for provisionally suitable landscapes and soils must be proposed to and approved by the Orange County Health Department. Any landscapes or soils classified as unsuitable may be reclassified as provisionally suitable by the Orange County Health Department after a site investigation by department personnel.

ATTACHMENT 3: Property Maps Detailing Soil Suitability for Septic Systems and Soil Types

Agri-Waste Technology, Inc.
501 N. Salem St. Suite 203
Apex NC 27502
P: 919.859.0669
www.agriwaste.com

Soil Evaluation Map
Entire Lot

Ennis-Hart's Mill
PIN: 9835945500
Orange Co. NC

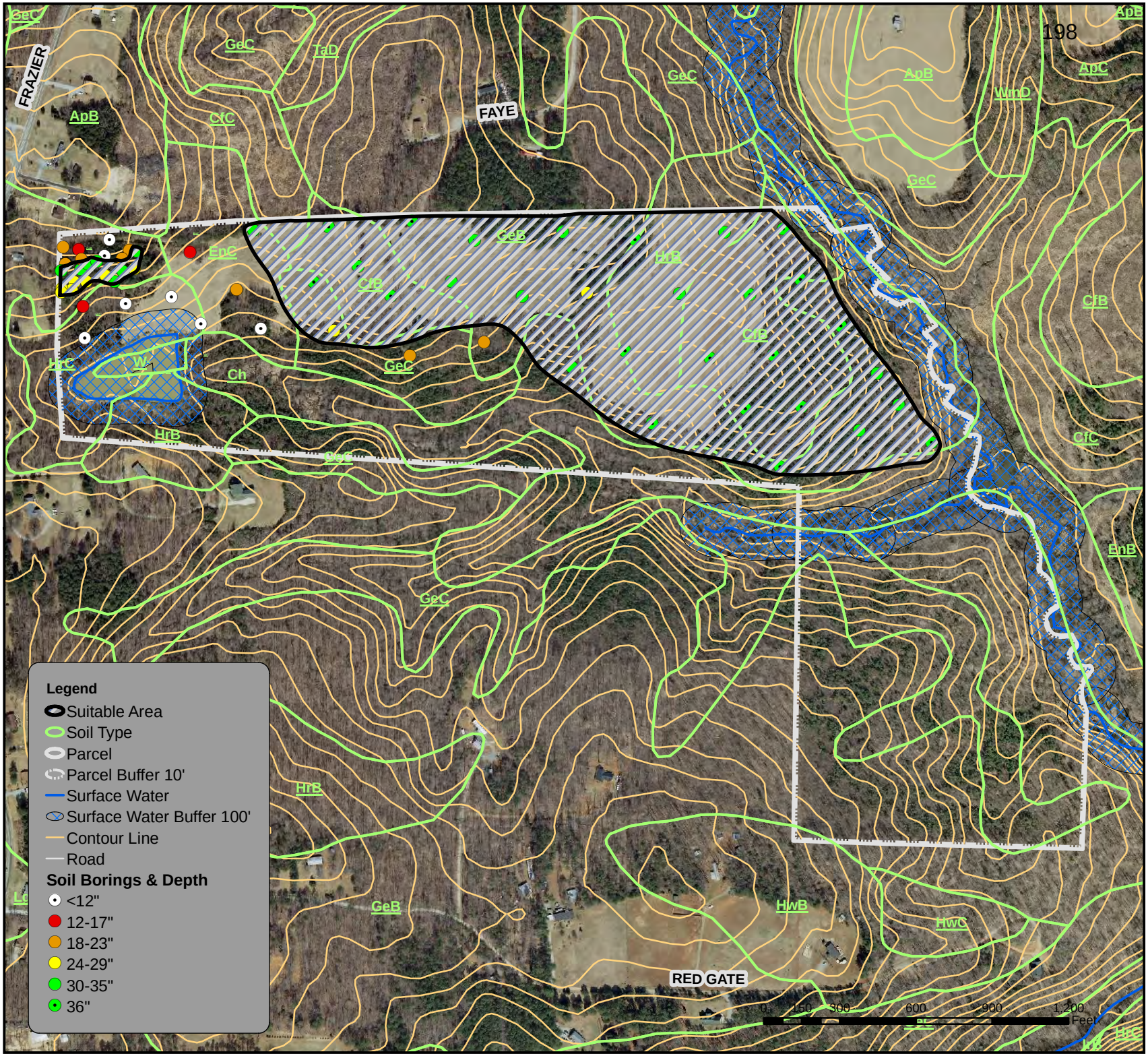
N

Suitable Area:

30,525 sq.ft. (NW of Lot)
1,687,249 sq.ft. (East of Lot)

Soil Types:

CfB-Cecil fine sandy loam
GeB & GeC-Georgeville silt loam
HrB-Herndon silt loam



Drawn By: Julie Davidson
Reviewed By: Jeff Vaughan
Date: 1/10/14

*** This map was created for proposed planning purposes only. It is not intended to be used as a plat or survey map of any type.***

Agri-Waste Technology, Inc.
501 N. Salem St. Suite 203
Apex NC 27502
P: 919.859.0669
www.agriwaste.com

Soil Evaluation Map
NW of Lot

Ennis-Hart's Mill
PIN: 9835945500
Orange Co. NC

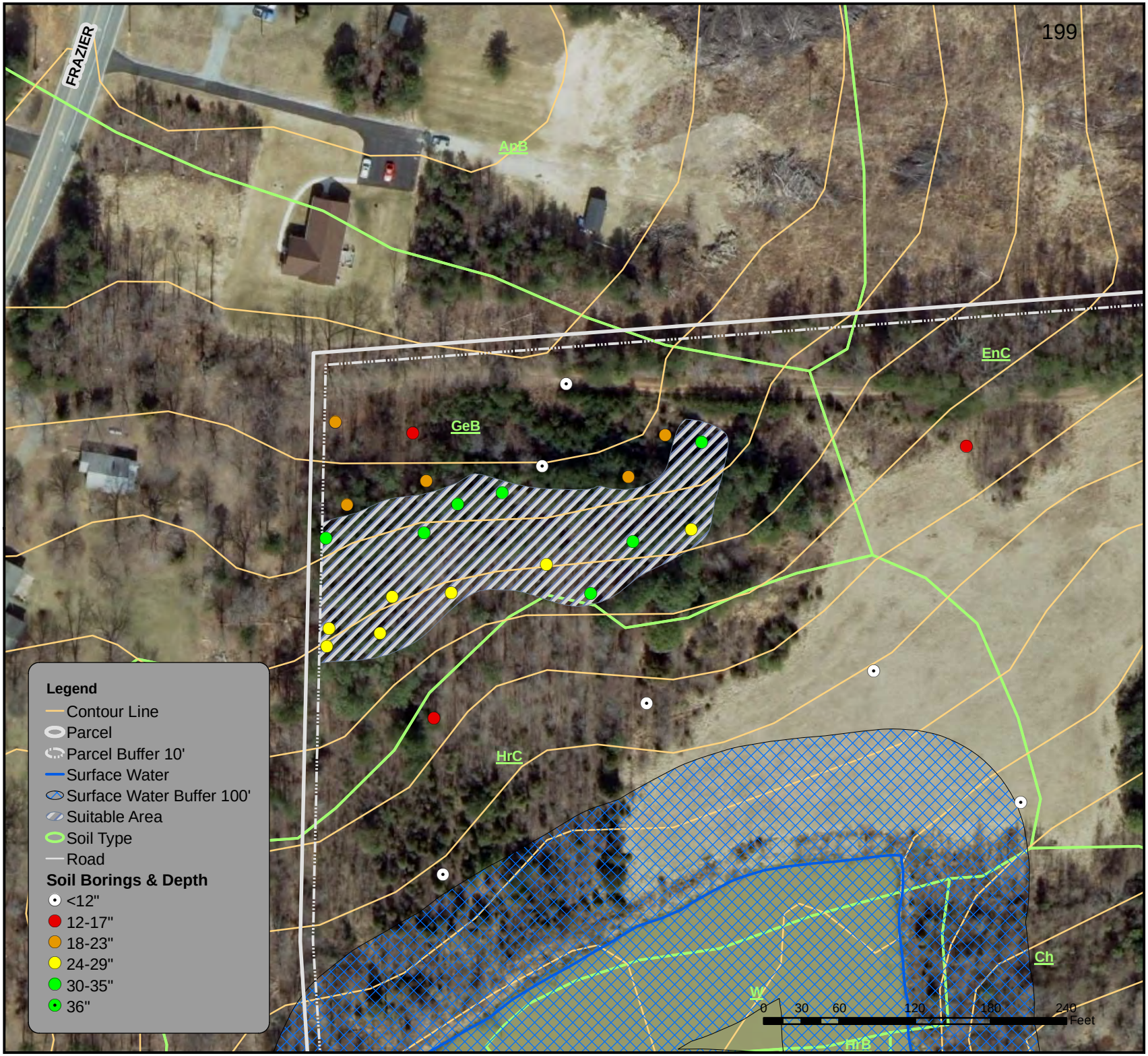
N

Suitable Area:

30,525 sq.ft. (NW of Lot)

Soil Types:

CfB-Cecil fine sandy loam
GeB & GeC-Georgeville silt loam
HrB-Herndon silt loam



Drawn By: Julie Davidson
Reviewed By: Jeff Vaughan
Date: 1/8/14

*** This map was created for proposed planning purposes only. It is not intended to be used as a plat or survey map of any type.***

ATTACHMENT 4: Typical Profile Descriptions of Provisionally Suitable Soil

Property ID#: 9835945500
Property Recorded: .
County: Orange .

SOIL/SITE EVALUATION
FOR
ON-SITE WASTEWATER SYSTEM

Applicant: Ms. Alana Ennis
Address: 4209 Pin Oak Drive
Durham, NC 27707

Owner: X Agent: Phone: (919)401-5362
Dates Evaluated: 1/2/14, 1/3/14, & 1/6/14
Proposed Facility: Residential
Property Size: Approximately 70 acres

Location Site: Frazier Road, Mebane, NC
Water Supply: On Site Well X Comm. Well Public Other
Evaluation Method: Auger Boring X Pit Cut

TYPICAL PROFILE

Horizon/ Depth (IN)	Matrix	Mottles	Mottle Abundance / Contrast	(a)(1) Texture	(a)(2) Structure	(a)(3) Minerology	Consistence Wet	Consistence Moist
A 0-5"	**10YR 4/4**	**None**	**None**	**SL-SiL**	**GR**	**SEXP**	**NS, NP**	**Vfr**
Bt1 5-36"	**2.5YR 4/8**	**None**	**None**	**C**	**SBK**	**SEXP**	**S, P**	**Fr-Fi**

.1940 Landscape Pos/Slope %	- Suitable, <15%	Profile LTAR	- 0.4 – 0.1 GPD/ft^2
.1942 Wetness Condition	- Suitable	System Type	- Provisionally suitable for shallow conventional systems due to texture, structure, and depth.
.1943/.1956 Saprolite	- Suitable		
.1944 Restrictive Horizon	- Suitable		
.1948 Profile Classification	- Provisionally suitable		

Comments: Some indications of saprolite beginning around 30", but not dominant.

TYPICAL PROFILE

Horizon/ Depth (IN)	Matrix	Mottles	Mottle Abundance /Contrast	(a)(1) Tex-ture	(a)(2) Structure	(a)(3) Minerology	Consistence Wet	Consistence Moist
A 0-5"	**10YR 4/4**	**None**	**None**	**SL-SiL**	**GR**	**SEXP**	**NS, NP**	**Vfr**
Bt1 5-32"	**2.5YR 4/8**	**None**	**None**	**C**	**SBK**	**SEXP**	**S, P**	**Fr - Fi**
Bt2 32-36"	**2.5YR 4/8**	**10YR 6/8; 10YR 8/1**	**2, m, D**	**C**	**SBK**	**SEXP**	**S, P**	**Fr - Fi**

.1940 Landscape Pos/Slope %	- Suitable, <15%	Profile LTAR	- 0.4 – 0.1 GPD/ft^2
.1942 Wetness Condition	- Suitable	System Type	- Provisionally suitable for shallow conventional systems due to texture, structure, and depth.
.1943/.1956 Saprolite	- Suitable		
.1944 Restrictive Horizon	- Suitable		
.1948 Profile Classification	- Provisionally suitable		

Comments: Some indications of saprolite beginning around 28", but not dominant.

EVALUATED BY: Chris McGee, Jeff Vaughan, Trent Bostic, Jesse Vaughan
COMMENTS:

LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM

LANDSCAPE POSITION	TEXTURE GROUP	TEXTURE CLASS	.1955 LTAR (gal/day/sqft)
CC - Concave Slope	I	S - Sand	1.2 - .08
CV - Convex Slope		LS - Loamy Sand	
DS - Debris Slump			
D - Depression	II	SL - Sandy Loam	0.8 - 0.6
DW - Drainage Way		L - Loam	
FP - Flood Plain			
FS - Foot Slope	III	SCL - Sandy Clay Loam	0.6 - 0.3
H - Head Slope		CL - Clay Loam	
I - Interflueve		SiL - Silt Loam	
L - Linear Slope		Si - Silt	
N - Nose Slope		SiCL - Silt Clay Loam	
P - Pocosin			
R - Ridge	IV	SC - Sandy Clay	0.4 - 0.1
S - Shoulder		C - Clay	
T - Terrace		SiC - Silty Clay	
		O - Organic	

STRUCTURE	MOIST CONSISTENCE	MOTTLES	WET CONSISTENCE
G - Single Grain	Vfr - Very Friable	1 - Few	NS - Non Sticky
M - Massive	Fr - Friable	2 - Common	SS - Slightly Sticky
CR - Crumb	Fi - Firm	3 - Many	S - Sticky
GR - Granular	Vfi - Very Firm		VS - Very Sticky
SBK - Subgranular Blocky	Efi - Extremely Firm	F - Faint	
ABK - Angular Blocky		D - Distinct	NP - Non Plastic
PL - Platy		P - Prominent	SP - Slightly Plastic
PR - Prismatic			P - Plastic
		f - Fine	VP - Very Plastic
		m - Medium	
		c - Coarse	

Property ID#: 9835945500
Property Recorded: .
County: Orange .

SOIL/SITE EVALUATION
FOR
ON-SITE WASTEWATER SYSTEM

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Address: 4209 Pin Oak Drive
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Water Supply: On Site Well X Comm. Well Public Other
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TYPICAL PROFILE

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A 0-5”	**10YR 4/4**	**None**	**None**	**SL-SiL**	**GR**	**SEXP**	**NS, NP**	**Vfr**
Bt1 5-22”	**2.5YR 4/8**	**None**	**None**	**C**	**SBK**	**SEXP**	**S, P**	**Fr-Fi**
Bt2 22-30”	**2.5YR 4/8**	**10YR 6/8; 10YR 8/1**	**2, m, D**	**C**	**SBK**	**SEXP**	**S, P**	**Fr - Fi**
BC2 30-36”	**2.5YR 4/8**	**10YR 6/8; 10YR 8/1**	**2, m, D**	**C**	**SBK**	**SEXP**	**S, P**	**Fr - Fi**

.1940 Landscape Pos/Slope %	- Suitable, <15%	Profile LTAR	- 0.4 – 0.1 GPD/ft^2
.1942 Wetness Condition	- Suitable	System Type	- Provisionally suitable for shallow conventional systems due to texture, structure, and depth.
.1943/.1956 Saprolite	- Suitable		
.1944 Restrictive Horizon	- Suitable		
.1948 Profile Classification	- Provisionally suitable		

Comments: Some indications of saprolite beginning around 30”, but not dominant.

TYPICAL PROFILE

Horizon/ Depth (IN)	Matrix	Mottles	Mottle Abundance /Contrast	(a)(1) Tex-ture	(a)(2) Structure	(a)(3) Minerology	Consistence Wet	Consistence Moist

.1940 Landscape Pos/Slope %		Profile LTAR	
.1942 Wetness Condition		System Type	
.1943/.1956 Saprolite			
.1944 Restrictive Horizon			
.1948 Profile Classification			

Comments:

EVALUATED BY: **Chris McGee, Jeff Vaughan, Trent Bostic, Jesse Vaughan**
COMMENTS:

LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM

LANDSCAPE POSITION	**TEXTURE GROUP**	**TEXTURE CLASS**	**.1955 LTAR** (gal/day/sqft)
CC - Concave Slope	I	S - Sand	1.2 - .08
CV - Convex Slope		LS - Loamy Sand	
DS - Debris Slump			
D - Depression	II	SL - Sandy Loam	0.8 - 0.6
DW - Drainage Way		L - Loam	
FP - Flood Plain			
FS - Foot Slope	III	SCL - Sandy Clay Loam	0.6 - 0.3
H - Head Slope		CL - Clay Loam	
I - Interflueve		SiL - Silt Loam	
L - Linear Slope		Si - Silt	
N - Nose Slope		SiCL - Silt Clay Loam	
P - Pocosin			
R - Ridge	IV	SC - Sandy Clay	0.4 - 0.1
S - Shoulder		C - Clay	
T - Terrace		SiC - Silty Clay	
		O - Organic	

STRUCTURE	**MOIST CONSISTENCE**	**MOTTLES**	**WET CONSISTENCE**
G - Single Grain	Vfr - Very Friable	1 - Few	NS - Non Sticky
M - Massive	Fr - Friable	2 - Common	SS - Slightly Sticky
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GR - Granular	Vfi - Very Firm		VS - Very Sticky
SBK - Subgranular Blocky	Efi - Extremely Firm	F - Faint	
ABK - Angular Blocky		D - Distinct	NP - Non Plastic
PL - Platy		P - Prominent	SP - Slightly Plastic
PR - Prismatic			P - Plastic
		f - Fine	VP - Very Plastic
		m - Medium	
		c - Coarse	

ATTACHMENT 5: Soil Survey Information

TABLE 7.--SANITARY FACILITIES

["Percs slowly" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "severe" and other terms used to rate soils. Absence of an entry means soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Altavista:					
Aa	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Good.
Appling:					
ApB	Moderate: percs slowly.	Moderate: slope, seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
ApC	Moderate: slope, percs slowly.	Severe: slope, seepage.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey, slope.
[1]AuC:					
Appling part	Moderate: percs slowly.	Moderate: slope, seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
Urban land part.					
Cecil:					
CfB	Moderate: percs slowly.	Moderate: seepage.	Severe: too clayey.	Slight	Fair: too clayey.
CfC	Moderate: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Fair: too clayey.
Chewacla:					
Ch	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Good.
Congaree:					
Cp	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
Creedmoor:					
CrB	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey.
Enon:					
EnB	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey.
EnC	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey.
Georgeville:					
GeB, [1]GhC	Moderate: percs slowly.	Moderate: slope, seepage.	Moderate: too clayey.	Slight	Poor: too clayey.
GeC	Moderate: percs slowly, slope.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Poor: too clayey.
Goldston:					
GlD, GlF	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: seepage.	Poor: small stones, thin layer.
Helena:					
HeB	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey.

See footnote at end of table.

TABLE 7.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Helena:					
[1]HhA:					
Helena part	Severe: percs slowly.	Slight	Severe: too clayey.	Slight	Poor: too clayey.
Sedgefield part	Severe: percs slowly, wetness.	Slight	Severe: too clayey.	Moderate: wetness.	Poor: too clayey.
Herndon:					
HrB	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight	Poor: too clayey.
HrC	Moderate: percs slowly, slope.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Poor: too clayey.
Hiwassee:					
HwB	Moderate: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Fair: too clayey.
HwC	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Fair: too clayey.
Iredell:					
IrB	Severe: percs slowly.	Moderate: slope.	Severe: too clayey, depth to rock.	Slight	Poor: too clayey.
[1]IuB:					
Iredell part	Severe: percs slowly.	Moderate: slope.	Severe: too clayey, depth to rock.	Slight	Poor: too clayey.
Urban land part.					
Lignum:					
Lg	Severe: percs slowly, wetness.	Severe: wetness.	Severe: depth to rock, wetness.	Severe: wetness.	Poor: too clayey.
Louisburg:					
LoC	Moderate: depth to rock.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: slope.
LoF	Severe: slope.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: slope.
Orange:					
Or	Severe: percs slowly, wetness.	Moderate: depth to rock.	Severe: depth to rock, wetness, too clayey.	Severe: wetness.	Poor: too clayey.
Pits:					
Pt.					
Tatum:					
TaD	Severe: depth to rock.	Severe: slope.	Severe: depth to rock.	Moderate: slope.	Poor: too clayey.
TaE	Severe: slope.	Severe: slope.	Severe: depth to rock.	Severe: slope.	Poor: slope.
Urban land:					
Ur.					
Vance:					
VaB	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey.

See footnote at end of table.

ATTACHMENT 6: Septic System Area Computation Spreadsheets

Conventional Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 1/12/2014

Client Name:	*Ennis*	
Number Bedrooms:	*3*	
Design Flow (gal/day):	360	(120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft^2)	*0.1*	
Trench Bottom Area (ft^2):	3600	(Design flow/LTAR)
Trench Width (ft):	3	
On-center distance between trenches (ft):	9	
Trench Bottom Length (ft):	1200	
Minimum Field Area Required (ft^2):	10800	(Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft^2):	8100	(25% reduction from above)
Total Field Area Required (ft^2)(1):	27000	(Minimum field area*2.5)
Total Field Area Required (Innovative) (ft^2)(1):	20250	(25% reduction from above)
Total Field Area Required (ft^2)(1):	32400	(Minimum field area*3)
Total Field Area Required (Innovative) (ft^2)(1):	24300	(25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name:	*Ennis*	
Number Bedrooms:	*3*	
Design Flow (gal/day):	360	(120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft^2)	*0.4*	
Trench Bottom Area (ft^2):	900	(Design flow/LTAR)
Trench Width (ft):	3	
On-center distance between trenches (ft):	9	
Trench Bottom Length (ft):	300	
Minimum Field Area Required (ft^2):	2700	(Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft^2):	2025	(25% reduction from above)
Total Field Area Required (ft^2)(1):	6750	(Minimum field area*2.5)
Total Field Area Required (Innovative) (ft^2)(1):	5062.5	(25% reduction from above)
Total Field Area Required (ft^2)(1):	8100	(Minimum field area*3)
Total Field Area Required (Innovative) (ft^2)(1):	6075	(25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name:	*Ennis*	
Number Bedrooms:	*3*	
Design Flow (gal/day):	360	(120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft^2)	*0.25*	
Trench Bottom Area (ft^2):	1440	(Design flow/LTAR)
Trench Width (ft):	3	
On-center distance between trenches (ft):	9	
Trench Bottom Length (ft):	480	
Minimum Field Area Required (ft^2):	4320	(Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft^2):	3240	(25% reduction from above)
Total Field Area Required (ft^2)(1):	10800	(Minimum field area*2.5)
Total Field Area Required (Innovative) (ft^2)(1):	8100	(25% reduction from above)
Total Field Area Required (ft^2)(1):	12960	(Minimum field area*3)
Total Field Area Required (Innovative) (ft^2)(1):	9720	(25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Conventional Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 1/12/2014

Client Name:	*Ennis*	
Number Bedrooms:	*4*	
Design Flow (gal/day):	480	(120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft^2)	*0.1*	
Trench Bottom Area (ft^2):	4800	(Design flow/LTAR)
Trench Width (ft):	3	
On-center distance between trenches (ft):	9	
Trench Bottom Length (ft):	1600	
Minimum Field Area Required (ft^2):	14400	(Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft^2):	10800	(25% reduction from above)
Total Field Area Required (ft^2)(1):	36000	(Minimum field area*2.5)
Total Field Area Required (Innovative) (ft^2)(1):	27000	(25% reduction from above)
Total Field Area Required (ft^2)(1):	43200	(Minimum field area*3)
Total Field Area Required (Innovative) (ft^2)(1):	32400	(25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name:	*Ennis*	
Number Bedrooms:	*4*	
Design Flow (gal/day):	480	(120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft^2)	*0.4*	
Trench Bottom Area (ft^2):	1200	(Design flow/LTAR)
Trench Width (ft):	3	
On-center distance between trenches (ft):	9	
Trench Bottom Length (ft):	400	
Minimum Field Area Required (ft^2):	3600	(Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft^2):	2700	(25% reduction from above)
Total Field Area Required (ft^2)(1):	9000	(Minimum field area*2.5)
Total Field Area Required (Innovative) (ft^2)(1):	6750	(25% reduction from above)
Total Field Area Required (ft^2)(1):	10800	(Minimum field area*3)
Total Field Area Required (Innovative) (ft^2)(1):	8100	(25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name:	*Ennis*	
Number Bedrooms:	*4*	
Design Flow (gal/day):	480	(120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft^2)	*0.25*	
Trench Bottom Area (ft^2):	1920	(Design flow/LTAR)
Trench Width (ft):	3	
On-center distance between trenches (ft):	9	
Trench Bottom Length (ft):	640	
Minimum Field Area Required (ft^2):	5760	(Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft^2):	4320	(25% reduction from above)
Total Field Area Required (ft^2)(1):	14400	(Minimum field area*2.5)
Total Field Area Required (Innovative) (ft^2)(1):	10800	(25% reduction from above)
Total Field Area Required (ft^2)(1):	17280	(Minimum field area*3)
Total Field Area Required (Innovative) (ft^2)(1):	12960	(25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Conventional Septic System Area Computation

Created by: JV
Created on: 6/20/2001
Updated on: 1/12/2014

Client Name:	*Ennis*	
Number Bedrooms:	*5*	
Design Flow (gal/day):	600	(120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft^2)	*0.1*	
Trench Bottom Area (ft^2):	6000	(Design flow/LTAR)
Trench Width (ft):	3	
On-center distance between trenches (ft):	9	
Trench Bottom Length (ft):	2000	
Minimum Field Area Required (ft^2):	18000	(Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft^2):	13500	(25% reduction from above)
Total Field Area Required (ft^2)(1):	45000	(Minimum field area*2.5)
Total Field Area Required (Innovative) (ft^2)(1):	33750	(25% reduction from above)
Total Field Area Required (ft^2)(1):	54000	(Minimum field area*3)
Total Field Area Required (Innovative) (ft^2)(1):	40500	(25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name:	*Ennis*	
Number Bedrooms:	*5*	
Design Flow (gal/day):	600	(120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft^2)	*0.4*	
Trench Bottom Area (ft^2):	1500	(Design flow/LTAR)
Trench Width (ft):	3	
On-center distance between trenches (ft):	9	
Trench Bottom Length (ft):	500	
Minimum Field Area Required (ft^2):	4500	(Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft^2):	3375	(25% reduction from above)
Total Field Area Required (ft^2)(1):	11250	(Minimum field area*2.5)
Total Field Area Required (Innovative) (ft^2)(1):	8437.5	(25% reduction from above)
Total Field Area Required (ft^2)(1):	13500	(Minimum field area*3)
Total Field Area Required (Innovative) (ft^2)(1):	10125	(25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name:	*Ennis*	
Number Bedrooms:	*5*	
Design Flow (gal/day):	600	(120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft^2)	*0.25*	
Trench Bottom Area (ft^2):	2400	(Design flow/LTAR)
Trench Width (ft):	3	
On-center distance between trenches (ft):	9	
Trench Bottom Length (ft):	800	
Minimum Field Area Required (ft^2):	7200	(Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft^2):	5400	(25% reduction from above)
Total Field Area Required (ft^2)(1):	18000	(Minimum field area*2.5)
Total Field Area Required (Innovative) (ft^2)(1):	13500	(25% reduction from above)
Total Field Area Required (ft^2)(1):	21600	(Minimum field area*3)
Total Field Area Required (Innovative) (ft^2)(1):	16200	(25% reduction from above)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Traffic Impact Analysis
for the
Proposed Hart's Mill Village and Farm

Prepared By

Michael M. Hughes, PE
8112 Orange Grove Road
Chapel Hill, NC 27516
(919) 270-6462

May 14, 2015

INTRODUCTION

This report presents the results of a Traffic Impact Analysis for the proposed Hart's Mill farm-based development in Orange County, North Carolina. The proposed development is to be located on the east side of Frazier Road, SR 1310, approximately one-mile north of the intersection of Frazier and US 70.

The developers of Hart's Mill seek to create a compact village-style neighborhood with a high quality of life while minimizing resource use and preserving the majority of the land in agriculture, woodlands, and open space.

The initiative is being led by a group of local residents who intend to live at Hart's Mill. They propose to develop 32 homes clustered on approximately 20 acres on an existing 112 acre farm. The ownership model will be similar to a condominium. The proposed site plan for the community is attached as Figure 1.

The remainder of the parcel has been proposed to remain an active farm. The development application for proposed plan has been filed as a Master Plan Development Conditional Zoning Permit which, if approved, will forever stipulate that no further development of the parcel will be allowed.

If the proposed plan is approved construction is be expected to start in 2016 or 2017 with gradual build-out to full occupancy over a five-year period.

The proposed Hart's Mill development is envisioned to operate as a co-housing community similar to Arcadia and Pacifica in Carrboro in Orange County as well. The concept of the co-housing model is that the community is socially tight-knit and the individual homes are downsized in favor of a large community building with a central kitchen and recreational and social spaces, including guest rooms.

Recent studies accessible through the internet document that because of the nature of the co-housing community, the residents tend to car-pool more frequently than do conventional single family, condominium and town home developments. The literature reports that a decrease by as much as 30% in automobile based trip generation due to car-pooling in not uncommon in co-housing communities.

EXISTING TRAFFIC LEVELS

The proposed project site is located on Frazier Road, which runs north-south, midway between US 70 to the south and Lebanon Road to the north. Both US 70 and Lebanon are east-west roads as shown in Figure 2.

Figure 2 is from the 2013 Annual Average Daily Traffic (AADT) map generated by the Traffic Survey Group of the North Carolina Department of Transportation (NCDOT). The existing traffic counts are shown in red at the locations where they were measured.

US 70 has an average of 5,900 vehicles per day at the intersection with Frazier Road, and Lebanon has an average of 1,700 vehicles per day at its intersection with Frazier Road. Further to the west, just past the intersection with SR 1346, Saddle Club Road, Lebanon has an average of 3,200 vehicles per day. A review of the NCDOT AADT maps for the period 2008-2013 shows similar traffic counts at these locations. The data indicates approximately a 1% increase in traffic count per year over the past five years. NCDOT has not published ADT data for Frazier Road.

Lebanon Road dead-ends to the east of Frazier Road. As a result, it is likely that the majority of the 1,700 vehicles per day reported by NCDOT on Lebanon Road originate to/from Frazier Road and represent traffic to/from US 70 using Frazier as a connector to access points west on Lebanon and connecting to Mill Creek, SR 1345, and Saddle Club Road, SR 1346.

Frazier is a well-maintained nominally 20’ EP-EP asphalt surface road. The speed limit on the road varies from 35-45 MPH and the ADT capacity is similar to Lebanon and Efland Road, SR 1004, and well in excess of 3,000 vehicles per day.

TRAFFIC IMPACT ANALYSIS

The trip generation data for Hart’s Mill development was prepared using the Institute of Traffic Engineers 8th Edition Trip Generation Model with OTISS software. The Hart’s Mill development was modeled as a land use code 230 Residential Condominium/Townhouse project in keeping with the ownership plan.

A graph of the underlying average week day ITE TGM data for Residential Condominium Townhouse type is shown in Figure 3. As discussed previously, although recent traffic studies available through the internet show that the traffic generation from co-housing communities is much less than conventional residential development that land use code is not currently available through ITE. As a result, it is believed that the Residential Condominium/Townhouse land use trip generation model provides an upper limit on trip generation from Hart’s Mill which, over time, will be proven to have over-estimated the actual traffic generated from the project.

The weekday peak hourly AM, peak hourly PM and average trips predicted by the model for Hart’s Mill are shown in Figures 4, 5 and 6 respectively.

It is projected that most of the traffic out of Hart’s Mill will be south bound with a left-hand turn onto Frazier, and most of the traffic into Hart’s Mill will be north-bound on Frazier with a right-turn into Hart’s Mill.

In a similar manner, it is estimated that once the Hart's Mill generated traffic reaches the intersection with US 70, most of the trips will right-hand turn onto US 70 with either I-85 as a destination via Buckhorn Road, SR 1114, as a destination or they proceed further south on Buckhorn with NC 54, Saxapahaw, Carboro, or Chapel Hill as destinations.

The projected peak hourly AM trips generated by the model for Hart's Mill at build-out show 4 entering and 16 departing. The peak hourly PM trips show 30 entering and 17 departing. These hourly levels are not expected to degrade the level-of-service at the Frazier Road intersection with US 70 to the south or, if traffic from Hart's Mill exits or enters toward to/from the north, with Lebanon.

The projected average weekday trips generated by the model for Hart's Mill at build-out show 120 entering and 119 exiting. It is fair to say that no positive gain in vehicles is expected at Hart's Mill and that the net traffic in and out will be the same because there will be no other outlet from the community.

Based on the 2013 NCDOT AADT data, at build-out the projected level of 120 average weekday trips from Hart's Mill would be expected to increase the overall traffic on Frazier Road by about 7%, using the reported AADT of 1,700 vehicles per day on Lebanon Road as a base line. Alternately stated, this would be a 1.4% increase per year over the projected five-year build out of Hart's Mill.

In a like manner, the projected level of 120 average weekday trips at build-out from Hart's Mill would be expected to increase the overall traffic on US 70 by about 2%, using the reported AADT of 5,900 vehicles per day on US 70 as a base line. Alternately stated, this would be a 0.4% increase per year over the projected five-year build out of Hart's Mill.

FAYE STREET (private)
NORTH
RECYCLING & TRASH
PV PANELS
COMMUNITY HOUSE
FUTURE ADMIN/ED BLDG
PLAYING FIELD
GARDEN
PASTURE
FARMSTEAD
DRAIN FIELD
DRAIN FIELD
FOREST CONSERVATION
FOREST CONSERVATION
FOREST CONSERVATION
HART'S MILL VILLAGE
& FARM
MEBANE, NC

FIGURE 1

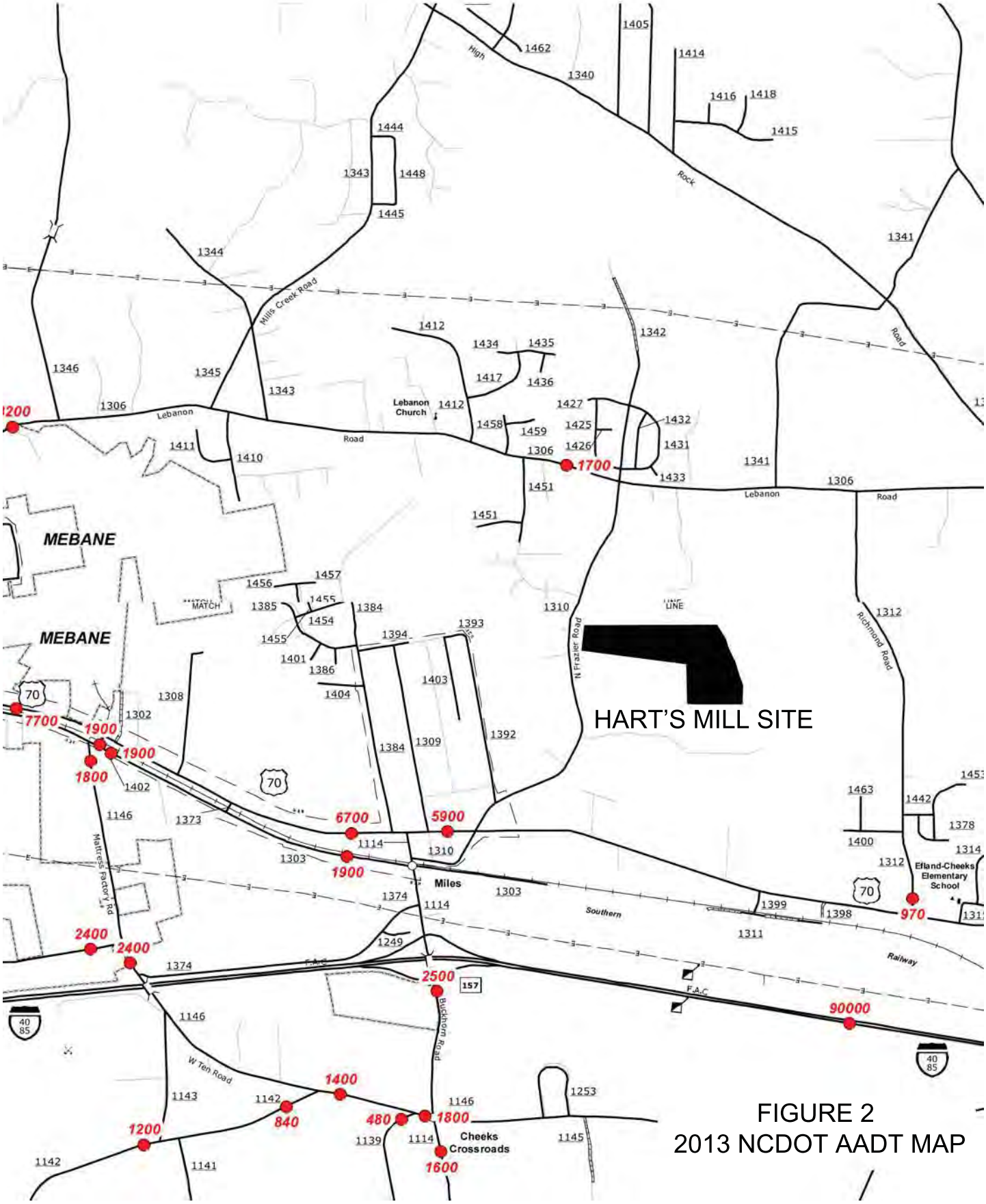


FIGURE 2
2013 NCDOT AADT MAP

Residential Condominium/Townhouse
(230)

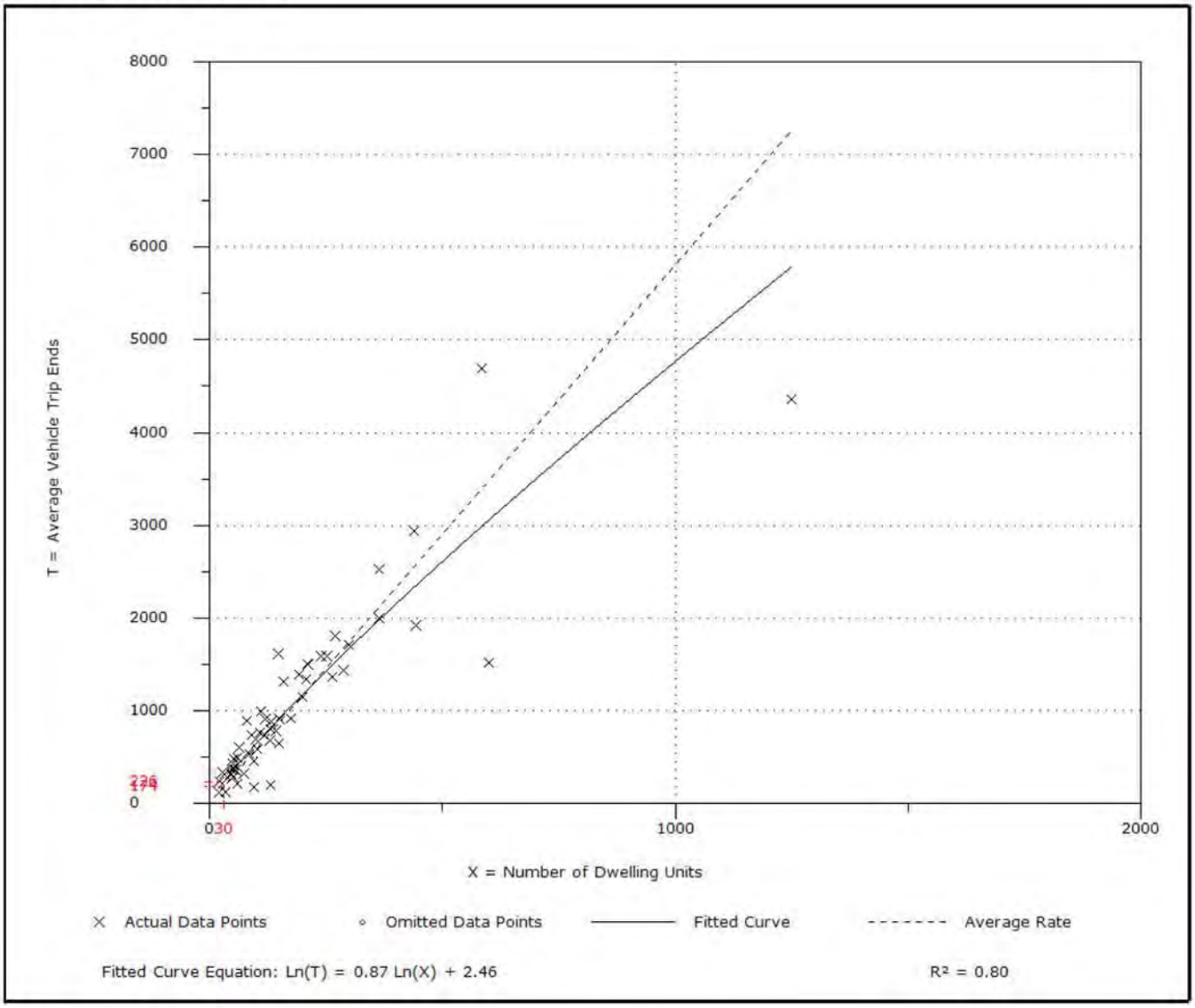
Average Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Number of Studies: 56
Avg. Number of Dwelling Units: 179
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
5.81	1.53 - 11.79	3.11

Data Plot and Equation



Trip Generation, ITE-TGM 8th Edition

Figure 3

Period Setting

Analysis Name:	Weekday Peak Hour AM Trip Generation		
Project Name:	Hart's Mill	**No:**	
Date:	5/1/2015	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:		**Edition:**	ITE-TGM 8th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
Hart's Mill Village and Farm	Dwelling Units	32	Weekday, A.M. Peak Hour of Generator	Best Fit (LOG)	4	16	20

Traffic Reductions

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
Hart's Mill Village and Farm	0 %	4	0 %	16

External Trips

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
Hart's Mill Village and Farm	20	0 %	0	20

ITE Deviation Details

Weekday, A.M. Peak Hour of Generator

Landuse	No deviations from ITE.
Methods	No deviations from ITE.
External Trips	Hart's Mill Village and Farm ITE does not recommend a particular pass-by% for this case.

Summary

Total Entering	4
Total Exiting	16
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	4
Total Exiting Non-Pass-by Trips	16

Figure 4

Period Setting

Analysis Name:	Weekday Peak Hour PM Trip Generation		
Project Name:	Hart's Mill	**No:**	
Date:	5/1/2015	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:		**Edition:**	ITE-TGM 8th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
Hart's Mill Village and Farm	Dwelling Units	32	Weekday, P.M. Peak Hour of Generator	Best Fit (LIN)	30	17	47

Traffic Reductions

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
Hart's Mill Village and Farm	0 %	30	0 %	17

External Trips

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
Hart's Mill Village and Farm	47	0 %	0	47

ITE Deviation Details

Weekday, P.M. Peak Hour of Generator

Landuse	No deviations from ITE.
Methods	No deviations from ITE.
External Trips	Hart's Mill Village and Farm ITE does not recommend a particular pass-by% for this case.

Summary

Total Entering	30
Total Exiting	17
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	30
Total Exiting Non-Pass-by Trips	17

Figure 5

Period Setting

Analysis Name:	Weekday Trip Generation		
Project Name:	Hart's Mill	**No:**	
Date:	5/1/2015	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:		**Edition:**	ITE-TGM 8th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
Hart's Mill Village and Farm	Dwelling Units	32	Weekday	Best Fit (LOG)	120	119	239

Traffic Reductions

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
Hart's Mill Village and Farm	0 %	120	0 %	119

External Trips

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
Hart's Mill Village and Farm	239	0 %	0	239

ITE Deviation Details

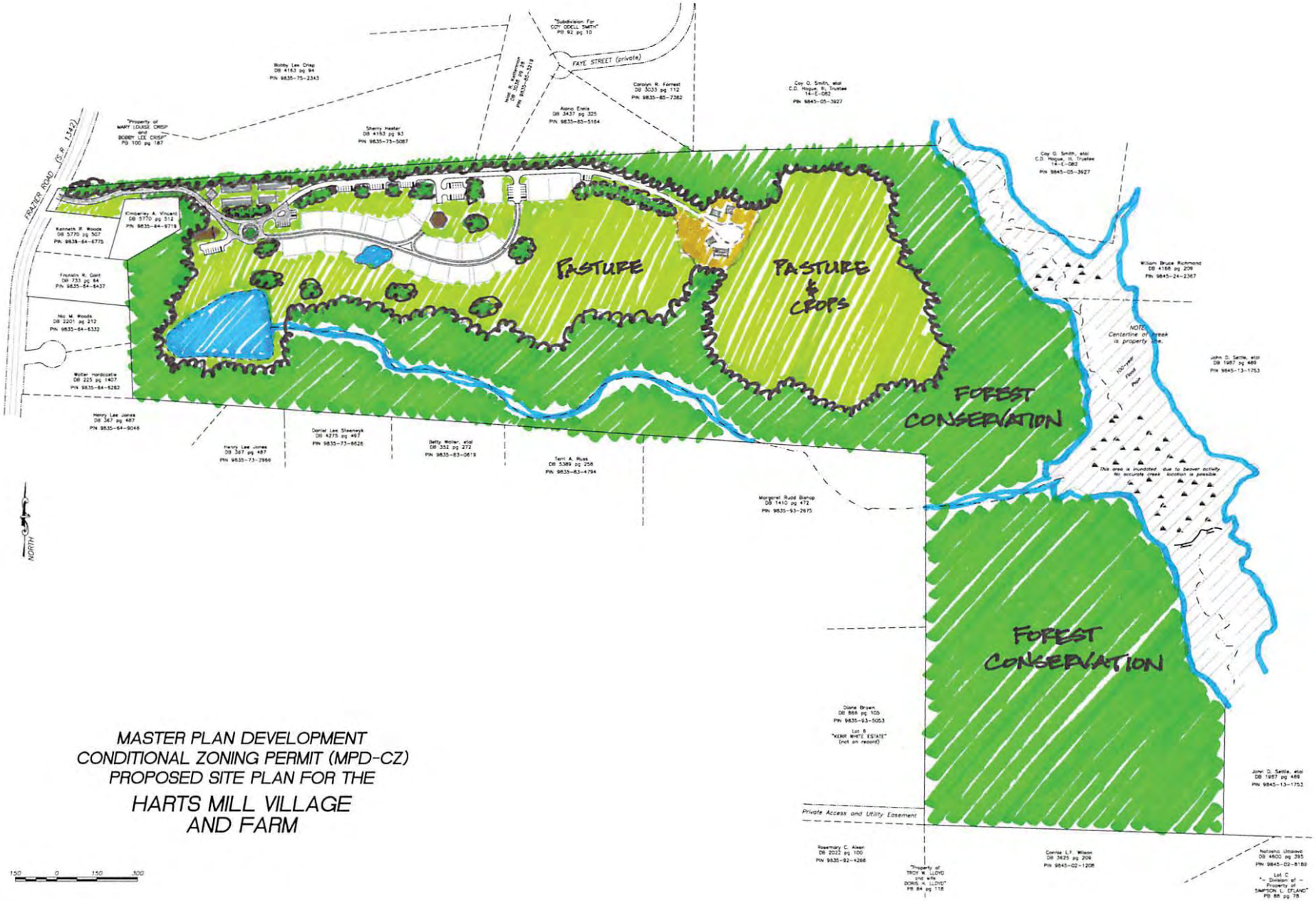
Weekday

Landuse	No deviations from ITE.
Methods	No deviations from ITE.
External Trips	Hart's Mill Village and Farm ITE does not recommend a particular pass-by% for this case.

Summary

Total Entering	120
Total Exiting	119
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	120
Total Exiting Non-Pass-by Trips	119

Figure 6



MASTER PLAN DEVELOPMENT
CONDITIONAL ZONING PERMIT (MPD-CZ)
PROPOSED SITE PLAN FOR THE

HARTS MILL VILLAGE AND FARM

150 0 150 300

MASTER PLAN DEVELOPMENT
CONDITIONAL ZONING PERMIT (MPD-CZ)
PLANS FOR THE
HARTS MILL VILLAGE AND FARM

LOCATION MAP

PROPERTY OWNER: ALANA ENNIS
4209 PIN OAK DRIVE
DURHAM, NC 27707

DEVELOPER : HARTS MILL, LLC
P.O. BOX 2844
CHAPEL HILL, NC 27515

ENGINEER: MICHAEL M. HUGHES, PE
8112 ORANGE GROVE ROAD
CHAPEL HILL, NC 27516
(919-270-6462

PROPERTY INFORMATION:

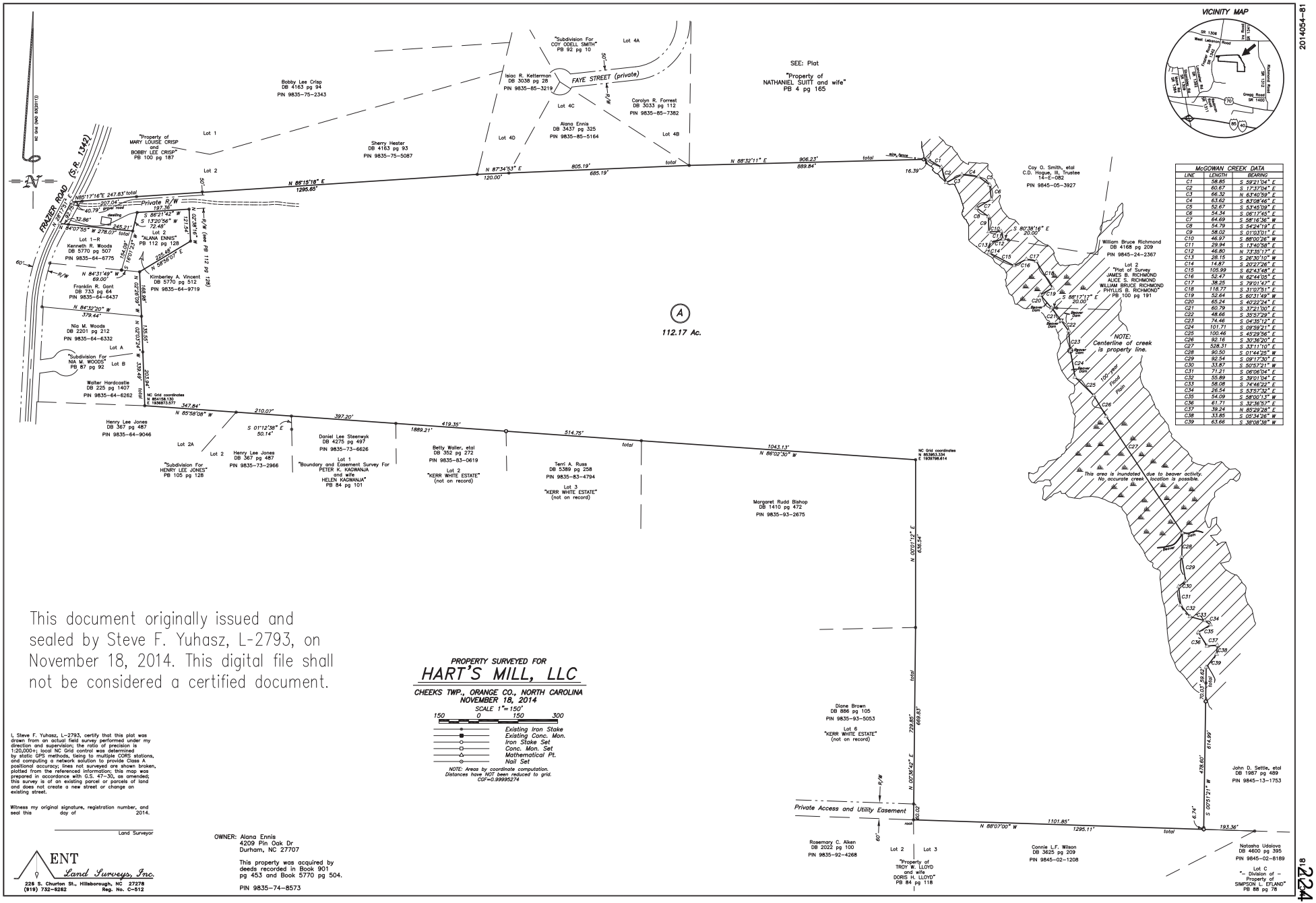
PIN	9835-74-8573
Address	FRAZIER ROAD - SR 1310
Township	CHEEKS
Size	112.17 ACRES
Deed BK/PG	901/453 , 5770/504
Zoning	R-1
Watershed	UPPER ENO
Special Flood Hazard Overlay District	YES
Flood Zone 500 Year	YES
Effland Cheeks Overlay District	NO
Major Transportation Corridor Zone	NO
Stoney Creek overlay	NO

DRAWING INDEX :

PLAT	PROPERTY BOUNDARY SURVEY
SP-1	HARTS MILL VILLAGE AND FARM OVERALL SITE PLAN
SP-2	VILLAGE EXISTING TOPOGRAPHY
SP-3	VILLAGE SITE PLAN
SP-4	PROPOSED GRADING PLAN AND STORM WATER DRAINAGE AREAS
SP-5	DETAILED SITE PLAN - SHEET 1
SP-6	DETAILED SITE PLAN - SHEET 2
SP-7	WATER AND SEWER PLAN - SHEET 1
SP-8	WATER AND SEWER PLAN - SHEET 2
SP-9	LIGHTING AND SIGN PLAN - SHEET 1
SP-10	LIGHTING AND SIGN PLAN - SHEET 2
SP-11	STREET TYPICAL SECTIONS AND DETAILS
SP-12	CONCEPTUAL SEPTIC SYSTEM LAYOUT
SP-13	TYPICAL HOUSE ELEVATIONS
SP-14	LANDSCAPE BUFFER PLAN

DRAWING SET DATE : MAY 13, 2015

FOR PERMITTING ONLY
NOT FOR CONSTRUCTION



McGOWAN CREEK DATA		
LINE	LENGTH	BEARING
C1	58.85	S 59°21'04" E
C2	60.67	S 17°37'04" E
C3	66.32	N 63°40'59" E
C4	63.62	S 83°08'46" E
C5	52.67	S 53°45'09" E
C6	54.34	S 06°17'45" E
C7	64.69	S 58°16'36" W
C8	54.79	S 54°24'19" E
C9	58.02	S 01°03'01" E
C10	46.97	S 88°00'26" W
C11	29.94	S 13°40'58" E
C12	46.80	N 73°35'17" E
C13	28.15	S 26°30'10" W
C14	14.87	S 20°27'26" E
C15	105.99	S 62°43'48" E
C16	52.47	N 62°44'05" E
C17	38.25	S 79°01'47" E
C18	118.77	S 31°07'51" E
C19	52.64	S 60°31'49" W
C20	65.24	S 40°22'24" E
C21	60.79	S 37°21'00" E
C22	48.66	S 35°57'29" E
C23	74.46	S 04°35'12" E
C24	101.71	S 09°59'21" E
C25	100.46	S 45°29'56" E
C26	92.16	S 30°16'20" E
C27	528.31	S 33°11'10" E
C28	90.50	S 01°44'25" W
C29	92.54	S 09°17'30" E
C30	33.87	S 50°57'21" W
C31	71.21	S 06°06'04" E
C32	55.89	S 39°01'04" E
C33	58.08	S 74°46'22" E
C34	26.54	S 53°57'32" E
C35	54.09	S 58°00'13" W
C36	61.71	S 32°36'57" E
C37	39.24	N 85°29'28" E
C38	33.85	S 05°34'26" W
C39	63.66	S 38°08'38" W

This document originally issued and sealed by Steve F. Yuhasz, L-2793, on November 18, 2014. This digital file shall not be considered a certified document.

PROPERTY SURVEYED FOR

HART'S MILL, LLC

CHEEKS TWP., ORANGE CO., NORTH CAROLINA
NOVEMBER 18, 2014

SCALE 1"=150'

150 0 150 300

Existing Iron Stake
Existing Conc. Mon.
Iron Stake Set
Conc. Mon. Set
Mathematical Pt.
Nail Set

NOTE: Areas by coordinate computation. Distances have NOT been reduced to grid. CGF=0.99995274

I, Steve F. Yuhasz, L-2793, certify that this plat was drawn from an actual field survey performed under my direction and supervision; the ratio of precision is 1:20,000+; local NC Grid control was determined by static GPS methods, tieing to multiple CORS stations, and computing a network solution to provide Class A positional accuracy; lines not surveyed are shown broken, plotted from the referenced information; this map was prepared in accordance with G.S. 47-30, as amended; this survey is of an existing parcel or parcels of land and does not create a new street or change an existing street.

Witness my original signature, registration number, and seal this day of 2014.

Land Surveyor

ENT Land Surveys, Inc.
226 S. Churton St., Hillsborough, NC 27278
(919) 732-8262 Reg. No. C-512

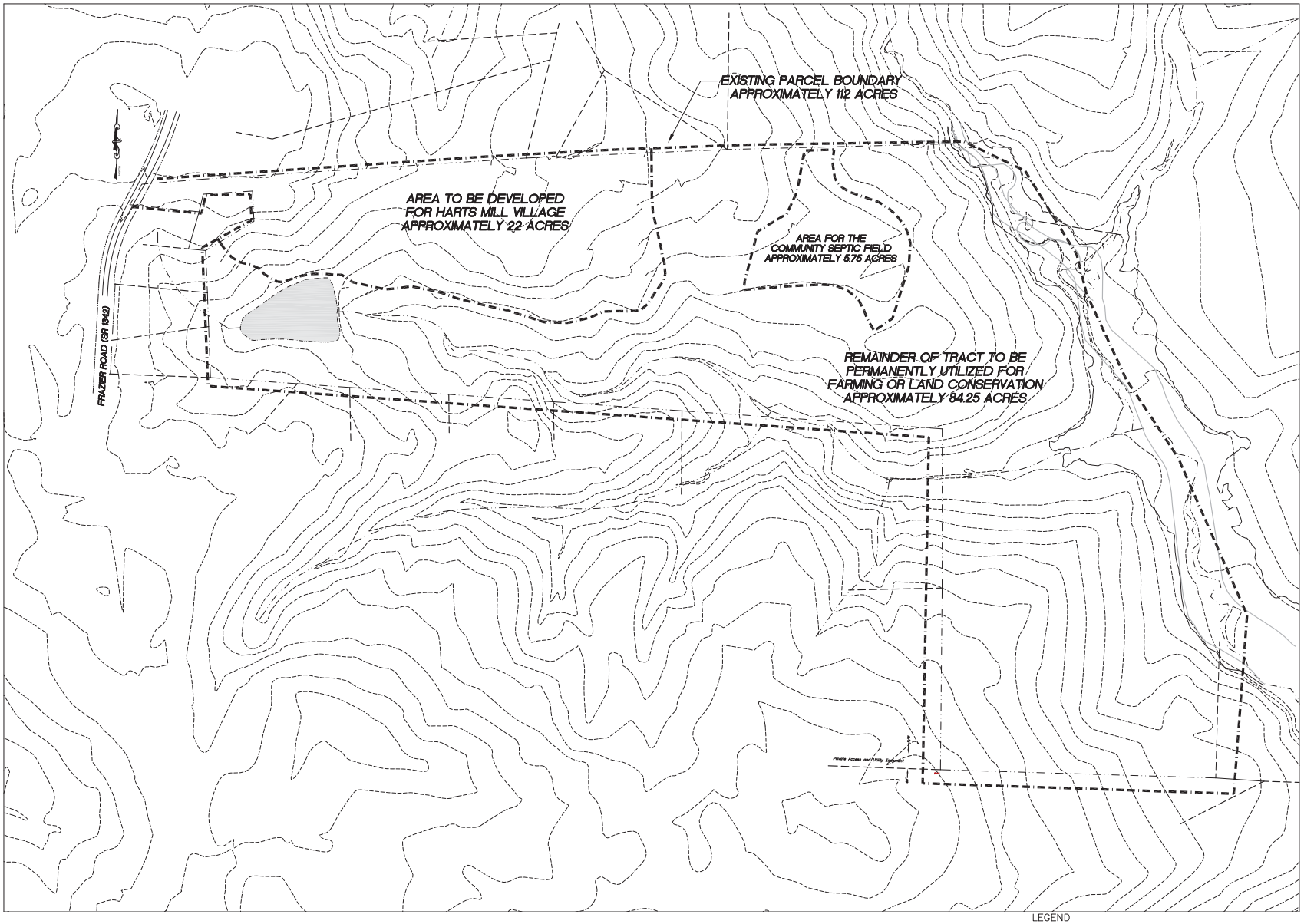
OWNER: Alana Ennis
4209 Pin Oak Dr
Durham, NC 27707

This property was acquired by deeds recorded in Book 901 pg 453 and Book 5770 pg 504.

PIN 9835-74-8573

2014054-81

8224



LEGEND

---520--- Existing Contour Line

—520— Proposed Contour Line

FOR PERMITTING ONLY
NOT FOR CONSTRUCTION

mmh
mmh@mmhpe.com
michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

NOTE

DRAWN	CHECKED
MMH	MMH
SCALE	DATE
1" = 180'	04/02/15

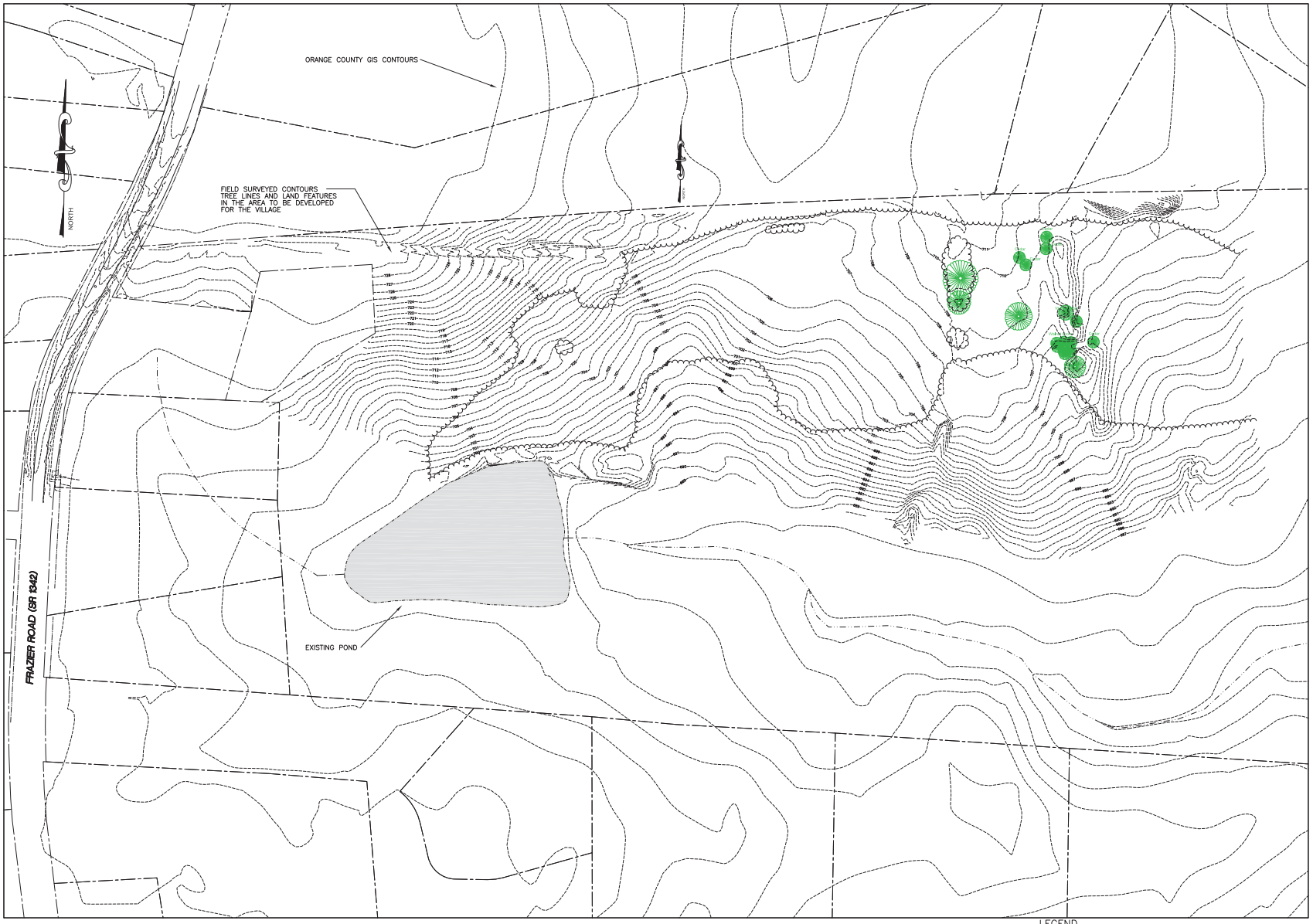
TITLE

HARTS MILL VILLAGE AND FARM OVERALL SITE PLAN WITH EXISTING TOPOGRAPHIC FEATURES FROM GIS

FILE NO. JOB NO.

SEAL SHEET NO.

SP-1



40 20 0 40 80 160 320
SCALE

LEGEND
---520--- Existing Contour Line

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mmh
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michael m. hughes, p.e.
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PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

NOTE

DRAWN	CHECKED
MMH	MMH
SCALE	DATE
1" = 80'	04/02/14

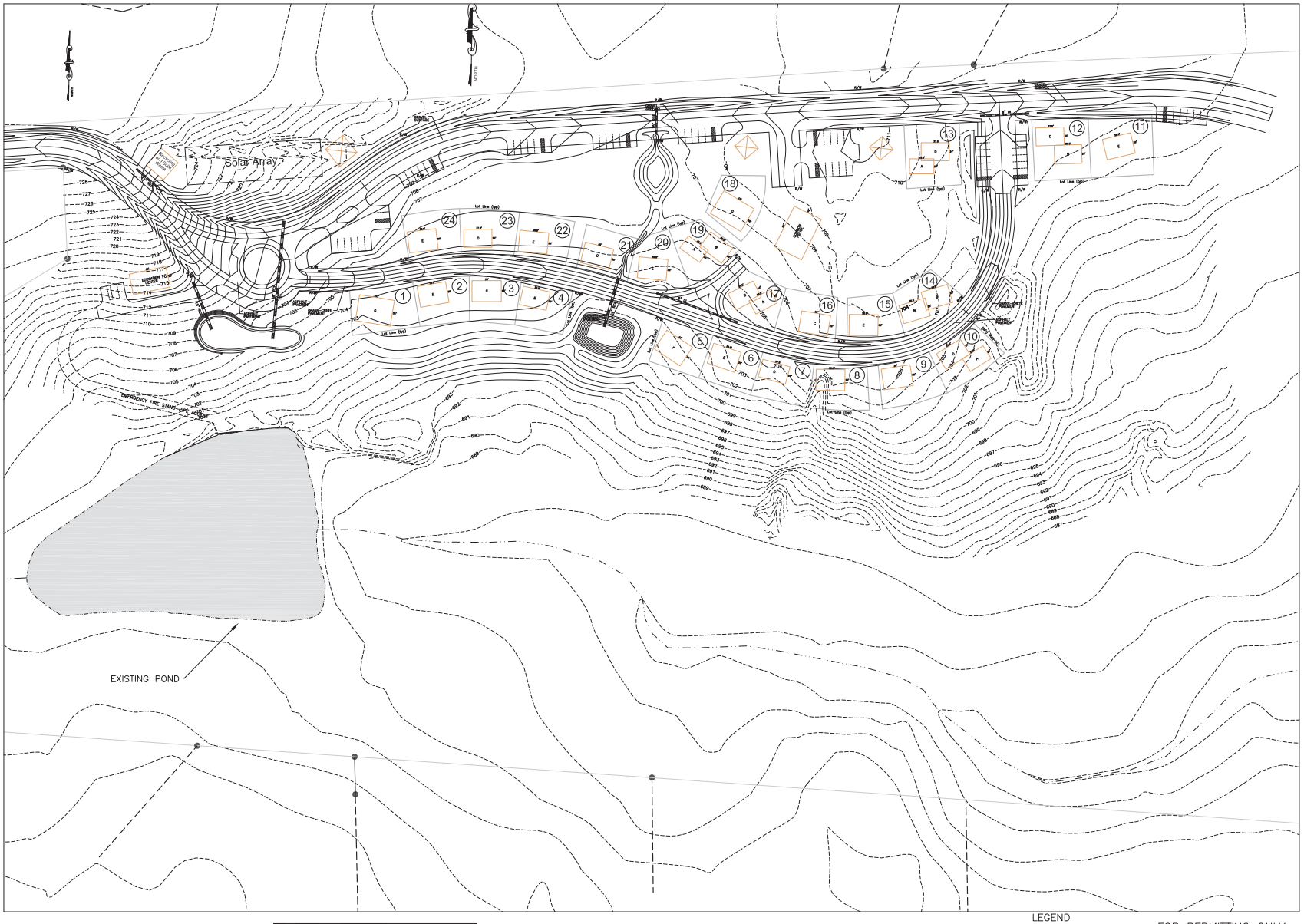
TITLE

HARTS MILL VILLAGE EXISTING TOPOGRAPHY

FILE NO. JOB NO.

SEAL SHEET NO.

SP-2



30 15 0 30 60 120 240
SCALE

LEGEND
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PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

NOTE

DRAWN	CHECKED
MMH	MMH
SCALE	DATE
1" = 60'	04/02/15

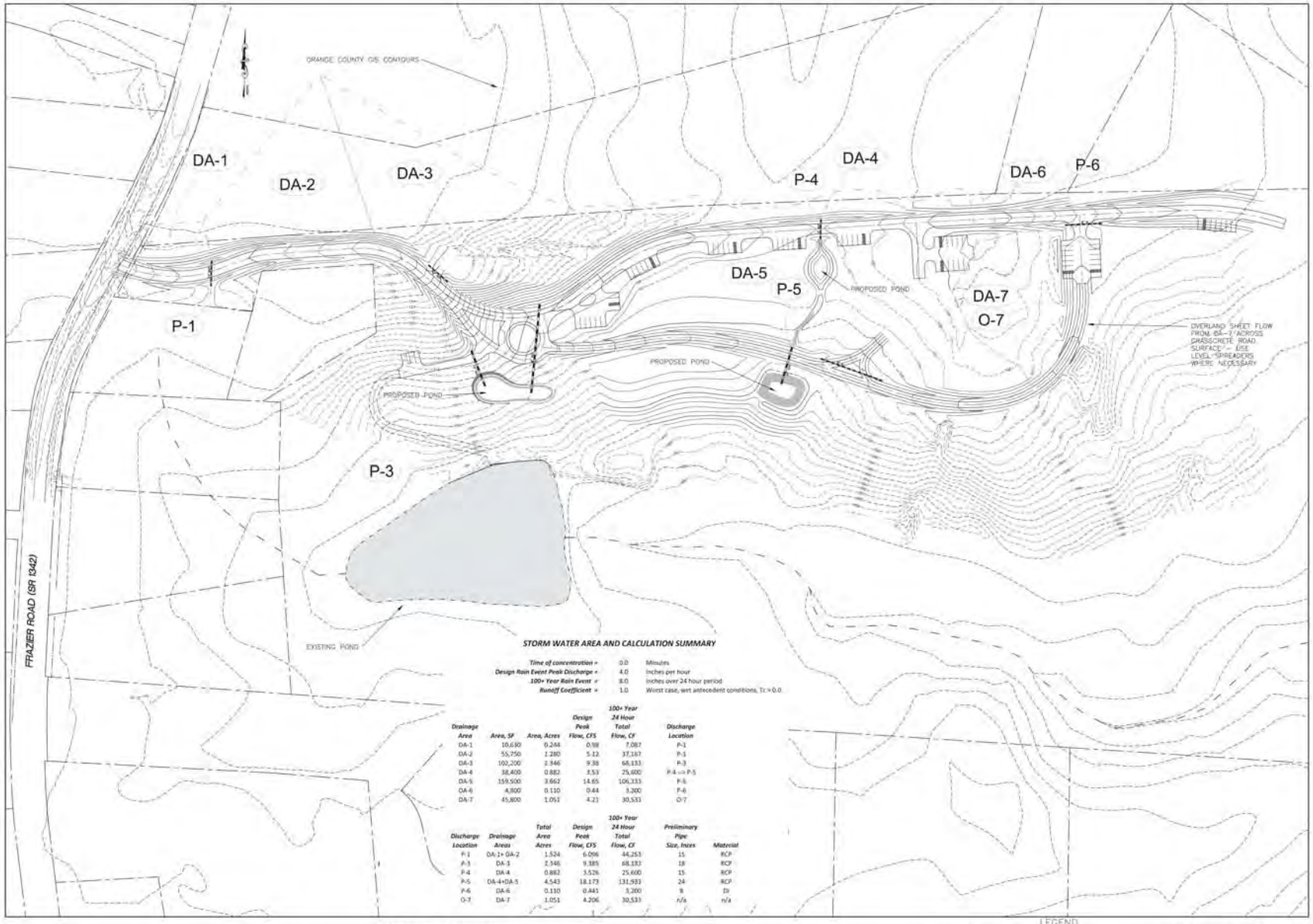
TITLE

HARTS MILL VILLAGE SITE PLAN

FILE NO. JOB NO.

SEAL SHEET NO.

SP-3



STORM WATER AREA AND CALCULATION SUMMARY

Time of concentration =	0.0	Minutes
Design Rain Event Peak Discharge =	4.0	Inches per hour
100+ Year Rain Event =	8.0	Inches over 24 hour period
Runoff Coefficient =	1.0	Worst case, wet antecedent conditions, Tc > 0.0

Drainage Area	*Area, SF*	*Area, Acres*	*Design Peak Flow, CFS*	*100+ Year 24 Hour Total Flow, CF*	*Discharge Location*
DA-1	10,630	0.244	0.98	7,087	P-1
DA-2	55,750	1.280	5.12	37,167	P-1
DA-3	102,200	2.346	9.38	68,133	P-3
DA-4	38,400	0.882	3.53	25,600	P-4 => P-5
DA-5	159,500	3.662	14.65	106,333	P-5
DA-6	4,800	0.110	0.44	3,200	P-6
DA-7	45,800	1.051	4.21	30,533	O-7

Discharge Location	*Drainage Areas*	*Total Area Acres*	*Design Peak Flow, CFS*	*100+ Year 24 Hour Total Flow, CF*	*Preliminary Pipe Size, Inches*	*Material*
P-1	DA-1+ DA-2	1.524	6.096	44,253	15	RCP
P-3	DA-3	2.346	9.385	68,133	18	RCP
P-4	DA-4	0.882	3.526	25,600	15	RCP
P-5	DA-4+DA-5	4.543	18.173	131,933	24	RCP
P-6	DA-6	0.110	0.441	3,200	9	DI
O-7	DA-7	1.051	4.206	30,533	n/a	n/a

LEGEND
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mmh
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michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-8462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

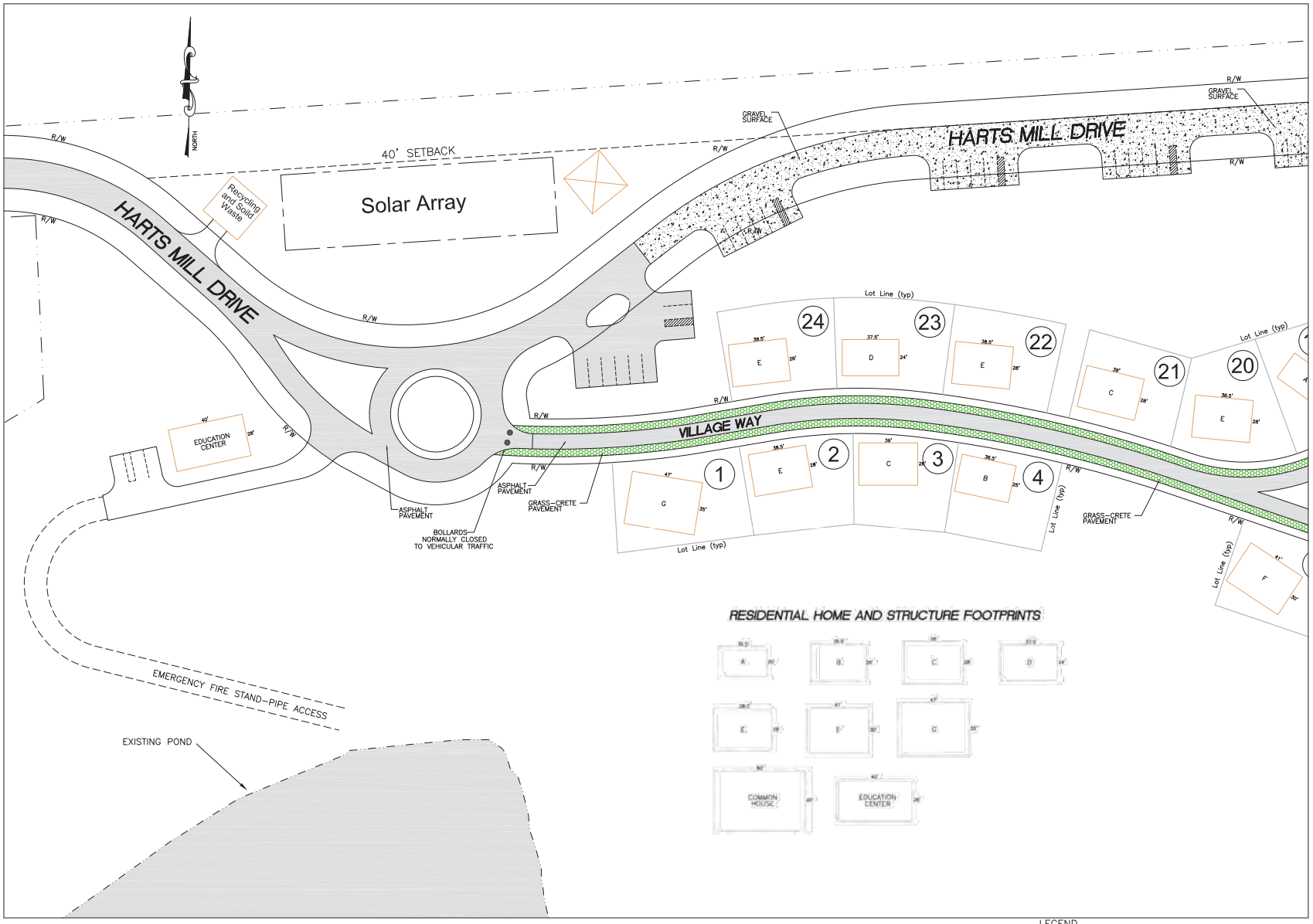
NOTE

DRAWN: MMH
CHECKED: MMH
SCALE: 1" = 80'
DATE: 05/13/15

TITLE

HARTS MILL VILLAGE PROPOSED GRADING PLAN AND STORMWATER DRAINAGE AREAS

FILE NO.
JOB NO.
SEAL
SHEET NO.
SP-4



15 0 15 30 60 120
SCALE

LEGEND
- - 520 - - Existing Contour Line
—— 520 —— Proposed Contour Line

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mmh
mmh@mmhpe.com
michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

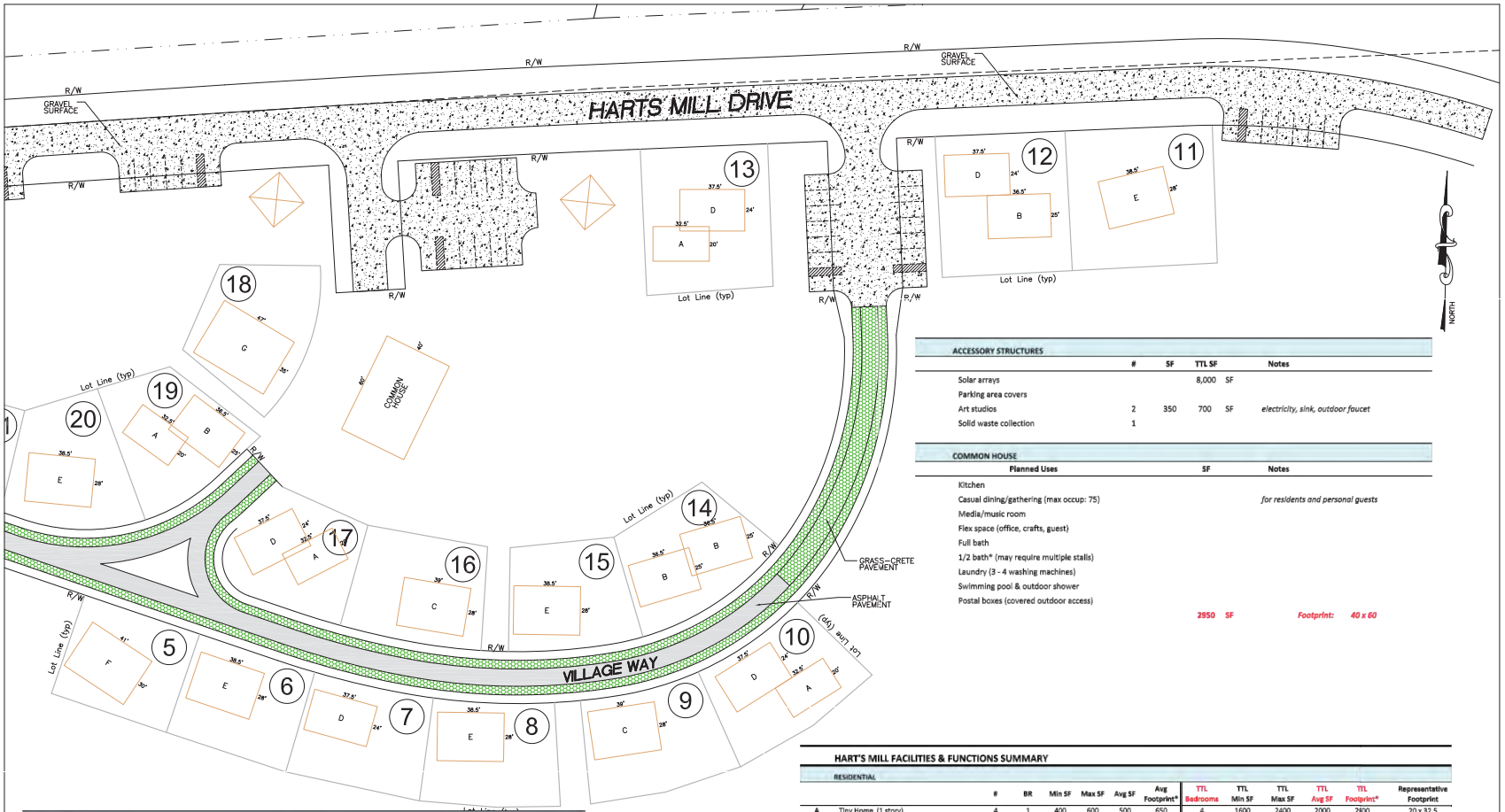
NOTE

DRAWN: MMH
CHECKED: MMH
SCALE: 1" = 30'
DATE: 4/6/15

TITLE

HARTS MILL VILLAGE DETAILED SITE PLAN

FILE NO.
JOB NO.
SEAL
SHEET NO.
SP-5



ACCESSORY STRUCTURES	#	SF	TTL SF		Notes
Solar arrays			8,000	SF	
Parking area covers					
Art studios	2	350	700	SF	*electricity, sink, outdoor faucet*
Solid waste collection	1				

COMMON HOUSE		
Planned Uses	**SF**	**Notes**
Kitchen		
Casual dining/gathering (max occup: 75)		*for residents and personal guests*
Media/music room		
Flex space (office, crafts, guest)		
Full bath		
1/2 bath* (may require multiple stalls)		
Laundry (3 - 4 washing machines)		
Swimming pool & outdoor shower		
Postal boxes (covered outdoor access)		
	2950 SF	**Footprint: 40 x 60**

FARMSTEAD		SF	TTL SF		
Farm houses	2	1800	3,600	SF	*locate east of large field in woods; separate well & septic*
Camping Area (up to 6 campsites)					*locate north of barn area*
Barn	1	2160	2,160	SF	*electricity, shower, sink and outdoor faucets*
Washing/Sorting/Packing Shed	1	640	640	SF	*electricity, sink, outdoor faucet*
Garage	1	750	750	SF	*electricity, outdoor faucet*
Woodworking Shop	1	900	900	SF	*electricity, outdoor faucet*
Pottery Studio & Kiln	1	600	600	SF	*electricity, sink, outdoor faucet*

EDUCATION CENTER (FUTURE)			
Farm/community office	1		*occupancy: 1*
Resident office workspaces	4		*occupancy: 4*
Flexible meeting/class/exercise space	1		*capacity: 15*
Library/media/copier room	1		
		2,220 SF	**Footprint: 28 x 50**

HART'S MILL FACILITIES & FUNCTIONS SUMMARY

RESIDENTIAL

		#	BR	Min SF	Max SF	Avg SF	Avg Footprint*	TTL Bedrooms	TTL Min SF	TTL Max SF	TTL Avg SF	TTL Footprint*	Representative Footprint
A	Tiny Home (1 story)	4	1	400	600	500	650	4	1600	2400	2000	2600	20 x 32.5
B	1 BR Cottage (1 or 1.5 story)	5	1	600	800	700	915	5	3000	4000	3500	4575	25 x 36.5
C	2 BR Cottage (1 or 1.5 story)	4	2	800	1000	900	1090	8	3200	4000	3600	4360	28 X 39
D	2 BR House (1, 1.5 or 2 story)	6	2	1000	1500	1250	900	12	6000	9000	7500	5400	24 x 37.5
E	3 BR House (2 story)	8	3	1300	1800	1550	1080	24	10400	14400	12400	8640	28 x 38.5
F	4 BR House (2 story)	1	4	1600	2000	1800	1230	4	1600	2000	1800	1130	30 x 41
G	Shared Home (2 story)	2	5	2000	2800	2400	1640	10	4000	5600	4800	3180	35 x 47
	TOTAL # HOUSING UNITS	***30***						***67***	***29,800***	***41,400***	***35,600***	***30,885***	

** Footprint includes allowances for roof overhangs and porches*

Single Family Homes	17
Duplexes	5
Shared Homes	2
TOTAL # BLDG "LOTS"	***24***

various combinations of house types

SCALE: 15 0 15 30 60 120

LEGEND
– – 520 – – Existing Contour Line
—— 520 —— Proposed Contour Line

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mmh
mmh@mmhpe.com
michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

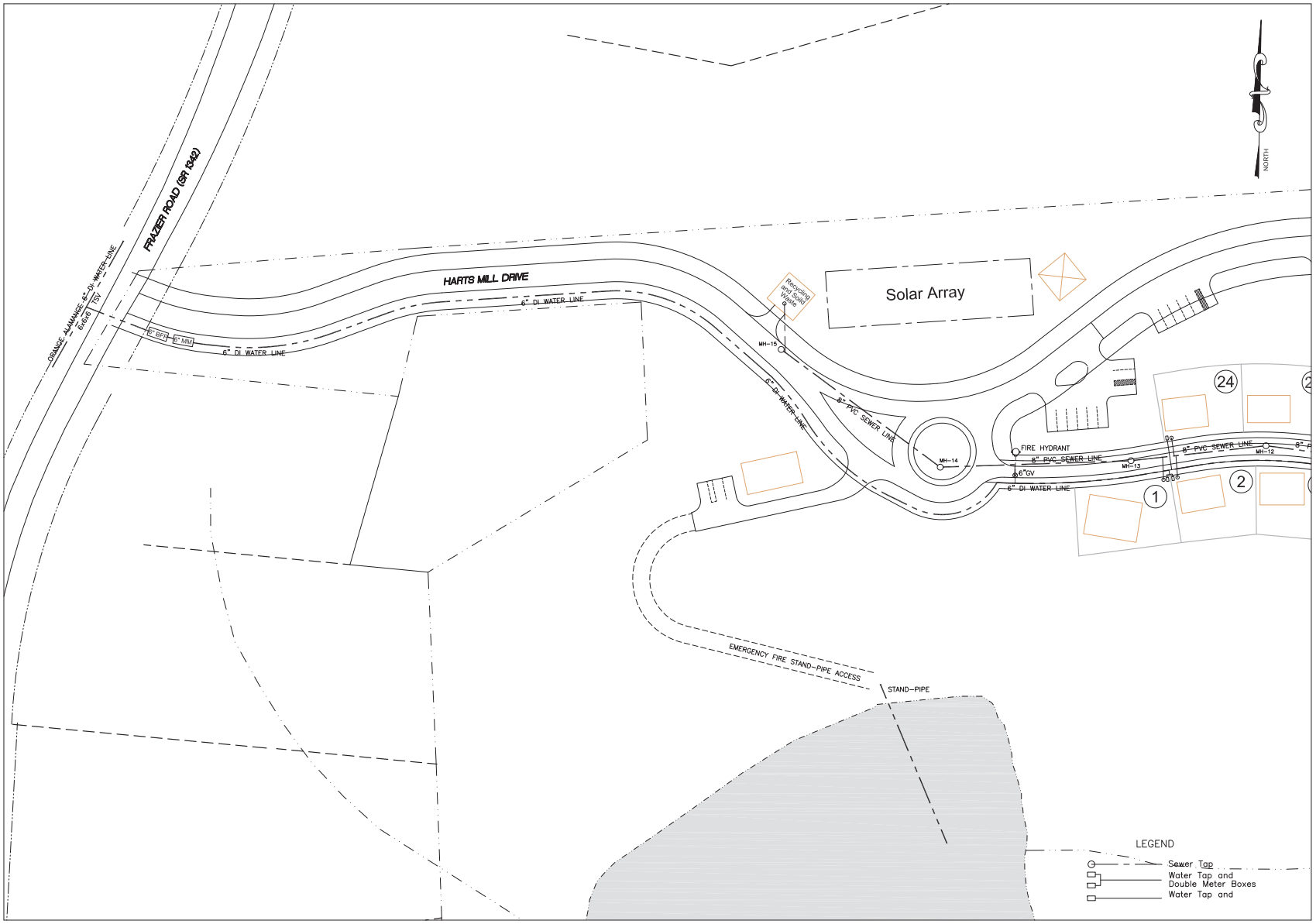
NOTE

DRAWN	CHECKED
MMH	MMH
SCALE	**DATE**
1" = 30'	4/6/15

TITLE

HARTS MILL VILLAGE SITE PLAN

FILE NO. JOB NO.
SEAL SHEET NO.
SP-6



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mmh
mmh@mmhpe.com
michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

NOTE

DRAWN	CHECKED
MMH	MMH
SCALE	DATE
1" = 40'	4/5/15

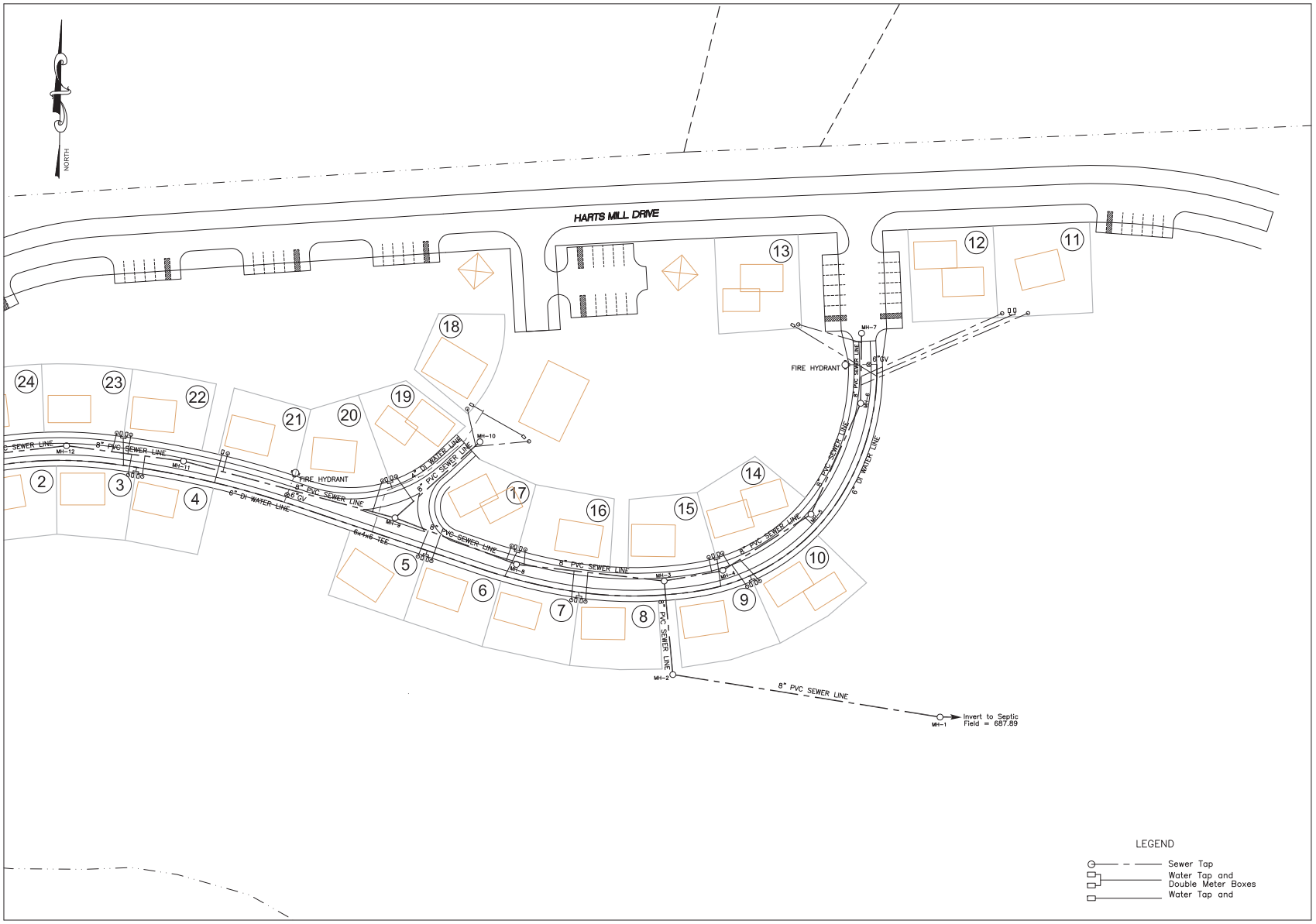
TITLE

WATER AND SEWER PLAN - SHEET 1

FILE NO. JOB NO.

SEAL SHEET NO.

SP-7



20 10 0 20 40 80 160
SCALE

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mmh

mmh@mmhpe.com
michael m. hughes, p.e.
Civil and Environmental Engineering

8112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

NOTE

DRAWN	CHECKED
MMH	MMH
SCALE	DATE
1" = 40'	4/6/15

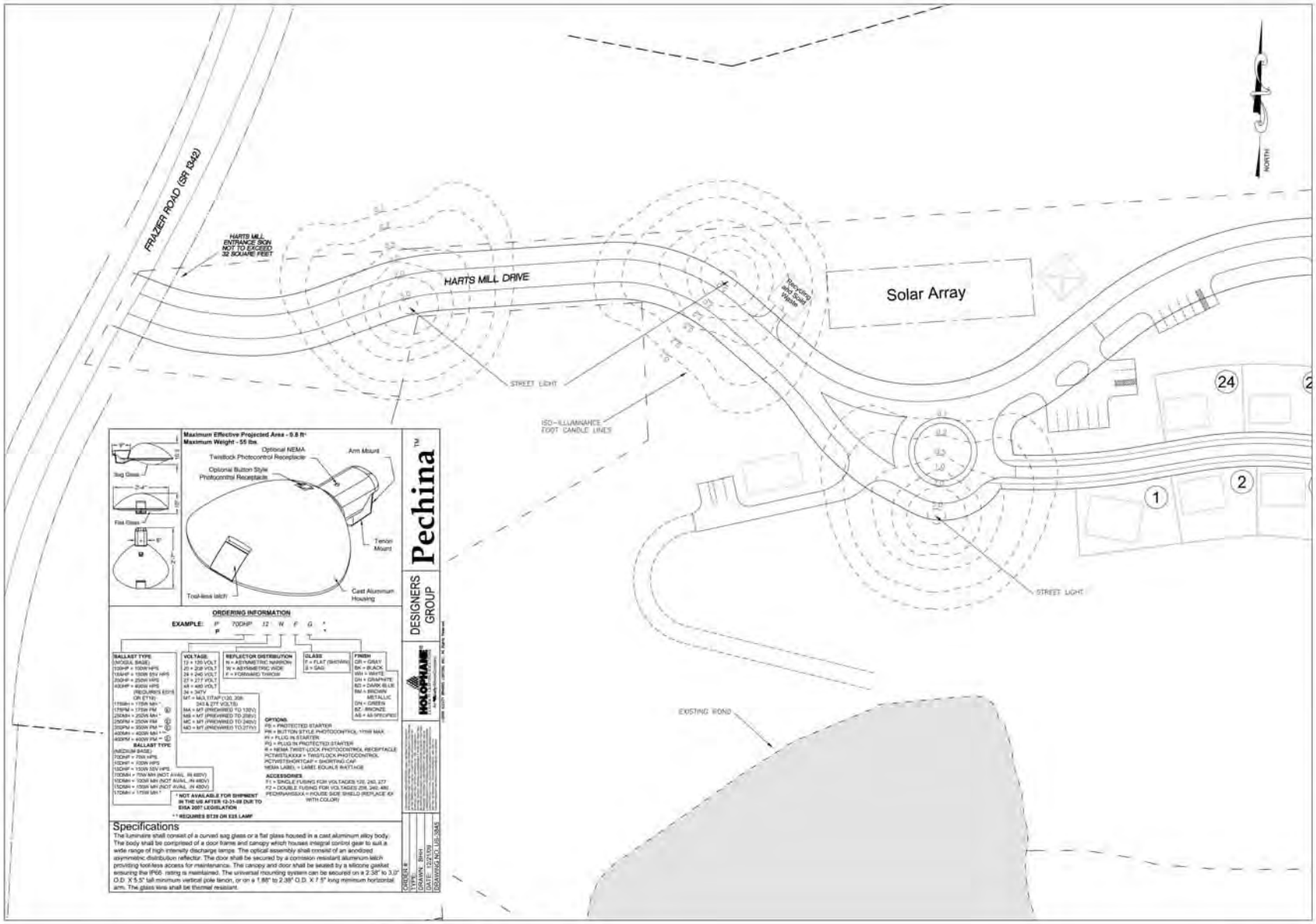
TITLE

WATER AND SEWER PLAN - SHEET 2

FILE NO. JOB NO.

SEAL SHEET NO.

SP-8



mmh
michael@mmhgroup.com
michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Chapel Hill, North Carolina 27519
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

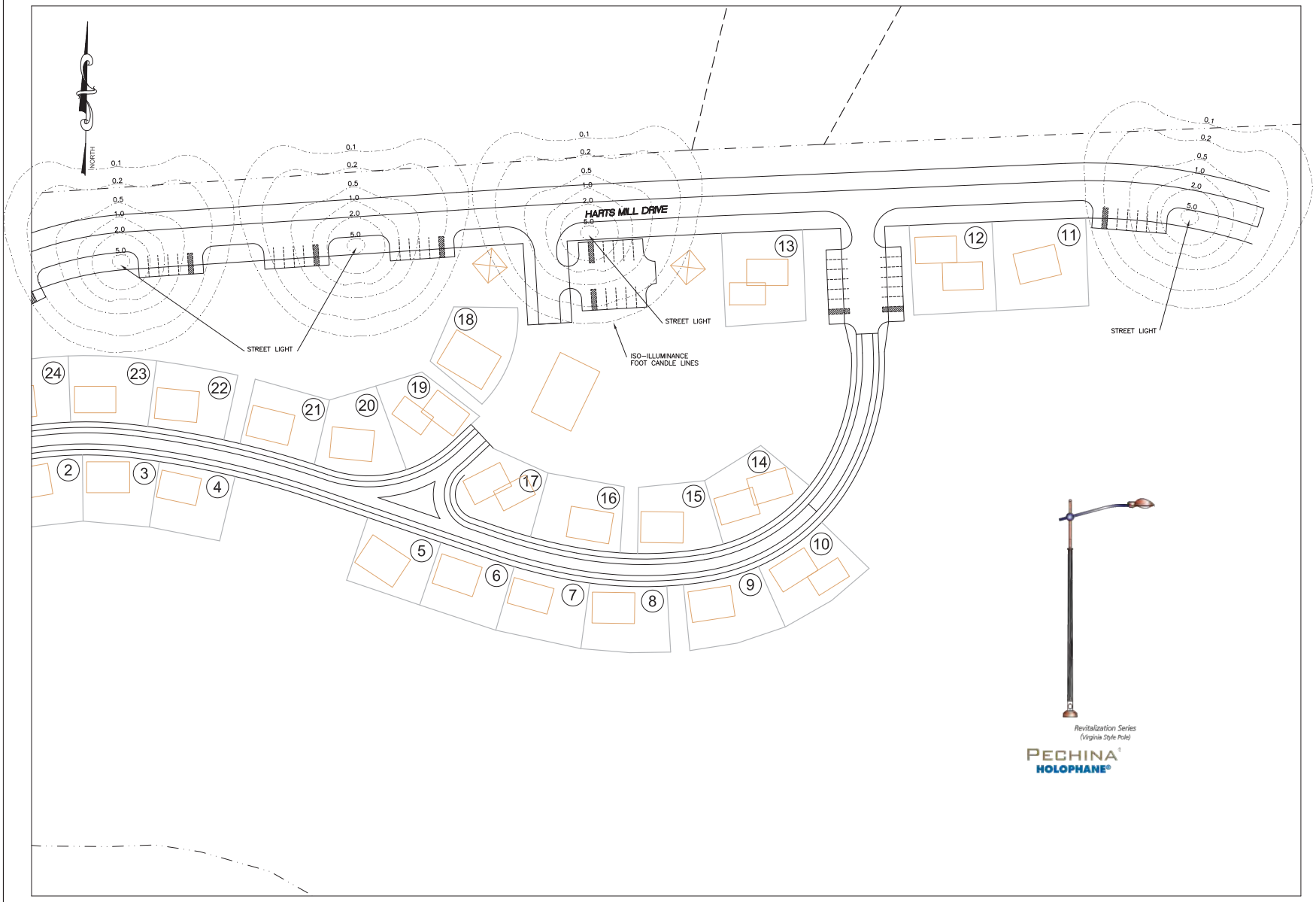
NOTE

DRAWN: MMH
CHECKED: MMH
SCALE: 1" = 40'
DATE: 5/13/15

TITLE

LIGHTING AND SIGN PLAN - SHEET 1

FILE NO.
JOB NO.
SEAL
SHEET NO.
SP-9



Revitalization Series
(Virginia Style Pole)

PECHINA®
HOLOPHANE®

20 10 0 20 40 80 160
SCALE

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mmh
mmh@mmhpe.com
michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

NOTE

DRAWN	CHECKED
MMH	MMH
SCALE	DATE
1" = 40'	4/6/15

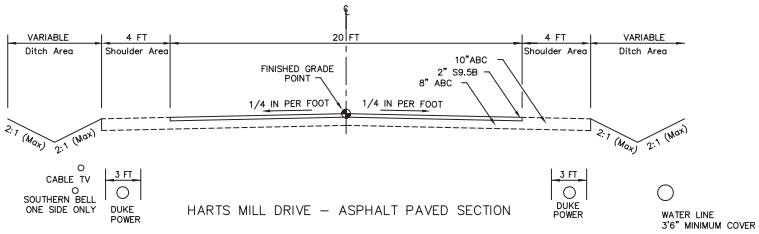
TITLE

LIGHTING AND SIGN PLAN - SHEET 1

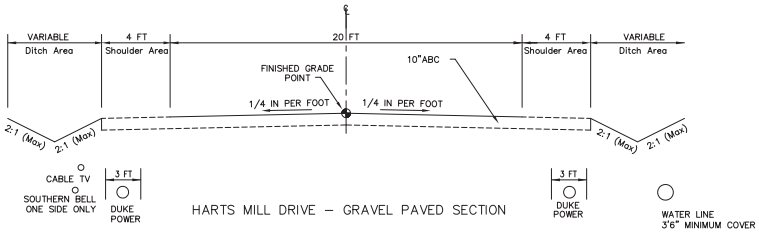
FILE NO. JOB NO.

SEAL SHEET NO.

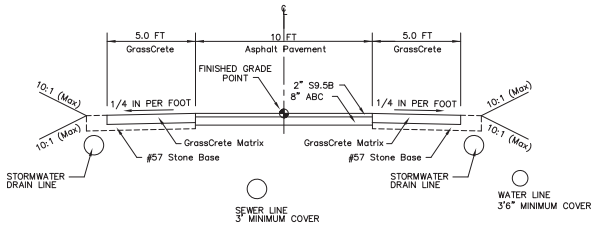
SP-10



HARTS MILL DRIVE – ASPHALT PAVED SECTION



HARTS MILL DRIVE – GRAVEL PAVED SECTION



VILLAGE WAY – ASPHALT AND GRASSCRETE PAVEMENT

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mmh
mmh@mmhpe.com
michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
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(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

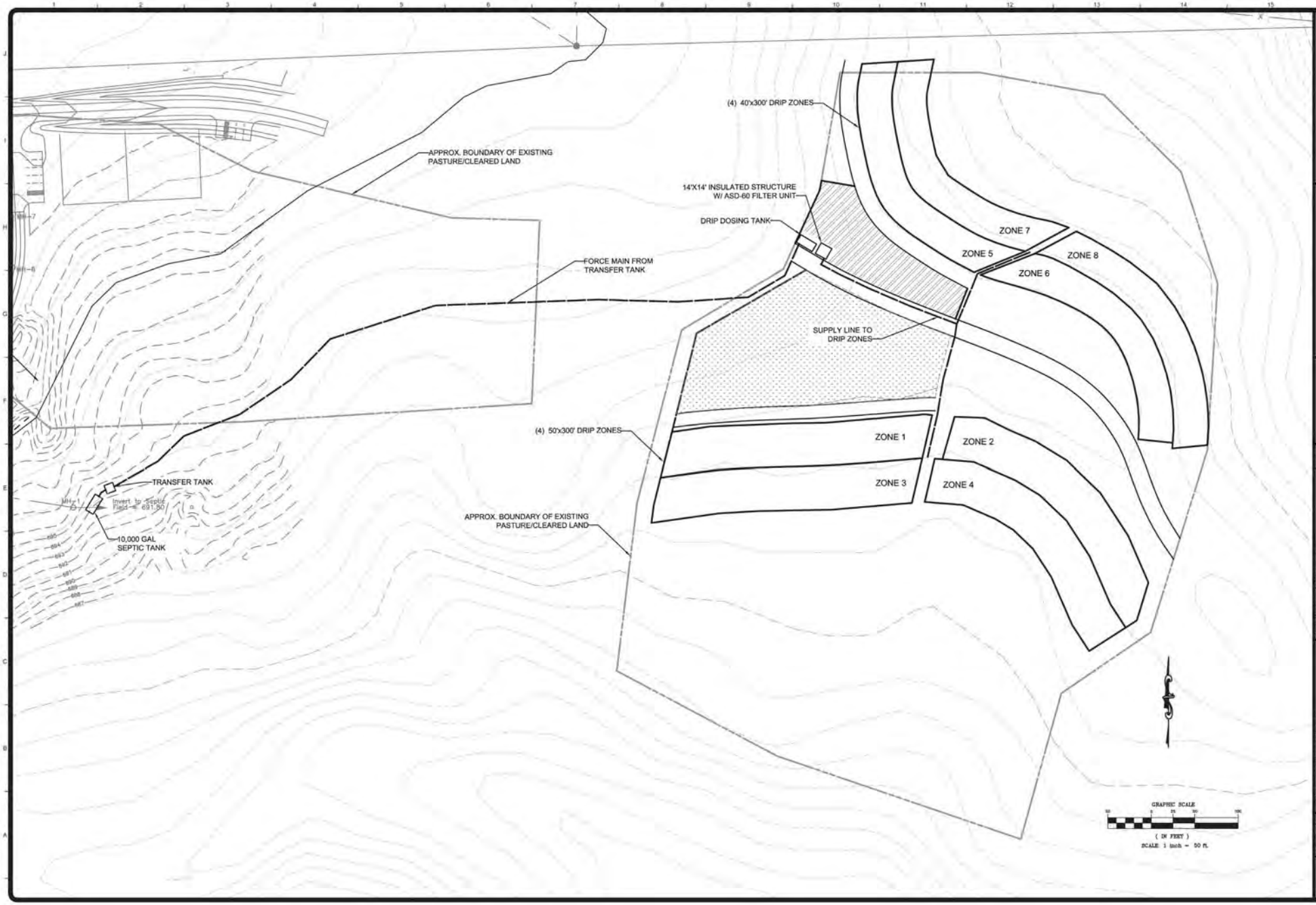
NOTE

DRAWN: MMH
CHECKED: MMH
SCALE: 1" = 40'
DATE: 4/5/15

TITLE

STREET TYPICAL SECTIONS AND DETAILS

FILE NO.
JOB NO.
SEAL
SHEET NO.
SP-11



TETRA TECH
www.tetratech.com
1 PARK DRIVE, SUITE 200
RESEARCH TRIANGLE PARK, NC 27709
(919) 485-8278

REVIEW ONLY
NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY
	10-21-14	DRAFT PLAN REVIEW	RST

Client: HART'S MILL ECOVILLAGE
Proj. Loc.: MEBANE, NC

HART'S MILL ECOVILLAGE
SITE PLAN APPROVAL

CONCEPTUAL DRIP LAYOUT

SCO #:
Designed By: RST
Drawn By: RST
Checked By: VD

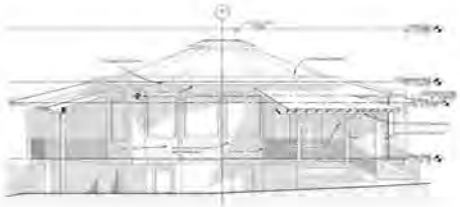
SP-12

Copyright: Tetra Tech

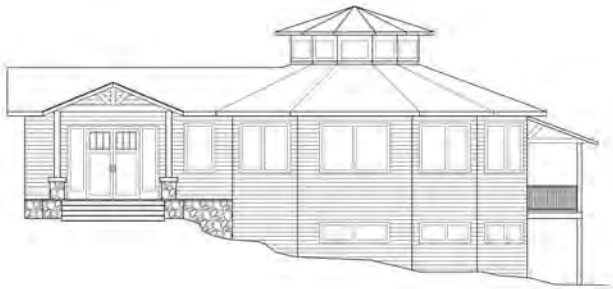
Tuesday, December 09, 2014 8:40:34 AM DRAWING: C:\PROJECTS\Onsite Wastewater\Harts_Mill\Drip_Layout_v1_recover DWG LAYOUT: ACTIVE-ZONES USER NAME: TUCKER, BOBBY

SMALL SINGLE FAMILY HOUSE
500-750 Square Feet

MEDIUM SINGLE FAMILY HOUSE
1,000-1,300 Square Feet



MANDALA SINGLE FAMILY HOUSE
800-1,000 Square Feet



COMMON HOUSE

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PROJECT

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HARTS MILL VILLAGE AND FARM

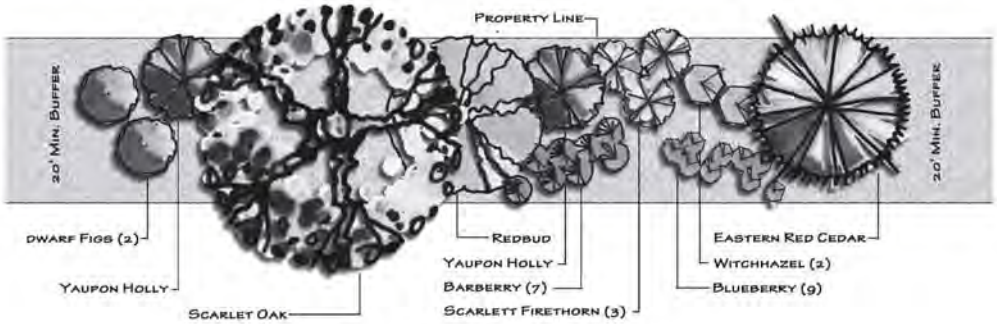
DATE

DRAWN: MMH
CHECKED: MMH
SCALE: NOT TO SCALE
DATE: 5/13/15

TITLE

TYPICAL HOUSE ELEVATIONS

FILE NO.
DWG NO.
REV.
SHEET NO.
SP-13



Typical 100 LF Landscape buffer

Qty	Type	Common Name	Botanical Name
1	Deciduous Canopy Tree	Scarlet Oak	Quercus coccinea
1	Evergreen Tree	Eastern Red Cedar	Juniperus virginiana
1	Deciduous Understory Tree	Redbud	Cercis canadensis
2	Evergreen Unstory Tree	Yaupon Holly	Ilex vomitoria
3	Large Evergreen Shrub	Scarlet Firethorn	Pyracantha coccinea
2	Large Deciduous Shrub	Witchhazel	Hamamelis x intermedia
2	Large Deciduous Shrub	Dwarf Fig	Ficus carica 'Brown Turkey'
7	Small Deciduous Shrub	Barberry	Berberis thunbergii
9	Small Evergreen Shrub	Southern Highbush Blueberry	Vaccinium corymbosum 'Sunshine Blue'

FOR PERMITTING ONLY
NOT FOR CONSTRUCTION

mmh
mmh@mmhpa.com
michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Raleigh, North Carolina 27616
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

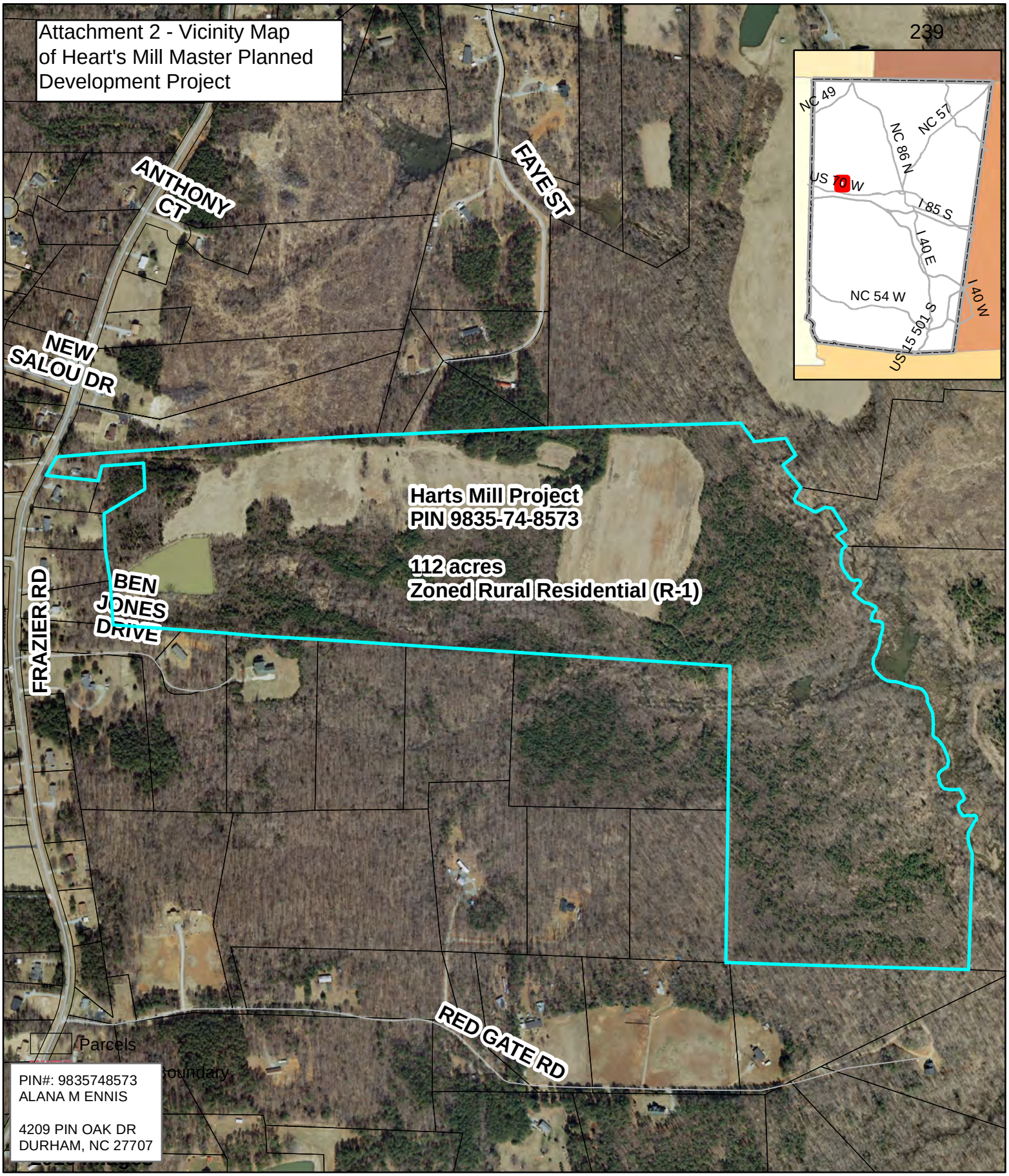
DATE

DRAWN: MMH | CHECKED: MMH
SCALE: NOT TO SCALE | DATE: 5/13/15

TITLE

LANDSCAPE BUFFER PLAN

FILE NO. | JOB NO.
SEAL | SHEET NO.
SP-14



1 inch = 582 feet

0 500

Orange County Planning and Inspections Department
03/27/2015

Attachment 3

ORANGE COUNTY
HEALTH DEPARTMENT
Improving health. Inspiring change.

May 8, 2015

To:
Michael D. Harvey AICP, CFO, CZO
Current Planning Supervisor – Planner III
Orange County Planning Department

From:
Alan Clapp
Environmental Health Director
Orange County Health Department

RE: Hart's Mill project – Frazier Road
PIN: 9835945500

Michael,

Environmental Health met with Katy Ansardi and Vic D' Amato on July 22, 2014 regarding the septic systems for the project. A variety of options for septic disposal were discussed including NC DENR DWQ systems, Orange County Health Department permitted individual systems, Orange County Health Department permitted cluster systems and Orange County Health Department and NC DHHS permitted large system.

A specific system to serve the project was not submitted at that time. As you know the system options are quite dependent on the development type allowed by the Planning Department. Once it is decided if offsite options or systems in the open space are allowed then the developer can apply to Environmental Health for Improvement Permits.

Please feel free to contact me if you have any questions.

Alan

Michael Harvey

From: Alan Clapp
Sent: Wednesday, October 29, 2014 3:45 PM
To: D'Amato, Victor; Michael Harvey
Cc: katy@resultworks.com; Michael Hughes (mmh@mmhpe.com)
Subject: RE: Hart's Mill wastewater system information to support site plan approval
Attachments: LargeSubsurfaceProcedures-2013Update.pdf

Vic,

Environmental Health is fine with an application for a combined flow. Just apply for whatever flow you would like permitted.

Since it is over 3000 gpd, large system procedures and state review will be required.

Just make sure Planning is on board with a large system versus individual lots and systems.

Alan

Alan Clapp
Environmental Health Director
Phone: 919.245.2360 / Fax: 919.644.3006
Website: http://www.co.orange.nc.us/envhlth/index.asp
Email: aclapp@orangecountync.gov

ORANGE COUNTY
HEALTH DEPARTMENT
Improving health. Inspiring change.

Please tell us how we are doing by taking this very quick survey. We appreciate your comments.

https://www.surveymonkey.com/s/ehsurvey2014-2015

From: D'Amato, Victor [mailto:Victor.D'Amato@tetratech.com]
Sent: Wednesday, October 29, 2014 3:20 PM
To: Michael Harvey; Alan Clapp
Cc: katy@resultworks.com; Michael Hughes (mmh@mmhpe.com)
Subject: RE: Hart's Mill wastewater system information to support site plan approval
Importance: High

Hi Michael and Alan –

Hart's Mill is preparing to provide you with a draft application next week, so your thoughts on this e-mail (forwarded below) would be timely and greatly appreciated. The key question is:

"Based on our understanding of the application process, we were planning to prepare a schematic (line) diagram and a preliminary site plan/layout (showing tanks and preliminary drip zone locations) for the system, as well as providing a written narrative description of the system, including design flow and basic system component sizing calculations and general description of the technology. We can submit the soils report as an appendix if needed.

Please let us know if this sounds okay or if there are other steps or additional information that Planning and Environmental Health might need in support of the application."

Thanks for any input you can provide,
Vic

From: D'Amato, Victor
Sent: Friday, October 03, 2014 3:41 PM
To: mharvey@orangecountync.gov
Subject: FW: Hart's Mill wastewater system information to support site plan approval

Hi Michael – looks like I used an old e-mail address in my first attempt to send this to you.

Vic

From: D'Amato, Victor
Sent: Friday, October 03, 2014 3:37 PM
To: Alan Clapp (aclapp@orangecountync.gov); Harvey, Michael
Cc: katy@resultworks.com; Michael Hughes (mmh@mmhpe.com); Tucker, Bobby
Subject: Hart's Mill wastewater system information to support site plan approval

Dear Alan and Michael -

Following-up on our meeting with Michael last week and our meeting with Alan and his colleagues in Environmental Health in July, we wanted to provide some additional information on the proposed wastewater system for Hart's Mill and get input from you on additional requirements for the master plan/site plan application.

I am attaching AWT's original soil/site evaluation report for the site. This appears to have been generated assuming that each building would use its own individual onsite system (which is not currently planned). However, the soil morphology data should help inform the feasibility of using the site for a cluster/small community system, as currently planned.

The current conceptual plan is to collect wastewater from the buildings and convey it by gravity to a cluster treatment area, where it would be primary treated in a septic tank and then applied to the soil using the state-approved anaerobic drip irrigation system (American Manufacturing/Perc Rite). We prefer to use drip irrigation to deliver septic tank effluent as shallow as possible to maximize soil treatment as well as uptake from adjacent/downgradient vegetation. Based on the soil depths AWT reported, we don't think aerobic (pretreated) drip will be required, but we can certainly pursue that if needed based on the results of the additional soil work that will be required and the County's findings in support of the Improvement Permit (IP) application. Likewise, it appears that ample area of provisionally suitable soils should be available to accommodate the design flow, which at this point is estimated at 7,000-8,000 gpd. We understand, however, that additional soil characterization and hydrualic analyses will be required prior to issuance of an IP.

Based on our understanding of the application process, we were planning to prepare a schematic (line) diagram and a preliminary site plan/layout (showing tank and preliminary drip zone locations) for the system, as well as providing a written narrative description of the system, including design flow and basic system component sizing calculations and general description of the technology. We can submit the soils report as an appendix if needed.

Please let us know if this sounds okay or if there are other steps or additional information that Planning and Environmental Health might need in support of the application.

Thanks and have a great weekend,
Vic

Victor A. D'Amato, PE | **Vice President**
Direct: 919.485.2070 | Main: 919.485.8278 | Fax: 919.485.8280
victor.damato@tetratech.com
Licensed Professional Engineer in North Carolina and West Virginia

Tetra Tech Engineering, P.C.
P.O. Box 14409 | 1 Park Drive, Suite 200 | Research Triangle Park, NC 27709 | www.tetratech.com

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PROCEDURES AND INFORMATION REQUIRED FOR APPROVAL OF LARGE SUBSURFACE WASTEWATER SYSTEMS

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health
On-Site Water Protection Branch
1642 Mail Service Center
Raleigh, NC 27699
(919) 707-5874
Fax (919) 845-3973

PREAPPLICATION, APPLICATION AND DESIGN FLOW CONFIRMATION

1. Preapplication:

Applicant and local health department (LHD) hold pre-application conference to review and transmit application forms, checklists+, guidance documents+ and rules+, and to discuss project, information needs, field and review requirements and projected time frames. Applicant's consultant(s) should attend and On-Site Water Protection Branch (OSWP) Regional Staff may attend upon request by either party.

2. Application for Improvement Permit (Site Approval):

a. Applicant Submits completed application to LHD, including

- Project title,
- property location shown on plat or boundary survey, PIN number and locator map
- name/address/phone/fax/E-Mail numbers for owner, agent, engineer and soils consultant
- whether the proposed system is new, a repair, an expansion, a replacement, or modification to an existing system
- description and location of water supplies (existing and proposed) and surface waters
- description and location of facilities (existing and proposed) to be served by system, occupancy and projected use patterns
- list of wastewater sources, water use fixtures (points of wastewater entry into system), and projected wastewater characteristics (e.g. provide wastewater quality data for any non-domestic sources), and description of projected flow patterns
- description and location of wastewater system components (existing and proposed)
- proposed phasing schedule for facilities and system components
- projected wastewater design flow rate(s) for each system component and phase of development, and basis for determining (by applicant's engineer)

+-checklists, guidance documents and rules can be accessed on-line from the OSWP HomePage, at http://ehs.ncpublichealth.com/oswp/

- documentation showing that both the wastewater system and the facility are under the ownership or control of the person owning the facility, or an owner=s association and tri-party agreement shall be provided

b. LHD reviews application for completeness and requests in writing additional information as needed from Applicant. Incomplete applications shall be returned.

3. System Wastewater Design Flow Confirmation:

a. The LHD shall review and confirm prescribed system design flow rates when established in accordance with Rule .1949(a) or Table No I of Rule .1949(b). Otherwise, the applications shall be forwarded by the LHD to OSWP Central office for review and design flow confirmation.

b. The OSWP-Central office shall review and confirm system design flow rates prescribed by the Applicant's engineer when established based on flow and wastewater characteristic data, use of water conserving fixtures in accordance with Rule .1949(c), or flow equalization, and for facilities not identified in Rule .1949(a) or Table No. I of Rule .1949(b).

[Completeness of application for design flow determination by OSWP shall be evaluated and response given within 10 working days of receipt. If application is incomplete, response shall include request for additional information, and review and response to revised submittal shall be done within 10 working days of its receipt.]*

SYSTEM, SOIL AND SITE EVALUATIONS

4. Existing System Component Evaluation:

a. Applicant's consultants, with LHD=s assistance and surveillance, shall inspect existing system components initially proposed to remain in use.

b. Existing component dimensions, capacities, adequacy/suitability for proposed continued use (with justification), and needed repairs or modifications to be incorporated into the system engineering design shall be identified by applicant's consultants and concurred with by the LHD. OSWP Regional or Central office staff may assist with the necessary field review upon request by either party.

5. Soil/Site Evaluations:

a. Applicant's consultants prepare proposed site plan based on a boundary survey prepared by a registered land surveyor, to include:

- all corners of property and property line boundaries relevant to system design
- wells/water supply sources (existing and proposed) within property or within 500 feet of any proposed drainfield(s) and repair area(s) and within 100 feet of all other system

components

- existing water lines within property and within 20 feet of any projected system component
- surface waters with their water quality classifications, designated wetlands, and existing storm drainage features
- existing roads and structures
- locations of any existing wastewater system components, drainfields/repair areas
- areas being proposed for facilities and system components
- preliminary topographic map (with at least five foot contour intervals) for areas to be evaluated for drainfields and repair areas.

As soon as available and prior to field evaluation by the LHD, two copies of the proposed site plan shall be provided to the LHD

b. Applicant's soil scientist field evaluates soil/site conditions within proposed drainfield and repair area and prepares report which shall include the following (see note and item Ac≅ below pertaining to need to inform LHD and OSWP Regional Soil Specialist when field work is scheduled and to request for them to concurrently do any necessary verification of field work):

- Soil profile descriptions **which are legible** (including information on slope, landscape position, texture, structure, clay mineralogy, depth, wetness conditions, and restrictive horizons) for pits or a combination of pits and soil borings made at each site for the initial drainfield(s) and repair area(s). Site(s) shall be gridded and field staked at 50 foot intervals to enable profile description locations to be identified in the field and on the site plan. Intervals between profile descriptions and the relative use of borings versus pits proposed to be made by the soil scientist shall be pre-approved by the LHD with concurrence by the OSWP Regional Soil Specialist on a site specific basis. Locations of pits and borings shall be shown on the site plan.

- Delineation of sites which are suitable, provisionally suitable, or unsuitable for different types of wastewater systems (e.g.: conventional, shallow conventional, LPP, etc.) Delineate in sufficient detail on the site plan to enable location in the field.

- Recommended LTAR for conventional, LPP, or other proposed system with justifying references.

- Soil/site-based recommendations for drainfield design and site modifications (e.g.: maximum trench depth, fill depth, surface/subsurface drainage needs, etc.).

5. Soil/Site Evaluations continued:

- Soil chemical data for sites proposed to receive wastewater from non-domestic sources, ncluding pH, cation exchange capacity, percent base saturation and background metal and cation (sodium, potassium, calcium and magnesium) levels, if

the wastewater is expected to contain concentrations of these elements greater than domestic underwater.

- For sites originally classified unsuitable, written documentation indicating that the proposed system can reasonably be expected to function satisfactorily, in accordance with Rule .1948(d).

The applicant's Soil Scientist shall inform the LHD and Regional Soil Specialist at least two weeks in advance when field work is being scheduled at least two weeks in advance.

c. LHD field evaluates site, with assistance as needed from the OSWP Regional Soil Specialist (including field work concurrent with applicant's soil scientist's field work) to verify soil scientist's evaluation and compliance with applicable rules. LHD prepares evaluation report, including results from independent check borings/pits, using DEH form 2601 (form is available on-line; show locations of borings/pits on site plan).

As soon as available, one copy of the LHD soil/site evaluation shall be provided to the Applicant, and one copy provided to the OSWP-Regional Soil Specialist.

SITE LOADING CAPACITY ANALYSIS, LAYOUT AND IMPROVEMENT PERMIT ISSUANCE

6. Applicant's registered land surveyor prepares field topographic map:

a. Shall include site or sites for all proposed drainfields and repair areas with at least two-foot contour intervals (for level sites, spot elevations at 50 foot grid intervals shall suffice).

Alternately, proposed lateral lines for initial system and repair can be field-located, flagged, and surveyed in on the site plan.

b. Relative elevations along property lines and as needed to evaluate hydraulic gradient between field sites and adjacent property lines shall be shown on the topo map or site plan.

7. Site-Specific Information on Site Loading Capacity and Assessment of Groundwater Impact:

a. Applicant's soil scientist or hydrogeologist collects sufficient field information and prepares report showing how performance requirements of Rule .1946(4) shall be met, provides substantiation for proposed LTAR and assessment of projected compliance with groundwater standards, including justification.

The applicant's Soil Scientist or geologist shall inform the LHD and Regional Soil Specialist at least two weeks in advance when field work is being scheduled. The LHD should be on-site during the collection of field information.

b. Site-specific information shall typically include:

- In-situ hydraulic conductivity measurements in the most restrictive horizon within two feet of the trench bottom to support selected LTAR.
- Logs from deep borings (usually 10-20 feet deep) identifying restrictive layers, relevant changes in texture and density, and aquifer boundaries
- In-situ lateral hydraulic conductivity measurements of effective shallow aquifer
- Groundwater mounding analysis (level sites) or wastewater conveyance capacity analysis (sloping sites)
- Contaminant transport assessment showing compliance with groundwater standards at property lines or at any water supply sources within or adjacent to property.

8. Revised Site Plan and System Layout:

a. Applicant's engineer and land surveyor prepares revised site plan and system layout (at scale not to exceed one inch equals 50 feet), including:

- All relevant features required to be shown in the initially proposed site plan (refer to item No. 5a above), and any proposed revisions.
- Proposed structures, roads, drainage features, water supply wells, water lines, and any underground utilities or utility rights-of-way
- Delineation of designated wetlands, and elevations of 10-year and 100-year flood plains in the vicinity of any system component, and source of data
- Locations of any existing or proposed sediment control and storm water management system components.
- Locations of any existing or proposed groundwater monitoring wells.
- Proposed location and field-verified layout of new drainfield(s) and repair field(s) and proposed alterations to field topography.

b LHD field reviews system location and layout with an engineer=s level or laser level and informs applicant in writing of any problems found. Assistance may be sought from the OSWP Regional Soil Specialist staff upon request.

9. OSWP Review and Approval:

a. Applicant submits complete site information package to OSWP Central office through the LHD (**two** copies for LHD, or as locally requested, and **four** copies for OSWP_Central office), including:

- Application for Improvement Permit (item 2a above)
- Soil/site evaluation reports by applicant's soil scientist and LHD (items 5b and 5c above)
- Topographic Map (item 6, above)
- Site loading capacity and assessment of groundwater impacts (Item 7 above)
- Revised site plan and system layout (item 8, above)

Applicant also submits to OSWP Central office through LHD (**two** copies for LHD, or as locally requested, and **two** copies for OSWP-Central office), the following:

- Draft legal documents for systems to be under joint or multiple ownership or control, including easements, association documents, and draft tri-party agreement, as appropriate
- Existing component inspection/assessment reporting, if applicable, identifying any needed repairs/modifications (item 4, above)

b. OSWP Central office forwards copies to Regional Staff and other agencies as necessary.

- OSWP Central office compiles review comments from other divisions/agencies and distributes as appropriate.

- OSWP Central office engineering staff reviews site loading capacity and assessment of groundwater impacts.

- OSWP Central office engineering staff forward to OSWP Regional Soil Specialist comments pertaining to proposed drainfield/repair field layout and on any other siting/location/monitoring issues related to existing and proposed system components.

\

c. OSWP Regional Soil Specialist evaluates adequacy of all submittals required above.

- Site evaluation reports prepared by applicant's soil scientist and LHD (field work should be scheduled to be done concurrent with applicant's soil scientist=s and LHD=s field work whenever possible) shall be reviewed. Any further field work or analyses needed by the applicant's soil scientist or LHD shall be identified in writing.

- Acceptability of proposed drainfields and repair fields layout, proposed continued use, repair or modification of any existing system components, and prospective groundwater monitoring requirements shall be reviewed with LHD and OSWP Central Office staff input.

- OSWP Regional Soil Specialist recommends approval or denial, or identifies any modifications or additional information needed prior to approval of revised site plan and layout. Interim site/layout issues and revisions shall be directed by the Applicant's consultants to the OSWP Regional Soil Specialist. **Three** copies of the finally revised site plan and system layout shall be provided to the OSWP-Central office, which shall provide copies stamped "Approved by the OSWP" to the local health department and to the Applicant's engineer, and notify the Applicant of OSWP Approval.

[OSWP-Central office shall acknowledge receipt of site information package and identify incomplete items found during a cursory review within 10 working days of receipt. Response shall be given by the OSWP Regional Soil Specialist within 35 working days of receipt of complete information after determined to be complete. Revisions, modifications, and additional information shall be responded to within 15 working days. Submittal packages shall be returned to the applicant after 60 days, if package remains incomplete or if comments have not yet been responded to.]*

10. Improvement Permit Issuance:

a. LHD issues improvement permit, after confirming OSWP approval of revised site plan and layout, and legal documents have been properly drafted, and when necessary, executed and recorded.

b. The Improvement Permit shall include as conditions:

- required modifications to be made to the site, and statement that the permit remains valid only if the proposed facility served and the site otherwise remain unchanged
- statement that the Authorization to Construct shall not be issued until required site modifications have been completed and engineering plans and specifications have been approved by OSWP
  other conditions determined to be necessary by the LHD

SYSTEM ENGINEERING DESIGN APPROVAL AND ISSUANCE OF AUTHORIZATION TO CONSTRUCT

11. **Applicant and/or Engineer is encouraged to request a pre-design conference with the OSWP Central office engineering staff** to discuss design options, receive updated rules and guidance documents, review procedures and projected time frames. LHD and OSWP Regional Staff may attend upon request by any party.

12. **Applicant's Engineer submits engineering design** plans, specifications and supporting calculations (submit **two** copies to LHD, or as locally requested, and **three** copies to OSWP Central office)

a. The North Carolina Registered Professional Engineer's seal shall appear on all plan sheets and the first page of specifications and calculations.

b. The design must be in accordance with applicable rules, guidelines, and recognized principles and practices of engineering and public health.

c. The design must incorporate and be consistent with the approved site plan, system layout and the improvement permit. Facility description and details (e.g.: floor plans) shall be submitted (**one** copy to LHD and **one** copy to OSWP) as needed to confirm compatibility with previously submitted information.

13. Specifications must include:

- Description of all materials and equipment to be used, manufacturer's cut sheets, pump curves, etc.
- Project-specific construction methods, installation, testing and start-up procedures
- Means for assuring the quality and integrity of the finished product
- Specific operations and maintenance procedures, including requirements for system

operator; inspection, process and performance monitoring schedules; provisions for maintaining mechanical components and drainfield vegetative cover; and reporting requirements

- Provisions for residuals management
- Abandonment procedures for existing system components that are no longer required.

14. Plans and specifications for specific system components shall include:

a. Collection systems and force mains:

- Plan drawings, including locations of manholes and cleanouts
- Profile drawings shall be provided when the collection system is a 6-inch or larger gravity sewer serving two or more buildings or contains two or more manholes, or when it is a pressure sewer system. Otherwise show pipe invert and ground surface elevations on plan drawings for all cleanouts/manholes
- Force mains shall be shown in profile when their length exceeds 500 feet, or when their grade is not continuous. Otherwise, show inverts at beginning and end, and depth of cover
- Indicate proximity to utilities and pertinent features such as wells, water lines, storm drains, surface waters, structures, roads, and other trafficked areas.
- Detail drawings of service connections, manholes, cleanouts, valves, other appurtenances, aerial crossings, and crossings of roads, water lines, storm drains, streams or ditches
- Alignment, deflection and infiltration/exfiltration testing procedures and pass/fail criteria

b. Tanks:

- Location of tanks accessible to pumpers and maintenance vehicles, showing setbacks
- Tank dimensions and relevant elevations (bottom, floor, inlet, and outlet inverts, top and ground)
- Other pertinent elevations in pump tanks (i.e., float activation levels) or siphon tanks (i.e., siphon-trip and alarm elevations)
- Access riser, manhole, chamber interconnection and sanitary tee details
- Complete construction details for built-in-place tanks, including dimensions, reinforcement details and calculations, and construction methods
- State-approved precast tanks shall be specified as to manufacturer, nominal capacity, whether or not the tank is rated for traffic loading and State approval number (i.e., the PT-number for pump tanks, and the STB-number for septic tanks)
- For grease traps, design and construction specifications in accordance with Rule .1955(k)
- Installation (e.g.: bedding, method of sealing tank and riser, pipe connections, surface water diversion) and water tightness testing procedures with pass/fail criteria
- Anti-floatation (buoyancy) calculations and provisions, if necessary

c. Pump stations:

- Pumps, discharge piping, and all related appurtenances (on the plans)
- System total dynamic head calculations, pump specifications, pump curves and expected operating conditions (in the specifications).
- Accessible pump removal system (on the plans)
- Accessible float support system, float switches and float settings (on the plans)
- Control panel and high-water alarm location and electrical connection details (on the plans)
- Control panel/high-water alarm components (on the plans or in the specifications)
- Description of float sequencing, control panel functions under normal and abnormal conditions, and appropriate settings (on the plans or in the specifications).
- See also applicable requirements in item 14b above
- Emergency storage capacity calculations and provisions for stand-by power (when applicable)
- Lighting, wash-down water supply with back siphonage protection, and protective fencing, as needed

d. Ground absorption fields:

- Final layout, existing and finished ground elevations (on the plans). All fields and lines should be re-staked in the field if necessary prior to plan approval. Staking shall be sufficient to confirm all lines can be installed along the natural ground contour, maintaining minimum required separations, and to verify relative line elevations.
- Trench and lateral distribution system plan and cross sectional details and invert elevations for each lateral (on plans)
- Manifolds, supply lines, cleanouts and interconnection details and invert elevations (on the plans)
- Flow distribution device design, construction detail, location, and invert elevations (on the plans)
- Drainage system locations, discharge points and design details (on the plans)
- Site preparation procedures (in the specifications)
- Construction phasing and phased system testing (in the specifications)
- Groundwater monitoring well locations (on the plans) and construction specifications (on plans and/or specifications)
- Final landscaping provisions including compliance with erosion control requirements (in the specifications)

e. For advanced pretreatment systems (e.g.: sand filters, tertiary wastewater treatment plants), pressure sewer systems (e.g.: STEP or Grinder pump systems), and industrial process wastewater systems, contact OSWP Central office for supplemental lists of information to include with project plans and specifications

f. Other requirements or guidelines not listed above shall be demonstrated to be followed, including:

- The Commission for Health Services Wastewater Rules [e.g.: .1938(f), .1946(4), and .1950(d)]
- Document entitled APlanning and Permitting Procedures and Design Guidelines for Subsurface Sewage Systems Where the Design Flow Exceeds 3,000 Gallons Per Day≅
- Accepted principles and practices of soil science, geology, engineering and public health

15. Design Review and Approval:

a. OSWP reviews design for completeness, compliance with applicable laws, rules, guidelines, and good engineering and public health practice.

b. LHD reviews facility and wastewater system plans for compatibility with improvement permit, and field reconfirms field acceptability of re-staked drainfields and repair field layouts.

c. OSWP approves plans and specifications when complete and all technical requirements have been adequately met.

[OSWP-Central office shall acknowledge receipt of engineering plans and specifications, a review engineer shall be assigned, and the design engineer shall be notified of items found to be incomplete during a cursory review within 10 working days of receipt. Response shall be given within 25 working days of receipt of complete information after determined to be complete. Revisions and modifications shall be responded to within 10 working days. Incomplete projects shall be returned to the engineer after 60 days if plans and specifications remain incomplete or if comments have not yet been responded to.]*

16. LHD may issue Authorization to Construct after confirming:

- All site modifications required in the Improvement Permit have been completed
- OSWP has approved the engineering plans and specifications

SYSTEM CONSTRUCTION AND OPERATION PERMIT ISSUANCE

17. Applicant, Certifying Engineer, Installer, and LHD shall hold a preconstruction meeting on-site to review plan details, site preparation steps, installation methods, construction schedule, and inspection procedures. OSWP Staff may attend upon request by any party. Provisions must be established for there to be engineer supervision and LHD inspection of all aspects of the system installation prior to operating permit issuance. The Applicant's soil scientist may also be required to be on-site during site preparation, selection and incorporation of fill material when determined to be critical to the proper installation of the system.

18. Installation shall be completed in a professional, workman-like fashion in strict accordance with approved plans and specifications (or approved modifications), and all requirements of the Improvement Permit, Authorization to Construct and applicable Laws and Rules.

- The owner shall maintain a contract with a registered professional engineer at all times

during the construction of the system who shall be responsible for certifying compliance of the installation with approved plans and specifications. A contract with a soil scientist for installation supervision may also be required.

- The certifying engineer shall provide record plans and specifications (**one** copy to LHD and **one** copy to OSWP Central office) along with the certification which shall bear his/her professional engineer's seal.
- The engineer shall complete an operation and maintenance manual including O and M materials provided by the appropriate equipment suppliers and submit to the owner and proposed Operator in Responsible Charge (ORC).

19. The Operation Permit may be issued by the LHD when:

- The installation has been properly certified by the certifying professional engineer, and record plans and specifications have been furnished.
- The installation is determined to be complete by the LHD based upon field inspection, including final landscaping, seeding and mulching, provisions for proper system maintenance and monitoring (e.g. any groundwater monitoring wells) are in place, a system Astart-up≅ inspection has been completed and the system is found to be complete and operational, and the system operation and maintenance manual has been furnished. The OSWP will assist with the LHD's final inspection for all systems containing advanced pretreatment components (e.g. tertiary treatment plants) or complex distribution or control components and may assist with other systems upon request.

- All necessary legal documents have been properly executed and recorded, including the tri-party agreement (when applicable) and any required easements, and documentation is provided that the owner has executed a contract with an ORC who is duly certified by the Water Pollution Control System Operators Certification Commission to operate and maintain this system.
- All other conditions of the improvement permit and Authorization to Construct it have been met.

* **Time lines established for OSWP review activities are subject to variation depending on staff shortages and project-specific circumstances.**

ORANGE COUNTY

Department *of* Environment,
Agriculture, Parks & Recreation

MEMORANDUM

To: Michael Harvey, *Current Planning Supervisor*

From: Rich Shaw, *DEAPR Land Conservation Manager*
Peter Sandbeck, *DEAPR Cultural Resources Coordinator*

Date: May 13, 2015

Re: Hart's Mill Development

Thank you for the opportunity to review the master plan for the planned Hart's Mill development located east of Frazier Road in Cheeks Township. My comments are based on an examination of the preliminary master plan that you provided, along with the environmental assessment conducted by the applicant with information from the forest stewardship plan and a summary of environmental data from Tetra Tech.

Hart's Mill is a proposed "village-style" development with approximately 30 dwelling units, while preserving approximately 67 acres of the property (+/- 60%) as protected open space or agricultural use (e.g., pasture and cropland). As proposed the residences will be clustered around a pedestrian trail in the middle of the property surrounded by open space/farm areas.

The proposed plan appears consistent with the County's desire to minimize adverse environmental impacts with respect to the protection of floodplains, wetlands, natural areas and wildlife habitat. DEAPR's database showed there are no significant natural resource areas (e.g., natural heritage sites, proposed wildlife corridors, prime forest) located on the property. The Biological Inventory that you provided corroborated our earlier findings.

* * * * * * * *

Earlier DEAPR staff completed the following assessment of the natural and cultural resources known to exist on or adjacent to the planned Hart's Mill property (PIN 9835748573).

Natural Resources: There is no significant natural heritage area (SNHA) known to exist on or adjacent to the subject property, however the perennial stream that flows through the length of the tract and McGowan Creek (which forms the eastern boundary) are significant water resources and wildlife corridors that should be protected from any future development activities. Both the stream and McGowan Creek appear to have intact forested buffers that are important to maintain (and possibly enhance) to protect water quality and stream habitats. Both streams are sources of public drinking water for the Orange-Alamance Water System, which operates from Corporation Lake located downstream of the subject property. McGowan Creek is a significant wildlife corridor that links other protected open space properties. There appears to

be a healthy population of beaver that utilize the corridor and provide additional habitat due to the flooding conditions that they create.

The intention to leave 60-80% of the property will be left in agriculture, woodlands and protected streams will contribute to the current forested and open space character of the neighborhood east of Frazier Road, which also provides habitat to plants and wildlife that utilize the McGowan Creek corridor.

Cultural Resources: There are no previously identified historic properties or resources located on the subject parcel or on adjacent parcels. Since the Forest Management Plan makes reference to an old home site on the high ground near the center of the parcel, DEAPR would like to know about any possible physical remains of that home site, and seek permission from the owners to document or photograph any remaining structures or objects.

Also, care should be taken to locate, identify and protect any potential human burial sites or cemeteries. The current Cemetery Census does not show any identified burials on this parcel.

If you have questions please contact Rich at 919-245-2514 or Peter at 919-245-2517.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT McCRORY
GOVERNOR

ANTHONY J.TATA
SECRETARY

March 30, 2015

ORANGE COUNTY

Ms. Katy Ansardi
Hart's Mill, LLC
P. O. Box 2844
Chapel Hill, NC 27515

Subject: Proposed Hart's Mill Village Subdivision (Private)
Located on SR 1310, Frazier Road

Ms. Ansardi,

Per your request, this office has reviewed the preliminary plans and narrative forwarded in your e-mail correspondence of March 24, 2015. Consistent with our previous discussion I am writing to advise that the connection of the proposed subdivision road is allowable subject to the requirements of the NCDOT Policy on Street and Driveway Access to North Carolina Highways. Prior to performing work in the NCDOT right of way, it will be necessary for you to submit a driveway permit along with complete engineering plans per NCDOT requirements for approval. It is my understanding that you are preparing a traffic impact study as required by the Orange County Planning Department. Construction of any road improvements identified in the study as necessary to mitigate the site traffic impacts are Please note that private subdivision streets are not eligible for State maintenance.

Feel free to contact me if you have any questions.

Sincerely,

C. N. Edwards Jr., PE
District Engineer

Cc: Orange County Planning

P.O. Box 766 Graham, N.C. 27253 Telephone (336)-570-6833

MEMORANDUM

TO: MICHAEL HARVEY, PLANNER III, CURRENT PLANNING SUPERVISOR, ORANGE COUNTY PLANNING AND INSPECTIONS DEPARTMENT

FROM: JEFF SCOUTEN, ORANGE COUNTY SOLID WASTE MANAGEMENT

SUBJECT: HARTS MILL VILLAGE AND FARM PLAN REVIEW COMMENTS – PLANS DATED 4/2/15

DATE: MAY 5, 2015

I have completed my review of the subject plans and I offer the following comments that must be satisfactorily addressed before I can offer my recommendation for approval:

1. Solid Waste Management Plan – This document must be filled out and returned to me for review and approval. A copy of the blank document will accompany the e-mail that transmits these comments to you.

2. Standard Notes – The following standard notes shall be placed on the plan in a prominent location:

   Construction Waste:

   - All existing structures 500 Square Feet and larger in size shall be assessed prior to demolition to ensure compliance with the County's Regulated Recyclable Materials Ordinance (RRMO) and to assess the potential for de-construction and/or the re-use of salvageable materials.
   - By Orange County Ordinance, clean wood waste, scrap metal, and corrugated cardboard present in construction or demolition waste must be recycled.
   - By Orange County Ordinance, all haulers of mixed construction and demolition waste that includes any regulated recyclable materials shall be licensed by Orange County.
   - Prior to any demolition or construction activity on the site the Applicant shall hold a pre-demolition/pre-construction conference with the Solid Waste staff. This may be the same pre-construction meeting held with other development/enforcement officials.
   - The presence of any asbestos containing materials ('ACM') and/or other hazardous materials in construction and demolition waste shall be handled in accordance with any and all local, state, and federal regulations and guidelines.

3. Site Plan (Plan Sheet SP-5) – The plan shows a designated "Recycling and Solid Waste" facility along the entrance road adjacent to the Solar Array and raises several questions that need to be answered. First, Orange County Recycling would normally collect curb-side mixed recyclables (paper, bottles, jars, cans, cardboard) from 95 gallon roll-carts located along the street in front of each residence and if the applicant wants that service, the roads and traffic circle must be sufficiently wide/large enough to accommodate the collection vehicle. This would need to be checked using turning radius templates placed on a full-size, to scale plan sheet (which I do not have). Secondly, because the project is located outside of an incorporated town/city, garbage collection service will not be provided. So the 3 options are to have each resident be responsible for taking their garbage to a County Solid Waste Convenience Center, contracting for the collection by a private contractor, or having the project's HOA contract for the collection. If the applicant chooses the option of having a centralized shared facility it likely makes sense to utilize a 'bulk' (dumpster) garbage container instead of individual roll-carts, however, in order for the County to collect the mixed recyclables, individual roll-carts must be used. The attached detail shows a refuse enclosure that contains 2 bulk containers (1 for garbage, 1 for corrugated cardboard, and up to 9 mixed-recyclable roll-carts). If the applicant chooses to have the same private waste collector pick up the mixed-recyclables (instead of the County) that will be allowed but the annual collection fees will not be waived. If the applicant choose this option then a scaled and dimensioned detail of the refuse/recycling enclosure will need to be placed on the plans. Also, there must be adequate turning movements to get into and out of the enclosure without making too many 3 point turns.

Thank you for the opportunity to review and comment on this plan and please let me know if you have any questions or wish to discuss this matter further.

Election to forego public recycling:

As a condition of approval of the development plan, the Applicant agrees to forgo public recycling collection and agrees to the following conditions which shall be made a stipulation of final approval:

1. The site will not receive public recycling collection now or in the future unless a satisfactory recycling storage & collection station is constructed to County standards or contingency for such a station is included and shown on the current development plans.
2. Applicant must require at least the same level of current and future recycling service to its clientele as that provided by Orange County Community Recycling.
3. County fees for recycling associated with this property will not be waived now or in the future.

Orange County
Solid Waste Management Plan

All development applications must provide a detailed solid waste management plan, including a recycling plan and a plan for management of construction debris. The following form must be completed to fulfill this requirement. This form must be completed and approved to satisfy the requirement of a plan for management of construction debris. Please complete all information in its entirety. Assistance in completing this form is available from the Orange County Solid Waste Staff at (919) 968-2788 x107 or x109.

COMPLETE ALL INFORMATION BELOW

(Incomplete contact information will delay plan review and approval.)

Project Name _____

Property ID #: _____ Permit: _____

Project Location _____

_____

Project Owner _____

Contact Person _____

Address _____

_____

Telephone (____) ____-_____

Fax/Mobile (____) ____-_____ / (____) ____-_____

Design Firm _____

Contact Person _____

Address _____

_____

Telephone (____) ____-_____

Fax/Mobile (____) ____-_____ / (____) ____-_____

Date _____

Provide a brief description of the work to be performed under this application:

(For example: construct a new commercial building [include use/sq. ft.], apartment complex [# units], place of worship, horizontal improvements for subdivision, etc.)

_____

_____

_____

1. Site Preparation Wastes (landclearing, demolition, deconstruction)

During site preparation for a project the amount of waste destined for a construction waste landfill or an inert debris landfill should be minimized or diverted for reuse or recycling. Many materials can be reused, recycled, or salvaged, provided that materials are kept separate. This approach may also reduce overall project waste disposal costs. **Regulated Recyclable Materials (clean wood waste, scrap metal and corrugated cardboard) generated in Orange County must be recycled**. During demolition activities, metal and wood are often not "reasonably possible to separate" or doing so may present health and safety concerns (asbestos, lead paint, etc.). In these cases only, are regulated materials not required to be separated for recycling. Consider whether the following materials will be generated on this project, *in any quantity*, and indicate the management method(s).

☒	**1. Trees and Plant Materials:**
	No tree/plant wastes will be produced (proceed to # 2)
	Tree waste will be salvaged as timber, mulch, or boiler fuel
	Valuable plants will be removed for replanting
	Landclearing and inert debris landfill (LCID)
	Construction and demolition debris landfill (C&D)
	Other (specify):

☒	**2. Dirt, Rock, Clean Fill, Inert materials to be removed from site:**
	No inert materials will be removed from the site (proceed to # 3)
	Site Needs Fill
	Will be hauled to site needing fill.
	Construction and demolition debris landfill (C&D)
	Landclearing and inert debris landfill (LCID)
	Other (specify):

☒	**3. Asphalt Paving:**
	No asphalt wastes will be produced (proceed to # 4)

	Recycled at asphalt-paving producer
	Used on or off site. Describe use:
	Disposed in an approved landfill (Orange County Landfill charges no tipfee if clean)
	Other (specify):

☒	**4. Concrete, Brick, Block, other Aggregate materials:**
	No aggregate materials will be removed from the site (proceed to # 5)

	Recycled as scrap at an aggregate producer
	Used on or off site: Describe use:
	Construction and demolition debris landfill (C&D)
	Landclearing and inert debris landfill (LCID)

	Other (specify):

☒	**5. Metal Scrap** (metal wastes are required by ordinance to be recycled)
	No metal waste will be produced (proceed to # 6)
	Segregated for on-site recycling collection
	Recycle at Orange County Landfill (no tip fee charged)
	Segregated for hauling to scrap dealer by general contractor
	Segregated for hauling to scrap dealer by sub-contractor
	Certified Commingled Recycling Facility
	Other (specify):

☒	**6. Clean Wood Wastes** (clean wood wastes are required to be recycled)
	No clean wood wastes will be produced (proceed to # 7)
	Segregated for on-site recycling collection
	Recycle at Orange County Landfill (reduced tip fee charged)
	Saved and used on future jobs
	Separated for private salvage or charity
	Certified Commingled Recycling Facility
	Other (specify):

☒	**7. Demolition/Salvage of Buildings or Structures on the Site:**
	No structure(s) will be removed (proceed to Construction Waste section)
	Structure(s) must be removed. Please describe (include square footage for each structure):

If any structure described above is greater than 500 ft^2, it must be assessed for deconstruction possibilities. Please call Solid Waste Staff at (919) 968-2788 x107 or x109 to arrange an assessment.

Could the structure(s) be moved from the site?	YES NO Don't Know
Has the sale or donation of the structures been considered? Please explain:	YES NO
How will the structure be removed otherwise?	
What is the timetable on removal of the structure(s)?	
Are there salvageable materials (hardwood floors, fixtures, molding, that can be removed for reuse prior to demolition? If Yes, Please list (use a separate sheet if necessary):	YES NO Don't Know

Have, or will, these materials been offered for sale or donation?	YES	NO

2. Construction Wastes

During the construction phase there are multiple options for recycling building materials. **Regulated Recyclable Materials (clean wood waste, scrap metal and corrugated cardboard) generated in Orange County must be recycled.** Although other materials are not required to be recycled, you are highly encouraged to do so. One of the best methods of recycling is to separate the materials on the jobsite. You may also combine materials for delivery to a certified recycling facility. Specifying waste reduction/recycling practices on a project will assure better performance.

☒	**1. Clean Wood Wastes** (clean wood wastes are required by ordinance to be recycled)
	No clean wood wastes will be produced (proceed to # 2)
	Segregated for on-site recycling collection
	Recycle at Orange County Landfill (reduced tip fee charged)
	Saved and used on future jobs
	Separated for private salvage or charity
	Certified Commingled Recycling Facility
	Other (specify):

☒	**2. Metal Scrap** (metal wastes are required by ordinance to be recycled)
	No metal waste will be produced (proceed to # 3)
	Segregated for on-site recycling collection
	Recycle at Orange County Landfill (no tip fee charged)
	Segregated for hauling to scrap dealer by general contractor
	Segregated for hauling to scrap dealer by sub-contractor
	Certified Commingled Recycling Facility
	Other (specify):

☒	**3. Concrete, Brick, Block, other Aggregate materials:**
	No aggregate materials will be removed from the site (proceed to # 4)

	Recycled as scrap at an aggregate producer
	Used on or off site: Describe use:
	Construction and demolition debris landfill (C&D)
	Landclearing and inert debris landfill (LCID)
	Other (specify):

☒	**4. Corrugated Cardboard** (cardboard wastes are required to be recycled)
	No cardboard waste will be produced (proceed to # 5)
	Segregated for on-site recycling collection
	Recycle at Orange County Landfill (no tip fee charged)
	Segregated for hauling to paper dealer by general contractor
	Segregated for hauling to paper dealer by sub-contractor
	Certified Commingled Recycling Facility

	Other (specify):

☒	**5. Drywall**
	No drywall waste will be produced (proceed to # 6)

	Segregated for on-site recycling collection
	Used on site as agricultural supplement
	Disposed in an approved landfill
	Certified Commingled Recycling Facility
	Other (specify):

☒	**6. Other Materials**
	No other wastes will be produced (proceed to # 7)

Please specify other wastes that will be produced and how they will be managed:

Plastics (including vinyl and shrink-wrap):
Carpet and padding:
Shingles:
Fixtures (sinks, tubs, lighting, etc):
Other (specify):
Other (specify):
Other (specify):

7. Bulk Containers (Dumpsters)

County ordinance requires that any bulk waste container be labeled to define what materials are intended or prohibited from being deposited in them and be serially numbered. Hauling Licenses are required for vehicles greater than 9000 GVW in Orange County. Ensure that your waste haulers is licensed. You may contact Orange County Solid Waste for a list of licensees at (919) 968-2788 x107 or x109.

	There will be one or more bulk containers at the site for construction wastes.
	Contractors will be required to remove own wastes without the use of bulk containers.
	Corral or similar system will be used.

3. Recycling After Occupancy

Depending on the eventual use of the structure, different waste materials will be produced and available for recycling. Recyclable materials must be separated into categories based on collection methods.

PLANNING REQUIREMENTS:

- **Indicate location of all bulk waste containers for refuse and recycling. Plan must show location of all containers, even if using existing refuse/recycling enclosures. Standard details/notes for any of the following are available from Orange County Solid Waste Management (919-968-2788 x107 or x109).**
- **All refuse/recycling containers are required to be on concrete pads.**
- **Provide a detailed and scaled plan of all bulk waste containers areas that show: each container labeled, required screening, lighting, overhead clearances, bollards, and concrete pad.**
- **Indicate whether refuse/recycling area will be gated. Any doors/gates will need retainers to be latched open for refuse/recycling collection.**
- **Ensure adequate collection vehicle access to all containers for deposit and collection. Access templates are available from Orange County Solid Waste Management.**
- **Sharing of exterior recycling locations is acceptable if a joint access/shared-use agreement is filed and the deeds of all properties amended.**

☒	**Check materials that will be generated once the structure is ready for occupancy:**
	Standard: glass bottles, metal cans, newspaper, glossy magazines, #1 plastics, #2 plastics
	Corrugated Cardboard (not including waxed or single layer cardboard)
	Mixed Paper: junk mail, cereal boxes
	Office Paper: white or colored copy paper, confidential papers
	Restaurant: food wastes, cooking oil, disposable dining ware
	Other Plastics: #5, #7
	Business specific wastes (please describe):

Cardboard Recycling Requirement

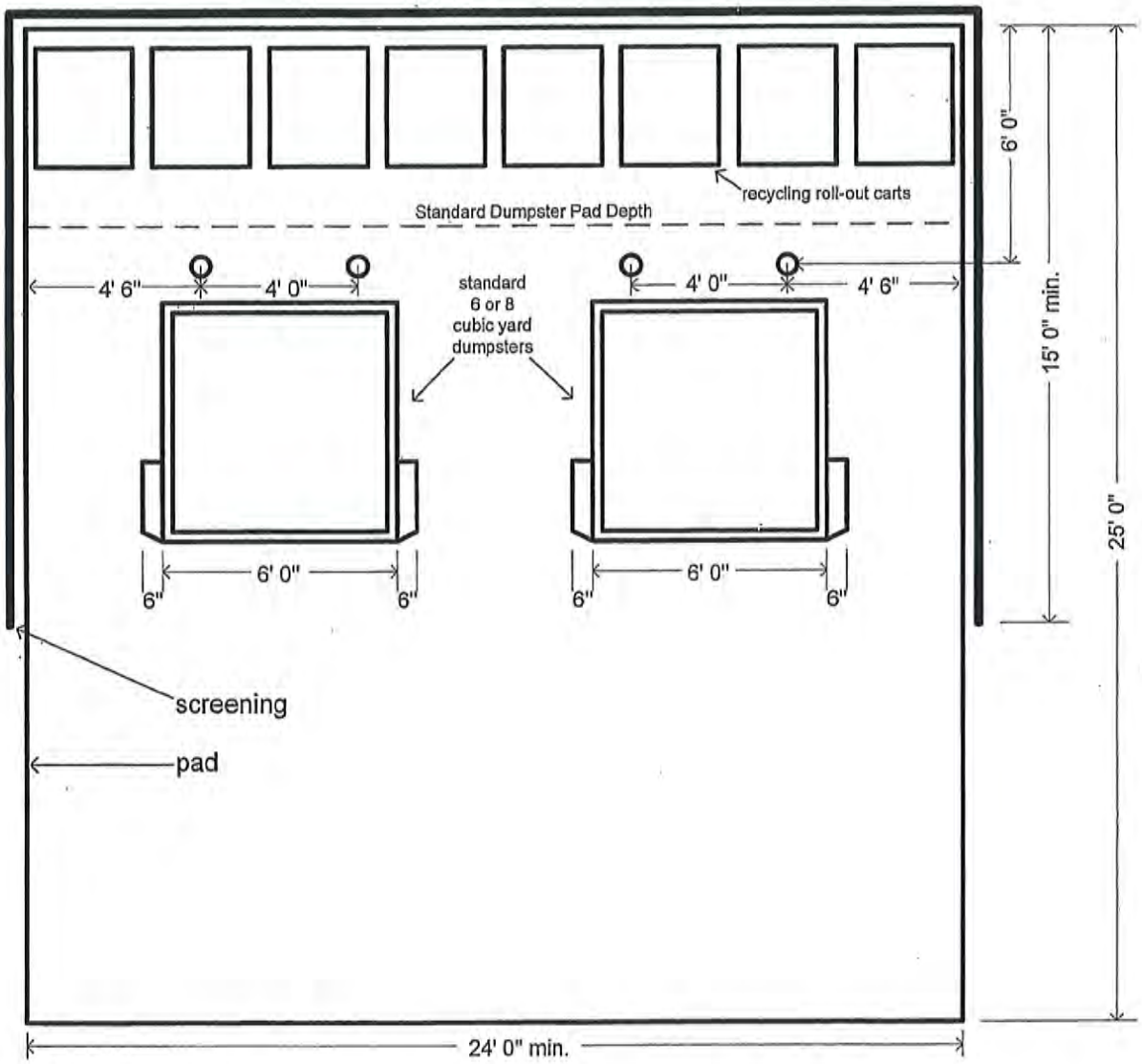
Orange County Ordinance requires recyclable corrugated cardboard to be kept separate from all other refuse. All developments must provide for cardboard recycling. If the facility's garbage will be collected from a bulk container (dumpster), a second waste container is likely to be required for cardboard. Public recycling drop-off sites can accommodate a very limited amount of commercial use (no > 50 boxes per week).

	Site Plan includes space for cardboard recycling container on Sheet # _____
	Corrugated Cardboard will be handled in an alternate manner. Description Required:

☒	**Collection Type: This project will be served by the following collection methods. Check all that apply.**
	Exterior individual or cooperative-use bulk waste container site. May be suitable for apartment complexes, restaurants, places of worship, educational facility, office building, retail/office/restaurant combinations
	Garbage dumpster
	Garbage compactor
	Cardboard dumpster
	Cardboard compactor
	Recycling carts for glass, cans, plastic bottles, newspaper, magazines, office paper (co-mingled)
	Cooking grease rendering container (required for any commercial kitchen facility)

	Food waste collection container (If qualify based on volume; contact OCSW staff for details of program)
	Standard "curbside" recycling collection. May be suitable for single-family developments and subdivisions, including some duplex, triples, and townhome developments.

Orange County Solid Waste Management
Solid Waste & Recycling Storage Requirements



Dumpster Pad Design Requirements:

- Pads shall be constructed from concrete with a minimum compressive strength of 3,500 PSI.
- Pad and approach (measured 25' from back of pad) shall be a minimum of 8" thick.
- 2 concrete-filled 6" I.D. steel pipe bollards shall be placed as shown on the detail above and shall be set in concrete footings to a minimum depth of 2'.
- All pads shall be screened/enclosed on 3 sides (sides, back) and shall meet the requirements designated by the jurisdiction (as to materials, height).
- If gates are to be installed on the front, they shall be equipped with retainers to hold the gates in the open and closed position and shall be installed in such a manner as to provide a minimum clear opening width of 12' for each dumpster (exclusive of mounting hardware).
- Unless alternate arrangements have been made and approved for the recycling of corrugated cardboard, 1 dumpster shall be designated for corrugated cardboard and 1 for solid waste.
- The number of mixed-recyclable carts to be used shall be determined by the proposed use and as agreed upon at the time the formal request for service is made to Orange County Community Recycling by the owner/Applicant.

Michael Harvey

From: Jason Shepherd
Sent: Tuesday, May 12, 2015 8:33 PM
To: Michael Harvey; Sam M. Schultz; Patrick R. Mallett
Subject: Harts Mill

The Fire Marshal Division has the following comment for this project:

During review of this proposal, we did not see if a pressurized water system provided by Alamance Orange Water System Inc. was going to be part of the infrastructure of the housing development. Clarification is needed to determine if alternative water is needed.

Thanks,

Jason

Sent from my iPad

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Engineering / Erosion Control / Stormwater
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

MEMORANDUM

TO:	Michael Harvey
COPY TO:	Patrick Mallett
FROM:	Howard W. Fleming, Jr., PE, Engineering/Stormwater Supervisor
DATE:	05/12/15
PROJECTS:	**Harts Mill: Major Subdivision**
SUBJECT:	**Rezoning to Major Planning Development (MPD-CZ)** DAC Review, 05/07/15

EROSION & SEDIMENTATION / STORMWATER CONTROL COMMENTS:
Having reviewed the subject project, Erosion & Sedimentation Control / Stormwater staff members understand this project must proceed through certain discretionary actions in order to determine functional and economic viability, prior to the developers investing in more detailed design and subsequent jurisdictional submittals for compliance reviews and permits. That being stated, we find no fundamental objections to this project moving forward through discretionary approvals, subject to future submittals addressing the requirements in the Unified Development Ordinance pertaining to Erosion & Sedimentation Control and Stormwater.

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Administration
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

HART'S MILL RESIDENTIAL MASTER PLANNED DEVELOPMENT NEIGHBORHOOD INFORMATION MEETING HIGHLIGHTS

WEDNESDAY APRIL 8, 2015
LOCATION: ORANGE COUNTY PLANNING CONFERENCE RM 4.
TIME: 5:30-7:30PM
MEETING ORGANIZER: HART'S MILL LLC (APPLICANT)

The applicants are seeking the rezoning of a 112 acre parcel of property to Master Planned Development Conditional Zoning (MPD-CZ) to allow for the development of a 34 unit residential development and farm operation on a parcel off of Frazier Road, further identified utilizing Orange County Parcel Identification Number (PIN) 9835-74-8573.

Per Section 2.9.2 (D) of the Orange County Unified Development Ordinance (UDO), regarding Conditional Zoning requests, the required Neighborhood Information Meeting (NIM) was hosted by Orange County Planning staff and presented by the applicant's representative. Approximately 8 adjacent property owners and area residents attended the meeting. The request was presented by Ms. Katy Ansardi of Hart's Mill LLC (applicant).

Hart's Mill Master Planned Development – Conditional Zoning District - Project Overview:

Applicant: Hart's Mill LLC and property owner Alana Ennis.
Location: Frazier Road.
PIN: 9835-74-8573.
Zoning: Rural Residential (R-1).
Overlay Districts: Upper Eno Protected Watershed Overlay District, Special Flood Hazard Area (SFHA) Overlay District.
School District: Orange County Schools.
Utilities: Septic field on 5 acres of the 112 acre parcel with water being provided by a 6 inch waterline managed by Orange Alamance Water System.
Total Acreage: 112 acres (Approximately 22 acres of residential, 5 acres septic, the remainder in farm and open space)

Access: Vehicular access will be off of Frazier Road.

Proposal: The applicant is proposing to develop a village style development with approximately 34 dwelling units on approximately 22 acres, while preserving approximately 67 to 70 acres of the parcel (approximately 60%) as vegetative open space and farm area (i.e. pasture and crop production). As proposed the residences

shall range from 1 to 4 bedroom homes clustered around a pedestrian trail in the middle of the property surrounded by identified open space/farm areas. A common house, a shared facility approximately 3,000 sq. ft. in area, shall be developed as a place where residents and their guests can meet for community meals, entertainment, and mail pick-up.

Meeting Highlights:

Staff reviewed the permitting process for the project and reminded all in attendance the applicant was not proposing a subdivision of property but rather a large planned community where individual property owners would own their homes outright but only have an ownership interest in the property as a whole. With 34 planned residences this would mean an individual owning a house would have a 1/34 interest in the property. As a result of the proposed ownership model the project was not required to be processed through the Class A Special Use Permit process for a major subdivision over 20 lots as would normally be required by County regulations. Staff indicated the applicant was still required to provide information consistent with this process, specifically by completing an environmental assessment of the project and a transportation impact analysis, but that review of the project was going to proceed as a rezoning request. An attendee questioned this point and did not understand why a subdivision was not being proposed/required. The applicant reviewed the development and ownership model again. At this point the site plan was reviewed again with the housing locations. Staff reiterated that individual residential lots were not being proposed and that the developer would ultimately retain ownership of the property.

The question was asked if the units constructed on the property would be considered tiny houses. The applicant indicated the goal for the development was an affordable co-housing community where smaller houses sizes were encouraged but that it could not be said this was going to be a tiny house development.

There was a question asked about the farm activities that would occur on the property. The applicant indicated there would be crops grown on the parcel but that a final determination had not been made as to what this would entail. Further, the applicant indicted there would be some livestock but that farming activities would be kept at least 100 feet from common property lines. There were general comments made over the potential smell emanating from the livestock on the property. Staff reminded all in attendance that farm operations were exempt from zoning regulation by State law. There was general discussion on the limits on the regulation of farming operations. A question was asked if the project would involve the clear cutting of the property and harvesting of timber. The applicant indicated while there may be some additional clearing of property for pasture/crop land the majority of existing wooded area along the eastern property line would be maintained. Staff identified the presence of streams and floodplain in this area and reviewed County stream buffer regulations with those in attendance.

A question was posed on the location of septic facilities for the project. The applicant identified the septic area for the project.

A question was asked if the master plan was approved by the County could work be done to construct the solar array denoted on the site plan without the residential units being constructed at all. They were concerned this was just an attempt to skirt established review processes for solar facilities. Staff indicated the applicant could not construct the solar array unless required permits were issued by the County. In this case a Class B Special Use Permit would have to be applied for and obtained after a separate public hearing had been advertised and held. There was general discussion over the development regulations and review process for solar facilities in Orange County.

A concern was posed by an adjacent property owner over traffic on Frazier Road being increased over the development of the parcel. The applicant indicated they had reviewed the project with NC Department of Transportation officials where it had been determined there was adequate capacity within the existing road network to accommodate the project and not have a major impact on existing traffic thresholds.

A comment was made there was already enough residential development along Frazier Road and that more was not needed. This individual also indicated he was not sure why a new subdivision was required when he felt there was enough housing in the area already.

An adjacent property owner indicated he was concerned the developer would get an approval for the project, build it out, and then leave the area. The concern being all of the ‘checks and balances’ being discussed here would be for nothing and that residents of the project would not have to answer to anyone. Once the project was complete the property owners could do what they wanted and all the promises of buffer retention and housing limits would go away. The applicant reminded all in attendance that the ‘developer’ was actually going to live on the property and that development/redevelopment of the parcel would have to be in accordance with the permit issued by the County. There was no way to add additional housing unless the applicant chose to go through the process again and seek approval by the County Board of Commissioners, which would require a new public hearing. A comment was made by an attendee he felt better hearing the applicant/developer would be living on the property as part of the community and that empty promises were not being made over how the project would be managed. There was general discussion over this fact and over the development model being proposed by the applicant.

A question was asked about the required 100 foot buffer for the project. Staff reiterated this was not a buffer but a building setback and that the applicant was proposing a variable width buffer along the common property line of 20 feet. There was general discussion on the proposed landscaping along common property lines and the difference between a land use buffer and building setback line.

A question was asked why the developer was not being required to extend a roadway through the property to allow access to parcels towards the eastern property line. There was also a concern expressed by an attendee this project would be allowed to tie into existing residential neighborhoods to the north increasing traffic along these roadways. Staff indicated it was not practical to extend the proposed roadway to the east due to the presence of streams and floodplain and that all parcels to the east of the project already had roadway access. The applicant indicated they had no interest in connecting with adjoining subdivisions as they did not want to create traffic problems for their neighbors. The applicant reminded all in attendance vehicular access to the individual residences would not be permitted directly. Owners would park in designated spaces and that access to the residences would be through a foot path. This path would be accessible by emergency vehicles but it was not the plan to have cars driving in the area. The applicant did indicate some residents would be allowed to use golf carts to access this area but that vehicular traffic would be restricted in and around the proposed residences. There was general discussion on the pedestrian walkway around the houses and over the parking area for resident vehicles.

Staff concluded the meeting with a summary of the next steps in the process. The meeting was adjourned at approximately 7:30pm.

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Administration
(919) 245-2575
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www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

March 23, 2015

NOTICE OF NEIGHBORHOOD INFORMATION MEETING:

RE: REVIEW of a rezoning petition to change zoning of property from Rural Residential (R-1) to Master Planned Development Conditional Zone (MPD-CZ) to allow for the development of approximately 30 residential dwelling units on a 112 acre parcel of property (PIN 9835-74-8573)

To Whom It May Concern:

The Orange County Unified Development Ordinance (UDO) requires that Conditional Zoning application to hold a Neighborhood Information Meeting (NIM).

This meeting is to allow for property owners within 500 feet of the subject property to review and discuss the proposal with the applicant and/or their agents, as well as obtain an understanding of the review and approval process.

You are receiving this letter because you are listed as an owner of property within the aforementioned distance of the aforementioned parcel. Please refer to attached aerial photo and Master Plan denoting the subject property.

The applicant is proposing to develop Hearts Mill, a village style development with approximately 30 dwelling units, while preserving approximately 67 acres of the parcel (approximately 60%) as vegetative open space and farm area (i.e. pasture and crop production). As proposed the residences shall range from 1 to 3 bedroom homes clustered around a pedestrian trail in the middle of the property surrounded by identified open space/farm areas. A common house, a shared facility approximately 3,000 sq. ft. in area, shall be developed as a place where residents and their guests can meet for community meals, entertainment, and mail pick-up.

Please note, the public hearing for this item is not scheduled to occur until Tuesday May 26, 2015. Additional notices shall be sent informing you of the date/location/time of this meeting.

As previously indicated, the intent of this meeting is to afford you with an opportunity to learn the intricacies and elements associated with the processing, review, and action of the proposal as well as to provide you with an opportunity to meet with the developer and ask specific questions related to the project in advance of the public hearing.

The NIM has been scheduled as follows:

Date: April 8, 2015

Time: 5:30 to 7:00 p.m.

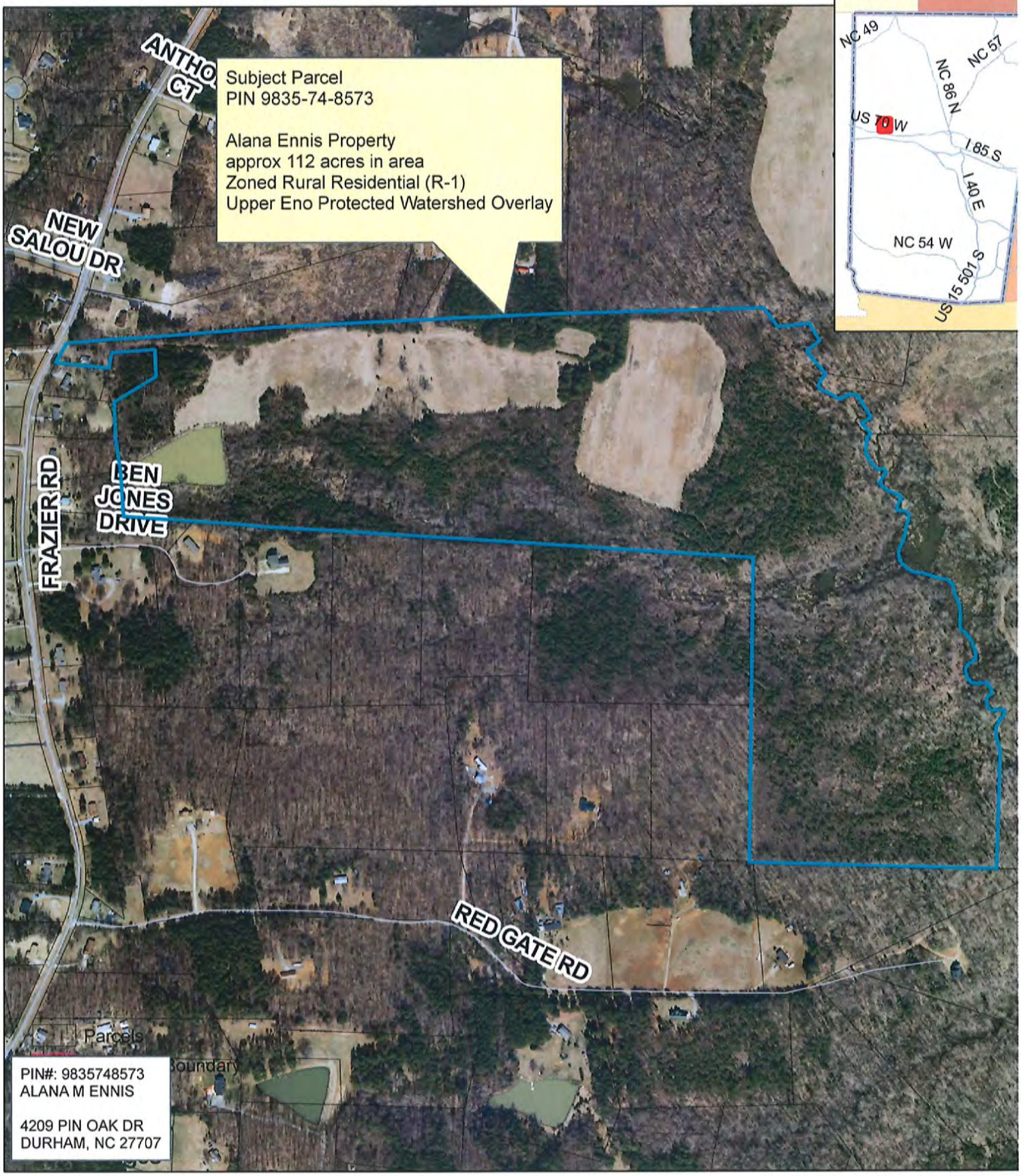
Location: Lower Level – Conference Room Number 4
West Campus Office Building (W.C.O.B.)
131 West Margaret Lane
Hillsborough, North Carolina 27278

A map has been attached denoting the location of the West Campus Office Building.

If you require additional assistance, please contact a Department staff member at (919) 245-2575. Thank you for your attention to this matter.

Sincerely,

Michael D. Harvey AICP, CFO, CZO
Current Planning Supervisor
Orange County



RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

N

1 inch = 600 feet

0 500

Orange County Planning and Inspections Departm
03/23/2015

PROPOSED

MASTER PLAN

MASTER PLAN DEVELOPMENT
CONDITIONAL ZONING PERMIT (MPD-CZ)
PROPOSED SITE PLAN FOR THE
HARTS MILL VILLAGE
AND FARM

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ALMA B MOSS
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HOMESTEAD, FL 33031

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LEATRICE WOODS
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GREENSBORO, NC 27409

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RUTH M STEENWYK
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MEBANE, NC 27302

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WILMA S MACK
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MISTY KETTEMAN
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VENUS C MAHAN
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CALVIN D HESTER
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LAURA R WILSON
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JOSE LESSO
1150 RED GATE RD
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SHELIAH L PANTHER
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FANNIE JONES
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PHYLLIS B RICHMOND
32 SAGAMORE LANE
GREENVILLE, SC 296075016

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SOUTHPORT, NC 284610546

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KIMBERLY A VINCENT
1023 FRAZIER RD
MEBANE, NC 27302

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HOWARD MATTHEW MELVIN
ELLEN SUE MELVIN
1108 FRAZIER RD
MEBANE, NC 273027565

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KAREN SPEWAK
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DOROTHY ELAINE MASSEY
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MEBANE, NC 273027565

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TSA DEVELOPMENT LLC
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FRANCINE R MASSEY
1120 FRAZIER RD
MEBANE, NC 273027565

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HENRY LEE JONES
1611 BEN JONES DR
MEBANE, NC 273027563

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JOHN WALLER
30 E 34TH STREET
PATERSON, NJ 75141308

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JERNIKA LOWERY
5503 ALTON CT
MEBANE, NC 27302

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PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Administration
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

CERTIFICATION OF MAILING

CLASS A SPECIAL USE PERMIT – HART'S MILL MASTER PLANNED DEVELOPMENT CONDITIONAL ZONING (MPD-CZ) APPLICATION
ORANGE COUNTY, NORTH CAROLINA

I, Michael D. Harvey, Current Planning Supervisor with Orange County, North Carolina, DO HEREBY CERTIFY that in accordance with the provisions of Section 2.8.7 and 2.9.2 of the Orange County Unified Development Ordinance (UDO) I have mailed, or have caused to be mailed, a Notice of Public Hearing regarding the processing of a Zoning Atlas Amendment application submitted by Hart's Mill LLC and Alana Ennis to rezone a 112 acre parcel of property to Master Planned Development Conditional Zoning (MPD-CZ) to allow for the development of village style residential development and farm on a parcel of property identified utilizing Orange County Parcel Identification Number (PIN) 9835-74-8573 within the Cheeks Township of Orange County.

The owners were identified according to the Tax Records and as required by the UDO.

The mailed notice specified the date, time, place and subject of the Public Hearing.

WITNESS my hand, this 8th day of May, 2015.

Michael D. Harvey, AICP
Current Planning Supervisor

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Current Planning
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

May 8, 2015

RE: NOTICE OF PUBLIC HEARING – REVIEW of a rezoning petition to change zoning of property from Rural Residential (R-1) to Master Planned Development Conditional Zone (MPD-CZ) to allow for the development of approximately 34 residential dwelling units on a 112 acre parcel of property (PIN 9835-74-8573)

The Orange County Planning Department has received a Zoning Atlas Amendment application, submitted by Heart's Mill LLC and Ms. Alana Ennis, proposing the rezoning of a 112 acre parcel of property:

FROM: **Rural Residential (R-1), Upper Eno Protected Watershed Protection Overlay District**

TO: **Master Planned Development Conditional Zoning (MPD-CZ) Hearts Mill, Upper Eno Protected Watershed Protection Overlay District**

allowing for the development of Hearts Mill Village. A color rendering of the project and site plan are included for informational purposes.

The subject parcel is further identified utilizing Orange County Parcel Identification Number (PIN) 9835-74-8573, located within the Cheeks Township of Orange County, and is zoned Rural Residential (R-1) Upper Eno Protected Watershed Overlay District. Please refer to the attached vicinity map for additional site information and location details.

The proposed project is a village style development with approximately 34 dwelling units and involve the preservation of approximately 67 acres of the parcel (approximately 60%) as vegetative open space and farm area (i.e. pasture and crop production). Residences are proposed to range from 1 to 3 bedroom units clustered around a pedestrian trail in the middle of the property surrounded by identified open space/farm areas. A common house, a shared facility approximately 3,000 sq. ft. in area, is proposed to be developed as a place where residents and their guests can meet for community meals, entertainment, and mail pick-up.

In accordance with Section 2.7 of the Orange County Unified Development Ordinance (UDO), the County is required to notify property owners within 500 feet of the request that an application has been filed and that a Public Hearing will be conducted as part of the review process. The Public Hearing for this item is scheduled for **May 26,**

2015. As a property owner within 500 feet of the request, you have the right to address the Board of County commissioners (BOCC) and Planning Board concerning this request.

The Public Hearing to review this case is scheduled for **Tuesday, May 26, 2015 at 7:00 p.m. in Orange County Whitted Human Services Center Complex, 300 West Tryon Street, Hillsborough, NC 27278**. The case will be referred to the Orange County Planning Board for its review and recommendation with the BOCC taking final action on the application at a future meeting.

It should be remembered that the review of all SUP applications are carried out in a *quasi-judicial* format, meaning that decisions relating to the approval or denial of a application are based solely on the sworn testimony of all parties involved with the case, both those for and against an application, as well as the review of competent material and substantial evidence submitted during the public hearing. While County regulations and State law do not require that parties be represented by an attorney, it may be in your best interests to secure legal council to represent your interests at the hearing.

Further the applicant has the burden of establishing, by the submission of competent material and substantial evidence, the existence of facts and conditions that demonstrate the projects compliance with the various requirements and standards detailed within the Orange County Unified Development Ordinance (UDO). Those opposing approval of the application shall have the burden of establishing, also through the submission of competent material and substantial evidence, the specific manner in which the proposal does not satisfy the requirements for approval of the application.

As previously indicated, the BOCC shall render a decision only on the sworn testimony of all parties and on the competent material and substantial evidence submitted during the hearing.

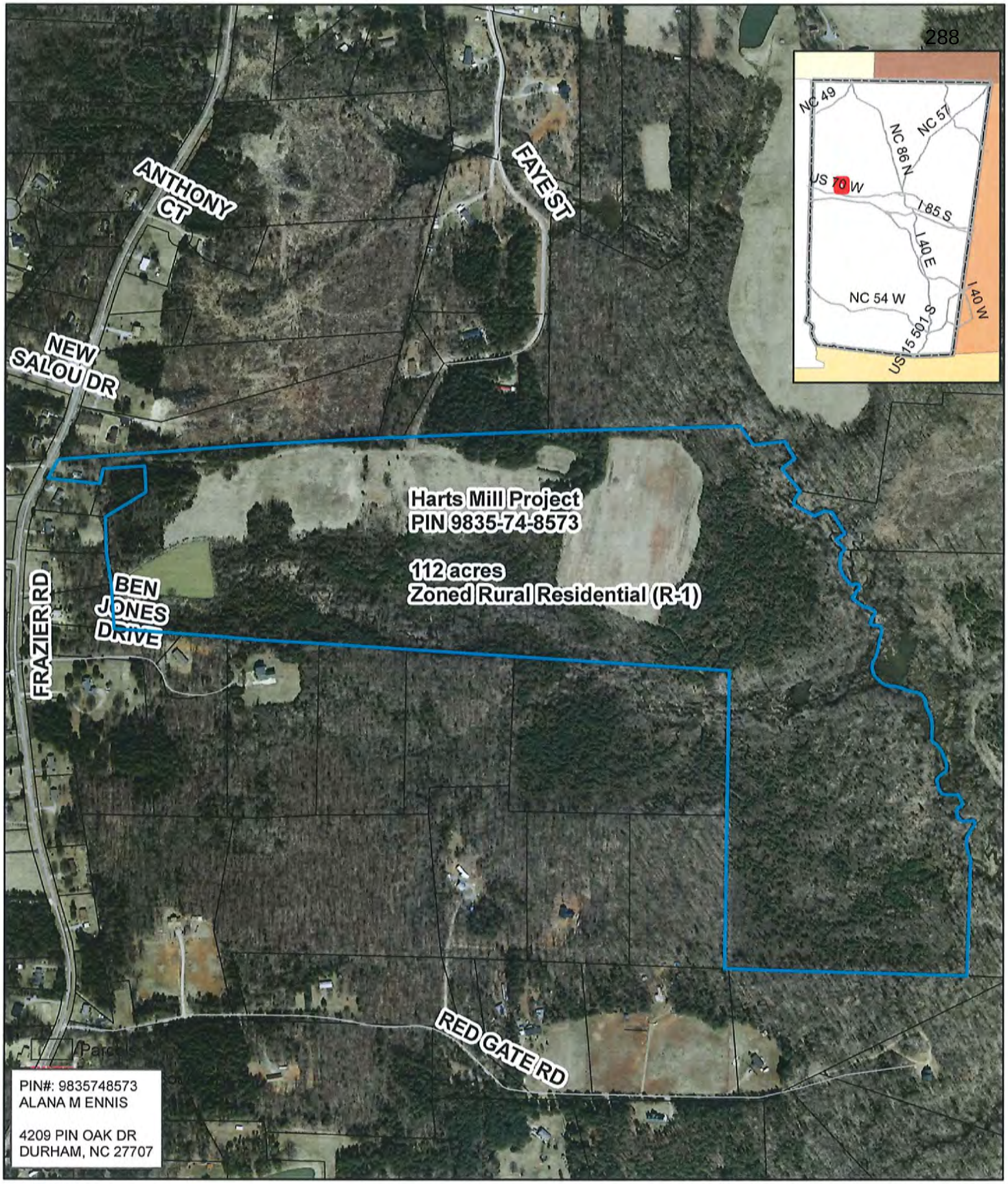
Agenda packet materials for the May 26, 2015 Quarterly Public Hearing shall be posted on the Orange County website by May 15, 2015 and can be found at the following link:
http://www.orangecountync.gov/departments/board_of_county_commissioners/agendas.php.

If you have any questions concerning this request, please contact staff at (919) 245-2575.

Sincerely,

Michael D. Harvey, AICP, CFM, CZO
Orange County Planning

Attachments: Preliminary Site Plan
Vicinity Map of Property
Vicinity Map of Meeting Location



RGB

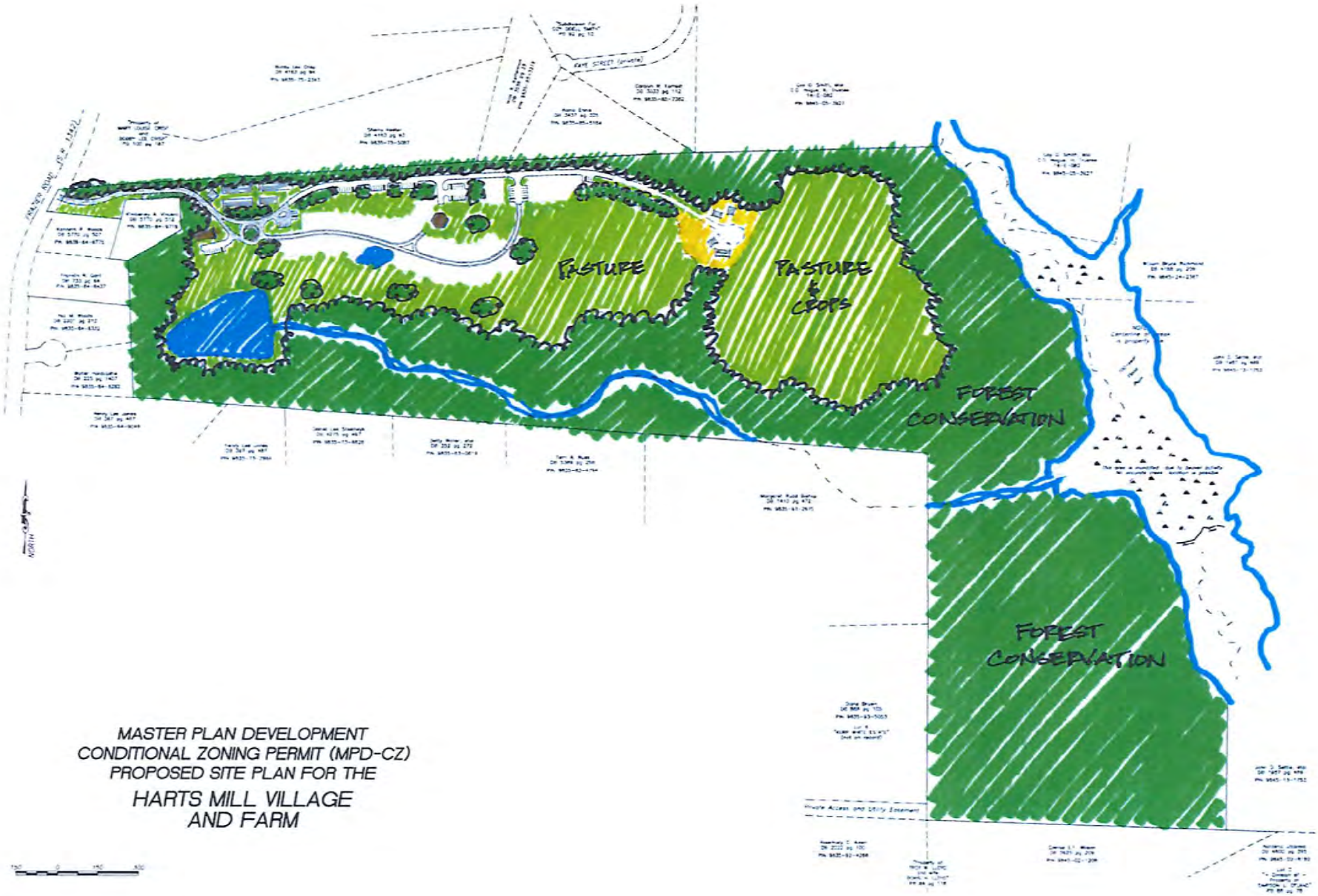
- Red: Band_1
- Green: Band_2
- Blue: Band_3

N

1 inch = 582 feet

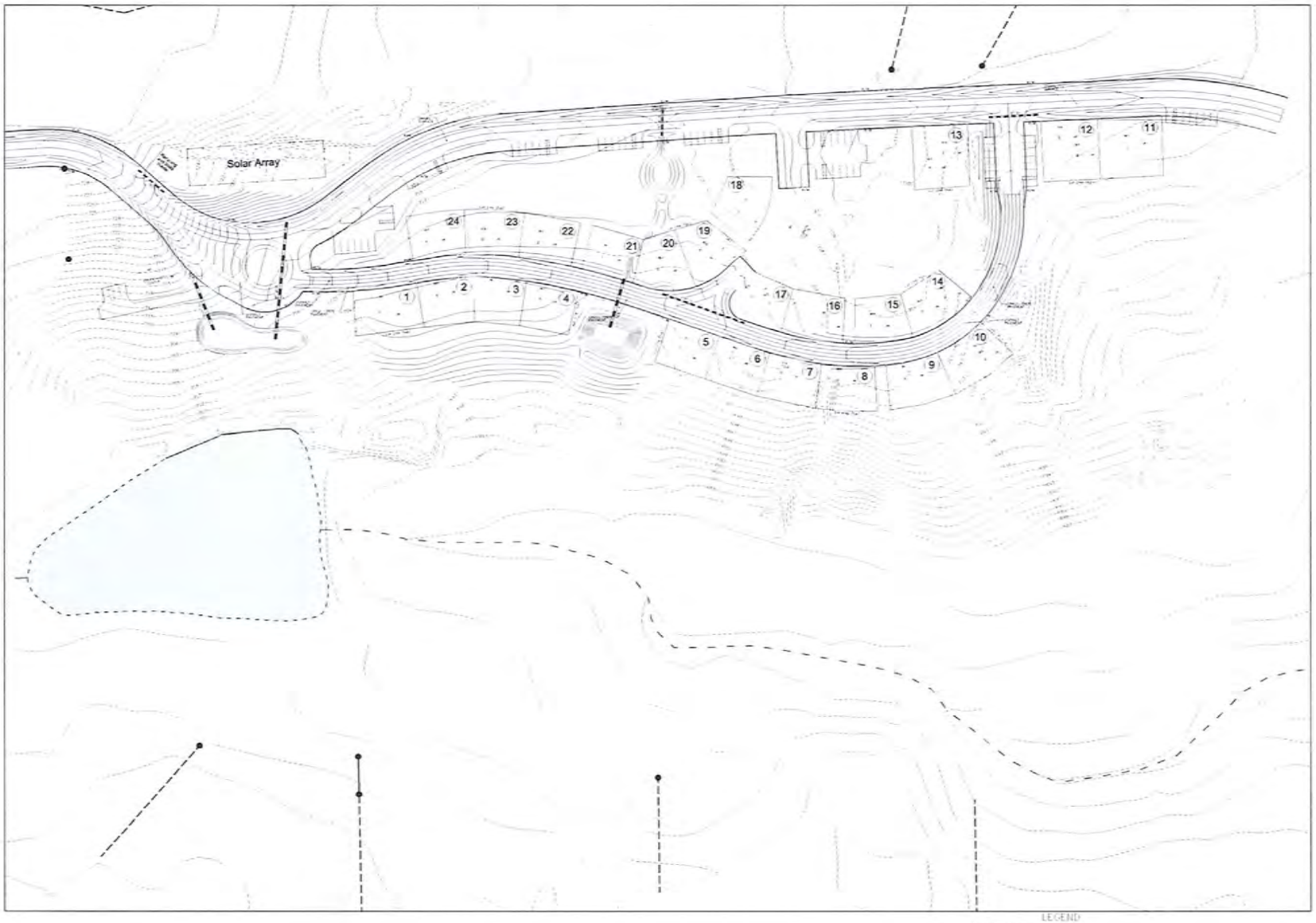
0 500

Orange County Planning and Inspections Department
03/27/2015



MASTER PLAN DEVELOPMENT
CONDITIONAL ZONING PERMIT (MPD-CZ)
PROPOSED SITE PLAN FOR THE

HARTS MILL VILLAGE
AND FARM



LEGEND

---620--- Existing Contour Line

—630— Proposed Contour Line

michael m. hughes, p.e.
Civil and Environmental Engineering

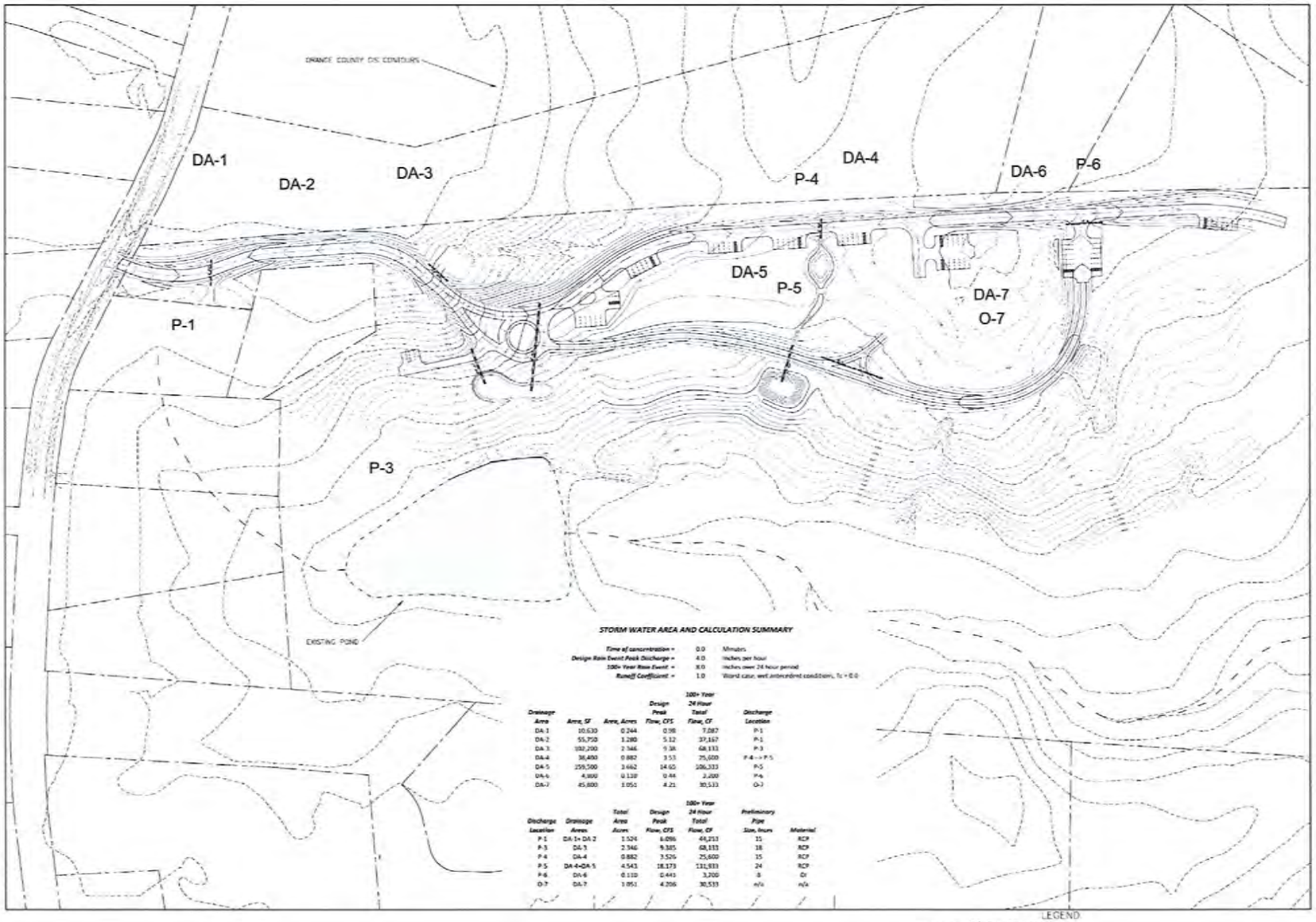
MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

MMH	MMH
1" = 60'	04/02/15

HARTS MILL VILLAGE SITE PLAN

SP-3



STORM WATER AREA AND CALCULATION SUMMARY

Time of concentration =	0.0	Minutes
Design Rain Event Peak Discharge =	4.0	Inches per hour
100+ Year Rain Event =	8.0	Inches over 24 hour period
Runoff Coefficient =	1.0	Worst case, wet antecedent conditions, Tc = 0.0

Drainage Area	*Area, SF*	*Area, Acres*	*Design Peak Flow, CFS*	*100+ Year 24 Hour Total Flow, CF*	*Discharge Location*
DA-1	10,630	0.244	0.98	7,087	P-1
DA-2	55,750	1.280	5.12	37,167	P-1
DA-3	102,200	2.346	9.38	68,133	P-3
DA-4	38,400	0.882	3.53	25,600	P-4 --> P-5
DA-5	259,500	3.462	14.62	106,333	P-5
DA-6	4,800	0.110	0.44	3,200	P-6
DA-7	45,800	1.051	4.21	30,533	O-7

Discharge Location	*Drainage Areas*	*Total Area Acres*	*Design Peak Flow, CFS*	*100+ Year 24 Hour Total Flow, CF*	*Preliminary Pipe Size, Inches*	*Material*
P-1	DA-1+ DA-2	1.524	6.096	44,253	15	RCP
P-3	DA-3	2.346	9.385	68,133	18	RCP
P-4	DA-4	0.882	3.526	25,600	15	RCP
P-5	DA-4+DA-5	4.543	18.173	131,933	24	RCP
P-6	DA-6	0.110	0.441	3,200	3	DI
O-7	DA-7	1.051	4.206	30,533	n/a	n/a

LEGEND
--520-- Existing Contour Line
—520— Proposed Contour Line

michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-8462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE AND FARM

NOTE

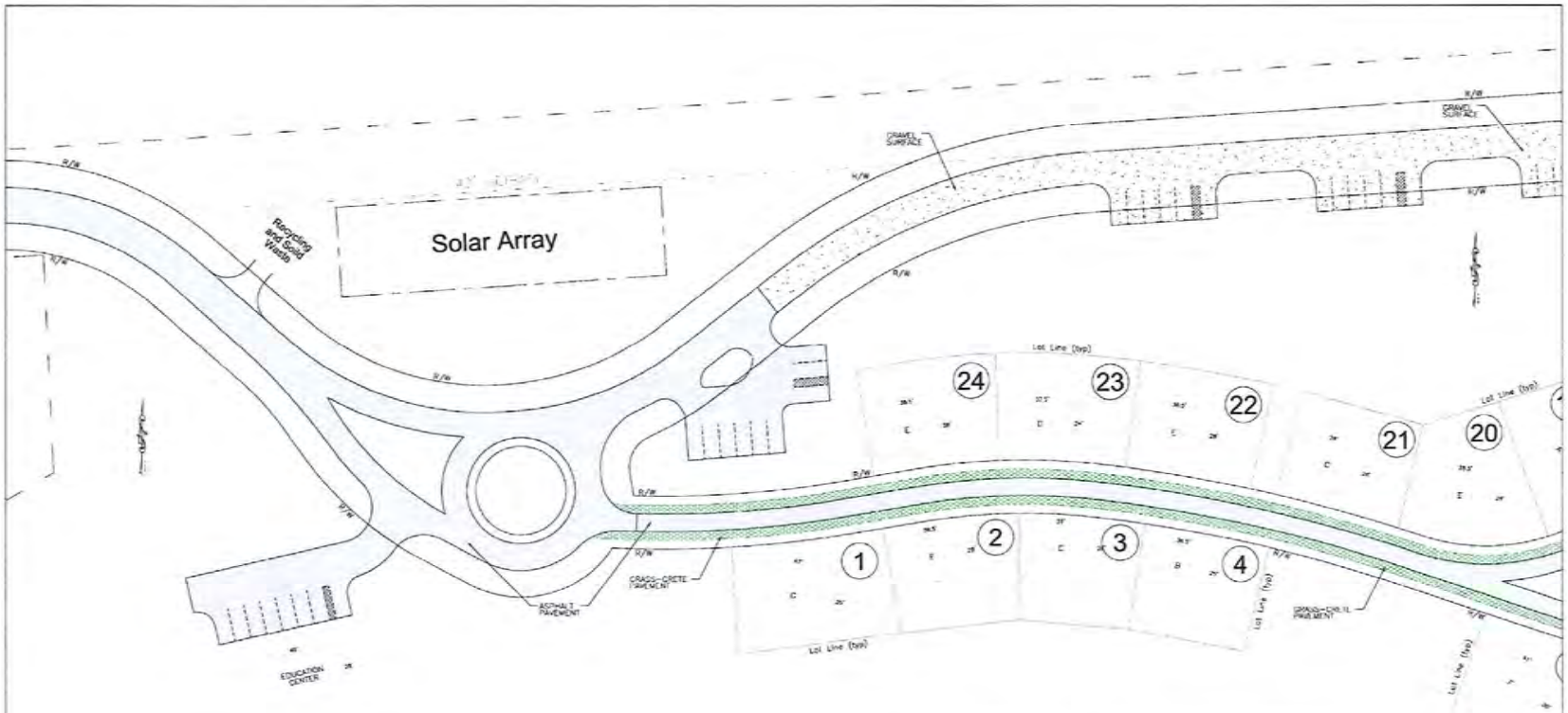
DRAWN: MMH
CHECKED: MMH
SCALE: 1" = 80'
DATE: 04/02/15

TITLE

HARTS MILL VILLAGE PROPOSED GRADING PLAN AND STORMWATER DRAINAGE AREAS

FILE NO.
JOB NO.
SCALE
SHEET NO.
SP-4

PRELIMINARY NOT FOR PERMITTING OR CONSTRUCTION



HART'S MILL FACILITIES & FUNCTIONS SUMMARY

RESIDENTIAL

		#	BR	Min SF	Max SF	Avg SF	Avg Footprint*	TTL Bedrooms	TTL Min SF	TTL Max SF	TTL Avg SF	TTL Footprint*	Representative Footprint
A	Tiny Home (1 story)	4	1	400	600	500	650	4	1600	2400	2000	2600	20 x 32.5
B	1 BR Cottage (1 or 1.5 story)	5	1	600	800	700	915	5	3000	4000	3500	4575	25 x 36.5
C	2 BR Cottage (1 or 1.5 story)	4	2	800	1000	900	1090	8	3200	4000	3600	4360	28 X 39
D	2 BR House (1, 1.5 or 2 story)	6	2	1000	1500	1250	900	12	6000	9000	7500	5400	24 x 37.5
E	3 BR House (2 story)	8	3	1300	1800	1550	1090	24	10400	14400	12400	8640	28 x 38.5
F	4 BR House (2 story)	1	4	1600	2000	1800	1230	4	1600	2000	1800	1230	30 x 41
G	Shared Home (2 story)	2	5	2000	2800	2400	1640	10	4000	5600	4800	3280	35 x 47
	TOTAL # HOUSING UNITS	29						67	29,800	41,400	35,600	26,085	

* Footprint includes allowances for roof overhangs and porches

Single Family Homes	17
Duplexes	5
Shared Homes	2
TOTAL # BLDG "LOTS"	24

*various combinations of house types

RESIDENTIAL HOME AND STRUCTURE FOOTPRINTS

LEGEND

520 Existing Contour Line

520 Proposed Contour Line

mmh
michael m. hughes, p.e.
Civil and Environmental Engineering
8112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE

NOTE

DRAWN: MMH
CHECKED: MMH
SCALE: 1" = 30'
DATE: 11/04/14

TITLE

HARTS MILL VILLAGE SITE PLAN

FILE NO
JOB NO
SEAL
SHEET NO
SP-5
SP-1

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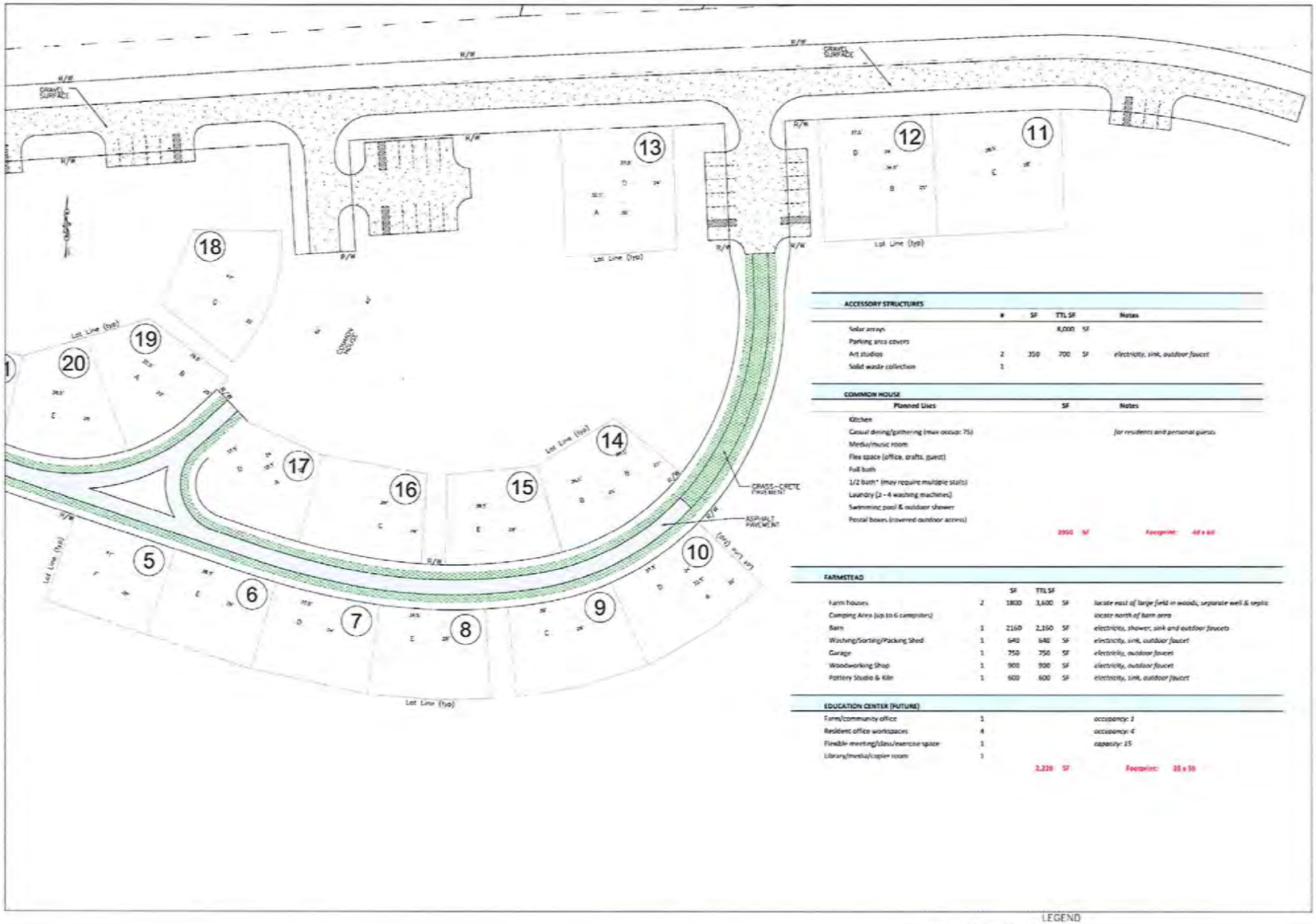

ACCESSORY STRUCTURES

	#	SF	TTL SF		Notes
Solar arrays			8,000	SF	
Parking area covers					
Art studios	2	350	700	SF	electricity, sink, outdoor faucet
Solid waste collection	1				

COMMON HOUSE

Planned Uses	SF	Notes
Kitchen		
Casual dining/gathering (max occup: 75)		for residents and personal guests
Media/music room		
Flex space (office, crafts, guest)		
Full bath		
1/2 bath* (may require multiple stalls)		
Laundry (2 - 4 washing machines)		
Swimming pool & outdoor shower		
Postal boxes (covered outdoor access)		
	2950 SF	Footprint: 40 x 60

FARMSTEAD

		SF	TTL SF		
Farm houses	2	1800	3,600	SF	locate east of large field in woods, separate well & septic
Camping Area (up to 6 campsites)					locate north of barn area
Barn	1	2160	2,160	SF	electricity, shower, sink and outdoor faucets
Washing/Sorting/Packing Shed	1	640	640	SF	electricity, sink, outdoor faucet
Garage	1	750	750	SF	electricity, outdoor faucet
Woodworking Shop	1	900	900	SF	electricity, outdoor faucet
Pottery Studio & Kiln	1	600	600	SF	electricity, sink, outdoor faucet

EDUCATION CENTER (FUTURE)

Farm/community office	1		occupancy: 2
Resident office workspaces	4		occupancy: 4
Flexible meeting/class/exercise space	1		capacity: 15
Library/media/copier room	1		
		2,220 SF	Footprint: 35 x 50

LEGEND

520 Existing Contour Line

520 Proposed Contour Line

mmh

michael m. hughes, p.e.
Civil and Environmental Engineering

6112 Orange Grove Road
Chapel Hill, North Carolina 27516
(919) 270-6462

PROJECT

MASTER PLAN DEVELOPMENT CONDITIONAL ZONING PERMIT PLANS FOR THE

HARTS MILL VILLAGE

NOTE

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SCALE: 1" = 30'
DATE: 11/04/14

TITLE

HARTS MILL VILLAGE SITE PLAN

FILE NO
JOB NO
SEAL
SHEET NO
SP-6 ~~SP-2~~

PRELIMINARY
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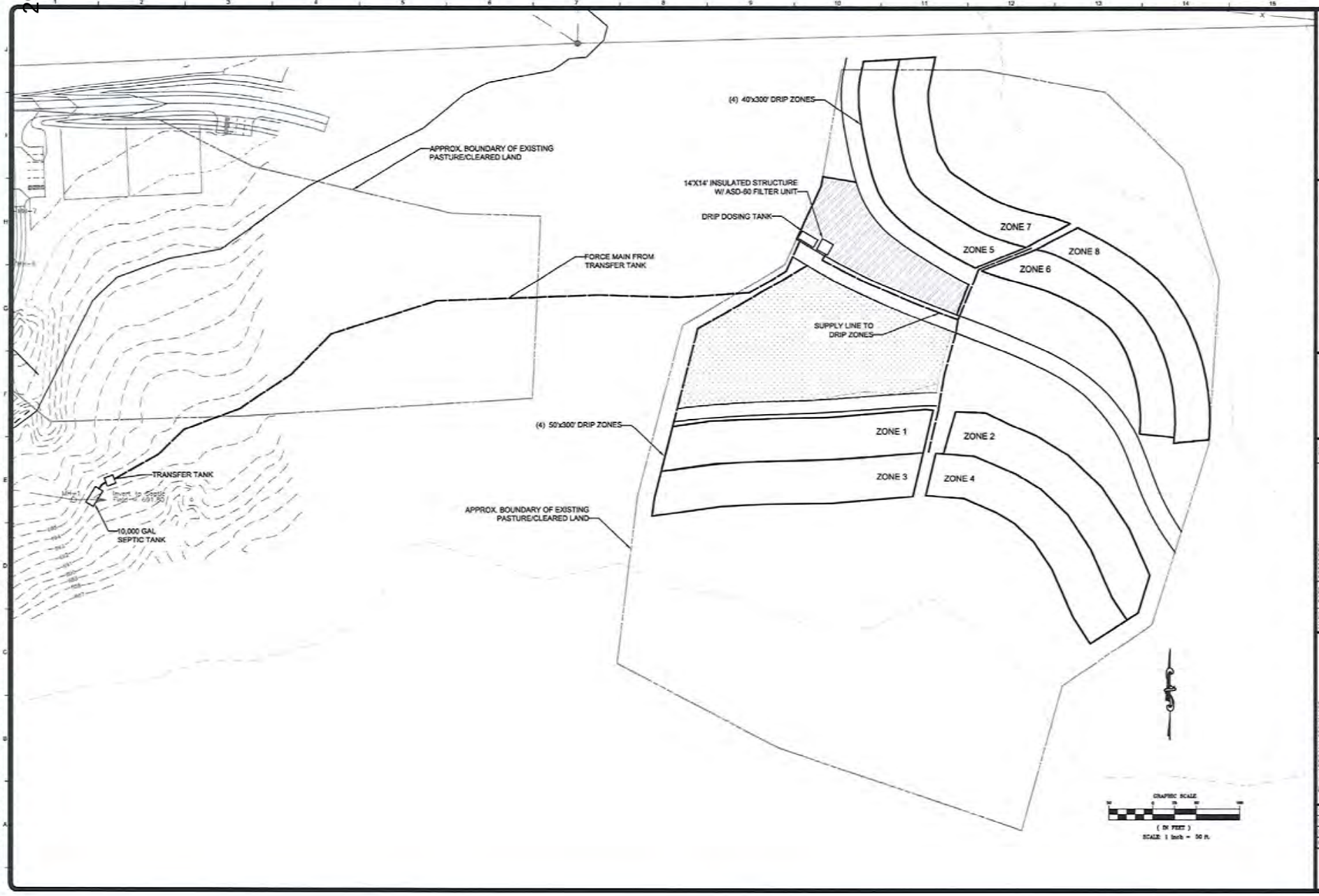

TETRA TECH
www.tetratech.com
1 PARK DRIVE, SUITE 200
RESEARCH TRIANGLE PARK, NC 27709
(919) 485-8278

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MARK	DATE	DESCRIPTION	BY
	10-21-14	DRAFT PLAN REVIEW	RST

Client: HARTS KILL ECOVILLAGE
Proj Loc: MEBANE, NC

HARTS KILL ECOVILLAGE
SITE PLAN APPROVAL

CONCEPTUAL DRIP LAYOUT

SCO #:	
Designed By:	RST
Drawn By:	RST
Checked By:	VD

SP-9

Copyright: Tetra Tech

Tuesday, December 09, 2014 8:40:34 AM DRAWING: C:\PROJECTS\Orc14 Wastewater\Harts_LM\Drip_Layout_v1_revised DWG LAYOUT: ACTIVE-ZONES USER NAME: TUCKER, BOBBY

Whitted Building (300 W. Tryon St.)

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ORANGE COUNTY
BOARD OF COMMISSIONERS AND
PLANNING BOARD
QUARTERLY PUBLIC HEARING
ACTION AGENDA ITEM ABSTRACT
Meeting Date: May 26, 2015

Action Agenda Item No. C-3

SUBJECT: Class A Special Use Permit – Public Utility Station (Solar Array) in the White Cross Area

DEPARTMENT: Planning and Inspections **PUBLIC HEARING: (Y/N)** Yes

ATTACHMENT(S):

1. Application Packet
2. Property and Vicinity Map
3. Staff Comments
4. Neighborhood Information Meeting (NIM) Notes
5. Public Hearing Notification Materials

Under Separate Cover – Full Scaled Copy of Project Site Plan

INFORMATION CONTACT:

Patrick Mallett, Planner II (919) 245-2577
Michael D. Harvey, Planner III (919) 245-2597
Craig Benedict, Director (919) 245-2592

PURPOSE: To hold a quasi-judicial public hearing and receive sworn testimony and evidence on a Class A Special Use Permit application in accordance with Section 2.7 *Special Use Permits* and Section 5.9.3 of the Orange County Unified Development Ordinance (UDO) proposing the development of a solar array public utility.

A quasi-judicial hearing means that testimony is sworn and evidence must be competent and substantial. Hearsay or unsubstantiated opinions are not sufficient testimony. Board members are also prohibited from engaging in conversations with anyone on the merits of project outside of the public hearing process. Such conversations, commonly referred to as '*ex-parte communications*' are prohibited.

BACKGROUND: On February 25, 2015 staff received an application proposing the development of a 5 megawatt solar array public utility facility on a 20 acre portion of a 35.8 acre parcel of property owned by William and Carol Byron off of White Cross Road.

The basic facts of the application are as follows:

Applicant**:** White Cross Solar LLC
176 Mine Lake Court, Suite 100
Raleigh, NC 27615

Property Owners: William and Carol Byron
1606 White Cross Road
Chapel Hill, NC 27516

Agent(s): Beth Trahos
Smith Moore Leatherwood
434 Fayetteville Street, Suite 2800
Raleigh, NC 27601

Location: Northwest quadrant of White Cross Road (SR 1951) and Old Greensboro Road (SR 1005). Refer to Attachment 2 for a vicinity map of the project).

Parcel Information:

a. **PIN**: 9748-32-0786

b. **Size of parcel**: 35.8 acres (20 acres cleared for the solar array with approximately 11.5 acres of the cleared area to contain the fenced solar array facility).

c. **Zoning of parcel**: Agricultural Residential (AR) and Haw River Protected Watershed Overlay District.

d. **Township**: Bingham

e. **Future Land Use Map Designation**: Agricultural Residential

f. **Growth Management System Designation**: Rural

g. **Existing Conditions/Physical Features**: There is an existing single-family home on the southern portion. The remaining acreage is undeveloped and wooded with a mix of hardwood and evergreen trees.

h. **Roads**: Vehicular access to the proposed facility is located along the parcel frontage with White Cross Road (SR 1952) roughly adjacent to the White Cross Recreation facility. The property does have narrow frontage along Old Greensboro Road (SR 1005), however, neither the existing residence nor the proposed solar facility propose access within this frontage. Likewise, this frontage contains some sight distance and topography issues that would make any type of vehicular access at that location practical.

Surrounding Land Uses:

a. **NORTH**: Single-family residential with AR zoning and Haw River Protected Watershed Overlay;

b. **SOUTH**: Single-family residential with AR and Haw River Protected Watershed Overlay zoning;

c. **EAST:** White Cross Recreation and Antioch Baptist Church of Orange County with AR zoning; and

d. **WEST:** Single-family residential with AR zoning and Haw River Protected Watershed Overlay.

Proposal: As detailed within Attachment 1, the applicant is proposing to erect individual solar array panels on a 20 acre portion of the subject property. The remaining 15 acres will be retained by the current property owner, who resides within the existing single-family residence on the southern portion of the property.

A typical ground mounted array is approximately 7 to 9 feet in height, with approximately 2 to 3 feet of ground clearance, and 47 feet in length. Approximately 20 acres of the site will be initially disturbed with 11.5 acres containing the actual array. A 6 foot high chain link security fence, topped with 3 strand barbed wire, shall enclose the perimeter of the array to prevent access.

Vehicular access to the site is restricted by a 24 foot access gate off of White Cross Road. As detailed on the site plan (included in Attachment 1on Sheet C-1001) the White Cross Volunteer Fire Department and Orange County EMS shall be provided a key to access the site in the event of an emergency. Gravel paths/drives will be installed around these arrays in order to permit access by White Cross LLC technicians to service the panels and inverters.

Staff has determined that the applicant is required, per Section 6.8.6F of the UDO, to adhere to a Type D 50 foot wide landscaped buffer around the perimeter of the project. The Type D landscape buffer requires 17-20 trees and 50-70 shrubs per 100' feet of buffer length. This is a rate that ensures an opaque screen of at least 20' in height within 3-5 growing seasons. The applicant is proposing to meet landscaping requirements through the preservation of existing foliage and a planted mix of evergreen and hardwood trees and shrubs. As detailed on Sheet C1001 of the site plan, areas within the 50 foot buffer that are cleared shall be replaced in accordance with applicable Orange County and State guidelines with drought tolerant, indigenous, non-invasive vegetation. The applicant is also proposing to save additional trees between the 50 foot wide buffer and the fencing for the solar array.

The applicant is not proposing to develop a business or other similar occupied office facilities on the property. As a result there is no septic or well system proposed, or required, as part of the project.

Ordinance Requirements – Class A Special Use: In accordance with Section 5.9.6 (C) (2) *Solar Arrays* of the UDO, the project is required to demonstrate compliance with the following standards of evaluation:

(a) All on-site utility and transmission lines shall, to the extent feasible, be placed underground.

STAFF COMMENT: Based on language provided on the site plan the applicant is proposing to adhere to this requirement.

(b) The height of proposed arrays and support structures shall not exceed 40 feet.

STAFF COMMENT: Data on the submitted site plan, specifically the typical rack height elevation, indicates the height of the racks will be approximately 7 to 8 feet from ground elevation.

No other support structures, other than utility poles, are proposed.

(c) Individual arrays/solar panels shall be designed and located in order to prevent reflective glare toward any inhabited buildings on adjacent properties as well as adjacent street rights-of-way.

STAFF COMMENT: Detail in the application narrative indicates the applicant will comply with this provision.

(d) A clearly visible warning sign concerning voltage must be placed at the base of all pad-mounted transformers and substations.

STAFF COMMENT: Note(s) on the site plan indicate warning signs shall be erected as required by the UDO.

(e) All mechanical equipment of principal solar energy systems including any structure for batteries or storage cells, shall be completely enclosed by a minimum eight (8) foot high fence with a self-locking gate, and provided with screening in accordance with the provisions of Section 6.8.

STAFF COMMENT: The site plan indicates the site shall be enclosed by an 8 foot high security fence around the entire perimeter.

A 50' wide Landscape Buffer with screening materials will be provided around the perimeter of the project.

(f) The applicant shall submit proof of liability insurance covering bodily injury and property damage demonstrating a minimum coverage limit of $ 500,000.00 per occurrence.

STAFF COMMENT: The narrative provides language denoting the applicant's compliance with this provision.

(g) A Type D Land Use Buffer shall be provided along any portion of the perimeter of the parcel, easement, or leasehold area located adjacent to property zoned, or otherwise utilized for, residential use except where such property is owned, leased or consists of other utility easements currently used for electrical distribution or transmission purposes.

Existing vegetation may be used to satisfy the landscaping requirements.

STAFF COMMENT: The site plan provides sufficient information demonstrating land use buffering requirements will be met.

In reviewing the request with other County departments, the following comments have been received:

1. The Sheriff's Department has indicated the proposed development will not require existing patrol patterns to be altered.
2. EMS staff has indicated that White Cross Volunteer Fire Department will still provide fire services and that Orange County EMS will provide emergency medical services. They do not believe the request will create a service provision problem for them.
3. There are no septic or well systems proposed for the property.
4. The Planning Department and the Department of Environment, Agriculture, Parks, and Recreation (DEAPR) staff has reviewed the proposal and determined the request, if approved, will have no significant impact to existing habitat area warranting special consideration or protection based on information contained within the *Inventory of Natural Areas and Wildlife Habitats for Orange County North Carolina*
5. Orange County Solid Waste has indicated the request, if approved, will not impact service provision to the surrounding area.
6. Staff has submitted the project to the State Clearinghouse for review. Preliminary responses from State agencies indicate there are no concerns associated with the development of the property as a solar array. Final comments will not be received until May 28, 2015 and will be provided to the BOCC and Planning Board at that time.

7. Staff has determined a formal Environmental Impact Statement is not required for the project.

Please refer to Attachment 3 for additional detail.

Analysis: As required under Section 2.7.4 of the UDO, the Planning Director is required to: '*cause an analysis to be made of the application'* and pass that analysis on to the reviewing body. In analyzing this request, the Planning Director offers the following:

1. The application has been deemed complete in accordance with the requirements of Section 2.7 of the UDO.
2. Staff has determined that the property is of sufficient size to allow for the development of the project.
3. The proposal should not have a negative impact on the existing residence, including the existing well and septic system, or impede the existing residential use of the remainder of the property.
4. The proposal appears consistent with the various goals outlined within the Comprehensive Plan concerning development, including:
    a. Natural and Cultural Systems Goal 1: Energy conservation, sustainable use of non-polluting renewable energy resources, efficient use of non-renewable energy resources and clean air.
    b. Objective AE-15: Foster participation in green energy programs such as installation incentives for solar hot water/solar generation/solar tempering in residential or commercial construction. The County should develop programs that will link citizens and businesses with options for alternative and sustainable energy sources.
    c. Objective AG-8: Encourage the use and production of natural fuel alternatives to petroleum based products and pursue new types of energy sources.

A neighborhood information meeting was held for this project on April 9, 2015 from 5:30 p.m. to 7:30 p.m. in accordance with the UDO. Several concerns were identified at this meeting relating to the project including:

a. Adjacent property owners expressed concern over the impact the project would have on their property values.
b. The northern property owner expressed concern that the required land use buffer was insufficient and that she would still be able to see the array once constructed.
c. Adjacent property owners expressed concerns over traffic and access to the facility.
d. There were concerns over what was going to happen the rest of the property (i.e. how would it be developed/redeveloped).

Meeting notes for the meeting are provided within Attachment 4. It should be noted the applicant held a second neighborhood meeting on Thursday May 7, 2015 at the White Cross Recreation Center. Staff was in attendance to respond to questions about the review process only.

This item has been submitted to the State Clearing House for review. Initial comments have not indicated a concern. A formal response is expected by May 28, 2015 and will be forwarded to BOCC and Planning Board members.

Notification Requirements: Per Sections 2.7.5 of the UDO, staff has caused a notice of this hearing to be published: '*as least twice in a newspaper of public circulation in the County*' for two (2) successive weeks: *' no less than ten (10) days nor more than twenty-five (25) days'* before the public hearing.

On May 8, 2015 staff sent written notice by certified mail to all adjacent property owners located within 500 feet of the subject property of the date, time, and location of the public hearing where the application was going to be reviewed. On May 15, 2015 a sign was posted on the property providing the date, time, and location of the public hearing. For more information please refer to Attachment 5.

FINANCIAL IMPACT: This request has been reviewed by various County departments who have determined that the approval or denial of the request would not create the need for additional funding for the provision of County services.

RECOMMENDATION(S): The Planning Director recommends that the Board:

1. Receive the application,
2. Conduct the Public Hearing and accept sworn testimony.
3. Refer the matter to the Planning Board with a request that a recommendation be returned to the County Board of Commissioners in time for the **September 1, 2015** BOCC regular meeting.
4. Adjourn the public hearing until **September 1, 2015** in order to receive and accept the Planning Board's recommendation and any submitted written comments.

Attachment 1

Orange County Planning and Inspections Department

APPLICATION FOR CLASS A SPECIAL USE PERMIT

APPLICANT INFORMATION:

Date: 2/25/2015

Applicant: White Cross Solar, LLC and property owners William and Carol Byron
Address: 176 Mine Lake Court, Suite 100
Raleigh, NC 27615

Phone: 407.963.2391
Cell Phone: same as above
E-mail: jluster@pinegatedev.com

SU15-0002

Agent: Beth Trahos, Smith Moore Leatherwood, LLP
Address: 434 Fayetteville Street, Suite 2800
Raleigh, North Carolina 27601

Phone: 919.755.8760
Cell Phone: 919.306.1394
E-mail: beth.trahos@smithmoorelaw.com

Address of subject property: 1606 White Cross Road, Chapel Hill, NC

Parcel Identification Number (PIN): 9748 32 0786

Lot Size: 35.8± acres

Zoning Designation: AR

Watershed Overlay: _____

Other Overlay Zoning Districts: _____

Request (include detailed description of proposed land use): Please see the attached brief.

SUBMITTAL INFORMATION Per Section 2.7.3 of the Unified Development Ordinance (UDO), all Class A Special Use Permit applications are required to submit the following:

1) 26 copies of a site plan prepared by a registered North Carolina land surveyor, landscape architect, architect, or engineer containing all required information detailed within Section 2.5 of the UDO. This site plan will also need to contain all relevant information demonstrating that the proposed special use compliance with all general and specific standards governing the proposed special use as detailed within Article(s) 5 and 6 of the UDO.
2) A detailed narrative outlining the proposed land use including operational requirements, the location of facility, appearance, etc.,
3) Documentation establishing compliance with Section 5.3.2 inclusive of the UDO.
4) The names and addresses of the owners involved with the project,
5) A list of property owners within 500 feet of the subject parcel and the name and address of each property owner, as currently listed in the Orange County tax records,
6) Elevations of all structures proposed to be used in the development,
7) 26 copies of the Environmental Assessment and/or Environmental Impact Statement if required by Section 6.16 of the UDO,
8) Statement outlining the anticipated development schedule for the completion of the project,

**** NOTE: It should be remembered that the review of all special use permit applications/modifications are carried out in a *quasi-judicial* format meaning that decisions relating to the approval or denial of an application are based solely on the sworn testimony of all parties involved with the case, both those for and against an application, as well as the review of competent material and substantial evidence submitted during the public hearing.**

Further the applicant has the burden of establishing, by the submission of competent material and substantial evidence, the existence of facts and conditions that demonstrate the projects compliance with the various requirements and standards detailed within the Unified Development Ordinance. **

I (we), the undersigned, have been made aware of the process for the review and action associated with a Class A Special Use Permit application and understand that only completed applications, containing all information required by the Orange County UDO shall be reviewed and acted upon by the County.

I (we) understand that it shall be my (our) responsibility to present evidence to the County in the form of sworn testimony, exhibits, documents, models, plans, and the like support the request for approval of the Class A Special Use Permit.

Further I (we) understand that any assistance I (we) may receive from County staff in preparing this application in no way guarantees a favorable recommendation by staff on the merits of this proposal nor does it guarantee an approval of the request by the County.

William C Bynum — 2/27/15

Applicant — Date:

Carol A Bynum — 2-27-15

Applicant — Date:

STATE OF NORTH CAROLINA

BEFORE THE BOARD OF COMMISSIONERS AND PLANNING BOARD

COUNTY OF ORANGE

IN RE: White Cross Solar, LLC- Solar Array- Public Utility
Orange County PIN: 9748 32 0786
Address: White Cross Road, Chapel Hill, North Carolina

STATEMENT OF JUSTIFICATION IN SUPPORT OF THE SPECIAL USE PERMIT APPLICATION

NOW COMES THE PETITIONER, by and through counsel of record, and respectfully requests approval of their application for a special use permit to operate a Solar Array-Public Utility. In support of this request, Petitioner provides the following information:

I. Introduction

White Cross Solar, LLC proposes to construct a solar array-public utility on 35.8± acres of land owned by William and Carol Byron. The property is located on White Cross Road near its intersection with Old Greensboro Road. The property is currently zoned Agricultural Residential (AR). Adjacent properties are developed as homes, a church, a recreational area and farms. Adjacent properties are also zoned Agricultural Residential (AR).

An overarching theme of the Orange County Comprehensive Plan is a desire to create a sustainable future. In Chapter 1, the Plan Overview, the Orange County Comprehensive Plan states that ". . .we must seek to develop a community that meets the needs of the present generation without compromising the ability of future generations to meet their needs." This solar farm fulfills the County's goal to reduce dependence on fossil fuels and nuclear power and turn to a sustainable form of energy generation.

The solar array-public utility will contain rows of Photovoltaic (PV) cells mounted on posts set in the ground individually in an effort to minimize the amount of grading on site. These rows of PV cells are referred to as "solar arrays." The solar arrays will be fixed in place facing south in order to receive the maximum amount of solar energy. This configuration contains no moving parts. The power generated from the solar farm will be sold to Duke Power Company for use by Orange County and consumers in place of power produced by non-sustainable means.

Solar energy is a public necessity. Demand for electricity has increased exponentially in recent years and our society is dependent upon conventional sources of power such as coal, gas, nuclear and hydro energy. Conventional sources of electricity are expensive, finite resources that require significant environmental disruption and public safety risk to maintain or extract. Solar energy is a clean, cheap, unlimited resource with little

environmental impact. The demand for power will not decline. We must embrace renewable means of power generation.

II. Statement in Support of Application

This Class A Special Use Permit application for a Solar Array - Public Utility meets all general standards for approval as required by Section 5.3.2 (A), those specific standards required by Section 5.3.2 (B), and the requirements of 5.9(C). This Statement addresses both general and specific standards as required by Orange County Ordinance.

A. The use will maintain or promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted.

The proposed solar array – public utility will not materially affect the public health or safety. Access to the site will be from White Cross Road. The site will generate virtually no traffic. The solar array – public utility will not be staffed daily. Employees are expected to visit the property weekly or less frequently to check and maintain the equipment, mow the grass and make repairs. Two gravel parking spaces will be provided for employee use.

The active area of the solar array – public utility will be enclosed by an eight foot (8') high fence and gated for security purposes. Access codes to the gate will be provided to local police, fire, and emergency service providers. Vehicular access to the site is adequate for the use proposed and for emergency services.

There will be no buildings or employees on the property so there is no need for sewage disposal facilities, solid waste, and water on the site.

The proposed solar array – public utility will protect against soil erosion and sedimentation. Care is taken to minimize grading on the site by hand setting poles to support the solar cells. The areas beneath the solar panels will be planted with grass or alfalfa to stabilize the site. During construction, erosion control measures will be maintained in accordance with the County regulations and the site will comply with County stormwater regulations. All environmental buffers will be maintained and respected.

B. The use will maintain and enhance the value of contiguous property (unless the use is a public necessity, in which case the use need not maintain or enhance the value of contiguous property).

The proposed use will maintain and enhance the value of contiguous properties. A solar array – public utility is virtually silent. The solar arrays proposed have no moving parts. The only sound is the quiet hum of electrical transformers, invertors and substation that deliver the solar power to the power grid. Similar facilities are located in neighborhoods to deliver power to homes. At night, when the sun is not available, there is no energy

being created and no noise on the site. Solar array – public utility generate far fewer vehicles trips than one average single-family home. Employees visit the site once a week or even less frequently. Solar panels are designed to absorb light, rather than reflect it.

C. The location and character of the use, if developed according to the plan submitted, will be in harmony with the area in which it is to be located and the use is in compliance with the plan for the physical development of the County as embodied in these regulations or in the Comprehensive Plan, or portion thereof, adopted by the Board of County Commissioners.

The proposed solar array – public utility is consistent with the land use pattern that exists in the area today. The site of the proposed solar array – public utility. In fact, there is an existing solar utility located along White Cross Road in this area. A Type D Land Use buffer will be provided in accordance with the Orange County Code.

The proposed solar array – public utility is consistent with the Orange County Land Use Plan. Throughout the Orange County Land Use Plan references are made to the County's desire to encourage locally-generated alternative energy resources and to promote alternative and sustainable fuels. The Greenhouse Gas Emission Inventory and Reduction Action Plan initiated by Orange County in 2006 suggested that private alternative energy production be encouraged in the County. The Orange County Comprehensive Plan designates this as an area of Commercial-Industrial Transition. Allowing the subject property to develop as a solar array – public utility provides an opportunity for locally generated energy resources in Orange County and creates income for the property owners and tax base for the County.

The proposed solar array – public utility will consume practically no county services: no seats in county schools or on school buses, virtually no refuse or recycling needs, no special sheriff protection, no light pollution, no emissions of any kind, no demand for water from depleted aquifers and no sewage disposal.

D. The method and provision of sewage disposal facilities, solid waste and water is adequate.

This facility will be unmanned- there will be no space designed or utilized for human occupancy. Water and sewage disposal facilities are not necessary, and will not be provided to the site. Solid waste disposal will be similarly unnecessary. Any refuse generated by landscape maintenance or facility repair will be removed from the site and disposed of by the professional service providers using approved and safe methods.

E. Police, fire and rescue squad protection is sufficient to the site.

There will be little, if any demand for police fire or rescue squad protection at this location. The facility will be unmanned with no space designed or utilized for human occupancy.

F. Vehicular access to the site and traffic condition around the site are acceptable.

Access to the property will be directly off of White Cross Road. Traffic conditions around the site are acceptable. The proposed Solar Array- Public Utility will generate less traffic than one (1) single family home after construction.

G. The proposed Class A Special Use Permit is for a Solar Array - Public Utility subject to the requirements of Section 5.9.6 (C)(2) and (3) as follows:

(a) All on-site utility and transmission lines shall, to the extent feasible, be placed underground.

Utility and transmission lines shall be placed underground to the extent feasible.

(b) The height of proposed arrays and support structures shall not exceed 40 feet.

Arrays, support structures and invertors do not exceed forty feet (40') in height.

(c) Individual arrays/solar panels shall be designed and located in order to prevent reflective glare toward any inhabited buildings on adjacent properties as well as adjacent street rights-of-way.

Reflective glare is not ordinarily associated with solar panels. Solar panels absorb rather than reflect light. The Federal Aviation Administration has given permission for solar panels to be located at airports where reducing glare is of paramount importance. The site will be designed to avoid glare toward inhabited buildings on adjacent properties as well as adjacent street rights-of-way.

(d) A clearly visible warning sign concerning voltage must be placed at the base of all pad-mounted transformers and substations.

The site will be appropriately signed.

(e) All mechanical equipment of principal solar energy systems including any structure for batteries or storage cells, shall be completely enclosed by a minimum eight (8) foot high fence with a self-locking gate, and provided with screening in accordance with the provisions of Section 6.8.

The site will be enclosed in accordance with this section.

(f) The applicant shall submit proof of liability insurance covering bodily injury and property damage demonstrating a minimum coverage limit of $ 500,000.00 per occurrence.

Appropriate liability insurance will be provided for the site.

(g) A Type D Land Use Buffer shall be provided along any portion of the perimeter of the parcel, easement, or leasehold area located adjacent to property zoned, or otherwise utilized for, residential use except where such property is owned, leased or consists of other utility easements currently used for electrical distribution or transmission purposes. Existing vegetation may be used to satisfy the landscaping requirements.

A buffer meeting the Orange County Code, Unified Development Ordinance is shown on the associated site plan and will be maintained on the subject property.

(h) Decommissioning

The applicant and owners, as appropriate, agree to the following as conditions in case the utility is to be abandoned:

(i) The owner/operator of the facility is required to notify the Orange County Planning Director in writing 60 days prior to the planned cessation or abandonment of the facility for any reason. This notice shall provide the exact date when the use of the facility will cease.

(ii) Documentation shall be provided indicating that the public utility purchasing the power has been made aware of the decision.

(iii) The facility shall be removed within 12 months from the date the applicant ceases use of the facility.

(iv) Once the infrastructure is removed the property, the owner shall obtain the necessary Erosion Control permits to re-stabilize the property. The time frame for completion shall be determined by the Orange County Erosion Control Officer.

(v) The owner shall provide financial security in form and amount acceptable to the County to secure the expense of dismantling and removing said structures.

(vi) Upon removal of the facility, the Department shall cause a notice to be recorded within the Orange County Registrar of Deeds office indicating that the Class A Special Use Permit has been revoked.

III. Anticipated Development Schedule for Completion of the Project

We expect to begin construction on the Solar Array-Public Utility within six (6) months of approval by Orange County. Construction should take roughly four months. We expect the facility to be operational by the end of 2016.

Application For Environmental Assessment

Project Name: White Cross Farm Solar Array – Public Utility
Applicant: White Cross Solar, LLC and William & Carol Byron
176 Mine Lake Court, Suite 100
Raleigh, NC 27615
Phone: (407)963-2391
Owner: William J. & Carol B. Byron
Address: 1606 White Cross Road, Chapel Hill, NC 27516

Phone:
Location of Property: S.R. 1951 (White Cross Road), Chapel Hill, Orange County, NC

Acreage: 35.8 Ac **Township:** Bingham
Tax Map Reference: **PIN(s):** 9748320786

For Department Use Only

Date Received: **Reviewed by:**
Date Accepted/Rejected:
Summary Comments:

I. General Site Information:

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

A. Zoning and use of adjacent property:

North: AR; Wooded Land
South: AR; Residential/Wooded Land
East: AR; Commercial/ Wooded land
West: AR; Residential/Wooded Land

B. Topography:

Highest Elevation: 580 ft. ±
Lowest Elevation: 535 ft. ±
General Direction of Slope: North and South
Estimated % of property with:
0-5% Slope: 0%
5-15% Slope: 100% (2 to 6% and 6-10% Slopes – Per USDA Soils Map)
15-25% Slope: 0%
More than 25% Slope: 0%
(Required only for the portion of the site associated with or impacted by the proposed activity)

C. Drainage:

Are there any streams or drainage easements located on the property?
Yes, one jurisdictional stream is located along the eastern property line near State Road 1951. There is a wetland located adjacent to the stream channel near State Road 1951 as well. (see attached map)

Is any of the site within a:
Watersupply Watershed: Yes – Haw River Protected
Water Quality Critical Area: No
Floodplain: No

Describe: _____

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

	Yes	No
1. Cemeteries	____	X
2. Archaeological sites	____	X
3. Historic sites	____	X
4. Areas of geological significance	____	X
5. Designated natural areas	____	X
6. Designated habitat	____	X
7. Other	____	X

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

1. Type of Resource: _____
   Inventory reference no. or page: _____
   Description of Resource: _____
   _____
   _____
   _____

2. Type of Resource: _____
   Inventory reference no. or page: _____
   Description of Resource: _____
   _____
   _____
   _____

(Attach additional sheets if needed)

II. To Be Completed By Applicant:

A. Project Description:

1. Describe proposed use of property:
This project proposes the development of a solar electric power plant. The White Cross Farm is located on State Road 1951 (White Cross Road) in Chapel Hill, Orange County, North Carolina. The project site consists of a leased portion of one parcel. The property PIN is 9748320786 (35.8 acres). The project area contains approximately 22.0 acres of vacant wooded land. The site is surrounded primarily with wooded and residential lands with White Cross Recreational Center along the eastern property line. The existing soils within the project site are Appling sandy loam "ApB", Georgeville silt loam "GeB" and Georgeville silt loam "GeC". The entire site is in hydrologic soils group "B" (see attached soils map). The site surface drainage flows from a high point thru the middle of the proposed site north toward Wildcat Creek and south toward Terrells Creek. There is a jurisdictional stream located along the eastern property line near State Road 1951. There is a wetland located adjacent to the stream channel near State Road 1951 as well. FIRM Panel 3710974800J indicates the project limits do not lie within a special flood hazard area. The site is located in the Cape Fear River basin. Project site Latitude and Longitude is 35.901348° and -79.190065°.

The proposed solar farm will consist of fixed solar panels, inverter/transformer areas and a chain link fence along the perimeter of the array. The project will also include temporary laydown and parking areas and a permanent driveway apron along State Road 1951. The installation of the solar panels themselves will not generally create significant land disturbance. 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 excavation or land disturbance and the existing ground cover will be allowed to remain to the extent possible. The project area true disturbance caused by rubber tire vehicles accessing the site to distribute and install above grade material, a dozen or so small trenches (2' wide, 36" deep) for wiring the array and rack posts mechanically driven directly into the ground, is typically about a third of the project limits. All areas downslope of disturbed areas will be protected by silt fence, diversion ditches and sediment basins as needed. No change in drainage patterns (site drainage remains as sheet flow) or ponding of water will occur as a

result of this project. At the completion of construction, the entire site will be seeded to create a good stand of grass.

The typical construction schedule for these standard farms is approximately three months. Energy generated by the farm will be distributed to Duke Energy customers.

2. Number of lots: 0

3. Number of structures: 0

4. Estimated square footage of area to be graded for development of attached residential units (excluding roads, but including parking areas): 0

5. Estimated square footage of area to be graded for non-residential use (excluding roads) Approx. 4,000 sf (Inverter Pad areas)

6. Estimated area to be graded for roads 0

7. Road Type: Public N/A Private
   Class A N/A
   Class B N/A

8. Hours of operation for commercial or industrial use:
   The solar farm will operate year round and generate electricity during daylight hours. The facility will be monitored remotely. Security and minimum maintenance are the only periodic activities anticipated. Daily operation does not require permanent on-site employees.

B. State Permits Required:

1. Does the project involve the mining of earth products?

   If so, how many cubic feet of material are expected to be excavated?
   No – N/A

   Has an application for a Mining Permit been submitted to NCDRCD?
   N/A

Please attach map indicating expected extent of proposed activity.
N/A

2. Does the project involve generation or storage of hazardous or toxic wastes, as identified by the Environmental Protection Agency? (A listing of all hazardous materials is available from the Planning Department)

Describe the wastes to be generated. There will be no hazardous material stored or introduced on site.

How much material is expected to be generated per month?
N/A

Will any material be treated onsite? No
Volume?
Will any material be stored onside? No
Volume?

Where will disposal of the material take place?
N/A

How will materials be transported to the disposal site?
N/A

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

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

If yes, describe

Has an application for a non-discharge permit been submitted to the NC

Department of Environmental Management or Orange County Department of Environmental Health? N/A

4. Is a septic tank system proposed which as a design capacity of more than 3000 gallons per day?

   If yes, describe No septic systems are proposed for this project.

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

5. Does the activity involve sludge disposal? No

   If yes, where is the source of the sludge? N/A

   Describe where and how the sludge is being disposed.
   N/A

   Has a NPDES permit from the NC Division of Environmental Management been issued? N/A

6. Water Usage: N/A
   a. Estimated no. of employees ____ x 25 gpd = _____ gpd
   b. Estimated water use for climate control = _____gpd
   c. Process water:
      _____ % consumed
      _____ % discharged to septic system
      _____% discharged to surface (including storm sewers)
      (describe: _____)
      _____ % evaporated
      _____ % reclaimed/reused
      _____ % other
      100%

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

_____ % consumed
_____% discharged
(describe: _____)
100%

_____ gpd
Total Water Usage

e. Describe source of water:
N/A – No new water connections or changes are proposed with this project.

ATTACHEMENT A
TO BE COMPLETED ONLY IF INVENTORY SITES ARE IDENTIFIED IN I.E.

(ATTACH ADITIONAL SHEETS IF NECESSARY)

1.

a. Impact on Resource from Proposed Development

_____

_____

_____

b. Proposed Mitigation

_____

_____

_____

2.

a. Impact on Resource from Proposed Development

_____

_____

_____

b. Proposed Mitigation

_____

_____

_____

Soil Map—Orange County, North Carolina
(White Cross Solar)

Map Scale: 1:3,310 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

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

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 1:20,000.

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: Orange County, North Carolina
Survey Area Data: Version 14, Sep 10, 2014

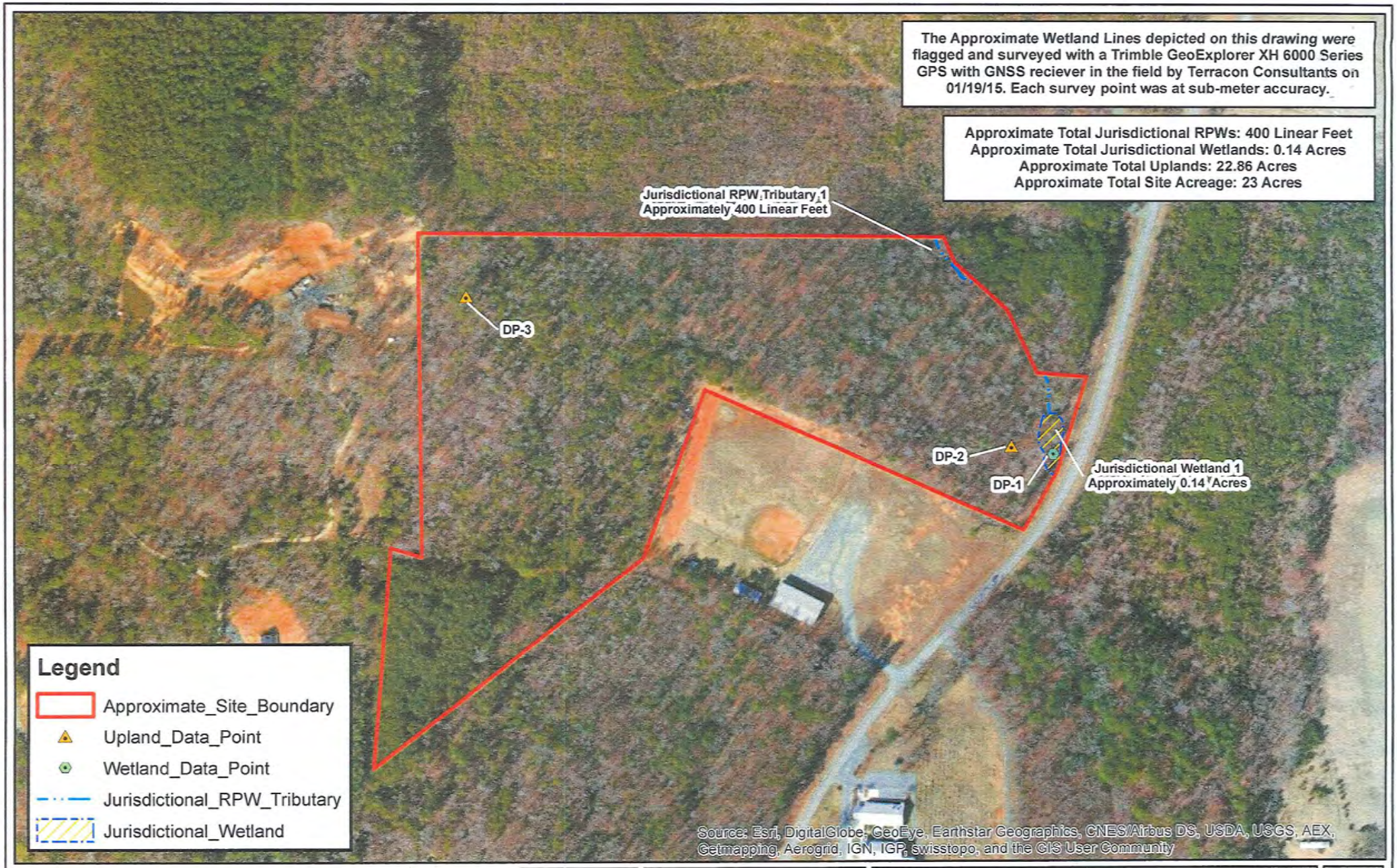
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 10, 2010—Apr 30, 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

Orange County, North Carolina (NC135)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
ApB	Appling sandy loam, 2 to 6 percent slopes	6.0	25.4%
GeB	Georgeville silt loam, 2 to 6 percent slopes	13.7	58.3%
GeC	Georgeville silt loam, 6 to 10 percent slopes	3.8	16.3%
Totals for Area of Interest		**23.5**	**100.0%**



N

0 150 300 600 Feet

Project No.	EN157002
PM:	JAR
Approved By:	JAR
Date:	02/12/15

Terracon

1450 Fifth Street West N.Charleston, SC 29405
Phone: 843.884.1234 Fax: 843.884.9234

Approximate Depiction of Aquatic Resources

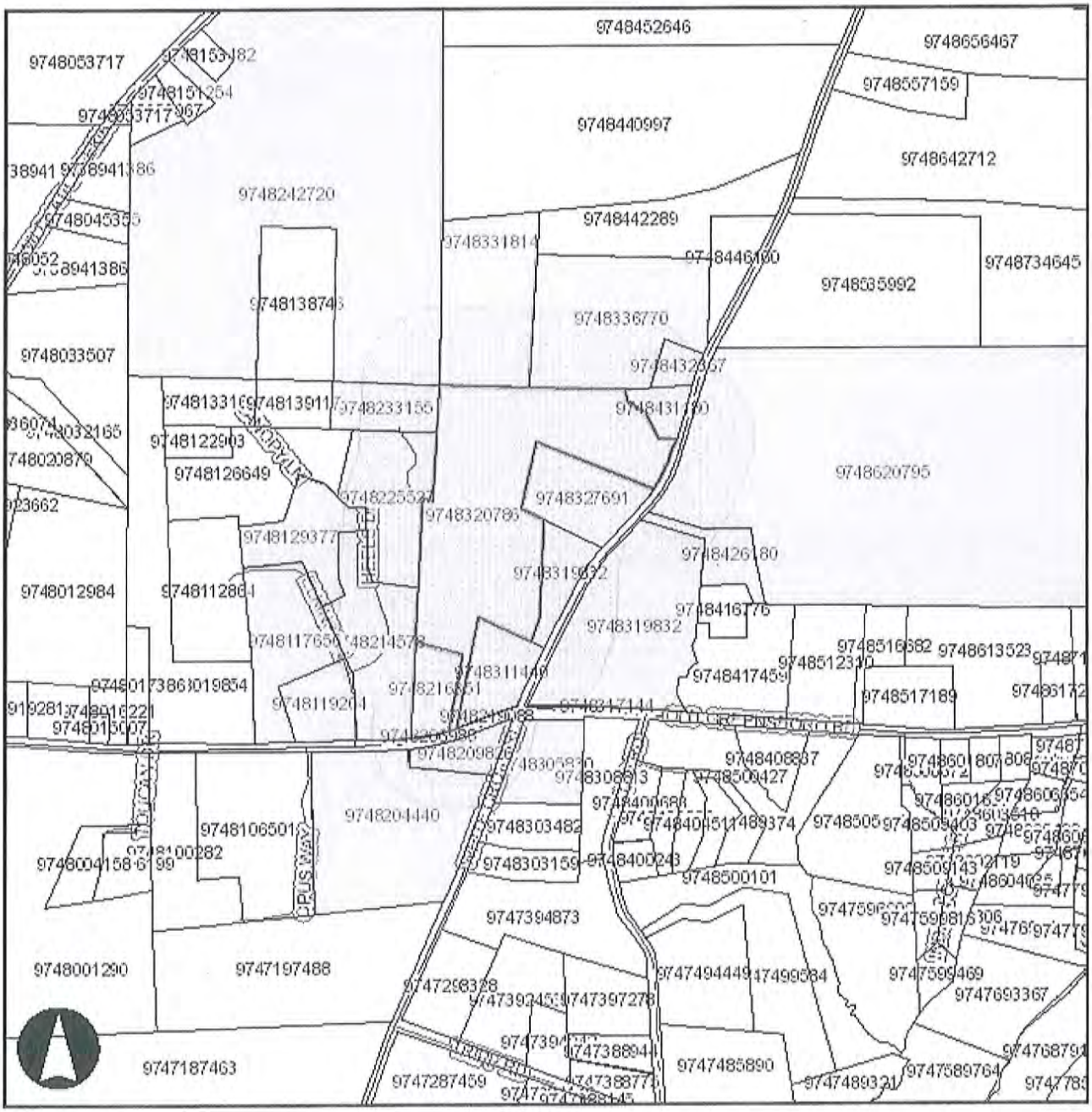
White Cross Solar

Orange County North Carolina

EXHIBIT NO. 27

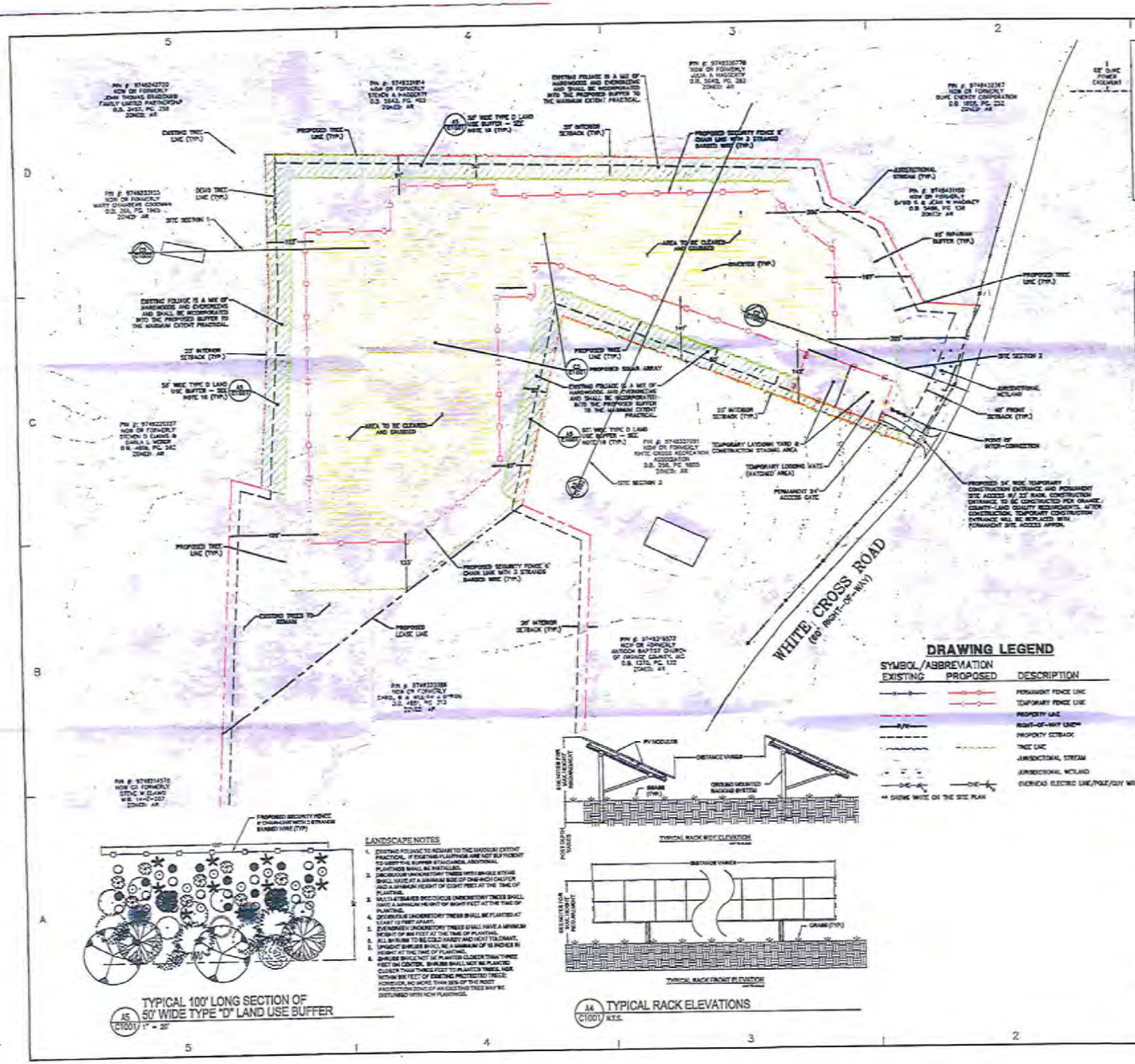
Orange County, NC GIS

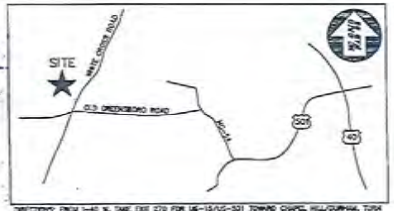
Adjacent Properties - 500-foot Buffer



1 inch = 1000 feet.
Created on 2/25/2015. Orange County, North Carolina.

PIN	OWNER1_LAST	OWNER1_FIRST	OWNER2_LAST	OWNER2_FIRST	ADDRESS1	CITY	STATE	ZIPCODE
9748432367	DUKE ENERGY	CORPORATION			OLD HWY 86	HILLSBOROUGH	NC	27278
9748431180	HACKNEY	DAVID G	HACKNEY	JEAN W	3038 MANNS CHAPEL RD	PITTSBORO	NC	27312
9748426180	FARRELL	ROBERT B JR	FARRELL	ROBIN P	P O BOX 1021	CARRBORO	NC	275101021
9748216351	MACCALMAN	BARBARA A	MACCALMAN	DUNCAN IAN	4525 OLD GREENSBORO RD	CHAPEL HILL	NC	275168504
9748620795	HACKNEY	JEAN WHITFIELD	HACKNEY	DAVID	3038 MANNS CHAPEL RD	PITTSBORO	NC	273127049
9748233155	GOODMAN	MARY CHAMBERS			1034 HANKS CHAPEL RD	PITTSBORO	NC	273129782
9748209826	LLOYD	JERRY LEO			1514 WHITE CROSS RD	CHAPEL HILL	NC	275167338
9748336770	HAGGERTY	JULIA A	null	null	2213 ST MARYS ST	RALEIGH	NC	27608
9748225527	ELKINS	STEVEN D	WEBER	DARLA L	6048 HEELS DR	Chapel Hill	NC	27516
9748311440	BYRON	CAROL B	BYRON	WILLIAM J	1606 WHITE CROSS RD	CHAPEL HILL	NC	27514
9748305830	LLOYD	JERRY WAYNE	LLOYD	WANDA FAYE	1441 WHITE CROSS RD	CHAPEL HILL	NC	27516
9748319832	ANTIOCH BAPTIST CHURCH OF ORANGE	COUNTY INC			1707 WHITE CROSS RD	CHAPEL HILL	NC	27516
9748319832	ANTIOCH BAPTIST CHURCH OF ORANGE	COUNTY INC			1707 WHITE CROSS RD	CHAPEL HILL	NC	27516
9748119204	ELKINS	LARRY T			4701 OLD GREENSBORO RD	CHAPEL HILL	NC	275168508
9748320786	BYRON	CAROL B	BYRON	WILLIAM J	1606 WHITE CROSS RD	CHAPEL HILL	NC	27516
9748129377	HADDEN	JAMES C	HADDEN	GILLIAN R	2062 ELKINS LN	CHAPEL HILL	NC	27516
9748204440	LLOYD	BERNARD E			1500 WHITE CROSS RD	CHAPEL HILL	NC	275167338
9748206988	DEPARTMENT OF	TRANSPORTATION			PO BOX 9278	GREENSBORO	NC	27408
9748117656	MOORE	LINDA T	MOORE	LARRY W	2039 ELKINS LN	Chapel Hill	NC	27516
9748317144	DEPARTMENT OF	TRANSPORTATION			PO BOX 9278	GREENSBORO	NC	27408
9748219088	DEPARTMENT OF	TRANSPORTATION			PO BOX 9278	GREENSBORO	NC	27408
9748242720	JOHN THOMAS BRADSHAW FAMILY	LIMITED PARTNERSHIP			2227 WILDCAT CREEK RD	CHAPEL HILL	NC	275169792
9748214578	ELKINS	STEVE W	null	null	4605 OLD GREENSBORO RD	CHAPEL HILL	NC	275168506
9748327691	WHITE	CROSS RECREATION	WHITE	ASSOCIATION	1800 WHITE CROSS RD	CHAPEL HILL	NC	27516
9748331814	HAGGERTY	STEVEN A	null	null	318 AVE A	MELBOURNE BEACH	FL	32951





DIRECTIONS: FROM I-40 W. TAKE EXIT 270 FOR US-15/US-501 TOWARD CHAPEL HILL/DURHAM. TURN LEFT ONTO US-15 S/US-501 S/DURHAM-CHAPEL HILL BLVD. CONTINUE TO FOLLOW US-15 S/US-501 S. CONTINUE STRAIGHT ONTO NC-54 W/FARRINGTON BLVD S. CONTINUE TO FOLLOW NC-54 W. TAKE THE JONES FERRY RD EXIT TOWARD CARRBORO. TURN LEFT ONTO JONES FERRY RD. TURN RIGHT ONTO OLD GREENSBORO RD. TURN RIGHT ONTO WHITE CROSS RD. CONTINUE ON WHITE CROSS ROAD FOR APPROX. 0.3 MILES. SITE WILL BE ON THE LEFT.

VICINITY MAP

SCALE: N.T.S.

SITE DATA

PIN #	OWNER	DB./PG.	ZONING	PARCEL ACREAGE	LEASED ACREAGE	CURRENT LAND USE
9748320766	WILLIAM J. & CAROL B. SYMON	4081/313	AR	35.8	N/A	WOODED

SITE ADDRESS: WHITECROSS ROAD, CHAPEL HILL, NC
PROPOSED USE: SOLAR ENERGY SYSTEM
RIVER BASIN: CAPE FEAR
WATERSHED: NONE
APPROXIMATE AREA OF PROPOSED ARRAY*: 11.3 AC
PRELIMINARY DISTURBED AREA: 22.0 AC
MIN. SETBACK REQUIREMENTS: PER ORANGE COUNTY ZONING ORDINANCE, SECTION 2.3
FRONT: 40 FT.
SIDE: 20 FT.
REAR: 20 FT.
SOLAR STRUCTURES SHALL MEET THE MINIMUM SETBACK FOR THE ZONING DISTRICT IN WHICH IT IS LOCATED OR BE SETBACK A MINIMUM OF 15 FEET FROM ALL PROPERTY LINES OR RIGHTS-OF-WAY, WHICH EVER IS GREATER.

* SUBJECT TO CHANGE WITH FINAL ELECTRICAL DESIGN.

NOTES:

1. THE PURPOSE OF THIS PLAN IS FOR A SPECIAL USE PERMIT APPLICATION FOR REVIEW AND APPROVAL BY ORANGE COUNTY TO CONSTRUCT A SOLAR ELECTRIC POWER PLANT. ALL INFORMATION SHOWN IS FOR PLANNING PURPOSES ONLY.
2. THE PROPERTY SHOWN HEREON IS NOT TO BE CONSIDERED A BOUNDARY SURVEY AND HAS BEEN COMPILED FROM GIS INFORMATION MAPS AND DEEDS OF RECORD FROM THE ADJACENT PROPERTIES, AMONG THE LAND RECORDS OF ORANGE COUNTY, NORTH CAROLINA. NO FIELD EVIDENCE OR PROPERTY MARKERS WERE LOCATED WITH THIS COMPILE.
3. EXISTING IMPROVEMENTS SHOWN ON THIS PLAN WERE TAKEN FROM ORANGE COUNTY GIS.
4. THE PROPERTY SHOWN HEREON DOES NOT CONTAIN SPECIAL FLOOD HAZARD AREAS (SFHA'S) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD (I.E. 100-YR. EVENT) PER FEMA FIRM MAP PANEL NO. 3720469600J EFFECTIVE DATE FEBRUARY 2, 2007.
5. ALL RIGHTS-OF-WAYS ARE PUBLIC, UNLESS NOTED OTHERWISE.
6. UTILITY LINES AND SERVICES SHOWN HEREON ARE APPROXIMATE FOR AERIAL PHOTOGRAPHY 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.
7. SIGNS OF ALL PERMITS AND APPROVED PLANS MUST BE KEPT ON-SITE IN A PERMIT BOX THAT IS CONSPICUOUSLY LOCATED AND EASILY ACCESSIBLE DURING CONSTRUCTION.
8. A SEDIMENT AND EROSION CONTROL PLAN WILL BE APPROVED BY ORANGE COUNTY PRIOR TO BEGINNING CONSTRUCTION.
9. A DRIVEWAY PERMIT WILL BE APPROVED BY NDOT PRIOR TO BEGINNING CONSTRUCTION.
10. PROJECT AREA, INCLUDING CONSTRUCTION STAGING AREAS, WILL BE CLEARED AND GRUBBED AS NECESSARY, REFLECTING PRE-DEVELOPMENT DRAINAGE PATTERNS (I.E. NO WARM DRAINAGE). MINOR GRADING WILL OCCUR AROUND INVERTER AREAS TO DIVERT SURFACE DRAINAGE. CONSTRUCTION STAGING AND AREAS SUBJECT TO RUTTING DURING CONSTRUCTION WILL BE TEMPORARILY STABILIZED WITH LOGGING MATS (WHICH WILL BE REMOVED FOLLOWING CONSTRUCTION) OR GRAVEL (WHICH WILL REMAIN AFTER CONSTRUCTION). SOIL CONDITIONS AND EQUIPMENT LOADS WILL DETERMINE FINAL DESIGN.
11. PROPOSED TEMPORARY LAYDOWN YARD/CONSTRUCTION STAGING AREA TO BE USED DURING SITE CONSTRUCTION. A PORTION OF THIS AREA (HATCHED) WILL BE COVERED WITH LOGGING MATS OR OTHER STABILIZING MATERIALS (GRAVEL, ETC.) TO ALLOW DELIVERY OF CONSTRUCTION MATERIALS. PRIOR TO CONSTRUCTION, THIS AREA WILL BE COMPACTED BY A SMOOTH DRUM OR SHEEPSFOOT ROLLER TO REDUCE/PREVENT RUTTING. FOLLOWING CONSTRUCTION, THE LOGGING MATS WILL BE REMOVED AND THE AREA LOOSENED BY THE LOGGING MATS WILL BE SCARIFIED, AERATED, AND RE-SEEDED. ANY GRAVEL PLACED IN THE LAYDOWN YARD WILL REMAIN.
12. ACCESS AISLES SHOWN ON THIS PLAN INDICATE CONSTRUCTION AND MAINTENANCE ACCESS POINTS FOR INVERTERS/GENERATORS. PRIOR TO CONSTRUCTION, THESE AISLES ARE COMPACTED BY A SMOOTH DRUM OR SHEEPSFOOT ROLLER TO REDUCE/PREVENT RUTTING. LOGGING MATS OR GRAVEL MAY BE PLACED IN HIGH TRAFFIC OR POORLY DRAINING AREAS DURING CONSTRUCTION ACTIVITIES TO IMPROVE ACCESS. SOIL AGGREGATE AISLE WILL BE SCARIFIED, AERATED, AND RE-SEEDED AFTER CONSTRUCTION. ACCESS AISLES TO ANOTHER MAY REQUIRE GRAVEL TO BE PLACED DURING CONSTRUCTION. SOIL CONDITIONS AND FINAL EQUIPMENT SELECTION WILL DETERMINE IF GRAVEL ACCESS AISLES WILL BE REQUIRED TO PROTECT LOCATIONS.
13. PROPOSED 24' ACCESS GATE (TWO 12' SECTIONS) IS 6' TALL CHAIN LINK WITH 3 STRANDS OF BARBED WIRE. GATE WILL BE LOCKED WITH STANDARD LOCKS OR COMBINATION LOCK. EMERGENCY PERSONNEL (AS DESIGNATED BY ORANGE COUNTY) WILL BE PROVIDED A KEY OR COMBINATION FOR ACCESS.
14. NO LIGHTING IS PROPOSED FOR THIS SITE.
15. ALUMINUM SIGNS ("DANGER – HIGH VOLTAGE" AND "DANGER – NO TRESPASSING") MOUNTED 54" X 36" IN SIZE, WILL BE PLACED ON PERMANENT SECURITY FENCING, ALTERNATING EVERY 100' AROUND THE ARRAYS.
16. 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.
17. NONE LEVEL OF ACHIEVED AT THE PROPERTY LINE WILL NOT EXCEED FIFTY (50) DECIBELS WHEN LOCATED ADJACENT TO AN EXISTING RESIDENCE OR RESIDENTIAL DISTRICT.
18. PER SECTION 5.9.6 (C) (25) (D) OF THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO) THE PROJECT SHALL PROVIDE A TYPE D 50' WIDE LAND USE BUFFER, SO (IN IN WORK ADJACENT TO PROPERTY ZONED OR OCCUPIED STRICTLY FOR RESIDENTIAL USE. THIS LAND USE BUFFER SHALL INCORPORATE EXISTING FOREST WHERE AVAILABLE. FINAL LANDSCAPE PLANS SHALL BE APPROVED BY STAFF PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITIES.
19. PER SECTION 5.9.6 (D) (2) (A) OF THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO) ALL ON-SITE UTILITY AND TRANSMISSION LINES SHALL BE PLACED UNDERGROUND WHERE FEASIBLE.
20. PER SECTION 5.9.6 (D) (2) (C) OF THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO) THE INDIVIDUAL ARRAYS SHALL BE DESIGNED AND LOCATED TO PREVENT GLARE TOWARDS INHABITED BUILDINGS ON ADJACENT PROPERTIES AND ADJACENT STREET RIGHT-OF-WAYS.
21. PER SECTION 5.9.6 (D) (2) (D) OF THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO) THE APPLICANT ACKNOWLEDGES ESTABLISHED PROCEDURES FOR THE DECOMMISSIONING OF THE SITE AND WILL COMPLY WITH THOSE AFOREMENTIONED STANDARDS AT THE APPROPRIATE TIME.

SITE PLAN

CYPRESS CREEK

PRELIMINARY SITE PLAN

(GRAPHIC SCALE IN FEET)
1 inch = 100 ft.

REVIEW DRAWING
NOT FOR CONSTRUCTION

BALLENTINE ASSOCIATES P.A.

DATE	REVISIONS	BY

OWNER INFORMATION
CURRENT OWNER: BENCHMARK
12900 OCEAN PARK BLVD.
SANTA MONICA, CA 90405
OWNER'S REPRESENTATIVE:
PAUL GRIGGS
PH: (910) 843-8431
EMAIL: [illegible]

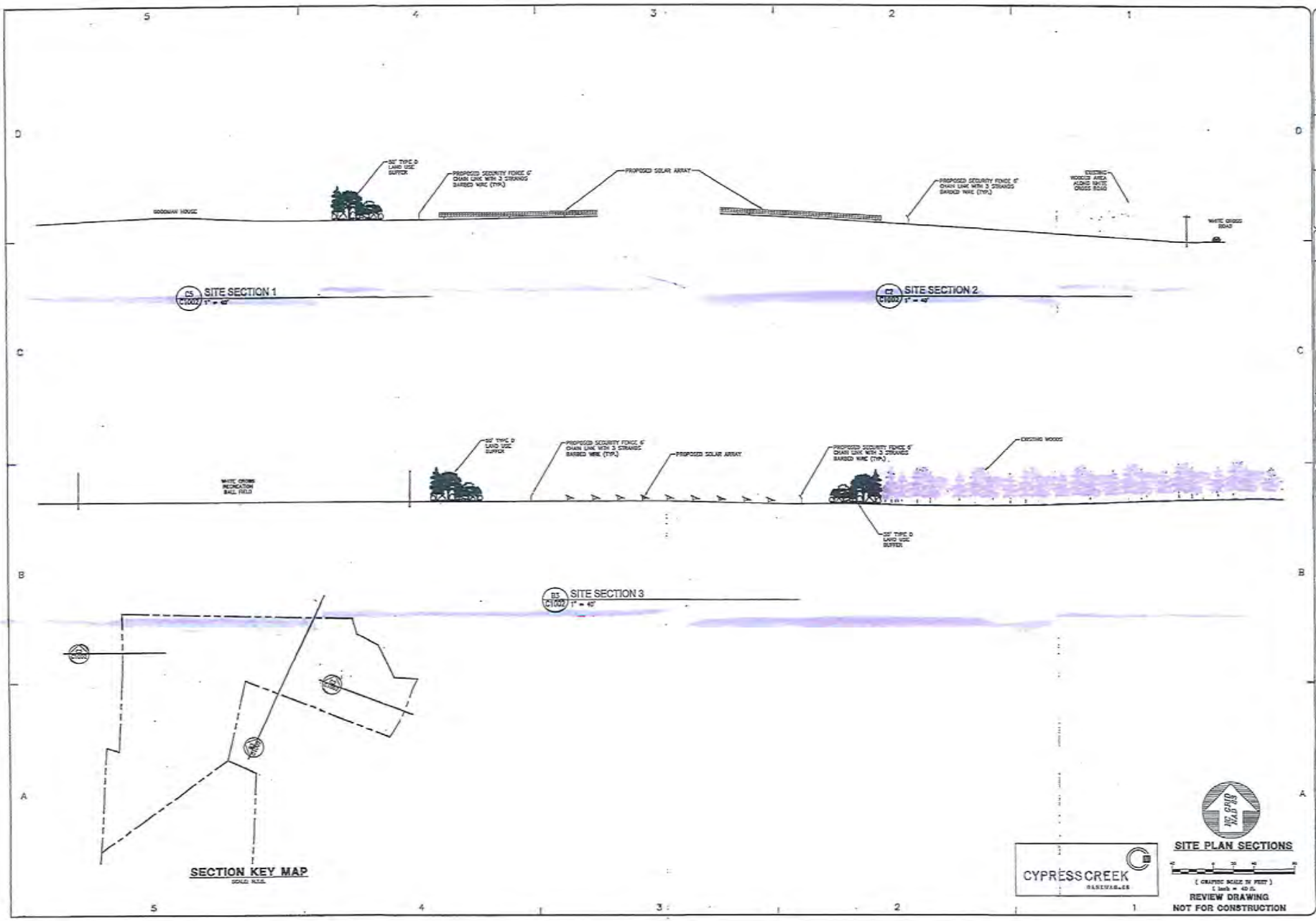
DATE	ISSUED
02 MAR 13	SUP SUBMITTAL

WHITE CROSS FARM
SOLAR ENERGY SYSTEM
CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA

SITE PLAN DRAWINGS

JOB NUMBER: 114033.03
DATE: 02 MAR 13
SCALE: AS NOTED
DRAWN BY: L.R.E.
REVIEWED BY: C.J.R.

SHEET
C1001


SITE SECTION 1
SITE SECTION 2
SITE SECTION 3
SECTION KEY MAP
SITE PLAN SECTIONS
CYPRESS CREEK
REVIEW DRAWING
NOT FOR CONSTRUCTION
WHITE CROSS FARM
SOLAR ENERGY SYSTEM
CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
SITE PLAN DRAWINGS
BALLENTINE ASSOCIATES, P.A.
C1002

Site Assessment for PIN:9748-32-0786

Site Data
Zoning: AR - Agricultural Residential
Acreage:34.41 acres
Overlay Districts: Haw River Protected
Plat/Legal Description: DB 4881 / PG 313 Plat Book 81 / PG 31
Recorded Declarations/Covenants: Not Found

Zoning Requirements
Min. Lot Size: 40,000 sq. ft.
Min. lot width: 150'
Maximum height: 25'
Building Setbacks:
-Front (and Corner lots) = 40' from public rights-of-way
-Side Setbacks = 20' from side lot lines
-Rear Yard Setback = 20' from rear lot lines

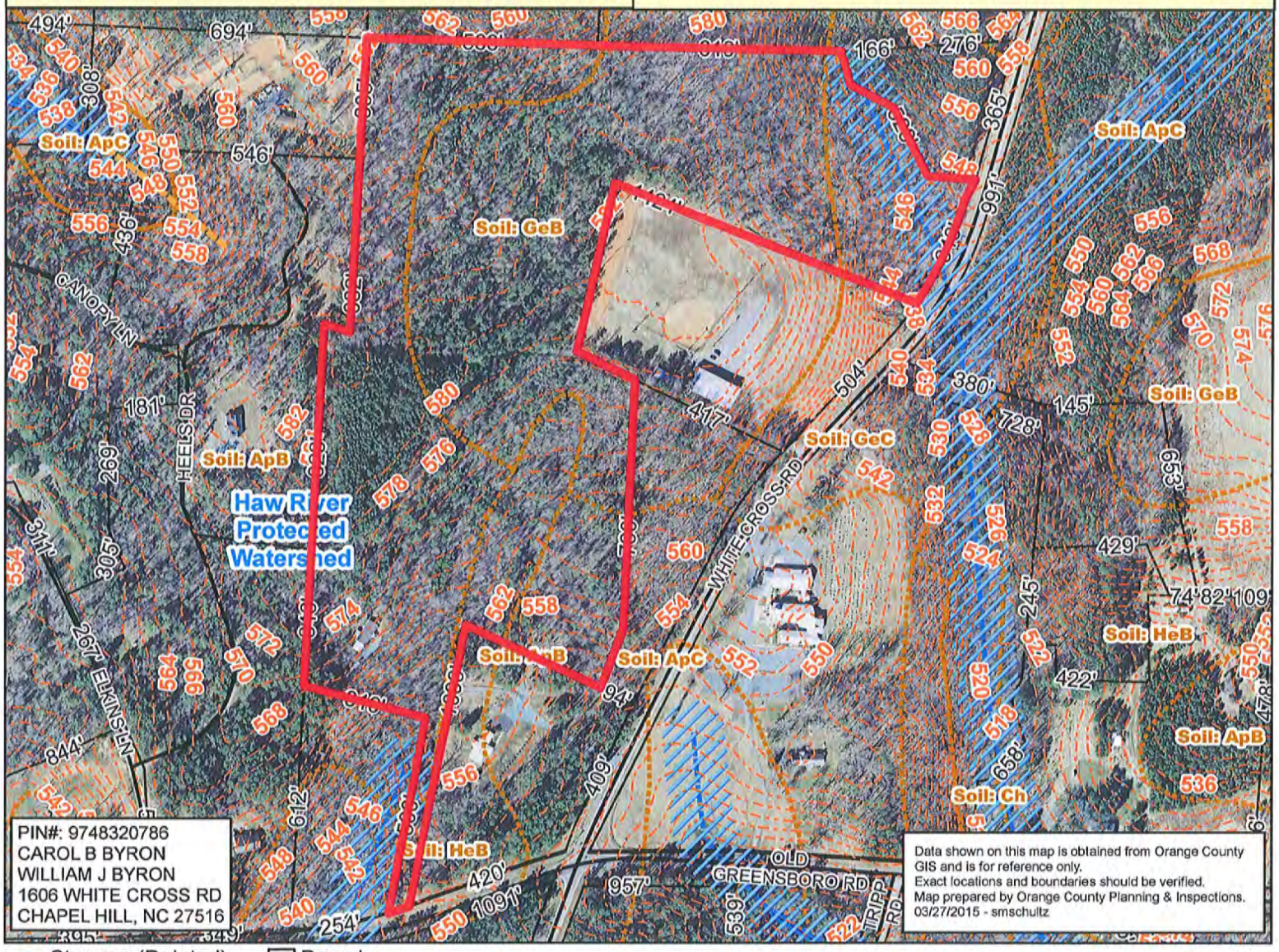
Note: Lot size, building setbacks and stream buffers may increase based on Private Road Justification (UDO 7.8.5).

Environmental Feature
-Stream buffer located lot. Stream buffer is 80 ft (method A 9.6%).

Impervious Surface Limits: 24% max. (359,735.9 sq. ft. max based on 34.41 acres).

Land Disturbance Thresholds
1) Environmental Control Permit required if disturbing more than 20,000 sq.ft.; and
2) Stormwater Management Permit required if disturbing more than 43,560 sq. ft. for residential structures.

Date Site Assessment Completed: 3/27/2015 by SMS



Streams (Deleted)
Soils Survey Stream
OC Updated Stream
Stream Buffer 80ft
2' Contours (NCDOT)
Parcels
Zoning
Watershed
Soils

N

1 inch = 400 feet
0 100 200 Feet

BALLENTINE ASSOCIATES, P.A.
221 PROVIDENCE ROAD, CHAPEL HILL, N.C. 27514
(919) 929 - 0481 (919) 489 - 4789

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NUM	REVISIONS	DATE

OWNER INFORMATION
CYPRESS CREEK RENEWABLES
3250 OCEAN PARK BLVD.
SANTA MONICA, CA 90405

OWNERS REPRESENTATIVE:
PAUL BRUCKE
PH. (919) 943-8451
FAX
EMAIL bruckeeccrenew.com

ISSUED	DATE
SUP SUBMITTAL	02 MAR 15

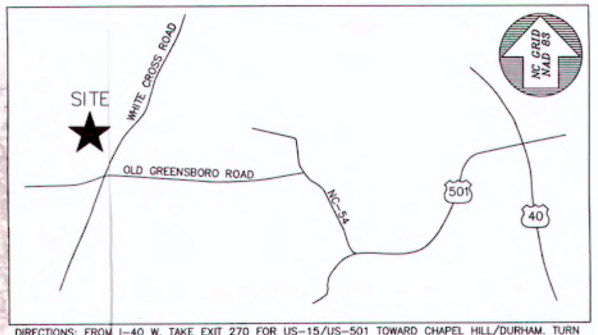
WHITE CROSS FARM
SOLAR ENERGY SYSTEM
CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA

SITE PLAN DRAWINGS

JOB NUMBER: 114052.03
DATE: 02 MAR 15
SCALE: AS NOTED
DRAWN BY: L.R.E.
REVIEWED BY: G.J.R.

33

SHEET
C1001



DIRECTIONS: FROM I-40 W. TAKE EXIT 270 FOR US-15/US-501 TOWARD CHAPEL HILL/DURHAM. TURN LEFT ONTO US-15 S/US-501 S/DURHAM-CHAPEL HILL BLVD. CONTINUE TO FOLLOW US-15 S/US-501 S. CONTINUE STRAIGHT ONTO NC-54 W/FORDHAM BLVD S. CONTINUE TO FOLLOW NC-54 W. TAKE THE JONES FERRY RD EXIT TOWARD CARRBORO. TURN LEFT ONTO JONES FERRY RD. TURN RIGHT ONTO OLD GREENSBORO RD. TURN RIGHT ONTO WHITE CROSS RD. CONTINUE ON WHITE CROSS ROAD FOR APPROX. 0.3 MILES. SITE WILL BE ON THE LEFT.

VICINITY MAP
SCALE: N.T.S.

SITE DATA

PIN #	OWNER	DB./PG.	ZONING	PARCEL ACREAGE	LEASED ACREAGE	CURRENT LAND USE
9748320786	WILLIAM J. & CAROL B. BYRON	4881/313	AR	35.8	N/A	WOODED

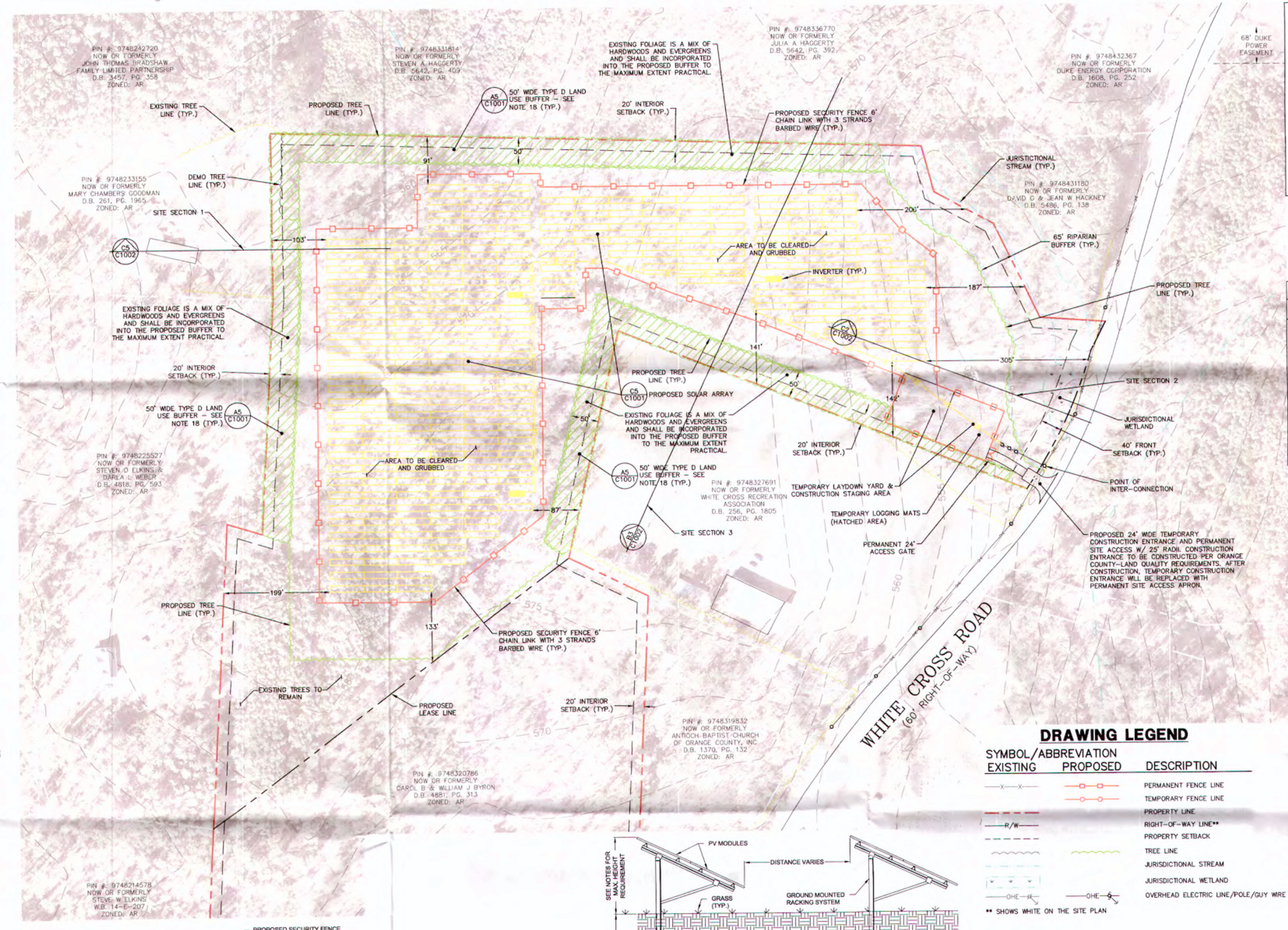
SITE ADDRESS:	WHITECROSS ROAD, CHAPEL HILL, NC
PROPOSED USE:	SOLAR ENERGY SYSTEM
RIVER BASIN:	CAPE FEAR
WATERSHED:	NONE
APPROXIMATE AREA OF PROPOSED ARRAY*:	11.5 AC
PRELIMINARY DISTURBED AREA:	22.0 AC
MIN. SETBACK REQUIREMENTS: PER ORANGE COUNTY ZONING ORDINANCE, SECTION 3.3	
FRONT:	40 FT.
SIDE:	20 FT.
REAR:	20 FT.

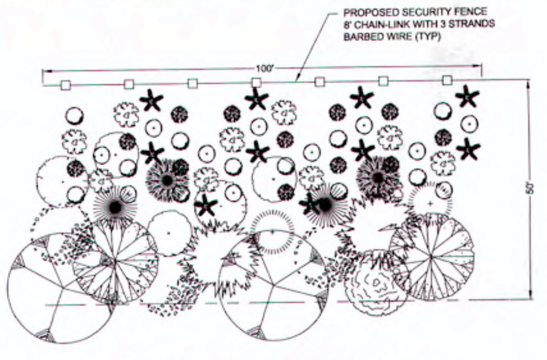
SOLAR STRUCTURES SHALL MEET THE MINIMUM SETBACK FOR THE ZONING DISTRICT IN WHICH IT IS LOCATED OR BE SETBACK A MINIMUM OF 15 FEET FROM ALL PROPERTY LINES OR RIGHT(S)-OF-WAY, WHICH EVER IS GREATER.

* SUBJECT TO CHANGE WITH FINAL ELECTRICAL DESIGN.

NOTES:

1. THE PURPOSE OF THIS PLAN IS FOR A SPECIAL USE PERMIT APPLICATION FOR REVIEW AND APPROVAL BY ORANGE COUNTY TO CONSTRUCT A SOLAR ELECTRIC POWER PLANT. ALL INFORMATION SHOWN IS FOR PLANNING PURPOSES ONLY.
2. THE PROPERTY SHOWN HEREON IS NOT TO BE CONSIDERED A BOUNDARY SURVEY AND HAS BEEN COMPILED FROM GIS INFORMATION, MAPS AND DEEDS OF RECORD FROM THE ADJACENT PROPERTIES, AMONG THE LAND RECORDS OF ORANGE COUNTY, NORTH CAROLINA. NO FIELD EVIDENCE OR PROPERTY MARKERS WERE LOCATED WITH THIS EXHIBIT.
3. EXISTING IMPROVEMENTS SHOWN ON THIS PLAN WERE TAKEN FROM ORANGE COUNTY GIS.
4. THE PROPERTY SHOWN HEREON DOES NOT 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. 3710974800J EFFECTIVE DATE FEBRUARY 2, 2007.
5. ALL RIGHT-OF-WAYS ARE PUBLIC, UNLESS NOTED OTHERWISE.
6. UTILITY LINES AND SERVICES SHOWN HEREON ARE APPROXIMATE PER AERIAL PHOTOGRAPHY 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.
7. 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.
8. A SEDIMENT AND EROSION CONTROL PLAN WILL BE APPROVED BY ORANGE COUNTY PRIOR TO BEGINNING CONSTRUCTION.
9. A DRIVEWAY PERMIT WILL BE APPROVED BY NCDOT PRIOR TO BEGINNING CONSTRUCTION.
10. PROJECT AREA, INCLUDING CONSTRUCTION STAGING AREAS, WILL BE CLEARED AND GRUBBED AS NECESSARY, RETAINING PRE-DEVELOPMENT DRAINAGE PATTERNS (I.E. NO MASS GRADING). MINOR GRADING WILL OCCUR AROUND INVERTER AREAS TO DIVERT SURFACE DRAINAGE. CONSTRUCTION STAGING AND AREAS SUBJECT TO RUTTING DURING CONSTRUCTION WILL BE TEMPORARILY STABILIZED WITH LOGGING MATS (WHICH WILL BE REMOVED FOLLOWING CONSTRUCTION) OR GRAVEL WHICH WILL REMAIN AFTER CONSTRUCTION. SOIL CONDITIONS AND EQUIPMENT LOADS WILL DETERMINE FINAL DESIGN.
11. PROPOSED TEMPORARY LAYDOWN YARD/CONSTRUCTION STAGING AREA TO BE USED DURING SITE CONSTRUCTION. A PORTION OF THIS AREA (HATCHED) WILL BE COVERED WITH LOGGING MATS OR OTHER STABILIZED SURFACING (GRAVEL, ETC.) TO ALLOW DELIVERY OF CONSTRUCTION MATERIALS. PRIOR TO CONSTRUCTION, THIS AREA WILL BE COMPACTED BY A SMOOTH DRUM OR SHEEPSFOOT ROLLER TO REDUCE/PREVENT RUTTING. FOLLOWING CONSTRUCTION, THE LOGGING MATS WILL BE REMOVED AND THE AREA OCCUPIED BY THE LOGGING MATS WILL BE SCARIFIED, AERATED, AND RE-SEEDED. ANY GRAVEL PLACED IN THE LAYDOWN YARD WILL REMAIN.
12. ACCESS AISLES SHOWN ON THIS PLAN INDICATE CONSTRUCTION AND MAINTENANCE ACCESS POINTS FOR INGRESS/EGRESS. PRIOR TO CONSTRUCTION, THESE AISLES ARE COMPACTED BY A SMOOTH DRUM OR SHEEPSFOOT ROLLER TO REDUCE/PREVENT RUTTING. LOGGING MATS OR GRAVEL MAY BE PLACED IN HIGH TRAFFIC OR POORLY DRAINING AREAS DURING CONSTRUCTION ACTIVITIES TO IMPROVE ACCESS. SOIL ACCESS AISLE WILL BE SCARIFIED, AERATED, AND RE-SEEDED AFTER CONSTRUCTION. ACCESS AISLES TO INVERTERS MAY REQUIRE GRAVEL TO SUPPORT DELIVERY EQUIPMENT LOADS. SOIL CONDITIONS AND FINAL EQUIPMENT SELECTION WILL DETERMINE IF GRAVEL ACCESS AISLES WILL BE REQUIRED TO INVERTER LOCATIONS.
13. PROPOSED 24' ACCESS GATE (TWO 12' SECTIONS) IS 8' TALL CHAIN LINK WITH 3 STRANDS OF BARBED WIRE. GATE WILL BE LOCKED WITH STANDARD KEYED OR COMBINATION LOCK. EMERGENCY PERSONNEL (AS DESIGNATED BY ORANGE COUNTY) WILL BE PROVIDED A KEY OR COMBINATION FOR ACCESS.
14. NO LIGHTING IS PROPOSED FOR THIS SITE.
15. 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.
16. 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.
17. NOISE LEVELS MEASURED AT THE PROPERTY LINE WILL NOT EXCEED FIFTY (50) DECIBELS WHEN LOCATED ADJACENT TO AN EXISTING RESIDENCE OR RESIDENTIAL DISTRICT.
18. PER SECTION 5.9.6 (C) (2) (G) OF THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO) THE PROJECT SHALL OBSERVE A TYPE D LAND USE BUFFER, 50 FEET IN WIDTH, ADJACENT TO PROPERTY ZONED, OR OTHERWISED UTILIZED FOR, RESIDENTIAL USE. THIS LAND USE BUFFER SHALL INCORPORATE EXISTING FOLIAGE WHERE AVAILABLE. FINAL LANDSCAPE PLAN SHALL BE APPROVED BY STAFF PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITIES.
19. PER SECTION 5.9.6 (C) (2) (A) OF THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO) ALL ON-SITE UTILITY AND TRANSMISSION LINES SHALL BE PLACED UNDERGROUND WHERE FEASIBLE.
20. PER SECTION 5.9.6 (C) (2) (C) OF THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO) THE INDIVIDUAL ARRAYS SHALL BE DESIGNED AND LOCATED TO PREVENT GLARE TOWARDS INHABITED BUILDINGS ON ADJACENT PROPERTIES AND ADJACENT STREET RIGHT-OF-WAYS.
21. PER SECTION 5.9.6 (C) (3) OF THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO) THE APPLICANT ACKNOWLEDGES ESTABLISHED PROCEDURES FOR THE DECOMMISSIONING OF THE SITE AND WILL COMPLY WITH THESE AFOREMENTIONED STANDARDS AT THE APPROPRIATE TIME.

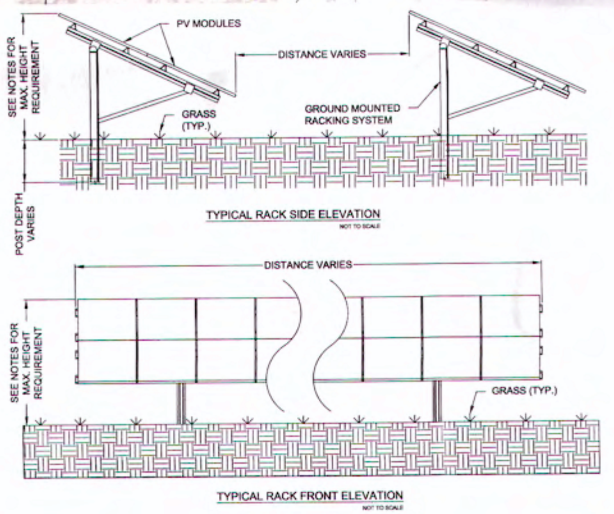




TYPICAL 100' LONG SECTION OF 50' WIDE TYPE "D" LAND USE BUFFER
A5 C1001 1" = 20'

LANDSCAPE NOTES

1. EXISTING FOLIAGE TO REMAIN TO THE MAXIMUM EXTENT PRACTICAL. IF EXISTING PLANTINGS ARE NOT SUFFICIENT TO MEET THE BUFFER STANDARDS, ADDITIONAL PLANTINGS SHALL BE INSTALLED.
2. DECIDUOUS UNDERSTORY TREES WITH SINGLE STEMS SHALL HAVE AT A MINIMUM SIZE OF ONE-INCH CALIPER AND A MINIMUM HEIGHT OF EIGHT FEET AT THE TIME OF PLANTING.
3. MULTI-STEMMED DECIDUOUS UNDERSTORY TREES SHALL HAVE A MINIMUM HEIGHT OF EIGHT FEET AT THE TIME OF PLANTING.
4. DECIDUOUS UNDERSTORY TREES SHALL BE PLANTED AT LEAST 12 FEET APART.
5. EVERGREEN UNDERSTORY TREES SHALL HAVE A MINIMUM HEIGHT OF SIX FEET AT THE TIME OF PLANTING.
6. ALL SHRUBS TO BE COLD HARDY AND HEAT TOLERANT.
7. UPRIGHT SHRUBS SHALL BE A MINIMUM OF 15 INCHES IN HEIGHT AT THE TIME OF PLANTING.
8. SHRUBS SHALL NOT BE PLANTED CLOSER THAN THREE FEET ON CENTER. SHRUBS SHALL NOT BE PLANTED CLOSER THAN THREE FEET TO PLANTED TREES, NOR WITHIN SIX FEET OF EXISTING PROTECTED TREES; HOWEVER, NO MORE THAN 25% OF THE ROOT PROTECTION ZONE OF AN EXISTING TREE MAY BE DISTURBED WITH NEW PLANTINGS.



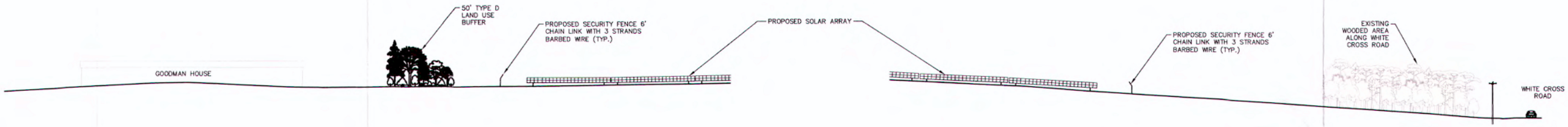
TYPICAL RACK ELEVATIONS
A4 C1001 N.T.S.

CYPRESS CREEK RENEWABLES

PRELIMINARY SITE PLAN

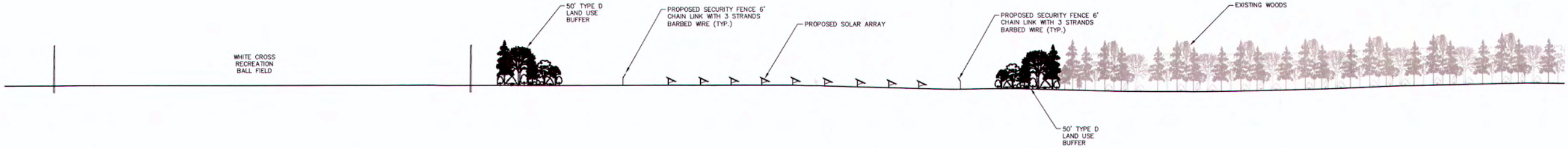
(GRAPHIC SCALE IN FEET)
1 inch = 100 ft.

REVIEW DRAWING
NOT FOR CONSTRUCTION

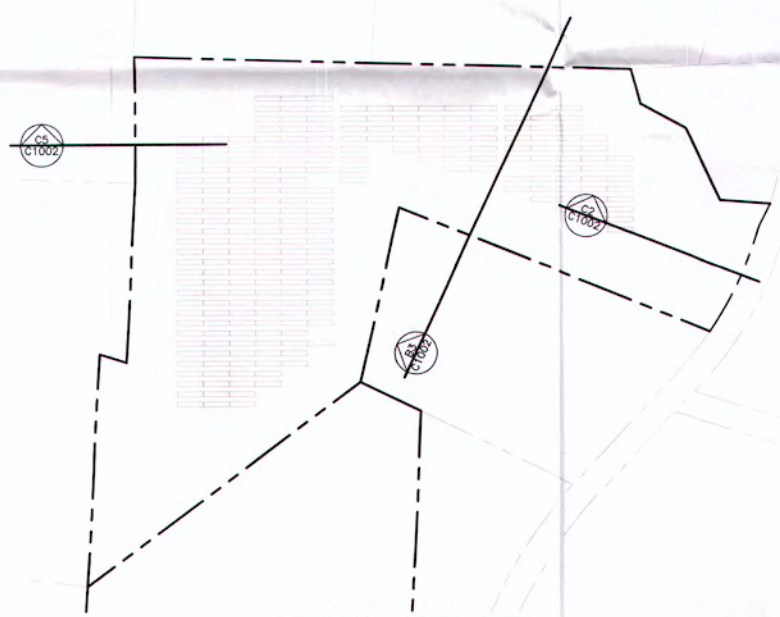


C5 C1002 SITE SECTION 1
1" = 40'

C2 C1002 SITE SECTION 2
1" = 40'



B3 C1002 SITE SECTION 3
1" = 40'



SECTION KEY MAP
SCALE: N.T.S.

CYPRESS CREEK RENEWABLES

NC GRID NAD 83

SITE PLAN SECTIONS

40 0 20 40 80
(GRAPHIC SCALE IN FEET)
1 inch = 40 ft.

REVIEW DRAWING
NOT FOR CONSTRUCTION

BALLENTINE ASSOCIATES, P.A.
221 PROVIDENCE ROAD, CHAPEL HILL, N.C. 27514
(919) 929 - 0451 (919) 489 - 4789

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Ballentine Associates, P.A. CORPORATE SEAL C328 NORTH CAROLINA Chapel Hill

NORTH CAROLINA PROFESSIONAL SEAL 19227 ENGINEER GEORGE J. RESCHKE 27 MAR 15

DATE	REVISIONS	RUM

OWNER INFORMATION
CYPRESS CREEK RENEWABLES
3250 OCEAN PARK BLVD.
SANTA MONICA, CA 90405

OWNERS REPRESENTATIVE:
PAUL BRUCKE
PH. (919) 943-8451
FAX
EMAIL brucke@cccnres.com

ISSUED	DATE
SUP SUBMITTAL	02 MAR 15

WHITE CROSS FARM
SOLAR ENERGY SYSTEM
CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA

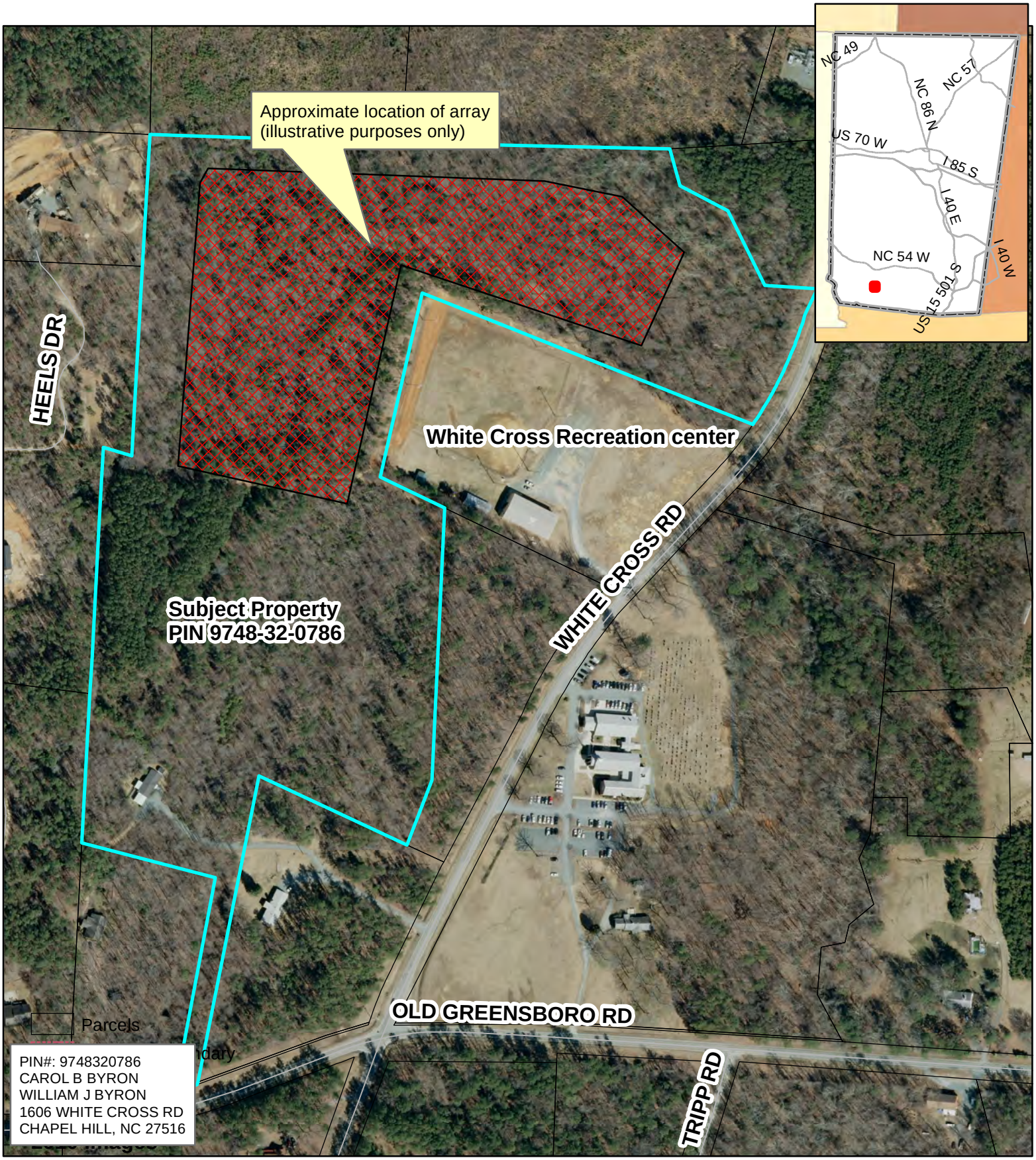
SITE PLAN DRAWINGS

JOB NUMBER: 114052.03
DATE: 02 MAR 15
SCALE: AS NOTED
DRAWN BY: L.R.E.
REVIEWED BY: G.J.R.

34

SHEET
C1002

Attachment 2 - Vicinity Map



N

1 inch = 294 feet

0

Orange County Planning and Inspections Department
05/11/2015

Patrick R. Mallett

From: Rich Shaw
Sent: Thursday, May 14, 2015 1:59 PM
To: Patrick R. Mallett
Cc: Peter Sandbeck
Subject: White Cross solar array

Patrick,

Thank you for the opportunity to review and comment on the proposed new solar array at White Cross.

There do not appear to be any significant natural resource areas (e.g., natural heritage sites, proposed wildlife corridors, prime forest) located on this property. There is a stream corridor documented along the northeastern property boundary, but the solar arrays appear to be contained well outside of the stream corridor. Therefore, the plan appears consistent with the County's desire to minimize adverse environmental impacts with respect to the protection of floodplains, wetlands, natural areas and wildlife habitat.

The project is also consistent with policies in the Orange County Comprehensive Plan, such as the goal of "Energy conservation, sustainable use of non-polluting renewable energy resources, efficient use of non-renewable energy resources and clean air." [Natural and Cultural Systems Goal 1, Page 6-34] and the County's objective of "Foster[ing] participation in green energy programs such as installation incentives for solar hot water/solar generation/solar tempering in residential and commercial construction." [Objective AE-15]

Let me know if you have any questions,
Rich

Rich Shaw, Land Conservation Manager
Orange County
Department of Environment, Agriculture, Parks and Recreation

306A Revere Rd / PO Box 8181 / Hillsborough NC 27278 / 919-245-2514 / http://www.co.orange.nc.us

Patrick R. Mallett

To: Jeff Scouten
Subject: RE: White Cross Solar Facility - Plan Review Comments

From: Jeff Scouten
Sent: Tuesday, April 07, 2015 9:25 AM
To: Patrick R. Mallett
Subject: White Cross Solar Facility - Plan Review Comments

Pat:
For the subject Class A SUP project, please have the applicant place the attached notes in a conspicuous place on the site plan.
In addition, they will need to fill out the attached Solid Waste Management Plan document and return it to me for review and approval.
Thanks and let me know if you have any questions or wish to discuss further.

Jeff Scouten
Environmental Enforcement Supervisor
Orange County Solid Waste Management
P.O. Box 17177
Chapel Hill, NC 27516-7177
919-968-2788 x 107 (Office)
919-932-2900 (Facsimile)
jscouten@orangecountync.gov
http://orangecountync.gov/recycling/candd.asp

ORANGE COUNTY
NORTH CAROLINA

Planning Staff comment
5/14/2015
- Note added to site plan
- other request handled at building permit review

5/14/2015

Michael Harvey

From: Jason Shepherd
Sent: Tuesday, May 12, 2015 8:18 PM
To: Michael Harvey; Sam M. Schultz; Patrick R. Mallett
Subject: White Cross Solar

The Fire Marshal Division does not have any comments for this project.

Thank you,

Jason

Sent from my iPad

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Engineering / Erosion Control / Stormwater
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

MEMORANDUM

TO:	Michael Harvey
COPY TO:	Patrick Mallett
FROM:	Howard W. Fleming, Jr., PE, Engineering/Stormwater Supervisor
DATE:	05/07/15
PROJECTS:	Various
SUBJECT:	DAC Reviews, May 7, 2015

PROJECTS REVIEWED REQUIRING E&SC COMMENTS:

SU15-0002 (White Cross Solar LLC): Special Use Permit Class A

Having reviewed the subject project, Erosion & Sedimentation Control / Stormwater staff members understand this proposal must proceed through certain discretionary actions in order to determine functional and economic viability, prior to the developers investing in more detailed design and subsequent jurisdictional submittals for compliance reviews and permits.

That being stated, we find no fundamental objections to these projects moving forward through discretionary approvals, subject to future submittals addressing the requirements in the Unified Development Ordinance pertaining to Erosion & Sedimentation Control and Stormwater.

We do ask that the permit contain a condition requiring the issuance of required Erosion Control/Stormwater permits prior to any earth disturbing activity.

ORANGE COUNTY
HEALTH DEPARTMENT
Improving health. Inspiring change.

To:
Michael D. Harvey AICP, CFO, CZO
Current Planning Supervisor – Planner III
Orange County Planning Department

From:
Albert Mills
Soil Scientist
Environmental Health Division
Orange County Health Department

RE: White Cross Solar, LLC; SU15-0002

Michael,

Environmental Health has reviewed the proposed Solar Project.
There does not appear to be any well or septic systems proposed for this project. Therefore, Environmental Health has no comments for this project.

PLANNING & INSPECTIONS DEPARTMENT
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ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

May 14, 2015

Owners:
Mr. William and Carol Byron
1606 White Cross Road
Chapel Hill, NC 27516

Attorney for Applicants:
Mrs. Beth Trahos
Smith Moore Leatherwood LLP
434 Fayetteville Street, Suite 2800
Raleigh, NC 27601

Project Engineer:
Mr. George Retschle, PE
Ballentine & Associates, PA
221 Providence Road
Chapel Hill, NC 27514

NOTICE OF STAFF REVIEW AND COMMENTS:
REVIEW CLASS A SPECIAL USE PERMIT MATERIALS
1606 White Cross Road, Chapel Hill, NC 27516
(Orange County PIN 9748-32-0786)

Dear Owners and Consultants:

On February 25, 2015 the Orange County Planning Department received a formal Class A Special Use Permit (SUP) application package and Plans proposing a solar array - public utility at the above location. The proposed facility will utilize approximately 20 acres of the 35.88 acre tract. Approximately 11.5 acres of this area will contain the enclosed solar array panels.

Staff determined on March 11, 2015 that the materials submitted were sufficient to proceed with the SUP process as defined in Section 2.7 of the Orange County Unified development Ordinance. On March 13, 2015 Orange County Planning Staff delivered courtesy review copies of the submitted materials to the NCDOT District Engineer, Towns of Chapel Hill and Carrboro for professional review and comment. On the morning of April 8, 2015, 2015 Orange County Staff presented the case before Orange County Development Advisory committee (DAC), and on the evening of April 8, 2015 a Neighborhood Information Meeting (NIM) was conducted. An additional neighborhood meeting was also hosted by the applicants at the White Cross Recreational Facility on May 7, 2014.

Below are staff comments and questions regarding your request. These are intended to help you craft your materials, evidence to be submitted at the Quasi-Judicial hearing to be held by the Orange County Board of Commissioners (BOCC) tentatively scheduled for May 26, 2015 Public Hearing

I. SITE PLAN DRAWINGS (SheetC1001):

Please include the following information graphically on the plan and/or the notes:

1. Include the soils types for the property.
2. Provide a general description of the existing vegetation within the subject area (e.g. XX% hardwood and YY% evergreen trees and shrubs ranging in height from XX' to YY' feet and ranging in size from XX" to YY" caliper inches.
3. Include a general legend (e.g. canopy, understory hardwood/evergreen) for the typical 100' long section of the buffer (detail A-5). Also include a minimum rate.
4. Indicate that the buffer will achieve an opacity height of XX' feet in height within 3-5 growing seasons.
5. Add a landscape note that existing vegetation and supplemental plantings may be provided between the 50' buffer and the fence areas to achieve an opaque screen.
6. Indicate a range of spacing between rows for the solar panels as well as a range of height and width of the panels in detail A-4.
7. Label the 30' wide Type B Buffer along White Cross Road.
8. Revise or clarify the label "Proposed Lease Line." Our understanding was that this was a purchase agreement. Also label this line and perimeter as "Limits of SUP."

II. SITE PLAN SECTIONS (SheetC1002):

Please include the following information graphically on the plan and/or the notes:

1. Include a sampling of distances, spot contour elevations and a vertical heights to illustrate the relationship of the solar arrays with adjacent properties.
2. Illustrate adjacent structures in the Section Key Map.
3. C-3 Section label distance to Haggerty House.

As discussed in our meetings, we encourage you to address the above comments before the Public Hearing. We understand that you plan on submitting the 20 BOCC plan sets today, these revisions are minor in nature and can be entered into the record the day of the Public Hearing.

We also encourage you to start preparing your evidence to be entered into the record as well as the expert witnesses you may need to address any concerns or specific findings of fact.

As always, we will be more than happy to review (and/or meet with you in person) to ensure your materials address the stated concerns and/or required findings of fact for the Class A SUP. Please feel free contact me anytime at 919-245-2577 and/or pmallett@orangecountync.gov.

Very Respectfully,

Patrick R. Mallett

Pat Mallett, Planner II

CC: Michael Harvey, Planner III, Current Planning Supervisor; and File

Attachment 4

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Administration
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

WHITE CROSS FARM SOLAR ARRAY – PUBLIC UTILITY NEIGHBORHOOD INFORMATION MEETING HIGHLIGHTS

THURSDAY, APRIL 9, 2015
LOCATION: ORANGE COUNTY PLANNING CONFERENCE RM 4.
TIME: 5:30-7:30PM
MEETING ORGANIZER: WHITE CROSS SOLAR, LLC AND PROPERTY OWNERS WILLIAM AND CAROL BYRON

Per Section 2.7 of the Orange County Unified Development Ordinance (UDO), a Neighborhood Information Meeting (NIM) was held on April 9, 2015 from 5:30 to 7:30 p.m. to review and allow comment on the proposed development of a solar facility on a parcel of property off of White Cross Road.

Specifically, the applicants have submitted a Class A Special Use Permit (SUP) application seeking to develop a solar array-public utility at 1606 White Cross Road, further identified utilizing Orange County Parcel Identification Number (PIN) 9748-32-0786. As proposed, the solar facility would occupy a 20 acre portion of the existing 35.88 acre tract.

An overview of the project is as follows:

White Cross Solar Array – Public Utility Overview:

Applicant: White Cross Solar, LLC and property owners William and Carol Byron
Location: 1606 White Cross Road (S.R. 1951), Chapel Hill, NC
PIN: 9748-32-0786
Legal Description: DB 4881/PG 313; and PB 81/PG 31
Zoning: Agricultural Residential (AR)
Overlay Districts: Haw River Protected Watershed Overlay District
School District: Orange County Schools
Utilities: No septic systems are proposed for this project; proposed public utility of solar energy
Total Acreage: 35.8 acres (request will utilize approximately 20 acres of the current parcel)
Access: Vehicular access to the solar array-public utility is proposed directly off White Cross Road.

Proposal: The applicant is proposing a solar array-public utility via White Cross Road to develop several rows or "solar arrays" of mounted Photovoltaic Cells. The system will generate electricity that in turn will be sold to Duke Energy for the purpose of contributing to the power service grid for the area.

Approximately 16 adjacent property owners and area residents attended the meeting. The request was presented by Beth Trahos, attorney for the applicants and George Retschele, the project Engineer.

Meeting Highlights:

Orange County Planning staff gave the 16 attendees an overview of: the SUP process; the application; the site; surrounding area; site environmental constraints, the zoning and special use permit requirements, and the tentative schedule for the SUP's review and approval or denial by the Orange County Board of Commissioners.

Beth Trahos and George Retschle presented the specifics of the application and gave an overview of the site, the subject area, the nature of the solar facility, the public benefits, technical information on the solar arrays, inverters and site maintenance. Ms. Trahos also introduced the potential developer, Cypress Creek Renewables, and offered to conduct additional neighborhood meetings as desired by the area residents.

An adjacent property owner asked to make a few remarks on behalf of his interests and that of many who live in the area. He noted that the mailing notification distance was not far enough out (i.e. only 500 feet form the subject property) and that many residents would be left "out of the loop" regarding the proposal and the process. He offered to take additional materials and work with residents to post information via various community networks. He also had questions regarding the size of the proposed solar array, the Annual Report of the developers and utility company, the location of the solar arrays, ability to change the plan, potential impacts to the adjoining properties and vehicular access to Old Greensboro Road.

The applicant reviewed the plans illustrating the limits of the request, the proposed access via Old Greensboro Road, background of the developer and the design of the solar array systems. The applicants also offered to host/participate additional meetings with residents so they could be fully informed.

Staff reminded all those in attendance the NIM is advertised utilizing 2 methods, specifically a direct mailing and the posting of a sign on the property advertising the meeting's date and time. Staff also indicated information on the application and the NIM was placed on the County website. There was general discussion over advertising requirements, at both a County and State level, for SUP projects.

Staff then opened the meeting up to discussion from the audience.

Attendees asked the applicants questions regarding the view from the adjacent properties, landscaping property values, the buffer, noise traffic, maintenance, limits of disturbance and procedures for entering evidence into the record. The applicants and staff answered these questions as well as the specific performance standards for solar array facilities (e.g. 50' type D buffer requirements, fencing, stormwater and erosion control permitting).

An adjacent property owner to the north complained she would be adversely impacted by having 2 solar projects near her property (STAFF NOTE: there is a facility, approved by the County in 2012, north of this property operated by Strata Solar). Further she lamented the fact that numerous existing, mature, trees would have to be removed to accommodate the facility. The applicant reviewed the landscape and buffer requirements associated with the project and provided graphic examples of how the required buffers would look like.

An attendee asked if the County would cover the costs incurred by adjacent property owners to hire experts to argue against the project. Staff responded the County was not legally or financially responsible for assisting property owners secure the necessary experts to argue for or against a SUP application. There was additional discussion about the SUP review and approval process.

Staff concluded the meeting with a summary of the next steps in the process. The meeting was adjourned at approximately 7:30pm.

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Current Planning
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

March 23, 2015

NOTICE OF NEIGHBORHOOD INFORMATION MEETING (NIM):

RE: NOTIFICATION OF A NEIGHBORHOOD INFORMATION MEETING

REVIEW of a Special Use Permit (Class A) application proposing development of a parcel of property totaling 35.8 acres located on in the northeastern quadrant White Cross Road (SR 1951) and Old Greensboro Road (SR 1005) within the Bingham Township into a solar-array public utility.

Dear Property Owner:

The Orange County Planning Department has received a Special Use Permit (Class A), submitted by White Cross Solar, LLC proposing the development of a 35.8 acre parcel of property located at 1606 White Cross Road into a solar array public utility.

The subject parcel is further identified utilizing Orange County Parcel Identification Number (PIN) 9748-32-0786, located within the Bingham Township of Orange County, and zoned Agricultural Residential (AR). Please refer to the attached vicinity map for additional site information and location details.

The application calls for the development several rows or solar arrays of mounted Photovoltaic Cells. This system will generate electricity that in turn be sold to Duke Power for the purpose of contributing to the power service grid for the area.

In accordance with Section 2.7 of the Orange County Unified Development Ordinance (UDO), the County is required to hold a Neighborhood Information Meeting (NIM) for all Class A Special Use Permit applications. This meeting is intended to provide property owners within 500 feet of the request an opportunity to meet with the applicant and discuss the specifics of the project. This allows for an open dialogue between the applicant and local residents to share information and address potential concerns associated with the project. Staff's role is to facilitate this meeting and explain the development review process and the requirements associated with the project.

A NIM has been scheduled for **April 9, 2015** from 5:30-7:00pm in the ground floor conference room of the West Campus Office building located at 131 West Margaret Lane in Hillsborough. Please see attached map outlining the location of the building. Parking spaces are available within the adjacent, County owned, parking deck free of charge.

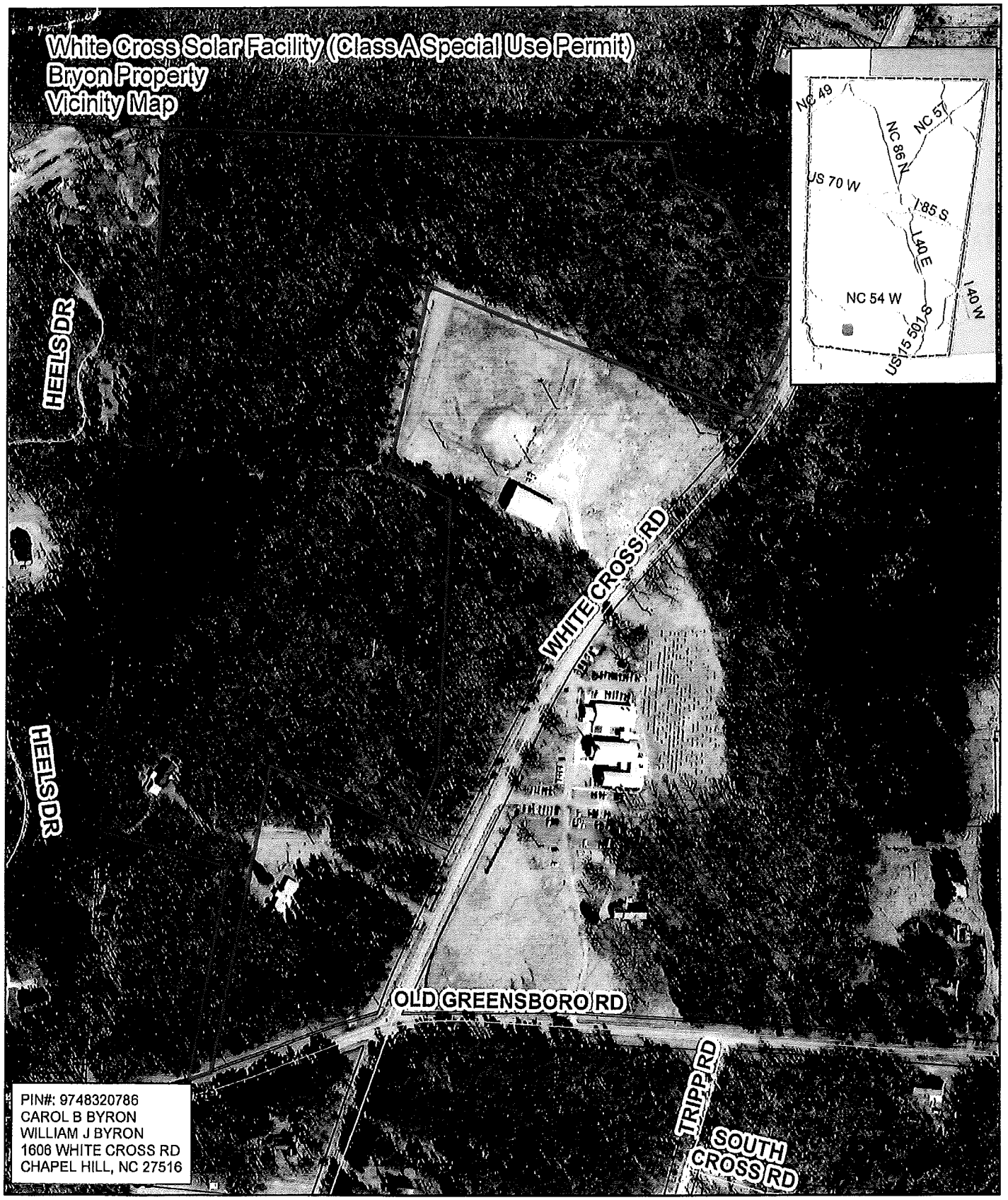
If you require additional assistance, please contact a Department staff member at (919) 245-2575. Thank you for your attention to this matter.

Sincerely,

Michael D. Harvey AICP, CFO, CZO
Current Planning Supervisor
Orange County

Patrick Mallett
Planner II
Orange County

CC: File
Attachments: Vicinity map of Subject Property; NIM Vicinity Map



RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

N

1 inch = 294 feet

0

Orange County Planning and Inspections Department
03/04/2015

Orange County Planning and Inspections Department

SPECIAL USE PERMIT FACT SHEET

The purpose of this fact sheet is to provide a breakdown of Orange County's Special Use Permit submittal and review process.

The information contained herein provides an explanation on the nature of the permit proceedings, the presentation of evidence, burden of proof, what constitutes testimony and who can present evidence, and your rights with respect to challenging a decision to either approve or reject a SUP application.

1. ***What is a Special Use Permit?***

   A Special Use Permit (SUP) is a permit allowing for the establishment of certain uses, in certain districts, that are considered worthy of additional scrutiny in their proposed location. Such uses typically require special review for design, location, and impact on surrounding properties.

   Orange County has 2 different categories of SUP, specifically:

   i. **Class A** reviewed and acted upon by the Board of County Commissioners (BOCC), with a recommendation from the Planning Board, and

   ii. **Class B** reviewed and acted upon by the Orange County Board of Adjustment.

2. ***What is considered a 'Special Use'?***

   A SUP is required for those specific land uses identified within the Orange County Unified Development Ordinance (UDO) Table of Permitted Uses contained within Section 5.2.

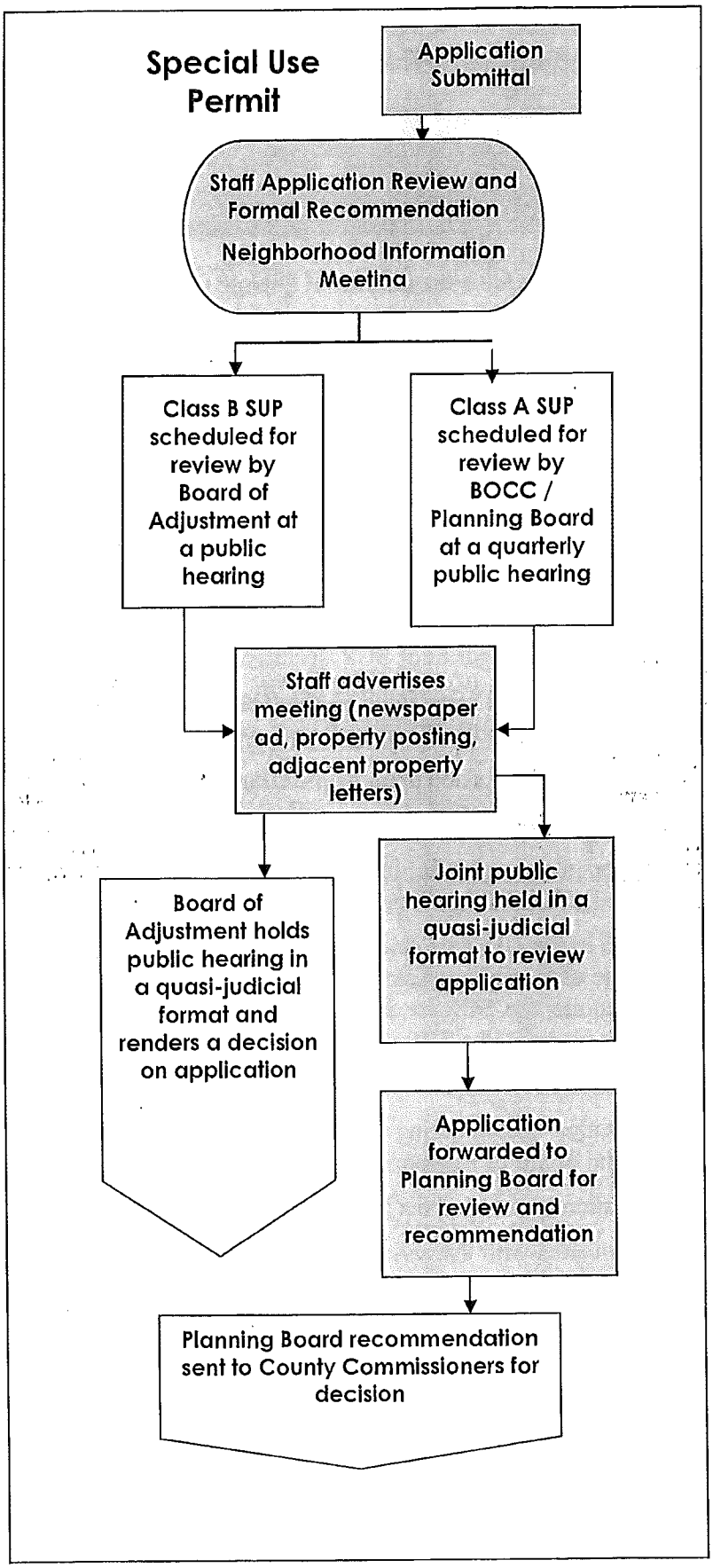
   These uses are identified in the UDO's Table of Permitted Uses with an 'A" for Class A SUP and a 'B' for a Class B SUP. Some uses may be permissible in certain districts without restriction (referred to as "uses by right"), but require the SUP in districts where their impact calls for special consideration. Applicants are entitled to be granted a SUP if they can show that specific standards would be met.

3. ***When are such applications reviewed?***

   Review of a SUP application occurs during a previously scheduled and advertised public hearings held by either the BOCC or the Board of Adjustment.

   The review of an application is a carried out in a quasi-judicial process.

   The typical cadence associated with the review of a SUP is broken down in Section 2.7 of the UDO and can be summarized using the following flow chart:


Special Use Permit
Application Submittal
Staff Application Review and Formal Recommendation
Neighborhood Information Meeting
Class B SUP scheduled for review by Board of Adjustment at a public hearing
Class A SUP scheduled for review by BOCC / Planning Board at a quarterly public hearing
Staff advertises meeting (newspaper ad, property posting, adjacent property letters)
Board of Adjustment holds public hearing in a quasi-judicial format and renders a decision on application
Joint public hearing held in a quasi-judicial format to review application
Application forwarded to Planning Board for review and recommendation
Planning Board recommendation sent to County Commissioners for decision

4. ***What does quasi-judicial process mean?***

Quasi-judicial decisions arise in a variety of local government settings.

During a quasi-judicial hearing, the Board (i.e. BOCC or Board of Adjustment) responsible for rendering a decision acts much like a panel of judges. The Board hears factual evidence and sworn testimony presented at the public hearing and then makes a determination on whether the permit can be issued based on the competent, substantial, and material evidence presented.

Put differently a quasi-judicial decision is one that requires the board hearing the matter to find facts and make decisions by applying those facts to the standards in the Unified Development Ordinance.

5. ***Who may speak or present evidence at the public hearing?***

Both individual applicants and those individuals supporting, or opposed to, the application are encouraged to attend. Individuals may represent themselves or be represented by an attorney and they may have expert witnesses testify for them.

The cost for attorneys or expert witnesses is borne by the individual seeking counsel or expert testimony, not the County. The County will not pay for, or reimburse, expenses incurred by an individual in their quest to support or oppose a SUP application.

While not required by State or County regulations, all parties with an interest in a SUP application are strongly advised to have an attorney represent them.

Engineers, architects, real estate agents, planners and other non-attorneys may only appear as expert witnesses; they may not represent an applicant or those opposed to an application.

Only those with standing may speak or present evidence.

6. ***What are the responsibilities of the applicant?***

The applicant bears the ultimate responsibility for producing and submitting competent, substantial, and material evidence for the body reviewing the application to conclude the proposal complies with applicable County regulations.

If they fail to submit evidence demonstrating compliance, the request is denied.

If, however, the applicant proves they comply, and there is insufficient evidence submitted to the board hearing the case demonstrating they do not comply, the applicant is entitled to have the application approved.

7. ***What standards must be met by the applicant?***

All applicants must show compliance with the General Standards for all SUPs, as detailed within Section 5.3.2 of the UDO, and any specific development standards associated within the proposed use.

The General Standards, as contained in Section 5.3.2, read as follows:

> *(a) The use will maintain or promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted;*
>
> *(b) The use will maintain or enhance the value of contiguous property (unless the use is a public necessity, in which case the use need not maintain or enhance the value of contiguous property); and*
>
> *(c) The location and character of the use, if developed according to the plan submitted, will be in harmony with the area in which it is to be located and the use is in compliance with the plan for the*

physical development of the County as embodied in these regulations or in the Comprehensive Plan or portion thereof, adopted by the Board of County Commissioners

8. ***How are decisions made?***

Members of the board rendering the decision must make their decision solely on the competent, material and substantial evidence presented at the hearing, both for and against an application.

Members cannot consider information obtained through independent research or undisclosed *ex parte* communications, meaning members cannot have private discussions with individuals who support or object to a specific application.

9. ***What exactly is ex-parte communication and why is it not allowed?***

Persons affected by a decision have the legal right to hear all of the information presented to members of a board who will be rendering a decision on an SUP application, specifically they have a right to know all of the "facts" being considered.

Therefore members of the decision-making body are not allowed to discuss the case or gather evidence outside of the hearing (what the courts term *ex parte* communication). Only facts presented to the full board at the hearing may be considered.

This is an important point to remember when such applications are being reviewed. Members of the board rendering the decision are prohibited from discussing the matter or receiving comment on a proposal.

These members are not trying to be rude or unsympathetic to your concerns. They are prohibited from engaging in the conversation in the first place as they are required to guarantee an impartial hearing where the 'facts' are weighed as they are presented as to whether or not an application should be granted.

10. ***You previously indicated decisions are based on evidence. Does this mean those presenting evidence at a SUP hearing have to be under oath?***

In a word, yes. All testimony, including from County staff, offered during the public hearing where a SUP is reviewed must be under oath.

All persons wishing to speak will be given a reasonable time in which to be heard, however groups are encouraged to select a spokesperson to speak for the group in order to avoid repetitive testimony.

11. ***Can people just speak to offer their opinion on the application?***

Inflammatory, irrelevant, repetitive and incompetent testimony and hearsay is not permitted and the chairman of the board hearing the matter has the right to limit and restrict such comments during the public hearing.

For more information please refer to Section 2.7.7 (D) of the UDO.

12. ***What constitutes 'competent, substantial, and material evidence' allowing for the approval or a denial of a SUP?***

Breaking down what constitutes evidence can best be summarized as follows:

i. Competent evidence: legally admissible under the rules of evidence unless admitted without objection, or appears to be sufficiently trustworthy and is admitted under such circumstances that it is reasonable for the decision-making body to rely upon it. Evidence that can be subjected to cross-examination, inspection, explanation and rebuttal (i.e. expert testimony).

For example a realtor who has professional experience and accreditation can offer an opinion if a specific project will or will not impact the value of adjacent property. An individual with no background in the field cannot offer a 'competent' opinion on the

subject. In this case it would not be considered as 'competent' evidence and would be inadmissible.

ii. Substantial evidence: evidence that which a 'reasonable mind' would regard as sufficiently supporting a specific result.

Would this persuade the average person to make a certain conclusion? Does it do more than speculate?

iii. Material evidence: evidence that is relevant to the issue being considered.

For example if a board is reviewing an application for a kennel (i.e. a place where dogs/cats are housed and cared for a period of time) an individual who is opposed may submit documentation denoting noise complaints from other kennels throughout Orange County. This could be construed as 'material evidence'.

Documentation denoting animals have died in kennels throughout the county and, as a result, this specific application should be denied is not relevant to the case at hand as it has no specific relationship to what is being proposed. This would be deemed immaterial evidence and would not be admissible.

As a general rule, anyone with knowledgeable information (i.e. relevant) to the case may provide factual information, but only experts may provide opinion testimony.

Even expert testimony must be competent (i.e. the expert has qualifications relevant to the issue) and material before the decision-making board can rely on it.

Hearsay evidence is testimony that the witness does not know of his or her own personal knowledge, including that which someone else told the witness and the use or introduction of signed petitions and letters.

The board may only hear testimony that focuses on the applicable standards and criteria established in the UDO. Unless they are a qualified expert, witnesses are not competent to testify about the impact of a proposed land use on the value of nearby property, the danger to public safety resulting from increases in traffic or other matters that require special training or expertise like the level of noise that will be generated.

13. ***Can conditions be imposed on a SUP?***

Generally, the board hearing the application may attach conditions to the approval of an SUP as it relates to compliance with applicable standards. For example, a condition may require the applicant to increase the size of a required setback or land use buffer in order to ensure the project complies with that specific standard as detailed within the UDO. The Board cannot impose conditions addressing an issue not related to an existing standard such as establishing hours of operation, color of buildings, etc.

Conditions cannot require the applicant to take action with regard to a piece of property that is not a part of the application being considered, and conditions cannot require the alteration of a special use permit previously issued to a third party.

14. ***Is there a record of the proceedings?***

Complete records must be kept of the hearings. Detailed minutes must be kept noting the identity of witnesses and giving a complete summary of their testimony. Any exhibits presented are retained by the board and become a part of the file on that case. An audio recording of the hearing is also made.

15. ***How are parties notified of the decision?***

The board rendering a decision on the application is required to make a formal decision on the application (i.e. approve or deny) in writing and shall be based on the determination of facts and their application to the specific standards for the particular use and the general standards contained in the

UDO. This includes providing specific details on the board's conclusions on each applicable standard for a given SUP. Even if the application is denied, there is an obligation to make a detailed finding identifying the evidence utilized to deny the application.

The written decision must be signed and becomes effective upon filing with the Planning Department. A copy of the written decision must be delivered to the applicant, property owner, and others as required by State law.

16. ***Are decisions on SUP applications subject to further review?***

Yes. Decisions of the BOCC or Board of Adjustment on a SUP application are subject to by the Superior Court. Appeal applications must be filed within 30 days with the court from the date the decision is made available. Please refer to NCGS 160A-393 and Section 2.12.5 (A) of the UDO for additional information.

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1946 WHITECROSS
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27516

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2725 N HWY A1A #605
INDIALANTIC, FL 32903

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WHITE CROSS RECREATION
ASSOCIATION
1800 WHITE CROSS RD
CHAPEL HILL, NC 27516

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Total Postage & Fees $

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CAROL B BYRON
WILLIAM J BYRON
1606 WHITE CROSS RD
CHAPEL HILL, NC 27516

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WANDA FAYE LLOYD
1441 WHITE CROSS RD
CHAPEL HILL, NC 27516

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Restricted Delivery Fee (Endorsement Required)
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MARY CHAMBERS GOODMAN
1034 HANKS CHAPEL RD
PITTSBORO, NC 273129782

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Total Postage & Fees $

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BERNARD E LLOYD
1500 WHITE CROSS RD
CHAPEL HILL, NC 275167338

See Reverse for Instructions

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DUNCAN IAN MACCALMAN
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JEAN W HACKNEY
3038 MANNS CHAPEL RD
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ORANGE COUNTY PLANNING & INSPECTIONS DEPARTMENT
Neighborhood Information Meeting Sign-In Sheet

Plan: WHITE CROSS LLC
Date & Time: 09 APRIL 2015

Name	Address	Telephone Number	Email Address
STEVE HAGGERTY		321 482 6191	shaggerty@mindspring.com
JULIA TUCKER	1946 WHITE CROSS RD. CHAPEL HILL, NC 27516	919-523-2237	JULIA.ALLISON4@GMAIL.COM
JUSTIN TUCKER	↓		
GORDON Neville	1501 Old Greensboro Rd	Chapel Hill N.C. 27516	
TONY BLAKE	1411 WHITECROSS RD	919 932 1495	tonyblake@nc.rr.com
Duncan MacCallum	4525 Old Greensboro Rd Chapel Hill	919 968-4597	bmaccalman@att.net
Amanda VanDerBrock	Newson Orange Co. 109 E. King St. Hillsborough	919-732-2171	amanda4NOC@gmail.com
Dickie Andrews	233, Hwy 54 W Chapel Hill, NC.	919-929-7008	andrewsassociate@mindspring.com
Raymond Atwater	709 Reserve Estates Dr Wake Forest NC.	919-730-8966	atwaterhome@gmail.com

62

Carol Rigsbee	1922 ORANGE Chapel Clover Garden CH Rd Chapel Hill NC 27516	919-967-1805	crigsbee36@icloud.com
Carol S Byron	1606 White Cross Rd CH NC 27516	919 929 5049	
Nicholas Moody	CYPRESS CREEK	(843) 518-7477	
Beth Trahos	Smith Moore Leatherwood	919.755.8760	beth.trahos@smithmoorelaw.com
GEORGE RETSCHLE	BALLENTINE ASSOCIATES	919.929.0481	GEORGE@BALLA.ENG.COM
CASEY HADDEN	2062 ELKINS LANE CHAPEL HILL, NC 27517	919 602 2919	CASEY@THEHADDENS.NET

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Administration
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

CERTIFICATION OF MAILING

CLASS A SPECIAL USE PERMIT – WHITE CROSS SOLAR LLC
ORANGE COUNTY, NORTH CAROLINA

I, Michael D. Harvey, Current Planning Supervisor with Orange County, North Carolina, DO HEREBY CERTIFY that in accordance with the provisions of Section 2.7.5 of the Orange County Unified Development Ordinance (UDO) I have mailed, or have caused to be mailed, a Notice of Public Hearing regarding the processing of a Class A Special Use Permit application submitted by White Cross Solar LLC and William and Carol Byron to develop a solar array – public utility on a parcel of property identified utilizing Orange County Parcel Identification Number (PIN) 9748-32-0786 within the Bingham Township of Orange County.

The owners were identified according to the Tax Records and as required by Section 2.7.5 of the UDO.

The mailed notice specified the date, time, place and subject of the Public Hearing.

WITNESS my hand, this 8th day of May, 2015.

Michael D. Harvey, AICP
Current Planning Supervisor

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Current Planning
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
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P. O. Box 8181
Hillsborough, NC 27278

May 8, 2015

Subject: NOTICE OF PUBLIC HEARING – Review of a Special Use Permit (Class A) application by White Cross LLC and William and Carol Byron proposing development of a +/-20 acre portion parcel of their 35.8 acre property locate at 1606 White Cross Road Chapel Hill, NC 27516

Dear Property Owner:

The Orange County Planning Department has received a Special Use Permit (Class A) application, submitted by White Cross Solar LLC and William and Carol Byron, proposing the development of an approximately 20 acre portion of a 35.8 acre parcel of property located at 1606 White Cross Road into a solar array public utility.

The subject parcel is further identified utilizing Orange County Parcel Identification Number (PIN) 9748-32-0786, located within the Bingham Township of Orange County, and zoned Agricultural Residential (AR) and Haw River Protected Watershed Overlay District. Please refer to the attached vicinity map for additional site information and location details.

The application calls for the development several rows or solar arrays of mounted Photovoltaic Cells within an enclosed area on the northern portion of the property. This system will generate electricity that in turn be sold to Duke Power for the purpose of contributing to the power service grid for the greater area. A typical array ranges in height from 7-10 feet, with approximately 2 to 5 feet of ground clearance, and is 47 feet in length. The array area shall be screened by a 50 foot wide Type D landscaped buffer consisting of existing, and proposed vegetation and a 6 foot high chain link security fence. Vehicular access to the site shall be restricted to one 24 foot wide access drive and security gate off of White Cross Road. The applicant is not proposing to develop a business, or other similar office facilities on the property. As a result there is no septic or well system proposed, or required, as part of the project.

In accordance with Section 2.7 of the Orange County Unified Development Ordinance (UDO), the County is required to notify property owners within 500 feet of the request that an application has been filed and that a Public Hearing will be conducted as part of the review process. The Public Hearing for this item is scheduled for **May 26, 2015**.

As a property owner within 500 feet of the request, you have the right to address the Board of County commissioners (BOCC) and Planning Board concerning this request.

The Public Hearing to review this case is scheduled for **Tuesday, May 26, 2015 at 7:00 p.m. in Orange County Whitted Human Services Center Complex, 300 West Tryon Street, Hillsborough, NC 27278.** The case will be referred to the Orange County Planning Board for its review and recommendation with the BOCC taking final action on the application at a future meeting.

It should be remembered that the review of all SUP applications are carried out in a *quasi-judicial* format, meaning that decisions relating to the approval or denial of a application are based solely on the sworn testimony of all parties involved with the case, both those for and against an application, as well as the review of competent material and substantial evidence submitted during the public hearing.

While County regulations and State law do not require that parties be represented by an attorney, it may be in your best interests to secure legal council to represent your interests at the hearing.

Further the applicant has the burden of establishing, by the submission of competent material and substantial evidence, the existence of facts and conditions that demonstrate the projects compliance with the various requirements and standards detailed within the Orange County Unified Development Ordinance (UDO). Those opposing approval of the application shall have the burden of establishing, also through the submission of competent material and substantial evidence, the specific manner in which the proposal does not satisfy the requirements for approval of the application.

As previously indicated, the BOCC shall render a decision only on the sworn testimony of all parties and on the competent material and substantial evidence submitted during the hearing.

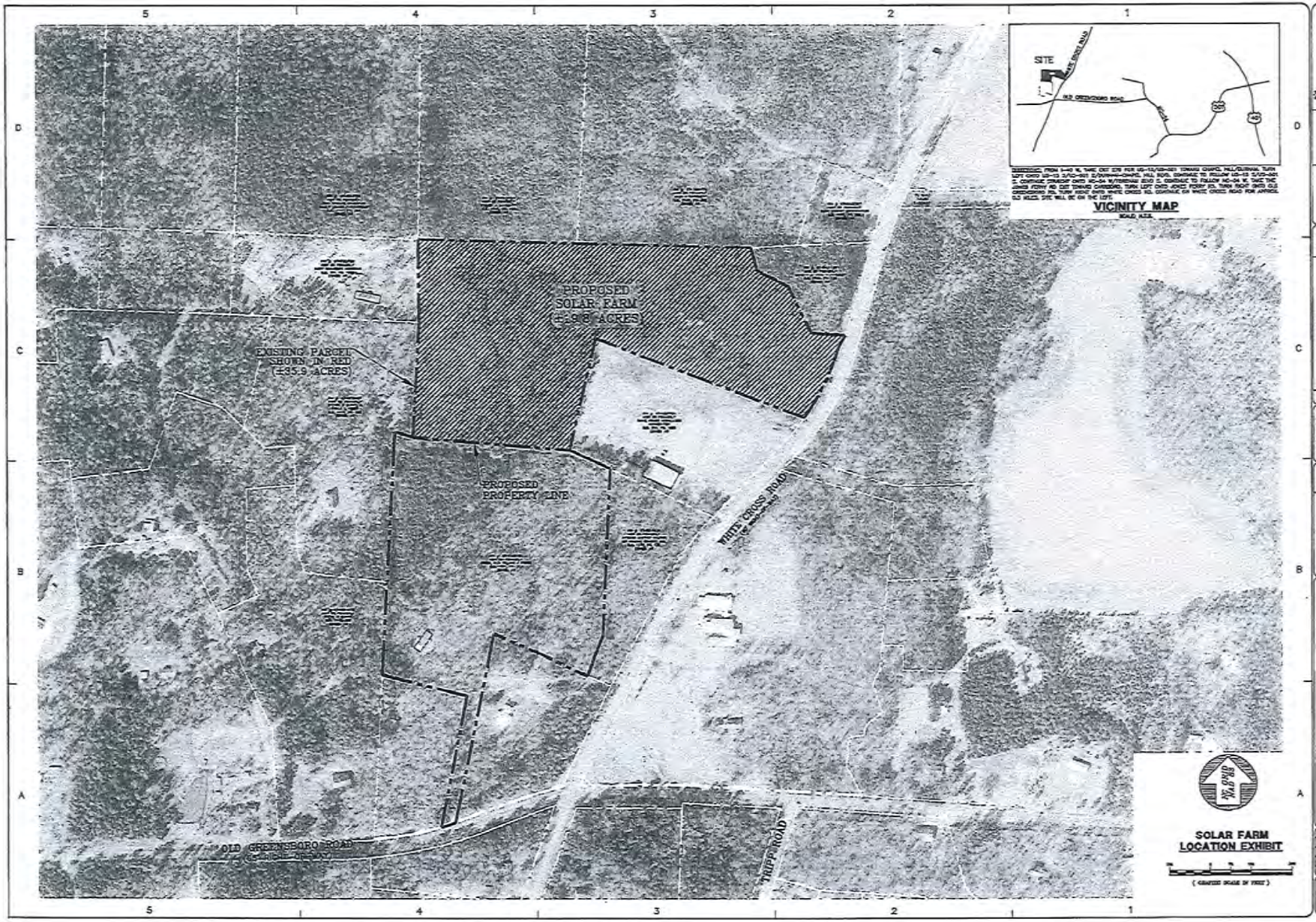
Agenda packet materials for the May 26, 2015 Quarterly Public Hearing shall be posted on the Orange County website by May 15, 2015 and can be found at the following link: http://www.orangecountync.gov/departments/board_of_county_commissioners/agendas.php.

If you have any questions concerning this request, please contact staff at (919) 245-2575.

Sincerely,

Michael D. Harvey, AICP, CFM, CZO
Orange County Planning

Attachments: Solar Farm Preliminary Site Plan
Vicinity Map of Property
Vicinity Map of Meeting Location


PROPOSED SOLAR FARM (±9.8 ACRES)
EXISTING PARCEL SHOWN IN RED (±35.9 ACRES)
PROPOSED PROPERTY LINE
WHITE CROSS ROAD
OLD GREENSBORO ROAD
TRIPP ROAD
SITE
VICINITY MAP
SOLAR FARM LOCATION EXHIBIT
BALLENTINE ASSOCIATES, P.A.
WHITE CROSS FARM
SOLAR ENERGY SYSTEM
CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA
LOCATION EXHIBIT
C1001

Site Assessment for PIN:9748-32-0786

Site Data
Zoning: AR - Agricultural Residential
Acreage:34.41 acres
Overlay Districts: Haw River Protected
Plat/Legal Description: DB 4881 / PG 313 Plat Book 81 / PG 31
Recorded Declarations/Covenants: Not Found

Zoning Requirements
Min. Lot Size: 40,000 sq. ft.
Min. lot width: 150'
Maximum height: 25'
Building Setbacks:
-Front (and Corner lots) = 40' from public rights-of-way
-Side Setbacks = 20' from side lot lines
-Rear Yard Setback = 20' from rear lot lines

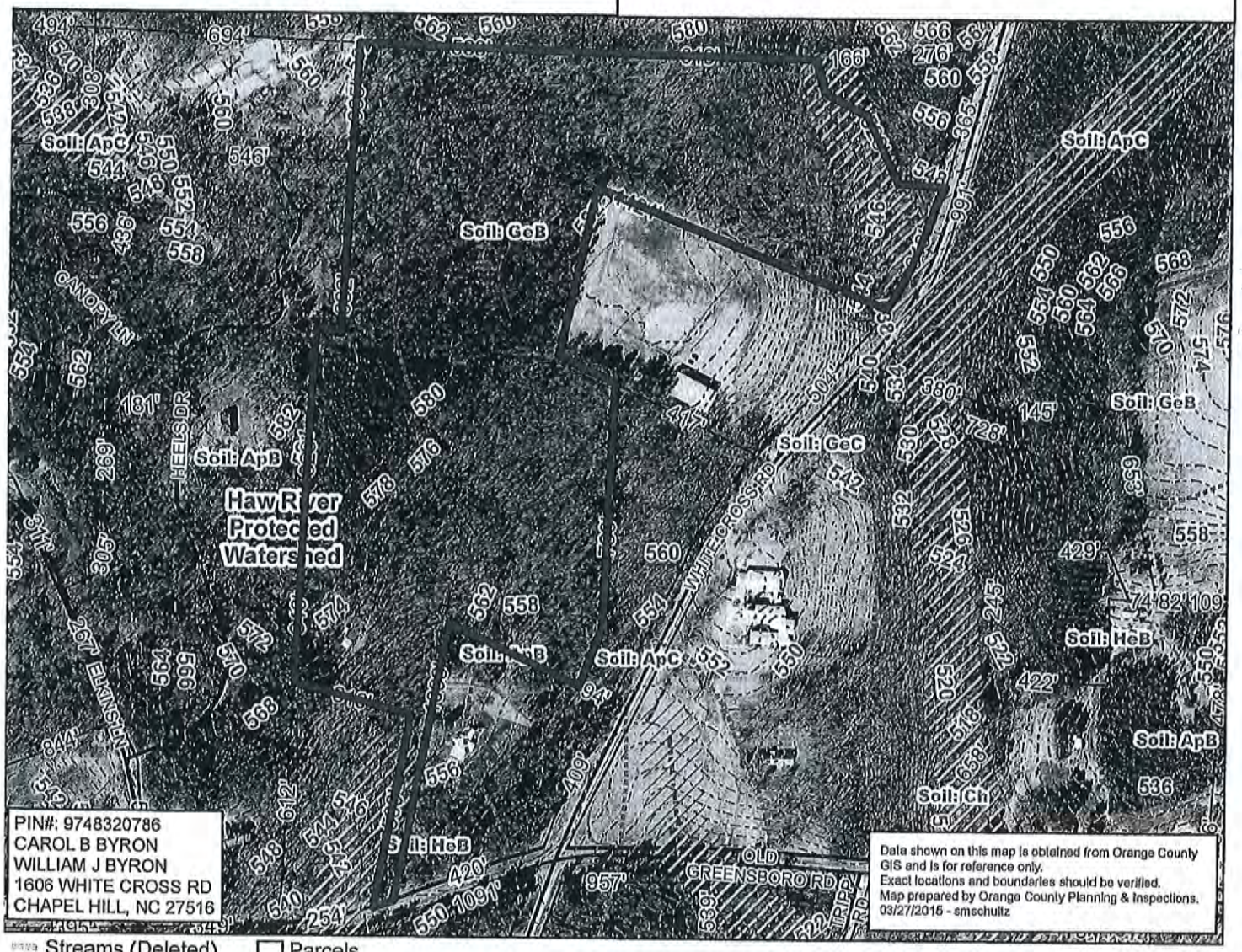
Note: Lot size, building setbacks and stream buffers may increase based on Private Road Justification (UDO 7.8.5).

Environmental Features
-Stream buffer located [illegible] lot. Stream buffer is 80 ft (method A 9.6%).

Impervious Surface Limits: 24% max. (359,735.9 sq. ft. max based on 34.41 acres).

Land Disturbance Thresholds
1) Environmental Control Permit required if disturbing more than 20,000 sq.ft.; and
2) Stormwater Management Permit required if disturbing more than 43,560 sq. ft. for residential structures.

Date Site Assessment Completed: 3/27/2015 by SMS



Streams (Deleted)
Soils Survey Stream
OC Updated Stream
Stream Buffer 80ft
2' Contours (NCDOT)
Parcels
Zoning
Watershed
Soils

N

1 inch = 400 feet
0 100 200 Feet

Whitted Building (300 W. Tryon St.)

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ORANGE COUNTY
BOARD OF COMMISSIONERS AND
PLANNING BOARD
QUARTERLY PUBLIC HEARING ACTION AGENDA ITEM ABSTRACT
Meeting Date: May 26, 2015

Action Agenda Item No. C-4

SUBJECT: Unified Development Ordinance Text Amendment – Impervious Surface Regulations

DEPARTMENT: Planning and Inspections

PUBLIC HEARING: (Y/N) Yes

ATTACHMENT(S):

1. Comprehensive Plan and Unified Development Ordinance Outline Form - Sign Amendments (UDO/Zoning 2015-02)
2. March 3, 2015 Information Item on Impervious Surface Regulations and Standards
3. Review Comments
4. Excerpt of Draft Ordinance Review Committee (ORC) Meeting Notes
5. Proposed UDO Text Amendment(s)

INFORMATION CONTACT:

Michael Harvey Planner III,(919) 245-2597
Craig Benedict, Director, (919) 245-2585

PURPOSE: To hold a public hearing on Planning Director initiated Unified Development Ordinance (UDO) text amendments regarding impervious surface regulations.

BACKGROUND: Staff and Board members have received numerous inquiries related to increasing allowable impervious surface area.

Staff provided the Board of County Commissioners (BOCC) with an information item at its March 3, 2015 regular meeting (Attachment 2) summarizing the issues and possible solutions. The BOCC approved the Comprehensive Plan and Unified Development Ordinance Outline Form (Attachment 1) at its March 17, 2015 regular meeting authorizing the initiation of amendments based on the conclusions and recommendations detailed within the aforementioned information item.

The proposed amendment seeks to allow for a potential increase in allowable impervious surface area on a given parcel of property through the development and incorporation of an infiltration based stormwater feature, consistent with State allowances. For more background information please refer to Section B.1 of Attachment 1.

Outreach: In addition to the typical peer review of the proposed amendment, staff presented the proposal to the Orange County Commission for the Environment (CFE) and the Orange Water Sewer Authority (OWASA) board. The item was presented to the CFE at its April 13,

2015 regular meeting and to the OWASA board at its April 23, 2015 regular meeting. Their comments on the proposal are contained within Attachment 3.

JPA Review: In accordance with the Joint Planning Area Agreement, this text amendment was sent to the Towns of Chapel Hill and Carrboro for review and comment. A response was received from the Town of Carrboro at it is included in Attachment 3.

In summary, while various entities expressed support for the proposal there was a universal concern the County lacks the staff resources to properly monitor and inspect these stormwater features in perpetuity to ensure their continued viability.

FINANCIAL IMPACT: Please refer to Section C.3 of Attachment 1.

RECOMMENDATION(S): The Planning Director recommends that the Board:

1. Receive the request,
2. Conduct the Public Hearing and accept public, BOCC, and Planning Board comments.
3. Refer the matter to the Planning Board with a request that a recommendation be returned to the BOCC in time for its **June 16, 2015** regular meeting.
4. Adjourn the public hearing until **June 16, 2015** in order to receive and accept the Planning Board's recommendation and any submitted written comments.

COMPREHENSIVE PLAN / FUTURE LAND USE MAP AND UNIFIED DEVELOPMENT ORDINANCE (UDO) AMENDMENT OUTLINE

UDO / Zoning-2015-02

UDO Text Amendment(s) allowing for the modification of impervious surface area within Watershed Protection Overlay Districts through the installation of permeable pavement

A. AMENDMENT TYPE

Map Amendments

☐ Land Use Element Map:
From:
To:

☐ Zoning Map:
From:
To

☐ Other:

Text Amendments

☐ Comprehensive Plan Text:
Section(s):

☒ UDO Text:
☒ UDO General Text Changes
☐ UDO Development Standards
☐ UDO Development Approval Processes

Section(s): 1. 4.2.8 *Modifications of the Impervious Surface Ratio* of the Orange County Unified Development Ordinance (UDO).

☐ Other:

B. RATIONALE

1. Purpose/Mission

In accordance with the provisions of Section 2.8 *Zoning Atlas and Unified Development Ordinance Amendments* of the UDO, the Planning Director has initiated text amendment(s) to modify existing regulations governing processes

allowing for the modification of allowable impervious surface area.

There has been an increase in inquires and interest from local residents and property owners with respect to increasing allowable impervious surface area on parcels of property including:

- Increasing allowable impervious surface percentages in Watershed Protection Overlay Districts in accordance with State standards,
- Allow additional impervious surface area on property based on the installation of a stormwater feature, and
- Exempt gravel from being considered an 'impervious surface area'.

2. Analysis

As required under Section 2.8.5 of the UDO, the Planning Director is required to: '*cause an analysis to be made of the application and, based upon that analysis, prepare a recommendation for consideration by the Planning Board and the Board of County Commissioners'*.

The amendments are necessary to address current concerns our impervious surface limits are too restrictive and unnecessary limit development of property and to provide a mechanism for modifying said limits consistent with current State policies.

Staff generated an information item on this topic, which was provided to the BOCC at its March 3, 2015 regular meeting (please refer to Attachment 2).

As detailed within this information item, in certain circumstances the State allows the installation of a stormwater feature, commonly referred to as a Best Management Practice (BMP), providing an opportunity for the installation of additional impervious surface area.

At this time the State only recognizes the use/installation of permeable pavement as a means of receiving additional impervious surface area on a parcel. The State is in the process, however, of revising their policies with respect to the types of features where additional impervious surface could be permitted based on the installation of a\ BMP designed to capture and allow for the infiltration of stormwater. The result could be the expansion of the types of features allowing for an additional allotment of impervious surface area.

The proposed amendment(s) seeks to incorporate the use of infiltration based/designed BMPs as a means of modifying allowable impervious surface area within the County. This is consistent with current, and anticipated, State allowances.

The review of these requests will have to be done on a case-by-case basis with the property owner assuming the responsibility for completing the necessary engineering studies justifying the modification as well as the responsibility for the maintenance, inspection, and upkeep of said BMP in perpetuity.

3. Comprehensive Plan Linkage (i.e. Principles, Goals and Objectives)

Land Use Goal 4: Land development regulations, guidelines, techniques, and/or incentives that promote the integrated achievement of all Comprehensive Plan goals.

4. New Statutes and Rules

N/A

C. PROCESS

1. TIMEFRAME/MILESTONES/DEADLINES

a. BOCC Authorization to Proceed

March 17, 2015

b. Quarterly Public Hearing

May 26, 2015

c. BOCC Updates/Checkpoints

March 17, 2015 – Approval of the UDO Amendment Outline Form.

April 1, 2015 – Planning Board Ordinance Review Committee (ORC).

May 26, 2015 – Quarterly Public Hearing.

June 16, 2015 - Receive Planning Board recommendation.

d. Other

2. PUBLIC INVOLVEMENT PROGRAM

Mission/Scope: Public Hearing process consistent with NC State Statutes and Orange County ordinance requirements

a. Planning Board Review:

April 1, 2015 – Planning Board Ordinance Review Committee (ORC).

The ORC met on April 1, 2015 to review this item. There was general discussion over the implications of the proposed amendment and the process by which a property owner would obtain additional impervious surface area. A synopsis of the comments from this meeting are contained in Attachment 4.

June 3, 2015 – Recommendation.

b. Advisory Boards:

Commissioner for the Environment (CFE). The CFE reviewed this item at its April 13, 2015 regular meeting. Comments from this meeting are contained in Attachment 4.

c. Local Government Review:

Staff transmitted the proposed amendment to the Towns of Chapel Hill, Carrboro, and Hillsborough for courtesy review. To date only the Town of Carrboro has provided comments. Please refer to Attachment 4.

Staff transmitted the proposed amendment to OWASA staff and presented the item to its Board on April 23, 2015. Please refer to Attachment 4.

d. Notice Requirements

Legal advertisement published in accordance with the provisions of the UDO.

e. Outreach:

- ☐ General Public:
- ☐ Small Area Plan Workgroup:
- ☐ Other:

3. FISCAL IMPACT

Modification of existing language will not require the outlay of additional funds by the County. Processing of the amendment shall be handled by staff utilizing existing budgeted funds.

D. AMENDMENT IMPLICATIONS

The amendment will allow for an additional process, in accordance with State regulations, allowing for the modification of impervious surface limits throughout the County.

E. SPECIFIC AMENDMENT LANGUAGE

Please refer to Attachment 5.

Primary Staff Contact:
Michael D. Harvey

Planning

(919) 245-2597

mharvey@orangecountync.gov

INFORMATION ITEM

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

Current Planning
(919) 245-2575
(919) 644-3002 (FAX)
www.orangecountync.gov

ORANGE COUNTY
NORTH CAROLINA

131 W. Margaret Lane
Suite 201
P. O. Box 8181
Hillsborough, NC 27278

MEMORANDUM

TO: Board of County Commissioners
Bonnie B. Hammersley, County Manager

FROM: Michael D. Harvey, Current Planning Supervisor
Wesley Poole, Erosion Control/Stormwater

CC: John Roberts, County Attorney
James Bryan, County Attorney

DATE: March 3, 2015

SUBJECT: INFORMATION ITEM – Response to Petition Impervious Surface Issues

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Please accept the following memorandum responding to a property owner inquiry over impervious surface allocations within Orange County.

EXECUTIVE SUMMARY: The County is, for the most part, more restrictive than the State with respect to established impervious surface limits. There are no impervious surface limit(s) for properties not located within a 'protected' or 'critical' Watershed Protection Overlay District.

There has been an increase in requests, both at a staff and elected official level, from property owners seeking additional impervious surface allotments beyond established limits. The State allows for the installation/use of a stormwater feature, commonly referred to as Best Management Practices (BMPs), allowing additional impervious surface area on a given property in certain circumstances.

The use of a BMP is not, however, universally applicable throughout the County and can be limited based on soil composition, drainage, and topography. There are concerns related to establishing a program allowing for additional impervious surface area through the use of a BMP, as well as the perpetual maintenance costs of such infrastructure, causing staff to believe the option has limited viability.

BACKGROUND: In accordance with NC General Statute 143 Chapter 21, Orange County adopted watershed management standards in the late 1980's early 1990's establishing regulations to prevent significant future water quality deterioration in '*existing or potential future drinking water reservoirs*'. This included the adoption of impervious surface limits for properties designated as being located within either 'protected' or 'critical' watershed areas.

Impervious surface is defined within Article 10 *Definitions* of the UDO as:

> *A surface composed of any material that impedes or prevents the natural infiltration of water into the soil. Such surfaces include concrete, asphalt, and gravel surfaces. These include, but are not limited to streets and parking areas, sidewalks, patios, and structures that cover the land.*

Large amounts of impervious surface on a parcel of property impacts water quality by limiting the availability of undisturbed natural area allowing for the infiltration and treatment of stormwater runoff. To address this issue, the County adopted limits on the total cumulative amount of impervious surface(s) that can be developed thereby encouraging the preservation of natural area and allowing for more on-site infiltration.

Impervious surface limits vary based on a properties location within a Watershed Protection Overlay District. Please refer to Attachment 1 for a chart breaking down current impervious surface limits in each district. Please note there are no impervious surface limits on those properties not located within a 'protected' or 'critical' Watershed Protection Overlay District. This includes areas north of Chapel Hill, around the Town of Hillsborough, and a portion of land area within the Bingham Township. For more information on the location of various overlay districts, please refer to Attachment 2.

ISSUE: Staff and Board members have received numerous inquiries related to increasing allowable impervious surface area including:

- Increasing allowable impervious surface percentages in Watershed Protection Overlay Districts,
- Allow additional impervious surface area on property based on the installation of a stormwater feature, and
- Exempt gravel from being considered an 'impervious surface area'.

The County already has procedures in place, specifically contained Section 4.2.8 of the Unified Development Ordinance (UDO), allowing for a property owner to modify the allowable impervious surface area for a parcel, specifically:

a. Applying for a variance

   STAFF COMMENT: Obtaining a variance from existing impervious surface limits is extremely difficult as the property owner has to demonstrate there is a unique hardship on the property.

b. Proposing the establishment of a conservation easement on an adjacent parcel of property. This conservation easement would allow for a defined area to remain in a natural, undeveloped, state while allowing for the transfer of the impervious surface area to the subject parcel to facilitate development.

It should be noted in 2014 the State Legislature adopted a temporary rule eliminating certain types of gravel from being classified as an impervious surface. This rule, however, was rescinded resulting in all forms of gravel being considered an impervious surface and calculated as same.

STATE ALLOWANCES: The State has produced a stormwater manual, denoting required design elements, which can be viewed at: http://portal.ncdenr.org/web/lr/bmp-manual. Property owners proposing a certain level of disturbance are required to comply with established stormwater provisions as detailed within the UDO.

In certain circumstances the State allows the installation of a stormwater feature, commonly referred to as a Best Management Practice (BMP), providing an opportunity for the installation of additional impervious surface area. As of the writing of this memorandum, the State recognizes only one BMP option allowing for additional impervious surface allocation, specifically:

> Permeable pavement - allows stormwater to infiltrate through void spaces for temporary storage and, ultimately, to be infiltrated into the soil. The total amount of additional impervious surface allotment is based on the soil type.
>
> Viability of permeable pavement is determined on a case by case basis with no guarantee(s).
>
> According to the manual, permeable pavement has the following general advantages and disadvantages:

Advantages:	**Disadvantages**
• Replaces built upon area with materials that allow for infiltration of stormwater. • Eliminates standing water on pavement. • Helps to reduce pollutant runoff concerns from a parcel of property.	• Without proper maintenance it can become clogged by sediment, compromising its effectiveness. • Not applicable for all site conditions. • Higher costs (i.e. installation and perpetual maintenance)

County regulations, as contained in Section(s) 4.2.5 and 4.2.6 of the UDO, prohibit the use of BMPs as satisfying, or allowing for an increase in allowable, impervious surface area.

UPDATE: Staff would like to offer the following:

1. Members of the Planning Department and Erosion Control/Stormwater are scheduled to review various elements of the existing stormwater program and possible use of BMPs to allow for additional impervious surface area with State officials on February 25, 2015.
2. Staff is developing potential amendment(s) to existing regulations requiring developers to address the comprehensive impact of development with respect to impervious surface limits and stormwater management.

Our goal is to offer an option whereby a developer of a subdivision could install the necessary infrastructure to off-set runoff from roadways and/or developed parcels thereby relieving future property owners from accepting responsibility for the installation and maintenance of individual stormwater management controls on a lot by lot basis. This, in turn, may result in additional impervious surface allocations for each proposed lot within a subdivision.

We are also looking to establish a policy to address older subdivisions, developed prior to the adoption of impervious surface limits, where impervious area within roadways are calculated as being within part of individual lots.

3. Staff is looking for direction from the BOCC on the need to establish impervious surface limit(s) on those areas of the County not located within a Watershed Protection Overlay District.

4. In addressing inquiries made by Dr. Janel Sexton at the December 9, 2014 BOCC meeting, the County could:

   a. Amend existing impervious surface limits within the various Watershed Protection Overlay Districts to be consistent with current State allowances as detailed in Attachment 1.

      This would result in a net increase for some residents in the total cumulative amount of permitted impervious surface area allowed on their property.

      STAFF COMMENT: It would be incumbent on local property owners to work with staff to record new plats and declarations of development restrictions to reflect this increase in allowable impervious surface area.

      The property owner would absorb any expense in the creation of these document(s).

      There will be a finite number of property owners who will be able to take advantage of this provision.

   b. Amend the UDO to allow for the placement of additional impervious surface area on property with the installation/use of a BMP consistent with State regulations. In staff's opinion this amendment would include, at a minimum, the following elements:

      i. Consistent with State policy, requiring a property owner to hire an engineer to complete a stormwater assessment of the current property identifying its infiltration rates and carrying capacity. This would include the completion of a comprehensive soil assessment for the property.

         STAFF COMMENT: State officials have previously indicated soils in our area do not universally lend themselves to being viable candidates for the installation of a BMP and receiving additional impervious surface allotments. Lots have to be reviewed on a case-by-case basis.

Even if we implement the program described herein, opportunities for local property owners to participate in such a program may be limited.

ii. Have an engineer develop a BMP to 'treat' runoff thereby allowing for additional impervious surface.

STAFF COMMENT: We would recommend the establishment of a cap on the total amount of additional impervious surface allowed per Watershed Protection Overlay District through this method.

For example, we may allow for an additional 50% of impervious surface area in the University Lake Protected/Critical Watershed Protection Overlay Districts beyond the established 6% threshold (i.e. maximum of 9%).

This translates to a 2 acre parcel of property, normally allowed 5,227 sq. ft. of impervious surface area (43,560 x 2 x 0.06) to have 7,840 sq. ft. (43,560 x 2 x 0.09).

iii. Establish a maintenance/inspection/certification policy where the property owner will have to ensure the perpetual viability of the approved BMP. We would also require documents to be recorded within the Orange County Registrar of Deeds office detailing same.

STAFF COMMENT: This has the potential to be costly. The property owner will be required to absorb the cost of:

1. Maintaining the installed BMP,
2. The cost of an engineer's annual/bi-annual inspection certifying the BMP is working properly, and
3. The annual/bi-annual inspection by the County as required within the UDO.

iv. Review the need for the posting of a bond or a letter of credit allowing for the removal of the system, and excess impervious surface area, if the property owner fails to properly maintain the system.

v. Require the property owner to record documents detailing new impervious surface limits in the Orange County Registrar of Deeds office (i.e. new subdivision plat(s), impervious surface declaration, stormwater operational/maintenance agreement, etc.).

STAFF COMMENT: There are subdivisions in the County with locally established impervious surface limits enforced by a homeowners association.

Unless these limits are also modified the property owner will be unable to take advantage of any County approved increase.

ATTACHMENT 1 – COUNTY AND STATE IMPERVIOUS SURFACE LIMITS:

Watershed Overlay District	Impervious Surface Limits – Residential	Impervious Surface Limits – Non-residential	State Allowances
University Lake – Protected (STATE Classified WS-II Watershed Area)	6% Lots existing prior to April 2, 1990 subject to sliding scale – See Section 4.2.5.2 of UDO Density in this area is limited to 1 dwelling unit for every 5 acres of property. Certain parcels in existence prior to October 2, 1989 qualify for a density bonus of a maximum of 5 dwelling units for every 2 acres of property with any future development being held to the 1 unit for 5 acre density limit.	6% Lots existing prior to April 2, 1990 subject to sliding scale – See Section 4.2.5.2 of UDO Density in this area is limited to 1 dwelling unit for every 5 acres of property. Certain parcels in existence prior to October 2, 1989 qualify for a density bonus of a maximum of 5 dwelling units for every 2 acres of property with any future development being held to the 1 unit for 5 acre density limit.	Low Density Option: • 6% limit with minimum lot size of 1 acre OR • 12% limit with minimum lot size of 2 acres. [1] High Density Option: [2] If new development exceeds low density option, engineered stormwater controls required with development limited to either 24% to 30% impervious surface area [3] A maximum of 10% of the watershed outside of a Critical Area can be developed up to 70% impervious with a structural BMP.
University Lake – Critical (STATE Classified WS-II Watershed Area)	6% Lots existing prior to April 2, 1990 subject to sliding scale – See Section 4.2.5.2 of UDO Density in this area is limited to 1 dwelling unit for every 5 acres of property. Certain parcels in existence prior to October 2, 1989 qualify for a density bonus of a maximum of 5 dwelling units for every 2 acres of property with any future development being held to the 1 unit for 5 acre density limit.	6% Lots existing prior to April 2, 1990 subject to sliding scale – See Section 4.2.5.2 of UDO Density in this area is limited to 1 dwelling unit for every 5 acres of property. Certain parcels in existence prior to October 12, 1989 qualify for a density bonus of a maximum of 5 dwelling units for every 2 acres of property with any future development being held to the 1 unit for 5 acre density limit.	SAME AS ABOVE

[1] Property within the University Lake Protected and Critical Watershed Protection Overlay Districts is also located within the Rural Buffer (RB) general use zoning district. In developing the RB zoning district, which was done prior to the development and adoption of Watershed Overlay standards, the County chose to require a 2 acre minimum lot size. We then chose to impose the more restrictive impervious surface limit in an effort to ensure the protection of the Chapel Hill/Carrboro water source.

[2] There was a conscious decision made as reflected in the Joint Planning Land Use Plan, Joint Planning Land Use Plan Agreement, and adopted 2030 Comprehensive Plan to keep the area within the RB zoning district at a low density. Changing this policy will require the amendment of the aforementioned document(s). Non-residential development(s) are held to the 6% impervious surface limit.

[3] Critical areas, under high density, are limited to 24% while protected areas are limited to 30% impervious surface.

Watershed Overlay District	Impervious Surface Limits – Residential	Impervious Surface Limits – Non-residential	State Allowances
Cane Creek – Protected (STATE Classified WS-II Watershed Area)	6%[4] Lots existing prior to January 1, 1994 subject to sliding scale – See Section 4.2.5.2 of UDO Density in this area is limited to 1 dwelling unit for every 5 acres of property. Certain parcels in existence prior to October 19, 1999 qualify for a density bonus of a maximum of 5 dwelling units for every 2 acres of property with any future development being held to the 1 unit for 5 acre density limit.	12% Lots existing prior to January 1, 1994 sliding scale – See Section 4.2.5.2 of UDO 5 acre minimum lot size 50% impervious surface limit for all fire stations and solid waste collection centers (with stormwater feature)	Low Density Option: • 6% limit with minimum lot size of 1 acre OR • 12% limit with minimum lot size of 2 acres High Density Option: If new development exceeds low density option, engineered stormwater controls required with development limited to either 24% to 30% impervious surface area A maximum of 10% of the watershed outside of a Critical Area can be developed up to 70% impervious with a structural BMP.
Cane Creek – Critical (STATE Classified WS-II Watershed Area)	6% Lots existing prior to April 2, 1990 subject to sliding scale – See Section 4.2.5.2 of UDO Density in this area is limited to 1 dwelling unit for every 5 acres of property. Certain parcels in existence prior to October 19, 1999 qualify for a density bonus of a maximum of 5 dwelling units for every 2 acres of property with any future development being held to the 1 unit for 5 acre density limit.	6%[5] 5 acre minimum lot size Lots existing prior to April 2, 1990 subject to sliding scale – See Section 4.2.5.2 of UDO	SAME AS ABOVE

[4] The Cane Creek Protected Watershed Protection Overlay District originally had a 12% impervious surface limit for residential developments. It appears to have been changed to be consistent with State standards.

[5] There is no High Density Option currently available in the Cane Creek Critical Watershed Protection Overlay District.

Watershed Overlay District	Impervious Surface Limits – Residential	Impervious Surface Limits – Non-residential	State Allowances 8
Upper Eno – Protected [6], [7] (STATE Classified WS-II Watershed Area)	12% for properties outside of Transition Areas 30% for properties located within Transition Areas where density exceeds 1 dwelling unit per acre 70% for residential land uses developed at 'high densities' (R-5, R-8, R-13). A BMP shall be required in this scenario Density in this area is based on underlying general use zoning designation	70 % in Economic Development, Commercial, and Commercial Industrial Transition Activity Nodes with development of a BMP. 50% for all fire stations/solid waste collection centers outside of these Activity Nodes with development of a BMP 12% for all other non-residential development outside of Activity Nodes.	Low Density Option: • 6% limit with minimum lot size of 1 acre OR • 12% limit with minimum lot size of 2 acres High Density Option: If new development exceeds low density option, engineered stormwater controls required with development limited to either 24% to 30% impervious surface area A maximum of 10% of the watershed outside of a Critical Area can be developed up to 70% impervious with a structural BMP.
Upper Eno – Critical [8] (STATE Classified WS-II Watershed Area)	6% Density in this area is limited to 1 dwelling unit for every 2 acres of property. Lots smaller than 5 acres existing prior to 6/1/2010 subject to sliding scale – See Section 4.2.5.2 of UDO	6% limit 2 acre minimum lot size	SAME AS ABOVE
Little River – Protected (STATE Classified WS-II Watershed Area)	6% Lots existing prior to January 1, 1994 subject to sliding scale – See Section 4.2.5.2 of UDO Density in this area is limited to 1 dwelling unit for every 2 acres of property.	2 acre minimum lot size 50% for all fire stations/solid waste collection centers outside of these Activity Nodes with development of a BMP 12% for all other non-residential development.	SAME AS ABOVE

[6] Per Section 4.2.4 and 4.2.5 of the UDO a structural BMP is required in some cases where density exceeds 1 dwelling unit per acre.

[7] The County chose to institute the High Density Option within the Upper Eno Protected Watershed Protection Overlay District.

[8] The County's Upper Eno Critical Watershed Overlay District is larger than the State recognized critical area.

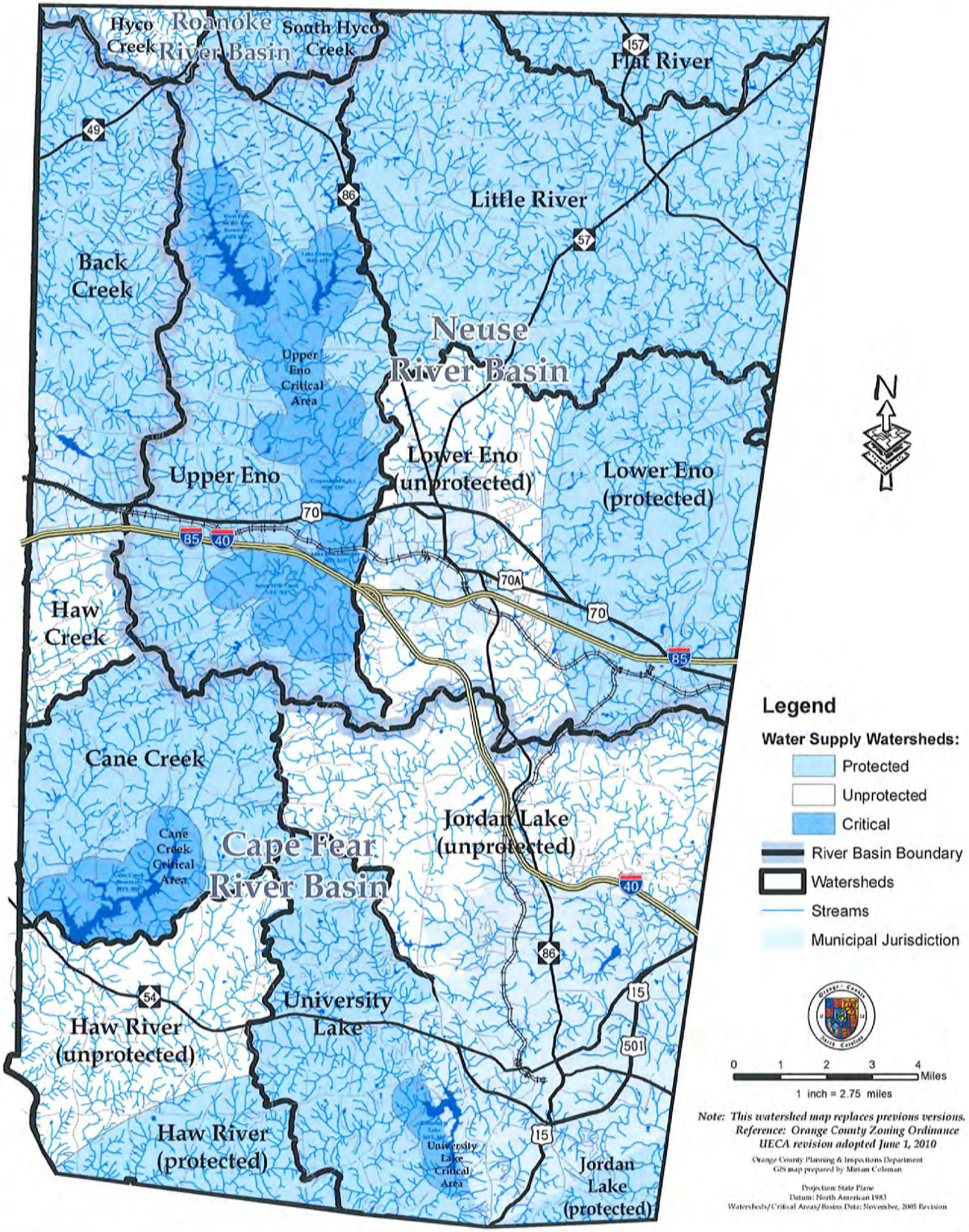
Watershed Overlay District	Impervious Surface Limits – Residential	Impervious Surface Limits – Non-residential	State Allowances 9
Back Creek – Protected (STATE Classified WS-II Watershed Area)	12% for properties outside of Transition Areas 30% for properties located within Transition Areas where density exceeds 1 dwelling unit per acre 70% for residential land uses developed at 'high densities' (R-5, R-8, R-13). A BMP shall be required in this scenario Density in this area is based on underlying general use zoning designation	70 % in Economic Development, Commercial, and Commercial Industrial Transition Activity Nodes with development of a BMP. 50% for all fire stations/solid waste collection centers outside of these Activity Nodes with development of a BMP 12% for all other non-residential development outside of Activity Nodes.	Low Density Option: • 6% limit with minimum lot size of 1 acre OR • 12% limit with minimum lot size of 2 acres High Density Option: If new development exceeds low density option, engineered stormwater controls required with development limited to either 24% to 30% impervious surface area A maximum of 10% of the watershed outside of a Critical Area can be developed up to 70% impervious with a structural BMP.

Watershed Overlay District	Impervious Surface Limits – Residential	Impervious Surface Limits – Non-residential	State Allowances 10
Flat River – Protected (STATE Classified WS-III Watershed Area)	12% Density in this area is limited to 1 dwelling unit for every 40,000 sq. ft. (0.92 acres) of property.	50% for all fire stations/solid waste collection centers 12% for all other non-residential development.	Low Density Option: • Density limit of 2 dwelling units per acre **or** 20,000 square foot minimum lot excluding roadway right-of-way OR • 24% impervious surface limit for residential/non-residential developments High Density Option: If new development exceeds low density option, engineered stormwater controls required with development limited to 50% impervious surface area
South Hyco Creek – Protected (STATE Classified WS-III Watershed Area)	12% Density in this area is limited to 1 dwelling unit for every 40,000 sq. ft. (0.92 acres) of property.	50% for all fire stations/solid waste collection centers 12% for all other non-residential development.	SAME AS ABOVE

Watershed Overlay District	Impervious Surface Limits – Residential	Impervious Surface Limits – Non-residential	State Allowances 11
Lower Eno – Protected (STATE Classified WS-IV Watershed Area)	24% for project with curb and gutter 36% for project without curb and gutter 70% for residential land uses developed at 'high densities' (R-5, R-8, R-13). A BMP shall be required in this scenario Density in this area is based on underlying general use zoning designation	70%, with a BMP required when an impervious surface exceeds: 24% for project with curb and gutter OR 36% for project without curb and gutter	Low Density Option: • Density limit of 2 dwelling units per acre **or** 20,000 square foot minimum lot excluding roadway right-of-way OR • 24% impervious surface limit for residential/non-residential development OR • 3 dwelling units per acre OR • 36% impervious surface limit for residential/non-residential development without curb and gutter street systems High Density Option: If new development exceeds low density option, engineered stormwater controls required with development limited to 70% impervious surface area.
Jordan Lake – Protected (STATE Classified WS-IV Watershed Area)	24% Density in this area is based on underlying general use zoning designation	24%	SAME AS ABOVE
Haw River – Protected (STATE Classified WS-IV Watershed Area)	24% Density in this area is based on underlying general use zoning designation	24%	SAME AS ABOVE

Attachment 2

Orange County Watersheds



Note: This watershed map replaces previous versions.
Reference: Orange County Zoning Ordinance
UECA revision adopted June 1, 2010

Orange County Planning & Inspections Department
GIS map prepared by Miriam Coleman

Projection: State Plane
Datum: North American 1983
Watersheds/Critical Areas/Basins Data: November, 2005 Revision

2/4/2015

ORANGE WATER AND SEWER AUTHORITY

A public, non-profit agency providing water, sewer and reclaimed water services to the Carrboro-Chapel Hill community.

May 6, 2015

Chair Earl McKee
Board of County Commissioners
County of Orange
Post Office Box 8181
Hillsborough, NC 27278

SUBJECT: OWASA Comments on Orange County's Draft Changes to the Unified Development Ordinance Regarding Impervious Surface Limits in Water Supply Watersheds

Dear Chair McKee:

Michael Harvey presented Orange County's draft changes to its unified development ordinance (UDO) to modify the impervious surface thresholds in water supply watersheds at the April 23, 2015 OWASA Board of Directors meeting. Thank you for the opportunity to comment on this consideration to amend the UDO. OWASA and its customers have long benefitted from the progressive watershed protection requirements implemented by Orange County and Carrboro in the University Lake and Cane Creek Reservoir watersheds. Those efforts have been guided by the technical evaluations and recommendations from local watershed management studies funded by OWASA. Orange County has planning and zoning control over about 90% of the University Lake and Cane Creek watersheds; therefore, the County's requirements will be a primary factor affecting the long-term quality of our community's existing drinking water supplies.

We commend the County's protection standards for our two watersheds as set forth in the County's UDO, as we recognize those include some of the most restrictive development densities, riparian buffer requirements, and impervious surface limits in the State. They far exceed the State's minimum statewide watershed protection requirements established under North Carolina General Statute 143-214.5 and the North Carolina Department of Environment and Natural Resources' (DENR) regulations at 15A NCAC 02B .0214.

It is our understanding that the County's UDO allows landowners to exceed their impervious surface requirements through a variance process or by transferring allowable impervious surface requirements from a neighboring property through the establishment of a conservation easement. The County is proposing to add a third option to modify the impervious surface limits in response to citizen requests to allow modest increases in the allowable limits.

As we understand it, this third potential process – if approved – would generally increase the allowable impervious surface limit for the University Lake and Cane Creek Reservoir watersheds from the current 6% limit to as much as 9%, provided that the property owner:

a) implement an infiltration best management practice (BMP) approved by DENR;
b) hire an engineer to evaluate the infiltration capacity of the soil and design the BMP in accordance with the State's stormwater manual;
c) complete a stormwater operation and maintenance agreement and have the document recorded with the Register of Deeds; and
d) assume all financial and legal responsibility for the BMP.

The County staff's draft amendments also include an increase in the allowable impervious surface limit for non-residential development within the Protected Watershed area in the University Lake watershed, which would make such requirements uniform for both the Cane Creek Reservoir and University Lake watersheds.

COMMENTS ON THE PROPOSED MODIFICATIONS TO THE UDO

1. OWASA does not believe the County's consideration to amend the UDO as currently drafted will result in "backsliding" from current water supply protection efforts. We believe the draft changes are consistent with early recommendations from watershed management studies for the University Lake and Cane Creek Reservoir watersheds, and meet the Cane Creek Watershed Management Study's two highest goals which are protecting public health, and minimizing impacts on County residents who are not OWASA customers. This conclusion is predicated on the assumption that development densities and riparian buffer requirements are not relaxed. The draft amendments would limit impervious surface at thresholds higher than currently allowed only with an infiltration BMP that would mimic the existing hydrology of the land. This combination of strategies could be as protective of water quality in the water supply reservoirs as current requirements assuming the BMP is properly designed, constructed, and maintained. Since the draft ordinance revision requires an engineer to design the BMP, it is likely that the associated BMP would be designed properly.

2. While the draft UDO requires the landowner to develop a maintenance agreement and record it with the Register of Deeds, it is critical to ensure that the required annual inspections occur. We strongly recommend that Orange County implement an ongoing program and provide the funding and staff resources necessary to ensure that the mandatory inspections and maintenance of such BMPs will occur. The program should include a process that would occur if a BMP no longer functioned properly and the owner decided not to repair or replace the BMP. We also recommend that the County evaluate staffing and funding periodically to possibly include a landowner-funded inspection program; more landowners may enroll in the program over time, and more BMPs may require repairs or replacement.

3. We recommend that 4.2.8(C)(3) clarify that a licensed engineer be required to design the BMP. This would help ensure that a professional engineer with expertise in stormwater management would design the BMP and sign and seal the design.

4. We commend Orange County for including both a protective density requirement and stringent impervious surface requirement, and believe both should remain. The density/minimum lot size provisions are the foundation of our successful local water supply protection program.

5. We agree that if the County moves forward with this proposal, it should credit only infiltration BMPs, as proposed, that mimic the existing hydrology of the site.

6. We strongly support Orange County's approach that allows only low-density development options in our water supply watersheds. We believe this helps protect water quality as well as maintain the rural character of the County. We oppose the high-density options allowed by state regulations, other than those currently allowed for fire stations and the solid waste collection center.

7. We support the proposal to make the University Lake impervious surface limitation for non-residential development consistent with that for the Cane Creek Reservoir watershed.

Again, we appreciate the opportunity to comment on the proposed UDO changes as well as the County's ongoing efforts to protect our drinking water supplies. Please let me know if OWASA can provide additional information. If you have any questions about our comments, please contact Ruth Rouse, OWASA's Planning and Development Manager, at 919-537-4214 or at rrouse@owasa.org.

Sincerely,

John A. Young, Chair
OWASA Board of Directors

c: Ms. Bonnie Hammersley, Orange County Manager
Mr. Craig Benedict, Orange County Planning Director
Mr. Michael Harvey, Orange County Current Planning Supervisor
Ms. Lydia Lavelle, Mayor, Town of Carrboro
Mr. David Andrews, Manager, Town of Carrboro
Mr. Mark Kleinschmidt, Mayor, Town of Chapel Hill
Mr. Roger Stancil, Manager, Town of Chapel Hill
Mr. Tom Stevens, Mayor, Town of Hillsborough
Mr. Eric Peterson, Manager, Town of Hillsborough
OWASA Board of Directors
Ed Kerwin, OWASA Executive Director
Robert Epting, OWASA General Counsel

ORANGE COUNTY
DEPARTMENT OF ENVIRONMENT, AGRICULTURE, PARKS AND RECREATION

MEMORANDUM

To: Commission for the Environment
From: Rich Shaw
Date: May 6, 2015
Subject: Proposed Changes to Orange County Rules that Limit Impervious Surfaces

---

At your April 13 meeting the CFE received a presentation on proposed changes to the County's rules that limit construction of impervious surfaces on properties in water supply watersheds. CFE asked many questions as part of its discussion with the Planning staff (Michael Harvey and Craig Benedict). The CFE decided to reconsider the matter in May and decide whether to formulate comments for the Planning Board and BOCC consideration.

On April 23, 2015 the OWASA Board of Directors received a similar presentation from the Orange County Planning staff. According to the OWASA's meeting summary, OWASA's comments on the proposed changes will be submitted by letter to the County, and they will include the need for the County to have adequate technical resources and enforcement.

****

The following is a summary of the discussion at the CFE April 13 meeting:

Michael Harvey (Current Planning Supervisor, Orange Co. Planning & Inspections Dept.) provided an overview of proposed amendments to Orange County's rules that limit the amount of impervious surfaces for new development. Harvey said staff was directed to initiate a process to amend the ordinance to include additional opportunities for residents to modify established impervious surface limits.

Harvey said under the current rules there are two processes for allowing changes to impervious surface thresholds: 1) approval of a variance request (*only one approved in the past 10 years*), or 2) transferring the allowable impervious surface area from an adjacent property by way of a conservation easement.

Harvey said under certain circumstances the State of North Carolina allows a larger area of impervious surfaces on a property through the installation and continued maintenance of on-site stormwater retention measures, such as permeable pavement. Such a device would be designed to capture runoff and allow it to infiltrate the soil. Harvey said permeable pavement is not counted as totally impervious, which translates to an allowance for installing additional "impervious surface area."

Harvey said the board of county commissioners has directed Planning staff to evaluate how the County might incorporate language similar to what the State uses for the treatment of permeable pavement in its impervious surface calculations. He said the County considers gravel, asphalt, and concrete, along with more impenetrable building surfaces (roofs, etc.), within its current definition of impervious surfaces.

Harvey said the proposed amendment to County rules would allow permeable concrete and some other permeable surfaces to be counted as 50 percent toward the impervious surface area. The County would require an engineer to certify there would be no net increase in the stormwater runoff leaving the property. The County would also require an operations agreement be signed and recorded at the Orange County Registry. The County would also require there be annual inspections and reporting of maintenance. Finally, Harvey said the County would obtain a permanent access easement to the property in order for staff to monitor and enforce the UDO standards.

Harvey said it is his impression that a property with 8% impervious cover that includes certain best management practices would result in less stormwater runoff than a property with 6% impervious cover.

Craig Benedict (Orange County Planning Director) noted that the current watershed overlay districts were established in 1994 and in many areas of the county the standards are more stringent that the State guidelines for watershed protection areas. He agreed with Harvey that the intent of the rule change was for there to be no net increase in stormwater runoff from any permitted site.

Harvey and Benedict responded to questions from CFE members:

- Hintz noted that such devices always fail at some point. Harvey said the County would require a binding operations and maintenance agreement, and possibly also a letter of credit with no expiration date.
- Davis asked what would happen if a device failed after 10 years. Harvey said the County would issue a notice of violation. If the landowner did not take corrective action the County would remediate the site at the owners' expense.
- Welch asked what difference do 6% and 12% impervious limits have on water quality. Harvey said he feels the proposed allowance of increased impervious surfaces in the form of permeable concrete would not harm water quality. Benedict added that Orange County is the most restrictive in the state in terms of watershed protection.
- Becker asked what's motivating the County to change the rules. Benedict said many residents had complained that the rules are too stringent in some watersheds, notably the University Lake, Little River, and Cane Creek districts. He explained how quickly 6% of a property could be covered with impervious surfaces—especially if roads and driveways are included. Benedict said he did not expect a lot of extra staff time would be required to implement the proposed rule change.
- Neal asked if the rule applies to commercial developments, such as shopping centers. Harvey said such developments are allowed up to 70% impervious surfaces as long as there are stormwater BMPs installed to hold the runoff.

Benedict noted that his staff is also considering developing some variation of a transfer of development rights program—or in this case a transfer of impervious surfaces.

- Sassaman said he is aware of a product ("Ecoraster") used for construction of roads and driveways that requires little maintenance over 20 years. He showed a small prototype model of the product. Harvey said he is familiar with "GeoWeb" and other products that could be used if they were certified by an engineer.
- Gronback asked what incentive would landowners and developers have to use pervious concrete or similar products. Harvey said they would be permitted to develop more parts of their property than would otherwise be allowed. He said this rule change would provide landowners with more options. Harvey said the intent is not to provide incentives to do the right thing for protecting water quality.

Harvey said the Planning staff would be making similar presentations to OWASA and the towns of Carrboro and Chapel Hill. They plan to take the draft rule change to the May 26 quarterly public hearing, then back to the Planning Board in June or July, and finally back to the board of county commissioners for consideration and potential approval.

Harvey said he and the Planning staff would welcome comments from the CFE. Sassaman asked staff to prepare a summary of this presentation and discussion for CFE consideration and development of potential comments at the May meeting.

The CFE thanked Harvey and Benedict for their presentation.

TOWN OF CARRBORO
NORTH CAROLINA
WWW.TOWNOFCARRBORO.ORG

PLANNING DEPARTMENT **TRANSMITTAL**

TO: Michael D. Harvey, Orange County Current Planning Supervisor – Planner III

FROM: Patricia J. McGuire, Planning Director

DATE: May 1, 2015

DELIVERED VIA EMAIL

SUBJECT: Request for Peer Review – Proposed Orange County Unified Development Ordinance (UDO) Text Amendment on allowable modifications to impervious surface limits

---

Thank you for the opportunity to review the proposed amendments to the UDO relating to impervious surface limits. Town staff has read through proposed changes and offer the following comments.

1) Overall, the proposal to allow permeable pavement seems to offer county residents a reasonable way to gain some additional impervious surface for low density uses.

2) Since permeable pavement is a stormwater best management practice (BMP), design and installation by a licensed engineer seems critical. Strengthening the language under subsection 4.2.8(C)(3) to specify a licensed engineer for these activities, and requiring either a licensed engineer or a certified BMP inspector for the completion of annual inspections and the supervision of required maintenance activities, such as vacuuming, would seem a good way to reinforce this point.

3) Some mechanism to ensure that future homeowners are well aware of these BMPs and their annual maintenance requirement is important. The proposal to place these areas under the umbrella of easements seems to be one way to accomplish this task, but there may be other methods, such as a notation within tax records, where real estate agents and future home buyers would be able to learn about the presence and location of these devices, and be alerted to the maintenance responsibilities, prior to purchase.

4) The maintenance aspect is an important one, critical to the correct performance of permeable pavement and essential to allowing this measure within water supply watersheds. Does the county have sufficient staff and funding to review annual reports submitted by a homeowner/engineering team and regularly inspect projects installed under the new provisions? Maintenance based on complaint-driven enforcement after a failure may be problematic.

5) Finally, should the Board of County Commissioner decide to adopt this amendment, it will be interesting to learn how many residents choose to use this stormwater management device, once they understand the complexities and expense of proper installation and the associated challenges with annual maintenance considering leaf debris and potential soil erosion, particularly for long driveways in large lot rural settings. Town staff looks forward to learning more about the County's experience with this effort over the long term.

XC: Henry Wells, Town Engineer
Christina Moon, Planning Administrator

Michael Harvey

From: James Bryan
Sent: Wednesday, April 15, 2015 3:09 PM
To: Michael Harvey
Cc: Anne Marie Tosco
Subject: RE: Internal Peer Review - Proposed IMpervious surface amendments

We can talk tomorrow after our meeting, but below are our initial comments on the amendment.

Clarify language in Table 4.2.5.1 Footnote 2 and Table 4.2.6 Footnote 2.
The footnote reads that a BMP shall be required. I think it may be intended that requirement is that the BMP complies with state and local standards. But if not, then it should be clarified as to when or why the BMP is required.

Question on scope.
The amendment outline says this is to incorporate the use of permeable pavement as a means of modifying the allowable impervious surface. Footnote 5 regarding table 4.2.6 states that staff would like to discuss modifying the provisions. I'm uncertain on the impact of these changes and their implications.

Redundancy in Table 4.2.5.1 re: state standards.
Several districts have a statement added that requires 2-acre parcel with a notation that this is in order to be consistent with current State allowances. Footnote 2 requires the BMP to be in accordance with State standards. Recommend keeping only the footnote (by keeping the reference it automatically updates if the State changes their standards, whereas the other would need to be amended).

4.2.8(C)(1)
Remove second sentence. This explains, but does not regulate.

4.2.8(C)(5)
What are the departments reviewing for? Additional review creates delays and openings for liability if there aren't standards to go by. If the agreement is in accordance with state regs, then there shouldn't be review necessary beyond that.

From: Michael Harvey
Sent: Friday, March 27, 2015 9:00 AM
To: Craig Benedict; Tom Altieri; Perdita Holtz; Ashley E. Moncado; Howard W. Fleming; Wesley Poole; Steve J Kaltenbach; Patrick R. Mallett; Sam M. Schultz; John Roberts; James Bryan; Anne Marie Tosco
Subject: Internal Peer Review - Proposed IMpervious surface amendments

The Planning Department has completed an initial draft of a UDO text amendment related to allowing for additional opportunities for property owners to modify impervious surface area. The BOCC authorized staff to initiate this process at their March 17, 2015 regular meeting. I am attaching the approved Amendment Outline form for additional context.

Put simply the amendment would allow property owners to increase impervious surface area beyond established limits if they install a stormwater feature, recognized by the State, promoting the capture/infiltration of runoff from the property.

Staff is slated to present the item at the May 26, 2014 Quarterly Public Hearing.

We are asking for your comments on the proposed amendment(s) to be submitted by 5:00 p.m. April 17, 2015.

Michael Harvey

From: Howard W. Fleming
Sent: Monday, April 13, 2015 1:28 PM
To: Michael Harvey
Cc: Craig Benedict; Tom Altieri; Perdita Holtz; Ashley E. Moncado; Wesley Poole; Steve J Kaltenbach; Patrick R. Mallett; Sam M. Schultz; John Roberts; James Bryan; Anne Marie Tosco
Subject: RE: Internal Peer Review - Proposed Impervious surface amendments
Attachments: HWF-Edit_Pgs197-203-ImperviousSurfaceAmendments041315.pdf

Please see my comments appended to your draft text amendments, as requested.

I was uncertain as to whether your intent was to force the use of a registered PE; therefore, I used the term "qualified" engineer in my comment, as UDO Article 10, Definitions, does not contain a definition for "engineer" as being a "registered professional engineer". PE's are barred from signing and sealing work for which they are not qualified. My preference is that we add such a definition for "engineer" to Article 10 and then specify elsewhere, when such a level of competence is not required, by stating "...or other qualified professional".

Sincerely,
Howard W. Fleming, Jr., PE
Engineering/Stormwater (Division) Supervisor
Orange County Planning and Inspections Department
131 W. Margaret Lane (P.O. Box 8181)
Hillsborough, NC 27278
(919) 245-2586 (W)
(919) 357-7748 (M)
hfleming@orangecountync.gov

NOTE: Pursuant to North Carolina General Statute 132, correspondence sent and received from this account is a public record and may be disclosed to third parties.

From: Michael Harvey
Sent: Friday, March 27, 2015 9:00 AM
To: Craig Benedict; Tom Altieri; Perdita Holtz; Ashley E. Moncado; Howard W. Fleming; Wesley Poole; Steve J Kaltenbach; Patrick R. Mallett; Sam M. Schultz; John Roberts; James Bryan; Anne Marie Tosco
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Staff is slated to present the item at the May 26, 2014 Quarterly Public Hearing.

We are asking for your comments on the proposed amendment(s) to be submitted by 5:00 p.m. April 17, 2015.

ATTACHMENT 4

Excerpt of draft April 1, 2015 ORC meeting notes

DRAFT - SUMMARY NOTES
ORANGE COUNTY PLANNING BOARD
APRIL 1, 2015
ORDINANCE REVIEW COMMITTEE

NOTE: A quorum is not required for Ordinance Review Committee meetings.

MEMBERS PRESENT: Peter Hallenbeck (Chair), Cheeks Township Representative; Lisa Stuckey (Vice-Chair), Chapel Hill Township Representative; Tony Blake, Bingham Township Representative; Paul Guthrie, At-Large Chapel Hill Township; Buddy Hartley, Little River Township Representative; Bryant Warren, Hillsborough Township Representative

STAFF PRESENT: Perdita Holtz, Special Projects Coordinator; Michael Harvey, Current Planning Supervisor; Ashley Moncado, Special Projects Planner

AGENDA ITEM 2: UNIFIED DEVELOPMENT ORDINANCE (UDO) TEXT AMENDMENTS – IMPERVIOUS SURFACE

To review and comment upon proposed revisions to the UDO to modify the existing regulations pertaining to impervious surface

Presenter: Michael Harvey, Current Planning Supervisor

Michael Harvey: Reviewed text amendment.

Tony Blake: Are they aware they have to record an easement?

Michael Harvey: That is covered in the BMP Manual.

Tony Blake: You might want to mention that.

Michael Harvey: I will talk to Wesley Poole to see if I can figure out a way to address that. Yes it is covered, but a reference would be reasonable.

Lisa Stuckey: I always thought BMPs were those ponds? Referenced page 25 regarding permeable pavement. Is that a state BMP?

Michael Harvey: Out of fifty BMPs, only one gets credit for additional built upon area (i.e. additional impervious) and that is permeable pavement. A permeable surface has to be maintained. There is a heightened level of expense associated with the project. Keep in mind we may be looking at allowing additional stormwater features where you can get an impervious surface increase if that features is based on an infiltration model. What I mean is that stormwater is captured and allowed to infiltrate naturally rather than runoff into a ditch to be conveyed off-site. We still do not know how the State will look at this so we are proceeding cautiously.

Paul Guthrie: What is an impervious surface?

Michael Harvey: By current county definition, gravel qualifies, asphalt, concrete, structure, house roof, etc. The state is looking at modifying its definition of built upon area.

Lisa Stuckey: Is this something the BOCC initiated?

Michael Harvey: They approved our outline form.

(e) The amount of encroachment into the stream or reservoir buffer is the minimum amount which can be obtained while meeting the criteria in (a) through (d).

4.2.3 Land Use Restrictions

All uses and activities allowed in the underlying zoning district are permitted with the following exceptions:

TABLE 4.2.3 LAND USE RESTRICTIONS

DISTRICT	RESTRICTIONS
UNIV-CA UNIV-PW CANE-CA U-ENO-CA	No new landfills are permitted. No commercial or industrial uses are permitted except for commercial development, in accordance with the provisions of the Ordinance, located within established Nodes as detailed within the Orange County Comprehensive Plan. No new golf courses are permitted
UNIV-CA CANE-CA U-ENO-CA	No residual (sludge/biosolids) application is permitted.
CANE-PW U-ENO-PW HYCO-PW LITTLE-PW BACK-PW FLAT-PW HAW-PW L-ENO-PW JORDAN-PW	No discharging landfills are permitted. Industrial use is limited to nonhazardous light industrial uses characterized by low water use (less than 10,000 gpd, excluding domestic water (25 gpd per employee) and water used for heating and air conditioning).

4.2.4 Residential Density

Maximum residential density shall be as indicated in the Table in this subsection, or as required by the underlying zoning district, whichever is less.

TABLE 4.2.4 RESIDENTIAL DENSITY

DISTRICT	MAXIMUM DENSITY
UNIV-CA UNIV-PW	1 du/five acres. Lots of record existing on October 2, 1989 may contain up to, but no more than, five lots with a density of one du/two acres. Contiguous lots of record existing on October 2, 1989 may be combined into one parcel for development. The number of two-acre lots and the total number of lots in the combined parcel cannot exceed the sum of the number of lots which could be created from each lot of record.
CANE-CA CANE-PW	1 du/ five acres Lots of record existing on October 19, 1999 may contain up to, but no more than, five lots as small as two acres in size. Contiguous lots of record existing on October 19, 1999 may be combined into one parcel for development. The number of two-acre lots and the total number of lots in the combined parcel cannot exceed the sum of the number of lots which could be created from each lot of record.
U-ENO-CA LITTLE-PW	1 du / 2 acres
HYCO-PW FLAT-PW	1 du/ 40,000 square feet (.92 acre)
U-ENO-PW L-ENO-PW HAW-PW JORDAN-PW BACK-PW	Maximum density is as permitted in the underlying zoning district. Structural BMPs are required in some cases where density exceeds 1 dwelling unit per acre. Refer to Section 4.2.5.

4.2.5 Impervious Surface and Detention Pond Requirements for Residential Uses

TABLE 4.2.5.1: IMPERVIOUS SURFACE/DETENTION POND REQUIREMENTS (RESIDENTIAL)	
DISTRICT	**IMPERVIOUS SURFACE/DETENTION POND REQUIREMENTS (RESIDENTIAL)**
UNIV-CA UNIV-PW	6% impervious surface limit. EXCEPT for all lots which existed prior to 4/2/90, which are subject to impervious surface limits as provided in the following Table (entitled Sliding Scale for Residential Impervious Surface Ratios – Univ, Cane, and Little). [1], -[2] ~~BMPs cannot be used to satisfy watershed impervious surface requirements.~~ [1] Parcels shall be a minimum of 2 acres in area, exclusive of any right-of-way or access easement, to qualify for additional impervious surface allocation as detailed in Section 4.2.8 (C).
CANE-CA CANE-PW	6% impervious surface limit. EXCEPT for lots smaller than two acres which existed prior to 1/1/94, which are subject to impervious surface limits as provided in the following Table (entitled Sliding Scale for Residential Impervious Surface Ratios – Univ, Cane, and Little). [1], [2] ~~* BMPs cannot be used to satisfy watershed impervious surface requirements.~~ Parcels shall be a minimum of 2 acres in area, exclusive of any right-of-way or access easement, to qualify for additional impervious surface allocation as detailed in Section 4.2.8 (C).
U-ENO-CA	6% impervious surface limit. EXCEPT for lots smaller than five acres which existed prior to 6/1/2010, which are subject to impervious surface limits as provided in the following Table (entitled Sliding Scale for Residential Impervious Surface Ratios – Upper Eno). [1], [2] ~~* BMPs cannot be used to satisfy watershed impervious surface requirements.~~
LITTLE-PW	6% impervious surface limit. EXCEPT for lots which existed prior to 1/1/94, which are subject to impervious surface limits as provided in the following Table (entitled Sliding Scale for Residential Impervious Surface Ratios - Univ, Cane, and Little). [1], [2] ~~* BMPs cannot be used to satisfy watershed impervious surface requirements.~~ Parcels shall be a minimum of 2 acres in area, exclusive of any right-of-way or access easement, to qualify for additional impervious surface allocation as detailed in Section 4.2.8 (C). [2]
FLAT-PW HYCO-PW	12% impervious surface limit for new and existing lots. [1], [2] ~~* BMPs cannot be used to satisfy watershed impervious surface requirements.~~
U-ENO-PW BACK-PW	12% impervious surface limit for existing and new lots outside of Transition Areas as designated in the Orange County Land Use Plan. [1], [2] ~~[1] BMPs cannot be used to satisfy watershed impervious surface requirements.~~ 30% impervious surface limit for developments which exceed a density 1 du/acre within

[1] Staff is editing existing notes throughout the Section to address existing typographical and reference errors. In the existing text an asterisk ('*') in certain cases was used to denote information while in other cases it was not. There was also a [1] used to identify certain watersheds requiring a BMP in the Neuse River Basin. Unfortunately the watershed overlay districts identified are not in the Neuse River Basin. The proposed amendments address these issues and clarify the essential information.

[2] Staff is suggesting language mandating a 2 acre minimum lot size in order for a parcel within identified watershed overlay districts to request a modification of impervious surface area through the installation of a stormwater feature. The rationale for the suggestion is that State regulations currently allow governing bodies to require either a 1 acre minimum lot size, limited to a 6% impervious surface threshold, or a 2 acre minimum lot size limited to a 12% impervious surface threshold. In these identified watershed overlay districts the County made a conscious decision to follow the more restrictive option. We are recommending the condition to ensure those properties subject to a modification request meet minimum State standards with respect to required lot size. Please refer to Attachment 2 for additional information on State requirements associated with the establishment and enforcement of impervious surface thresholds.

TABLE 4.2.5.1: IMPERVIOUS SURFACE/DETENTION POND REQUIREMENTS (RESIDENTIAL)	
DISTRICT	**IMPERVIOUS SURFACE/DETENTION POND REQUIREMENTS (RESIDENTIAL)**
	Transition Areas as designated in the Orange County Land Use Plan. Structural BMPs are required if impervious surface exceeds 12%. 70% impervious surface limit for residential uses developed at "high intensity" densities (R-5, R-8, and R-13) in an Economic Development District as designated in the Land Use Element of the Comprehensive Plan (high-density option) with structural BMPs if ISR exceeds~~>~~12%.
L-ENO-PW	24% impervious surface limit with curb and gutter. 36% impervious surface limit without curb and gutter. [1], [2] ~~[1] BMPs cannot be used to satisfy watershed impervious surface requirements.~~ 70% impervious surface limit for residential uses developed at "high intensity" densities (R-5, R-8, and R-13) in an Economic Development District as designated in the Land Use Element of the Comprehensive Plan (high-density option), with structural BMPs required when impervious surface exceeds: 24% (w/ curb and gutter); or 36% (w/o curb and gutter).
HAW-PW JORDAN-PW	24% impervious surface limit. [1], [2] [~~1] BMPs cannot be used to satisfy watershed impervious surface requirements.~~
[1] ~~BMP's as mandated by the Stormwater Management Program for Lands within the Neuse River Basin are allowed.~~ Allowable impervious surface area may be modified in accordance with Section 4.2.8 of the UDO. [3] [2] Regardless of the proposed amount of impervious surface area, a stormwater feature/best management practice (BMP) may still be required based on the proposed amount of land disturbance on a given parcel of property in accordance with applicable Orange County Erosion Control and State Stormwater regulations. [4]	

(A) Hillsborough Economic Development District

(1) The Hillsborough Economic Development District is located within the Lower Eno - Unprotected watershed. Within the Hillsborough Economic Development District, as designated in the Land Use Element of the Comprehensive Plan, the maximum impervious surface ratio is 50% with detention ponds.

TABLES 4.2.5.2 & 4.2.5.3: SLIDING SCALE FOR RESIDENTIAL IMPERVIOUS SURFACE RATIOS – UNIV, CANE, LITTLE, AND UPPER ENO						
LOT SIZE (ACRES)	**ISR**	**SQUARE FEET**		**LOT SIZE (ACRES)**	**ISR**	**SQUARE FEET**
Cells in black DO NOT apply to the Upper Eno						
6+	5.0			3.1	9.8	13,234
6.0	5.0	13,068		3.0	10.0	13,068

[3] This references the Section of the UDO where are now recognizing a State provision allowing for the additional allotment of impervious surface area through the use of specific BMPs.

[4] The County enforces land disturbance thresholds for erosion control and stormwater permits, specifically a certain amount of land disturbance will require the submittal of either an erosion control permit and/or a stormwater permit application. While a BMP may be installed on a parcel of property as part of a proposed modification of allowable impervious surface area, the County also enforces standards requiring a BMP on property being developed for residential purposes based on the proposed amount of land disturbance. This requirement has nothing to do with the total amount of impervious surface area proposed or any request to modify same. Land disturbance thresholds vary for each district. We are adding language to the UDO clarifying when a BMP is required based on these existing disturbance thresholds.

TABLES 4.2.5.2 & 4.2.5.3: SLIDING SCALE FOR RESIDENTIAL IMPERVIOUS SURFACE RATIOS – UNIV, CANE, LITTLE, AND UPPER ENO						
LOT SIZE (ACRES)	ISR	SQUARE FEET		LOT SIZE (ACRES)	ISR	SQUARE FEET
Cells in black DO NOT apply to the Upper Eno						
5.9	5.1	13,107		2.9	10.2	12,885
5.8	5.2	13,138		2.8	10.4	12,685
5.7	5.3	13,159		2.7	10.6	12,467
5.6	5.4	13,172		2.6	10.8	12,232
5.5	5.5	13,177		2.5	11.0	11,979
5.4	5.6	13,172		2.4	11.2	11,709
5.3	5.7	13,159		2.3	11.4	11,421
5.2.	5.8	13,138		2.2	11.6	11,116
5.1	5.9	13,107		2.1	11.8	10,794
5.0	6.0	13,068		2.0	12.0	10,454
4.9	6.2	13,234		1.9	12.2	10,097
4.8	6.4	13,381		1.8	12.4	9,723
4.7	6.6	13,512		1.7	12.6	9,331
4.6	6.8	13,625		1.6	12.8	8,921
4.5	7.0	13,721		1.5	13.0	8,494
4.4	7.2	13,880		1.4	13.2	8,050
4.3	7.4	13,861		1.3	13.4	7,588
4.2	7.6	13,904		1.2	13.6	7,109
4.1	7.8	13,930		1.1	13.8	6,612
4.0	8.0	13,939		1.0	14.0	6,098
3.9	8.2	13,930		0.9	14.2	5,567
3.8	8.4	13,904		0.8	14.4	5,018
3.7	8.6	13,861		0.7	14.6	4,452
3.6	8.8	13,800		0.6	14.8	3,868
3.5	9.0	13,721		0.5	15.0	3,267
3.4	9.2	13,625		0.4	15.2	2,648
3.3	9.4	13,512		0.3	15.4	2,012
3.2	9.6	13,382		0.2	15.6	1,359

4.2.6 Impervious Surface, Detention Pond, and Lot Size Requirements for Non-Residential Uses

Unless otherwise noted in the Table below, minimum lot sizes shall be in conformance with the underlying zoning district.

TABLE 4.2.6: IMPERVIOUS SURFACE/DETENTION POND REQUIREMENTS	
DISTRICT	IMPERVIOUS SURFACE/DETENTION POND REQUIREMENTS (NON-RESIDENTIAL)
~~UNIV-CA~~ ~~UNIV-PW~~[5]	~~Same as Residential (See Table in subsection 4.2.5)~~
UNIV-CA CANE-CA	5-acre minimum lot size, with potential of up to five lots as small as two acres for lots of record September 1, 2015 (University Lake) or October 19, 1999 (Cane Creek); AND 6% impervious surface limit. [1], [2] ~~BMPs cannot be used to satisfy watershed impervious surface requirements~~.

[5] Staff is recommending modifying these provisions to ensure consistency amongst the various watershed overlay districts. We believe it would be more appropriate to make the regulations more consistent with other, similar overlay districts as denoted herein.

TABLE 4.2.6: IMPERVIOUS SURFACE/DETENTION POND REQUIREMENTS	
DISTRICT	**IMPERVIOUS SURFACE/DETENTION POND REQUIREMENTS (NON-RESIDENTIAL)**
U-ENO-CA	2-acre minimum lot size AND 6% impervious surface limit. [1], [2]
UNIV-PW CANE-PW	5-acre minimum lot size with potential of up to five lots as small as two acres for lots of record September 1, 2015 (University Lake) or October 19, 1999 (Cane Creek) ~~(Amended 10-19-99)~~; AND 50% ISR for all fire stations and solid waste collection centers; AND 12% ISR for all other non-residential uses; AND on-site infiltration of the first inch of stormwater runoff; AND a limit of 1.0% of the watershed for non-residential use (139 acres in CANE-PW). [1], [2[~~BMPs cannot be used to satisfy watershed impervious surface requirements.~~
LITTLE-PW	2-acre minimum lot size AND 50% ISR for all fire stations and solid waste collection centers; AND 12% ISR for all other non-residential uses; AND on-site infiltration of the first inch of stormwater runoff; AND a limit of 1.0% of the watershed for non-residential use (406 acres in LITTLE-PW). [1], [2] ~~BMPs cannot be used to satisfy watershed impervious surface requirements.~~
U-ENO-PW BACK-PW	70% ISR in Economic Development, Commercial and/or Commercial- Industrial Nodes as designated in the Land Use Element of the Comprehensive Plan (high-density option) with structural BMPs if ISR ~~>~~ exceeds 12%; AND 50% ISR for all fire stations and solid waste collection centers outside of Commercial and/or Commercial-Industrial Nodes as designated in the Land Use Element of the Comprehensive Plan, with structural BMPs if ISR ~~>~~ exceeds 12%; AND 12% ISR for all other non-residential uses outside of Commercial and/or Commercial-Industrial Nodes as designated in the Land Use Element of the Comprehensive Plan ~~(* BMPs cannot be used to satisfy watershed impervious surface requirements)~~; AND on-site infiltration of the first inch of stormwater runoff; AND A limit of 1,151 acres of non-residential use throughout U-ENO-PW (5.0%) and 163 acres throughout BACK-PW (1%). [1], [2]
HYCO-PW FLAT-PW	50% ISR for all fire stations and solid waste collection centers; AND 12% ISR for all other non-residential uses; AND on-site infiltration of the first inch of stormwater runoff;AND limit of 1% of the watershed for non-residential use (37 acres in HYCO-PW, 66 acres in FLAT-PW). [1], [2] ~~BMPs cannot be used to satisfy watershed impervious surface requirements~~.
L-ENO-PW	70% impervious surface, with structural BMPs required when impervious surface exceeds: 24% (w/ curb and gutter); or 36% (w/o curb and gutter). [1], [2]
HAW-PW JORDAN-PW	24% impervious surface limit. [1], [2] ~~BMPs cannot be used to satisfy watershed impervious surface requirements.~~

[~~1] BMP's as mandated by the Stormwater Management Program for Lands within the Neuse River Basin are allowed.~~
[1] Allowable impervious surface area may be modified in accordance with Section 4.2.8 of the UDO.

[2] For non-residential developments a stormwater feature/best management practice (BMP) shall be required in accordance with applicable local and State standards based on proposed land disturbance and/or a project exceeding impervious surface thresholds as identified herein. [6]

NOTE: Non-residential use impervious acreage limits in watershed with such limits are calculated using the actual amount of impervious surface for non-residential uses throughout the watershed, not by the overall number of acres of non-residential parcels located in a particular watershed.

[6] Unlike residential development, State regulations require a stormwater feature for all non-residential projects exceeding established impervious surface thresholds for the watershed protection overlay district in which the

(A) Hillsborough Economic Development District

(1) The Hillsborough Economic Development District is located within the Lower Eno - Unprotected watershed. Within the Hillsborough Economic Development District, as designated in the Land Use Element of the Comprehensive Plan, the maximum impervious surface ratio is 50% with detention ponds.

4.2.7 Placement of Streets, Driveways, and Buildings

(A) Streets, driveways, and buildings or other structures shall be located, to the extent reasonably possible, so as to take full advantage of the absorptive capacity of the soils on which they are to be situated and to avoid the following environmentally sensitive areas:

(1) Stream buffer zones as required by Section 6.13;

(2) Wetlands as defined by the U.S. Army Corps of Engineers;

(3) Land with slopes greater than 15%; and

(4) Natural areas as identified in the Inventory of Natural Areas and Wildlife Habitats of Orange County, NC.

(B) To avoid creating lots that will be difficult to build upon in compliance with the standards of this Section, the preliminary plan shall show proposed building envelopes and approximate driveway locations for all lots within subdivisions.

(1) A zoning compliance permit shall not be issued for the construction of buildings or driveways outside the areas so designated on the preliminary plan unless the Planning Director makes a written finding that the proposed location complies with the provisions of this Section and Sections 6.13 (Stream Buffers) and 6.14 (Stormwater Management).

4.2.8 Modifications of the Impervious Surface Ratio

Modifications of the Impervious Surface Ratios may be requested through one of the following provisions:

(A) Through variance procedures of the Board of Adjustment, as described in Section 2.10.

(B) Through approval and recordation of a conservation agreement, as provided in Article 4 of Chapter 121 of the N.C. General Statutes, between Orange County and a land owner that prohibits development of land in a protected watershed in perpetuity, subject to the following:

(1) A modification of the required impervious surface ratios may be approved administratively but only to the extent that additional land in the same watershed is conserved or protected from development.

(2) The land which will be subject to a conservation agreement must be adjacent to the land proposed for development and for which a modification of the impervious surface ratios is sought.

(a) As an example, a person owning a 40,000 square foot lot and subject to a 12% impervious surface ratio would be limited to 4,800 square feet of impervious coverage. If the person's plans called for 5,500 square feet of coverage (a difference of 700 square feet), the recording of a conservation easement on 5,833 square feet of contiguous property would satisfy the impervious surface ratio requirements. (12% of 5,833 square feet is 700 square feet.)

project is located. This is the reason why language for note 2 within Section 4.2.6 is different from the same note in Section 4.2.5.

(b) The conservation easement shall describe the property restricted in a manner sufficient to pass title, provide that its restrictions are covenants that run with the land and, be approved in form by the County Attorney.

(c) The conservation easement shall, upon recording, be in the place of a first priority lien on the property (excepting current ad valorem property taxes) and shall remain so unless, with the approval of Orange County, it is released and terminated.

(d) Orange County shall require the priority of the conservation easement to be certified by an attorney-at-law, licensed to practice law in the State of North Carolina and approved to certify title to real property.

(e) Orange County approval of a release or termination of the conservation agreement shall be declared on the document releasing or terminating the agreement. The document shall be signed by the Orange County Manager, upon approval of the Board of County Commissioners. No such document shall be effective to release or terminate the conservation agreement until it is filed for registration with the Register of Deeds of Orange County.

(C) Through the installation of a stormwater feature, consistent with the minimum design standards as detailed within the State BMP Manual.

(1) The proposed feature must be recognized by Orange County and the State as allowing for an increase in impervious surface area through an infiltration stormwater feature.

(2) Under no circumstances may impervious surface area be increased by more than 3% of the total allowable area on the subject parcel through this process.

(3) The property owner shall provide a stormwater assessment, completed by a licensed engineer, of the current property identifying its infiltration rates and carrying capacity as well as a comprehensive soil assessment for the property.

(4) The development/design of the feature shall be in accordance with established design criteria as embodied within the State stormwater manual and shall be completed by a licensed engineer with expertiese in stormwater management. [7] Additional allowable impervious surface area shall be based on the soil composition of the property consistent with State regulations.

~~i.~~(5) The property owner shall be responsible for the completion and submission of a stormwater operation/maintenance and access agreement detailing the perpetual maintenance, inspection, and upkeep of the approved BMP in accordance with County and State regulations.

The Planning Director shall cause an analysis to be made of the agreement by qualified representatives of the Cointy and other agencies or offficials as appropriate. Once approved, the document shall be recorded in the Orange County Registrar of Deeds office.[8]

The property owner assumes all financial and legal responsibility for the perpetual maintenance and upkeep of the approved BMP.

(6) The property owner shall assume all costs associated with the preparation and

[7] Language added to address OWASA concern(s) over the UDO explicitly requiring a licensed engineer, with expertise in stormwater management, completed the design on the BMP.

[8] The County Attorney's office has expressed concern over the language with this Section, specifically there is a concern over liability issues due to the lack of defined standards associated with said review. Unfortunately we have received numerous review comments from our planning partners (i.e. OWASA, the Towns, etc.) requesting additional level of detail. While we understand the nature of the Attorney's concern staff is finding it difficult to make everyone comfortable.

recordation of new plat(s)/development restrictions detailing the allowable impervious surface limit(s) for the property after the BMP has been approved by the County.

4.2.9 Water Supply / Sewage Disposal Facilities

TABLE 4.2.9: WATER SUPPLY/SEWAGE DISPOSAL FACILITIES

DISTRICT	WATER SUPPLY/SEWAGE DISPOSAL
UNIV-CA UNIV-PW	Water supply and sewage treatment systems shall be limited to individual wells and on-site septic tanks systems or individual on-site alternative disposal systems.
All Watershed Overly Districts	No new treatment system will be permitted where effluent disposal occurs on a separate lot from the source of wastewater generation; provided, however, off-site systems shall be permitted in all Watershed Overlay Districts except the University Lake Protected Watershed (UNIV-PW) and Critical Area (UNIV-CA) when located in a Flexible Development subdivision approved in accordance with Section 7.13 of this Ordinance.
UNIV-CA	New septic tanks and their nitrification fields shall be located outside of any stream buffers, or 300 feet from a reservoir or perennial or intermittent stream as shown on the USGS Quadrangle maps, whichever is further
CANE-CA U-ENO-CA	New septic tanks, pump tanks and their appurtenances shall be located outside of any stream buffers and at least 100 feet from a perennial or intermittent stream as shown on the USGS Quadrangle maps, and at least 150 feet from a reservoir. New nitrification fields shall be located outside of any stream buffers and at least 100 feet from a perennial or intermittent stream as shown on the USGS Quadrangle maps, and at least 300 feet from a reservoir.
CANE-PW CANE-CA U-ENO-CA	Water supply and sewage treatment systems shall be limited to individual wells and septic tanks or individual on-site alternative disposal systems; provided however, off-site systems shall be permitted when located in a Flexible Development subdivision approved in accordance with Section 7.13 of this Ordinance.
UNIV-PW CANE-PW U-ENO-PW HYCO-PW LITTLE-PW BACK-PW HAW-PW JORDAN-PW L-ENO-PW FLAT-PW	New septic tanks and their nitrification fields shall be located outside of any stream buffers and at least 100 feet from a perennial or intermittent stream as shown on the USGS Quadrangle maps.

SECTION 4.3: SPECIAL FLOOD HAZARD AREA (SFHA)

4.3.1 Intent

The intent of this overlay district is to promote public health, safety, and general welfare and to minimize public and private losses due to flood conditions within flood prone areas by provisions designed to:

(A) Restrict or prohibit uses, which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion, flood heights or velocities;

(B) Require that uses vulnerable to floods, including facilities, which serve such uses, be protected against flood damage at the time of initial construction;

(C) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;

ORANGE COUNTY
BOARD OF COMMISSIONERS AND
PLANNING BOARD
QUARTERLY PUBLIC HEARING ACTION AGENDA ITEM ABSTRACT
Meeting Date: May 26, 2015

Action Agenda
Item No. C-5

SUBJECT: Unified Development Ordinance Text Amendment Related to Temporary Health Care Structures

DEPARTMENT: Planning and Inspections **PUBLIC HEARING: (Y/N)** Yes

ATTACHMENT(S):

1. Comprehensive Plan and Unified Development Ordinance (UDO) Amendment Outline Form and Session Law 2014-94
2. Proposed Text Amendments
3. Ordinance Review Committee Notes
4. Temporary Health Care Structures Informational Handout

INFORMATION CONTACT:

Ashley Moncado, Planner II (919) 245-2589
Craig Benedict, Director (919) 245-2575

PURPOSE: To hold a public hearing on a Planning Director initiated Unified Development Ordinance (UDO) text amendment regarding proposed standards for temporary health care structures to be added into Sections 5.5 *Standards for Residential Uses* and 10.1 *Definitions* of the UDO.

BACKGROUND: On August 1, 2014, the North Carolina State Legislature adopted regulations regarding the permitting of temporary health care structures in the state. These regulations allow for temporary health care structures, 300 square feet or less, to be permitted as an a accessory use in any single family residential zoning district on lots zoned for single family detached dwellings if all the regulatory provisions outlined in Session Law 2014-94 are met. As a result, staff is proposing to modify sections of the UDO to address the review and permitting of temporary health care structures in order to be consistent with North Carolina General Statutes.

This item was presented for review and comment at the December 3, 2014 Ordinance Review Committee. Attachment 3 includes draft summary notes from that meeting. Additional agenda materials are available at http://www.co.orange.nc.us/planning/planningboard.asp.

Attachment 1, the Amendment Outline Form approved by the BOCC on November 18, 2014, provides additional background information on the proposal. Proposed text amendment language can be found in Attachment 2 within a “track changes” format (red text for proposed additions). Attachment 4 includes a schematic, images, and features of a temporary health care structure.

Legal ads for the public hearing were placed in a newspaper of general circulation in the County in accordance with Section 2.8.7 of the UDO.

Joint Planning Area (JPA) Agreement

The opportunity for comment by the JPA partners (Towns of Chapel Hill and Carrboro) is required for all UDO text amendments that may affect the RB (Rural Buffer) zoning district. Since temporary health care structures will be permitted as an accessory use to a detached single family dwelling in the RB district, the proposed text amendments were submitted to the JPA partners for review and comment on January 14, 2015. To date, no comments have been received.

FINANCIAL IMPACT: Consideration and approval will not create the need for additional funding for the provision of County services. Costs for the required legal advertisement will be paid from FY2014-15 Departmental funds budgeted for this purpose. Existing planning staff included in the Departmental staffing budget will accomplish the work required to process this amendment.

RECOMMENDATION(S): The Planning Director recommends the Board:

1. Receive the proposed amendments to the UDO as detailed in this abstract and attachments.
2. Conduct the public hearing and accept public, BOCC, and Planning Board comment on the proposed amendments.
3. Refer the matter to the Planning Board with a request that a recommendation be returned to the BOCC in time for the **September 1, 2015** BOCC regular meeting.
4. Adjourn the public hearing until **September 1, 2015** in order to receive and accept the Planning Board's recommendation and any submitted written comments.

COMPREHENSIVE PLAN / FUTURE LAND USE MAP AND UNIFIED DEVELOPMENT ORDINANCE (UDO) AMENDMENT OUTLINE

UDO / Zoning-2014-13

Temporary Health Care Structures

A. AMENDMENT TYPE

Map Amendments

☐ Land Use Element Map:
From:
To:

☐ Zoning Map:
From:
To:

☐ Other:

Text Amendments

☐ Comprehensive Plan Text:
Section(s):

☒ UDO Text:
☒ UDO General Text Changes
☐ UDO Development Standards
☐ UDO Development Approval Processes
Section(s): Section 5.5, Standards for Residential Uses
Section 10.1, Definitions

☐ Other:

B. RATIONALE

1. **Purpose/Mission**

In accordance with the provisions of Section 2.8 *Zoning Atlas and Unified Development Ordinance Amendments* of the UDO, the Planning Director has initiated a text amendment to incorporate recent changes in State Law, specifically Session Law 2014-94, related to the review and permitting of temporary health care structures.

This item was presented at the December 3, 2014 Ordinance Review meeting for

Board review and comment. Following this meeting, staff made one minor revision to the text amendment regarding signage pertaining to the advertisement of a temporary health care structure.

1. Analysis

As required under Section 2.8.5 of the UDO, the Planning Director is required to: 'cause an analysis to be made of the application and, based upon that analysis, prepare a recommendation for consideration by the Planning Board and the Board of County Commissioners'.

The amendments are necessary to ensure the permitting of a temporary health care structure is consistent with recent changes in State Law. Session Law 2014-94, adopted August 1, 2014, defines a temporary health care structure as a transportable residential structure providing an environment facilitating a caregiver's provision of care for a mentally or physically impaired person that is primarily assembled at a location other than its site of installation, is limited to one occupant who shall be the mentally or physically impaired person, has no more than 300 gross square feet, and complies with the North Carolina State Building Code.

The Session Law modifies standards related to the placement of a temporary health care structure including, but are not limited to, the following:

1. Only one temporary health care structure shall be allowed on a lot or parcel of land.
2. Temporary health care structures shall not require a Special Use Permit or be subjected to any other local zoning regulations beyond those imposed upon other accessory use structures.
3. Temporary health care structures shall comply with all setback requirements and any maximum floor area ratio limitations that apply to the primary structure.
4. Any person proposing to install a temporary health care structure must obtain a permit and may be charged a fee up to $100 and a yearly renewal fee up to $50.
5. A temporary health care structure may be required to connect to water, sewer, and electric utilities and comply with all applicable state laws, local ordinances, and additional regulations.
6. No signage shall be permitted onsite or on the exterior of the temporary health care structure.
7. All temporary health care structures shall be removed within 60 days in which the physical or mentally impaired person is no longer receiving care or is no longer in need of assistance.

Based on regulations set forth in Session Law 2014-94, the proposed amendment will address the review and permitting of temporary health care structures in order to be consistent with State Law. A copy of Session Law 2014-94 can be found at the end of this form.

2. **Comprehensive Plan Linkage (i.e. Principles, Goals and Objectives)**

3. **New Statutes and Rules**

Session Law 2014-94 *An Act Relating To Zoning Provisions For Temporary Health Care Structures*

C. PROCESS

1. **TIMEFRAME/MILESTONES/DEADLINES**

a. BOCC Authorization to Proceed

November 18, 2014

b. Quarterly Public Hearing

May 26, 2015

c. BOCC Updates/Checkpoints

May 26, 2015 – Quarterly Public Hearing
September 1, 2015 – Receive Planning Board recommendation

d. Other

2. **PUBLIC INVOLVEMENT PROGRAM**

Mission/Scope: Public Hearing process consistent with NC State Statutes and Orange County ordinance requirements.

a. Planning Board Review:

December 3, 2014 – Ordinance Review Committee
June 3, 2015 – Recommendation to the BOCC

b. Advisory Boards:

c. Local Government Review:

The proposed text amendments were submitted to the JPA Partners on January 14, 2015. To date, no comments have been received.

d. Notice Requirements

Consistent with NC State Statutes – legal ad prior to public hearing

e. Outreach:

- ☐ General Public:
- ☐ Small Area Plan Workgroup:
- ☒ Other: Materials were distributed to other County Departments and/or Divisions that may be interested or affected, including Building Inspections, Aging, Health, Environmental Health, Social Services, Emergency Services, and Tax/Land Records

3. FISCAL IMPACT

Consideration and approval will not create the need for additional funding for the provision of county services. Costs for the required legal advertisement will be paid from FY2014-15 Departmental funds budgeted for this purpose. Existing Planning staff included in the Departmental staffing budget will accomplish the work required to process this amendment.

D. AMENDMENT IMPLICATIONS

Language within the Unified Development Ordinance will be consistent with recent modification to State Law. The amendments will classify temporary health care structures as an accessory use to single-family dwellings which means they can be placed on the same lot as a single-family dwelling, subject to the standards proposed in Section 5.5.9. A process to review, permit, and monitor compliance of these structures will need to be developed by a multi-departmental team concurrent with ordinance adoption.

E. SPECIFIC AMENDMENT LANGUAGE

See Attachment 2 for proposed language.

Primary Staff Contact:
Ashley Moncado

Planning Department

919-245-2589

amoncado@orangecountync.gov

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2013

SESSION LAW 2014-94
HOUSE BILL 625

AN ACT RELATING TO ZONING PROVISIONS FOR TEMPORARY HEALTH CARE STRUCTURES.

The General Assembly of North Carolina enacts:

SECTION 1. Part 3 of Article 18 of Chapter 153A of the General Statutes is amended by adding a new section to read:

"**§ 153A-341.3. Zoning of temporary health care structures.**

A county exercising powers under this Article shall comply with G.S. 160A-383.5."

SECTION 2. Part 3 of Article 19 of Chapter 160A of the General Statutes is amended by adding a new section to read:

"**§ 160A-383.5. Zoning of temporary health care structures.**

(a) The following definitions apply in this section:

(1) Activities of daily living. – Bathing, dressing, personal hygiene, ambulation or locomotion, transferring, toileting, and eating.

(2) Caregiver. – An individual 18 years of age or older who (i) provides care for a mentally or physically impaired person and (ii) is a first or second degree relative of the mentally or physically impaired person for whom the individual is caring.

(3) First or second degree relative. – A spouse, lineal ascendant, lineal descendant, sibling, uncle, aunt, nephew, or niece and includes half, step, and in-law relationships.

(4) Mentally or physically impaired person. – A person who is a resident of this State and who requires assistance with two or more activities of daily living as certified in writing by a physician licensed to practice in this State.

(5) Temporary family health care structure. – A transportable residential structure, providing an environment facilitating a caregiver's provision of care for a mentally or physically impaired person, that (i) is primarily assembled at a location other than its site of installation, (ii) is limited to one occupant who shall be the mentally or physically impaired person, (iii) has no more than 300 gross square feet, and (iv) complies with applicable provisions of the State Building Code and G.S. 143-139.1(b). Placing the temporary family health care structure on a permanent foundation shall not be required or permitted.

(b) A city shall consider a temporary family health care structure used by a caregiver in providing care for a mentally or physically impaired person on property owned or occupied by the caregiver as the caregiver's residence as a permitted accessory use in any single-family residential zoning district on lots zoned for single-family detached dwellings.

(c) A city shall consider a temporary family health care structure used by an individual who is the named legal guardian of the mentally or physically impaired person a permitted accessory use in any single-family residential zoning district on lots zoned for single-family detached dwellings in accordance with this section if the temporary family health care structure is placed on the property of the residence of the individual and is used to provide care for the mentally or physically impaired person.

(d) Only one temporary family health care structure shall be allowed on a lot or parcel of land. The temporary family health care structures under subsections (b) and (c) of this section shall not require a special use permit or be subjected to any other local zoning requirements beyond those imposed upon other authorized accessory use structures, except as

otherwise provided in this section. Such temporary family health care structures shall comply with all setback requirements that apply to the primary structure and with any maximum floor area ratio limitations that may apply to the primary structure.

(e) Any person proposing to install a temporary family health care structure shall first obtain a permit from the city. The city may charge a fee of up to one hundred dollars ($100.00) for the initial permit and an annual renewal fee of up to fifty dollars ($50.00). The city may not withhold a permit if the applicant provides sufficient proof of compliance with this section. The city may require that the applicant provide evidence of compliance with this section on an annual basis as long as the temporary family health care structure remains on the property. The evidence may involve the inspection by the city of the temporary family health care structure at reasonable times convenient to the caregiver, not limited to any annual compliance confirmation, and annual renewal of the doctor's certification.

(f) Notwithstanding subsection (i) of this section, any temporary family health care structure installed under this section may be required to connect to any water, sewer, and electric utilities serving the property and shall comply with all applicable State law, local ordinances, and other requirements, including Part 5 of this Article, as if the temporary family health care structure were permanent real property.

(g) No signage advertising or otherwise promoting the existence of the temporary health care structure shall be permitted either on the exterior of the temporary family health care structure or elsewhere on the property.

(h) Any temporary family health care structure installed pursuant to this section shall be removed within 60 days in which the mentally or physically impaired person is no longer receiving or is no longer in need of the assistance provided for in this section. If the temporary family health care structure is needed for another mentally or physically impaired person, the temporary family health care structure may continue to be used, or may be reinstated on the property within 60 days of its removal, as applicable.

(i) The city may revoke the permit granted pursuant to subsection (e) of this section if the permit holder violates any provision of this section or G.S. 160A-202. The city may seek injunctive relief or other appropriate actions or proceedings to ensure compliance with this section or G.S. 160A-202.

(j) Temporary family health care structures shall be treated as tangible personal property for purposes of taxation."

SECTION 3. G.S. 130A-250 is amended by adding a new subdivision to read:

"(14) Temporary family health care structures under G.S. 153A-341.3 or G.S. 160A-383.5."

SECTION 4. G.S. 131D-2.1(10) reads as rewritten:

"(10) Multiunit assisted housing with services. – An assisted living residence in which hands-on personal care services and nursing services which are arranged by housing management are provided by a licensed home care or hospice agency through an individualized written care plan. The housing management has a financial interest or financial affiliation or formal written agreement which makes personal care services accessible and available through at least one licensed home care or hospice agency. The resident has a choice of any provider, and the housing management may not combine charges for housing and personal care services. All residents, or their compensatory agents, must be capable, through informed consent, of entering into a contract and must not be in need of 24-hour supervision. Assistance with self-administration of medications may be provided by appropriately trained staff when delegated by a licensed nurse according to the home care agency's established plan of care. Multiunit assisted housing with services programs are required to register annually with the Division of Health Service Regulation. Multiunit assisted housing with services programs are required to provide a disclosure statement to the Division of Health Service Regulation. The disclosure statement is required to be a part of the annual rental contract that includes a description of the following requirements:

a. Emergency response system;
b. Charges for services offered;
c. Limitations of tenancy;

d. Limitations of services;
e. Resident responsibilities;
f. Financial/legal relationship between housing management and home care or hospice agencies;
g. A listing of all home care or hospice agencies and other community services in the area;
h. An appeals process; and
i. Procedures for required initial and annual resident screening and referrals for services.

Continuing care retirement communities, subject to regulation by the Department of Insurance under Chapter 58 of the General Statutes, and temporary family health care structures, as defined in G.S. 160A-383.5, are exempt from the regulatory requirements for multiunit assisted housing with services programs."

SECTION 5. G.S. 160A-442(2) reads as rewritten:

"(2) "Dwelling" means any building, structure, manufactured home or mobile home, or part thereof, used and occupied for human habitation or intended to be so used, and includes any outhouses and appurtenances belonging thereto or usually enjoyed therewith, except that it does not include any manufactured home or mobile home, which is used solely for a seasonal vacation purpose. Temporary family health care structures, as defined in G.S. 160A-383.5, shall be considered dwellings for purposes of this Part, provided that any ordinance provision requiring minimum square footage shall not apply to such structures."

SECTION 6. If any provision of this act or its application is held invalid, the invalidity does not affect other provisions or applications of this act that can be given effect without the invalid provisions or application, and to this end the provisions of this act are severable.

SECTION 7. This act becomes effective October 1, 2014, and applies to temporary family health care structures existing on or after that date. No county or city may impose a fee as authorized by Section 1 and Section 2 of this act on any temporary family health care structure existing on that date.

In the General Assembly read three times and ratified this the 25th day of July, 2014.

s/ Tom Apodaca
Presiding Officer of the Senate

s/ Thom Tillis
Speaker of the House of Representatives

s/ Pat McCrory
Governor

Approved 11:55 a.m. this 1st day of August, 2014

Attachment 2

UDO AMENDMENT PACKET NOTES:

The following packet details the proposed text amendment to incorporate recent changes in State Law with respect to temporary health care structures. The amendment package will modify Sections 5.5 and 10.1 of the UDO to accommodate the new standards.

As the number of affected pages/sections of the existing UDO are being modified with this proposal, staff has divided the proposed amendments into the following color coded classifications:

- Red Text: Denotes new, proposed text, that staff is suggesting be added to the UDO
- Green Text: Denotes modifications made following the December 3 ORC meeting.

Only those pages of the UDO impacted by the proposed modification(s) have been included within this packet. Some text on the following pages has a large “X” through it to denote that these sections are not part of the amendments under consideration. The text is shown only because in the full UDO it is on the same page as text proposed for amendment or footnotes from previous sections ‘spill over’ onto the included page. Text with a large “X” is not proposed for modification.

Please note that the page numbers in this amendment packet may or may not necessarily correspond to the page numbers in the adopted UDO because adding text may shift all of the text/sections downward.

Users are reminded that these excerpts are part of a much larger document (the UDO) that regulates land use and development in Orange County. The full UDO is available online at: http://orangecountync.gov/planning/Ordinances.asp

In addition to the information required by Section 2.7, the following information shall be supplied as part of the application for approval of this use:

(a) A description of the type facility planned, the number of occupants, and the development schedule.

(b) A site plan showing existing and proposed contours. Proposed buildings, parking, access, service, recreation, landscaped and screened areas.

(c) Other criteria as set forth in sections 6.2.11 and 6.3.

(d) A statement concerning the provision of public services which shall include fire, police and rescue protection.

(2) Standards of Evaluation –

(a) Adequate parking, access and service areas are provided for the site.

(b) Parking, service areas and buildings are adequately screened from adjacent residential uses.

(c) Improved recreational facilities are provided for occupants.

(d) Other criteria as set forth in sections 6.2.11 and 6.3.

(e) Letters from public service agencies attesting to the adequacy of the provision of public services such as fire, police and rescue.

5.5.9 Temporary Health Care Structures

(A) General Standards

(1) Submittal Requirements

In addition to the information required in Section 2.4, Zoning Compliance Permits, the following information shall be supplied as part of the application for approval of this use:

(a) Documentation as to the relationship between the occupant of the temporary health care structure and the occupant(s) of the existing single family dwelling. One of the following types of relationships must exist:

(i) First or second degree relative – a spouse, lineal ascendant, lineal descendant, sibling, uncle, aunt, nephew, or niece and includes half, step, and in law relationships

(ii) Relationship by marriage

(iii) Legal guardian relationship designated by Court of Law.

(b) Certification in writing from a North Carolina licensed physician stating the necessity of direct care for an mentally or physically impaired individual.

(2) Standards of Evaluation

(a) An existing single family residential dwelling must be located on the same parcel as the temporary health care structure. Temporary health care structures are classified as an accessory use to single family detached dwellings.

(b) No more than one temporary health care structure per lot shall be permitted.

(c) Temporary health care structures must meet all standards contained in Section 5.5.1, Accessory Structures and Uses.

(d) Occupancy of a temporary health care structure shall be limited to one mentally or physically impaired individual, who is a North Carolina resident and requires assistance with two or more activities of daily living.

(e) No signage or advertisement promoting the temporary health care structure shall be permitted on the exterior of the temporary health care structure or on the property

(f) A temporary health care structure shall be required to connect to water, wastewater, and electric utilities serving the principal structure on the property.

(g) The Orange County Health Department, or the agency that provides sanitary sewer and water services, shall approve water and wastewater disposal facilities.

(h) All applicable state and local approvals and permits shall be procured including, but not limited to, a zoning compliance permit, building permits, and health department approval.

(i) Approval of the application shall not exceed one year. Annual renewal shall require a new application and recertification from a licensed physician stating the necessity of direct care.

(j) Any approved temporary health care structure shall be removed no later than 60 days after the time the mentally or physically impaired person is no longer receiving care or is in need of assistance. If the structure is needed for a different impaired individual, the temporary health care structure may continue to be used or be reinstated on the property within 60 days of its removal, subject to the requirements of this Ordinance.

(k) The caregiver shall allow inspections of the property by the County at times convenient to the caregiver, during reasonable hours, and upon prior notice for compliance purposes.

(l) A permit for a temporary health care structure shall be revoked by the Planning Director due to failure of the applicant to comply with any of the above provisions.

SECTION 5.6: STANDARDS FOR COMMERCIAL USES

5.6.1 Nightclubs, Bars and Pubs

(A) General Standards for Evaluation

(1) Buildings for nightclubs, bars and pubs shall not be located within 200 feet of a residence.

5.6.2 Massage Business

(A) General Standards for Evaluation

(1) Must comply with the Ordinance for the Control of Massage and Massage Establishments

(2) The submittal of construction plans for all existing and proposed buildings housing the massage business. The construction plans shall include floor plans and cross sections showing the proposed use of all portions of such buildings.

(3) For existing buildings, certification by the Orange County Building Inspector that the structure(s) complies with the North Carolina Building Code and all related construction codes.

Telecommunication Facilities, Wireless facility Stealth
A wireless support structure designed using stealth technology such that its primary purpose is, or visually appears to be, something other than the support of telecommunications equipment, the apparent purpose of the wireless support structure is customarily considered as accessory to a use that is allowed in the zoning district, and the structure and its primary use comply with this Ordinance.

Telecommunication Facilities, Wireless support structure
A new or existing structure, such as a monopole, lattice, or guyed tower that is designed to support or capable of supporting wireless facilities. A utility pole is not a wireless support structure.

Telecommunication Facilities, Wireless Telecommunications Facility (WTF), Includes both Telecommunications Site and Personal Wireless Facility
A structure, facility or location designed, or intended to be used as, or used to support antennas or other transmitting or receiving devises. This includes without limit wireless support structures of all types, kinds and structures, including, but not limited to buildings, church steeples, silos, water towers, signs or other structures that can be used as a support structure for antennas or the functional equivalent of such. If further includes all related facilities and equipment such as cabling, equipment shelters and other structures associated with the facility. It is a structure and facility intended for transmitting and/or receiving radio, television, cellular, SMR, paging, 911, personal communications services (PCS), commercial satellite services, microwave services, and any commercial wireless telecommunication service not licensed by the FCC.

Temporary Health Care Structure
A transportable residential structure facilitating a caregiver's provision of care for a mentally or physically impaired person that is primarily assembled offsite, is limited to one occupant, has no more than 300 gross square feet, and complies with applicable standards of the North Carolina State Building Code. Temporary health care structures shall not be installed on a permanent foundation. Temporary health care structures are classified as an accessory use to single family detached dwellings.

Temporary Residential Mobile Home
A mobile home, intended for residential use for a limited period of time, for purposes of providing for custodial care under a Class B Special Use Permit or providing temporary residential space during the installation of a replacement mobile home or construction of a stick-built or modular residential unit on the same lot, and for 30 days after the issuance of Certificate of Occupancy for the permanent unit. The temporary mobile home is not attached to a permanent or semi-permanent foundation.

Temporary Use Building
A building, not intended for residential use, consisting of one or more modules constructed off the ultimate site of use. The building is also not attached to a permanent or semi-permanent foundation.

Ten-Year Transition Land
Land located in areas that are in the process of changing from rural to urban densities and/or intensities, that are suitable for higher densities and/or intensities and could be provided with public utilities and services within the first 10-year phase of the Comprehensive Plan update or where such utilities and services are already present or planned. Non-residential uses implemented in accordance with small area plans and/or overlay districts may be appropriate.

Tourist Home
A building or group of attached or detached buildings containing, in combination, three to nine lodging units for occupancy for daily or weekly periods, with or without board, and primarily for occupancy by transients, as distinguished from rooming houses, in which occupancy is primarily by residents rather than transients.

Traffic Generation: Low
Uses which generate an average of less than 200 vehicle trips per day.

Approved 2/4/15

SUMMARY NOTES
ORANGE COUNTY PLANNING BOARD
DECEMBER 3, 2014
ORDINANCE REVIEW COMMITTEE

NOTE: A quorum is not required for Ordinance Review Committee meetings.

MEMBERS PRESENT: Peter Hallenbeck (Chair), Cheeks Township Representative; Herman Staats, At-Large, Cedar Grove Township; James Lea, Cedar Grove Township Representative; Tony Blake, Bingham Township Representative; Laura Nicholson, Eno Township Representative; Paul Guthrie, At-Large Chapel Hill Township; Bryant Warren, Hillsborough Township Representative;

STAFF PRESENT: Craig Benedict, Planning Director; Perdita Holtz, Special Projects Coordinator; Ashley Moncado, Special Projects Planner; Tina Love, Administrative Assistant II;

AGENDA ITEM 1: **CALL TO ORDER**

AGENDA ITEM 2: **UNIFIED DEVELOPMENT ORDINANCE (UDO) TEXT AMENDMENTS –** To review and comment upon revisions to the UDO to allow temporary healthcare structures in all residential zoning districts. This amendment is in response to North Carolina Session Law 2014-94.
PRESENTER: Ashley Moncado, Special Projects Planner

Ashley Moncado review abstract.

Paul Guthrie: Does it implicitly say they can be considered as part of the water and waste water system for approval of this permit?

Ashley Moncado: That is a gray area, Michael Harvey isn't here but that and another portion in the state statute that they provide 'may' regarding connection to the water or sewer and that is an area we have discussed and gone back and forth about because this is a little vague. They leave that open ended for the counties and cities. That is something we may have to look at and discuss.

James Lea: Is it possible to find out how these units are connected in a rural setting?

Ashely Moncado: That is more environmental health, if you were going to put a house on a property or an accessory structure. They would have to connect to the septic and it would have to have the capacity to do that.

Perdita Holtz: A temporary setup could be several years.

Tony Blake: But if you have an RV, you don't have to do that sort of thing. You don't have to extend your system for an RV.

Laura Nicholson: Does say one person, what about a spouse?

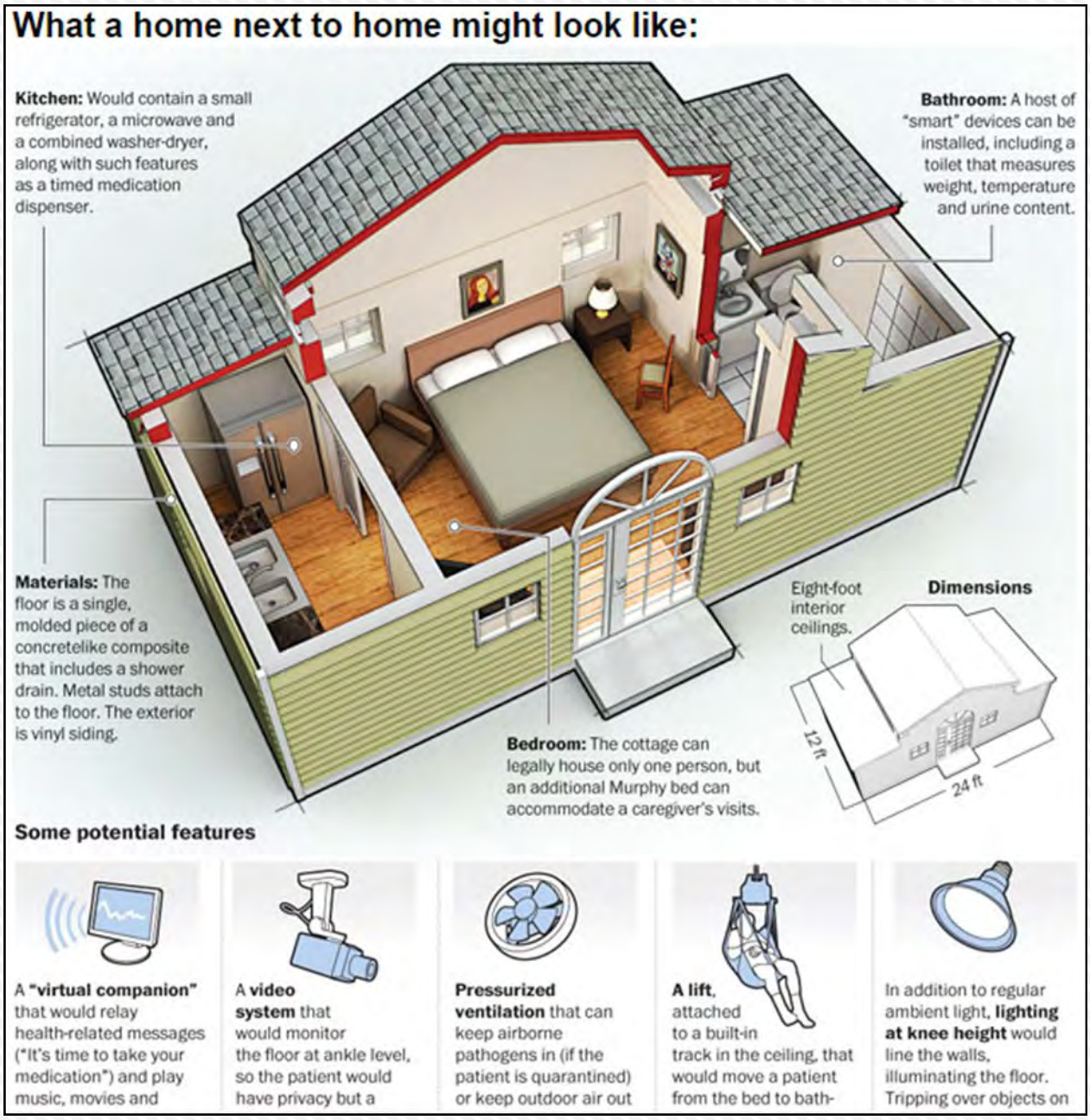
Ashley Moncado: This is permitted for one person only.

Pete Hallenbeck: Any other comments or questions? Ok, we'll adjourn.

AGENDA ITEM 10: **ADJOURNMENT:**

Temporary Health Care Structures

A mobile, modular unit designed to be temporary placed on a caregiver's property for rehabilitation and extended care of a impaired relative.



Information provided is based on a MEDCottage unit http://www.medcottage.com/products.php

ORANGE COUNTY
BOARD OF COMMISSIONERS AND
PLANNING BOARD
QUARTERLY PUBLIC HEARING ACTION AGENDA ITEM ABSTRACT
Meeting Date: May 26, 2015

Action Agenda
Item No. C-6

SUBJECT: Unified Development Ordinance Text Amendment - Sign Regulations

DEPARTMENT: Planning and Inspections

PUBLIC HEARING: (Y/N) Yes

ATTACHMENT(S):

1. Comprehensive Plan and Unified Development Ordinance Outline Form - Sign Amendments (UDO/Zoning 2015-01)
2. Future Land Use Element Map
3. Matrix of Sign Regulations
4. Excerpt of Draft Ordinance Review Committee (ORC) Meeting Notes
5. Proposed UDO Text Amendment(s)

INFORMATION CONTACT:

Michael Harvey Planner III,(919) 245-2597
Craig Benedict, Director, (919) 245-2585

PURPOSE: To hold a public hearing on Planning Director initiated Unified Development Ordinance (UDO) text amendments regarding sign regulations.

BACKGROUND: The Board of County Commissioners (BOCC) approved the Comprehensive Plan and Unified Development Ordinance Outline Form (Attachment 1) for this item at its January 22, 2015 regular meeting.

There has been an increase in inquires and interest with respect to development of large-scale commercial operations within the county. Staff is concerned current sign regulations do not offer a suitable distinction between allowable signage for projects developed in urbanizing areas versus rural areas and do not take into consideration the size of the parcel being developed or the amount of road frontage the parcel has.

There is also a noticeable lack of clarity within the UDO addressing the development of large-scale properties with multiple tenants necessitating the need for a larger, freestanding sign, advertising local businesses, and on what constitutes a blinking/flashing sign leading to enforcement concerns.

The proposed amendment seeks to address these concerns. For more background information please refer to Section B.1 of Attachment 1.

Staff has provided a table outlining how other surrounding jurisdictions address signage in Attachment 3. Proposed amendments are contained in Attachment 4.

FINANCIAL IMPACT: Please refer to Section C.3 of Attachment 1.

RECOMMENDATION(S): The Planning Director recommends that the Board:

1. Receive the request,
2. Conduct the Public Hearing and accept public, BOCC, and Planning Board comments.
3. Refer the matter to the Planning Board with a request that a recommendation be returned to the BOCC in time for its **September 1, 2015** regular meeting.
4. Adjourn the public hearing until **September 1, 2015** in order to receive and accept the Planning Board's recommendation and any submitted written comments.

COMPREHENSIVE PLAN / FUTURE LAND USE MAP AND UNIFIED DEVELOPMENT ORDINANCE (UDO) AMENDMENT OUTLINE

UDO / Zoning-2015-01

UDO Text Amendment(s) clarifying the allowable sign area for projects in identified Activity Nodes and regulations governing the use of electronic signs

A. AMENDMENT TYPE

Map Amendments

☐ Land Use Element Map:
From:
To:

☐ Zoning Map:
From:
To

☐ Other:

Text Amendments

☐ Comprehensive Plan Text:
Section(s):

☒ UDO Text:
☒ UDO General Text Changes
☒ UDO Development Standards
☐ UDO Development Approval Processes

Section(s):
1. Section 6.12 *Signs* and
2. Article 10 *Definitions*.

☐ Other:

B. RATIONALE

1. Purpose/Mission

In accordance with the provisions of Section 2.8 *Zoning Atlas and Unified Development Ordinance Amendments* of the UDO, the Planning Director has initiated text amendment(s) to modify existing regulations governing allowable signage.

There has been an increase in inquires and interest with respect to development of

large-scale commercial operations within the County, with an emphasis on property located within the:

a. Commercial Transition,

b. Commercial-Industrial Transition, and

c. Economic Development Transition

Activity Nodes (please see Attachment 2 for a copy of the Future Land Use Map of the Comprehensive Plan for additional detail).

Current sign regulations limit the total allowable square footage for freestanding and wall signs for most non-residential general use zoning districts to 32 square feet (8 feet by 4 feet in size) regardless of the properties location (in or outside of an Activity Node), size of parcel, or amount of road frontage.

There is a concern that current regulations do not offer a suitable distinction between development within various identified Activity Nodes (i.e. more urban areas of the County) and rural areas allowing for a sign of suitable size to accommodate a non-residential project on a larger parcel of property.

The 'one-size fits all' sign limit may, in fact, be a deterrent to non-residential development in the aforementioned Activity Nodes.

There is also a noticeable lack of clarity within the UDO addressing the development of large-scale properties with multiple tenants necessitating the need for a larger, freestanding sign, advertising local businesses and on what constitutes a blinking/flashing sign leading to enforcement concerns.

The proposed amendment(s) seek to address these concerns.

2. Analysis

As required under Section 2.8.5 of the UDO, the Planning Director is required to: '*cause an analysis to be made of the application and, based upon that analysis, prepare a recommendation for consideration by the Planning Board and the Board of County Commissioners'*.

The amendments are necessary to address current concerns over advertising needs for development within the urban areas of the county (i.e. the Commercial Transition and Commercial-Industrial Transition Activity Nodes) and clarify the prohibition on the use of blinking/flashing signage by incorporating new definitions into the UDO.

Staff will also be using this amendment process to incorporate an interpretation relating to the use of digital displays by gas stations. Historically gas stations have displayed gas prices through an internally/externally illuminated reader board. These displays create unnecessary glare for motorists. We have allowed gas stations to incorporate digital reader board displays to advertise gas prices, reducing glare and eliminating issues of light trespass either through cracked message boards allowing undiffused light to escape or misaligned external light fixtures creating glare for motorists.

3. Comprehensive Plan Linkage (i.e. Principles, Goals and Objectives)

Land Use Goal 4: Land development regulations, guidelines, techniques, and/or

incentives that promote the integrated achievement of all Comprehensive Plan goals.

4. **New Statutes and Rules**

N/A

d. PROCESS

1. **TIMEFRAME/MILESTONES/DEADLINES**

a. BOCC Authorization to Proceed

January 22, 2015 – The BOCC authorized staff to proceed with the amendment.

b. Quarterly Public Hearing

May 26, 2015

c. BOCC Updates/Checkpoints

January 26, 2015 – Planning Board members were sent the proposed amendment via e-mail for review and comment as there was no January 2015 Planning Board Ordinance Review Committee meeting.

April 1, 2015 – Ordinance Review Committee Meeting

May 26, 2015 – Quarterly Public Hearing.

September 1, 2015 - Receive Planning Board recommendation.

d. Other

N/A

2. **PUBLIC INVOLVEMENT PROGRAM**

Mission/Scope: Public Hearing process consistent with NC State Statutes and Orange County ordinance requirements

a. Planning Board Review:

January 26, 2015 – Planning Board members were e-mailed the amendment packet for initial review and comment.

April 1, 2015 – Ordinance Review Committee Meeting

June 3, 2015 – Recommendation.

b. Advisory Boards:

N/A

c. Local Government Review:
N/A

d. Notice Requirements

Legal advertisement published in accordance with the provisions of the UDO.

e. Outreach:

- ☐ General Public:
- ☐ Small Area Plan Workgroup:
- ☐ Other:

3. FISCAL IMPACT

Modification of existing language will not require the outlay of additional funds by the County. Processing of the amendment shall be handled by staff utilizing existing budgeted funds.

e. AMENDMENT IMPLICATIONS

The amendment will allow for larger freestanding and wall signs for projects in identified Activity Nodes where there is adequate road frontage necessitating the development of additional advertising space and clarify what constitutes a blinking/flashing sign to aid in enforcement efforts.

f. SPECIFIC AMENDMENT LANGUAGE

Please refer to Attachment 4.

Primary Staff Contact:
Michael D. Harvey

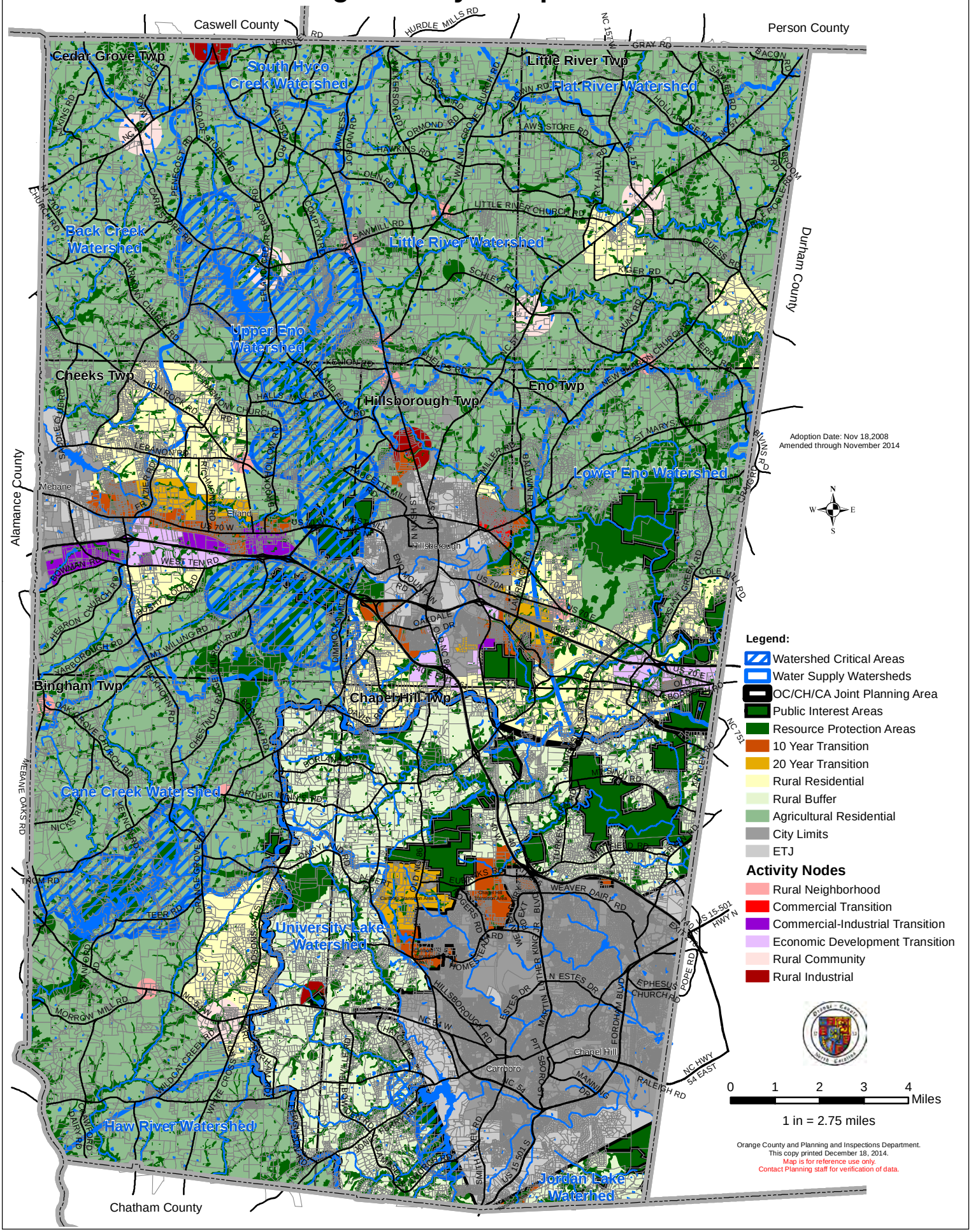
Planning

(919) 245-2597

mharvey@orangecountync.gov

Attachment 2

Future Land Use Map of the Orange County Comprehensive Plan



Jurisdiction	Number of Permitted Free-standing Signs	Free-standing Sign Size limit(s)	Free-standing Sign Setbacks	Free-standing Sign Height Limits	Number of Permitted Wall Signs	Wall Sign Size limit(s)	Other Wall Sign Regulations
Orange County	1 sign per property per street front [1]	• Most Non-residential districts sign is limited to 32 sq. ft. in area, • Buckhorn and Eno EDD[2] districts can have sign up to 75 sq. ft. in area. • Hillsborough EDD based on acreage of site for ground/monument sign as follows: 1. 50 sq. ft. sign area for property less than 5 acres, 2. 100 sq. ft. sign area for property 5-20 acres, 3. 150 sq. ft. sign area for property over 20 acres	• 10 ft. setback property line/right-of-way	• 24 ft. from finished elevation at base of sign to top of sign. • Buckhorn/Eno EDD: height limit of 12 ft. • Hillsborough EDD: height limit based on size of sign as follows: 1. 50 sq. ft. sign has a height limit of 6 feet, 2. 100 sq. ft. sign has a height limit of 8 feet, 3. 150 sq. ft. sign has a height limit of 10 feet	1 sign per building wall/façade per street front [3]	1 square foot of sign for every ½ foot of building length facing a public street • Most non-residential districts sign is limited to 32 sq. ft. in area • Buckhorn and Eno EDD districts can have sign up to 75 sq. ft. in area. • Hillsborough EDD wall sign limited to 32 sq. ft. unless frontage exceeds 64 ft. In this case you get ½ additional sign area with the ultimate cap on the wall sign being 100 sq.ft.	Sign shall not protrude 12 inches from the fact of the building.

[1] For parcels having frontage on 2 streets/roadways we would allow for an additional free-standing sign (Section 6.12.12 (A) (4) (a) of the UDO)
[2] EDD stands for Economic Development District
[3] As with free-standing signs, we allow multiple wall signs on building facades that have frontage along 2 streets/roadways.

Jurisdiction	Number of Permitted Free-standing Signs	Free-standing Sign Size limit(s)	Free-standing Sign Setbacks	Free-standing Sign Height Limits	Number of Permitted Wall Signs	Wall Sign Size limit(s)	Other Wall Sign Regulations
Durham County	1 per property/per street front	For non-residential land uses in non-residential zoning districts: • 32 square feet in area when the frontage is less than 150 feet, • 80 square feet in area when the frontage is 150 feet or more. For non-residential land uses in residential zoning districts: • For lots with a frontage of less than 150 linear feet, the sign shall not exceed 12 square feet in area. For lots with a frontage of 150 linear feet or more, the sign shall not exceed 32 square feet in area.	• Sign 32 sq. ft. or less, minimum five ft. setback from property line, • Sign exceeding 32 sq. ft., minimum 10 ft. setback, • When adjacent to residential property, minimum 12 ft. setback required in all instances.	• Non-residential districts - 16 ft. height limit. • Non-residential uses in residential district – 12 ft. • 40 ft. sign ht. allowed based on property location and land use.	1 sign per building wall/façade per street front	• Minimum wall sign is 25 sq. ft. (i.e. for buildings with less than 167 sq. ft. of wall area) • Sign cannot exceed 15% of the total wall area on which it is mounted	• Sign shall not extend more than 12 inches from the wall of building, • Sign may extend up to 12 inches into a public right-of-way.

Jurisdiction	Number of Permitted Free-standing Signs	Free-standing Sign Size limit(s)	Free-standing Sign Setbacks	Free-standing Sign Height Limits	Number of Permitted Wall Signs	Wall Sign Size limit(s)	Other Wall Sign Regulations
Wake County [4]	Maximum of 2 signs per individual use (this includes a wall and freestanding sign)	• For non-residential land uses 100 sq. ft. of sign area allowed. • For residential uses (i.e. subdivision sign) 32 sq. ft. of sign area allowed. • Signs for non-residential land uses located in a residential zoning district, limit is 32 sq. ft. of sign area allowed.	Cannot be located within an identified site triangle – location varies per district and adjacent property use (i.e. residential) Typical requirement in commercial area: 50 ft. from a residence (100 ft. if illuminated).	• 30 ft. from finished elevation at base of sign to top of sign for a pole sign. • 12 ft. for a ground sign	You are allowed 2 signs per property/project. 1 of these can be a wall sign.	100 sq. ft.	Depends on district.

[4] Wake County is currently in the process of revising existing sign regulations

Attachment 4

Excerpt of Draft April 1, 2015 ORC Meeting Notes

SUMMARY NOTES
ORANGE COUNTY PLANNING BOARD
APRIL 1, 2015
ORDINANCE REVIEW COMMITTEE

NOTE: A quorum is not required for Ordinance Review Committee meetings.

MEMBERS PRESENT: Peter Hallenbeck (Chair), Cheeks Township Representative; Lisa Stuckey (Vice-Chair), Chapel Hill Township Representative; Tony Blake, Bingham Township Representative; Paul Guthrie, At-Large Chapel Hill Township; Buddy Hartley, Little River Township Representative; Bryant Warren, Hillsborough Township Representative

STAFF PRESENT: Perdita Holtz, Special Projects Coordinator; Michael Harvey, Current Planning Supervisor; Ashley Moncado, Special Projects Planner

AGENDA ITEM 1: CALL TO ORDER
UNIFIED DEVELOPMENT ORDINANCE (UDO) TEXT AMENDMENTS – SIGN REGULATIONS

To review and comment upon proposed revisions to the UDO to modify the existing regulations pertaining to signs. This item was previously sent out via e-mail for Planning Board review and was on the February 19, 2015 Quarterly Public Hearing agenda but the hearing was cancelled due to inclement weather. Staff is bringing these proposed amendments to the ORC since time now permits staff to do so.

Presenter: Michael Harvey, Current Planning Supervisor

Michael Harvey: Thank you for being here early. We have two items. I would encourage you to email any comments you have. If we could get them by the end of April, I would appreciate it. Reviewed amendment.

Lisa Stuckey: Is a digital sign dangerous?

Michael Harvey: We say they are because they are a distraction. They change so often and frequently, you are always looking up to see the next advertisement.

Paul Guthrie: What about portable signs?

Michael Harvey: They are covered under a different section of the ordinance. They are specifically prohibited.

Tony Blake: What is a snipe sign?

Michael Harvey: Small real estate sign.

Pete Hallenbeck: On page 22, “the examples of on premise commercial signs”, a sign on a roof and a 3D figure. Isn’t that like a triple?

Michael Harvey: It is a triple whammy, it is just the example.

(H) The design of light fixtures and structural supports must be compatible with the architecture of the principal building(s) and identification signs.

(I) Where building faces are illuminated, lighting fixtures must be integrated within the architectural design of the buildings.

(J) Ground-mounted lighting fixtures must be weather-proof and vandal resistant.

(K) **Hillsborough EDD**

In addition to the standards established above, the following standards shall apply within the Hillsborough EDD:

(1) Lighting must be high efficiency lighting systems and lighting levels must be reduced during non-use hours to promote energy conservation.

(2) 12:1 minimum/maximum glare ratio.

(3) Maximum footcandles = 80

SECTION 6.12: SIGNS

6.12.1 Purpose and Intent

The purpose of this Section is to regulate the type, placement and physical dimensions of all signs in the interest of public health, safety and welfare, while recognizing the need for signs within the business community.

It is the intent of this section to regulate signs on a per lot basis in conjunction with the zoning designation of the lot as described on the current tax roll weather a sign is directly visible from a street right-of-way or not.

6.12.2 Off-Premise Commercial/Outdoor Advertising Signs[1]

The provisions of this Article establish standards and review criteria relating to the location, erection, maintenance, lighting, setbacks, and use of signs. This includes regulations pertaining to off-premise commercial also known as outdoor advertising (i.e. Billboards) signage.

The regulation and permitting of outdoor advertising is also subject to State requirements, including the State Outdoor Advertising Control Act, and Federal requirements. In cases where there is a conflict between County regulations and State or Federal regulations, relating to the location, erection, maintenance, lighting, setbacks and use of outdoor advertising signage, the corresponding State or Federal law shall take precedent.

In cases where there is no applicable State/Federal standard, then existing County regulations shall be enforced.

6.12.3 General Requirements

(A) No sign of any type nor any part thereof shall be erected, painted, posted, reposted, placed, replaced, or hung in any zoning district except in compliance with these regulations.

(B) No person shall erect or maintain a sign, and no property owner shall allow a sign to be erected or maintained on his property except in conformity with these regulations.

(C) A Zoning Compliance Permit approved in accordance with the provisions of this Ordinance shall be required prior to erecting a sign, unless otherwise permitted.

[1] Staff is adding language to ensure terminology is consistent within the UDO when referencing billboards, which we currently define as 'Off-premise Commercial' signs. We are also adding a definition of Outdoor Advertising, referencing our local classification, in Article 10.

(A) Signs erected by a governmental agency to regulate, control, or direct vehicular or pedestrian traffic;

(B) Legal notices, warnings, regulatory or informational signs erected by a public agency;

(C) Signs required by law;

(D) "No trespassing" signs, not exceeding six square feet in area;

(E) Real estate signs, not exceeding four square feet in area;

(F) Flags, emblems or insignia of any national, state or political subdivision;

(G) Property number signs not exceeding two square foot in area and bearing only address numbers of premises or other identification of premises not having commercial connotations;

(H) Holiday decorations in season that do not contain or display a commercial message;

(I) Signs on trash receptacles, indicating the owner or party responsible for maintenance;

(J) Hazardous chemical identification/notification signs on residential and non-residential structures;

(K) Signs on newspaper boxes;

(L) Private drive signs, one per drive entrance, not exceeding two square feet in area, with the message content limited to the words "Private Drive" and the address of any residences utilizing the private roadway;

(M) Security and warning signs posted on private property warning the public against trespassing, or similar messages, provided that any such sign does not exceed two square feet in area; and

(N) Political Signs, in accordance with the following standards:

(1) Political Signs are allowed in all zoning districts.

(2) A Zoning Compliance Permit shall not be required to allow for the placement of a political sign on private property.

(3) There shall be no limit to the number of political signs that can be placed on private property so long as the placement of these signs complies with the provisions of this Ordinance and the signs do not create a public safety hazard.

(4) Within residential zoning districts, political signs shall not exceed nine square feet in area or four feet in height.

(5) Within non-residential zoning districts, political signs shall not exceed the maximum allowable sign area permitted for freestanding signs.

(6) Political signs shall only be erected 90 days prior to the established date of a general election, school board election, referendum, special election, primary, or other similar political activity.

(7) Political signs shall be removed within 21 days after an election.

(8) Political signs shall be allowed within rights-of-way of the State highway system only in accordance with State law.

(9) Political signs shall not be allowed on telephone poles, utility poles, trees, other similar natural objects, and other signs or sign structures.

6.12.6 Prohibited Signs

The following signs are prohibited in all zoning districts:

(A) Advertising signs resembling traffic signals, traffic signs, emergency vehicles' flashing lights, non-governmental sanctioned signs utilizing the words 'stop', 'slow', 'caution',

'danger', or any sign that is likely to be misconstrued by the traveling public as being official governmental signs or emergency warnings or which by their distracting nature create a hazard to motorists;

(B) Signs, except for off-premises signs allowed under this Section, advertising an activity, business, product or service no longer conducted on the premises upon which the sign is located. Such signage shall be removed within 90 days from the date of termination of such activity. Upon failure of the owner to remove such signs within the prescribed time, the Planning Director shall take appropriate legal action to have such sign removed;

(C) Flashing, blinking, pulsating, signs or signs with moving parts ~~except for signs showing time of day and temperature that are part of an approved sign advertising a permitted business activity on a parcel of property~~; [2]

(D) Signs with electronic moveable copy, scrolling messages, or other similar electronic displays designed to change/display different advertising message(s) more than once an hour or a maximum of 6 times in a 24 hour period.[3] The use of electronic displays in off-premise commercial signs is specifically prohibited except in accordance with the provisions of this section.[4]

(E) Signs, other than traffic, governmental, street name signs, political signs erected in accordance with State law, or other official governmental or public agency sign, shall not be permitted within any street right-of-way;

(F) Roof signs;

(G) Snipe signs;

(H) Beacon lights, animated signs, trailer signs and snipe signs;

(I) Portable signs, unless approved for a special event in accordance with Section 6.12.11(D);

(J) Signs supported in whole or in part by water, gas, air, or could otherwise be designated as inflatable signs; Individuals erecting an inflatable sign shall be subject to an immediate notice of violation and shall be required to remove the sign within the time frame it would normally take to deflate the sign, unless approved for a special event in accordance with Section 6.12.11(D);

(K) Signs mounted on a single pole or mast;

(L) Signs that contain rotating sign panels or objects;

(M) Signs that obstruct ingress and egress to any door, window, fire escape, stairway, ladder, or other opening intended to provide light, air, ingress, or egress for any room or building; and

(N) Signs that violate any provision of any law of the State of North Carolina relative to outdoor advertising.

(O) Signs erected on telecommunication facilities or support structures other than safety notification(s) and those required by State or Federal regualtions.[5]

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[2] On advice from the County Attorney's office we are deleting this language to address a concern existing language is not content neutral. You cannot specific the content of a sign even if it is just 'time/temprature'.

[3] We need a standard as to what constitutes changeable copy to ensure proper enforcement while allowing some opportunity for said advertising display to be altered during the course of a day.

[4] Section 6.12.2 establishes the County's limitations with respect to the regulation of off-premise/outdoor advertising (i.e. billboards). We will continue to ban the use of electronic outdoor advertising so long as said ban is consistent with applicable State and Federal regulations in accordance with NCGS 136-131.2.

[5] From time to time staff has received requests to place advertising signs on telecommunication facilities. To date we have forbidden such placement. Staff believes it is necessary to amend the UDO to include a specific prohibition to avoid uncertainty.

(a) Sites shall be limited to one portable sign per right-of-way frontage. However, there shall be no more than two portable signs permitted on-site at one time.

(b) Signs shall be limited to 16 square feet in area, per sign face.

(c) Signs shall be located in accordance with Section 6.12.3(F).

(5) Inflatable Signs

(a) No more than one inflatable sign shall be permitted on-site at one time.

(b) Inflatable signs shall not exceed 25 feet in height.

(c) Signs shall be located a minimum of 25 feet from all property lines.

(6) Special Event Displays may only be erected for a two week period and must be removed within five days following the event.

(E) Signs Advertising Agricultural Products Produced on the Premises

(1) Shall not exceed 32 square feet.

(2) Shall be limited to two signs per parcel.

(F) Temporary Construction and Financial Institution Signs

(1) Shall not exceed 24 square feet in area, per sign;

(2) May not to exceed two signs per building site;

(3) Signs shall be erected only after a Building Permit authorizing construction on-site has been issued; and

(4) Signs must be removed within seven days after construction work has been completed and the certificate of occupancy has been issued.

(G) Directional/Informational Signs

(1) May be displayed on parcels of property utilized for non-residential purposes.

(2) May not exceed two square feet in area.

(3) May contain corporate logos or other similar graphical displays so long as they provide some necessary information to patrons (i.e. entrance and exit locations, one-way entrance ways, drive through entranceways, ATM location, etc.).

(4) A maximum of three directional/informational signs may be displayed on a non-residential parcel of property.

(H) Temporary Real Estate Signs, in excess of four square feet in area

(1) One sign shall be permitted per building site, not to exceed 24 square feet in area.

(2) Signs shall not be placed within any public street right-of-way.

(3) Signs must be removed after property has been transferred.

(I) Landmark Signs

Signs shall be erected only after the historical significance of the particular site has been verified and that proposed location of the sign has been approved by the Orange County Planning Department and all other related agencies (i.e. NC Department of Transportation).

6.12.12 Signs Permitted in Specific Zoning Districts

The following signs shall be permitted in the zoning districts indicated, in accordance with all other provisions of this Section and specific standards for each sign established herein:

(A) On-Premise Commercial Signs

(1) These signs shall comply with all state and county building codes and the National Electric Code. Clearance of signs is required from high voltage power lines and signs shall be located in such a way that they will maintain horizontal and vertical clearance of all overhead electrical conductors in accordance with the National Electric Code specifications, provided that no sign shall be installed closer than ten feet horizontally or vertically from any conductor or public utility guy wire.

(2) On-premise commercial signs shall be permitted within the following zoning districts: LC-1, NC-2, CC-3, GC-4, EC-5, OI, EI, I-1, I-2, I-3, AS, MPD-CZ, MHP-CZ, ASE-CZ, REDA-CZ[6] and all of the Economic Development zoning districts.

(3) ~~All o~~On-premise commercial signs shall be setback a minimum ten feet from ~~the front, side, and rear~~all property lines ~~or~~ and the edge of any existing or projected street right-of-way line ~~whichever is greater~~. Signs greater than 32 square feet, as allowed herein, shall be setback an additional 5 feet. [7] In cases where a property abuts a residential zoned parcel of property, the side or rear yard setback requirement shall be doubled.

(4) Number of Signs Permitted

(a) One on-premise commercial sign shall be permitted per parcel. However, one additional on-premise commercial sign may be permitted for parcels with frontage on more than one right-of-way in accordance with the provisions of this Section.

(b) Under no circumstances shall more than one three-dimensional sign be permitted on-site.

(c) For multi-tenant buildings and/or sites permitted as a conditional use or conditional zoning district, additional on-premise commercial signs or sign area may be permitted by the Board of County Commissioners with the approval of a master sign plan.

(5) Height of Signs

(a) Pole signs shall be limited to a height of 24 feet with a mandatory ground clearance of eight feet from the normal or finished grade elevation of the property at the base of the sign. Pole signs shall be mounted on 2 posts or masts. [8]

(b) Ground signs shall not exceed six feet in height from the normal or finished grade elevation of the property at the base of the sign

(6) The allowable area for on-premise commercial signs shall be determined as follows:

(a) Single or double-faced signs shall not exceed 32 square feet in area, per sign face except for parcels zoned CC-3, GC-4, O/I, I-2, I-3, AS, and MPD-CZ that:

(i) Are larger than 40,000 square feet in area, and

[6] We are adding references to the recently adopted Agricultural Support Services Conditional Zoning District (ASE-CZ) and the Rural Economic Development Area Conditional Zoning District (REDA-CZ). This is to ensure they are able to erect freestanding signage on the property.

[7] Staff is recommending the imposition of a larger setback in those instances were a larger free-standing sign is allowed.

[8] This requirement is currently referenced within the definition section of the UDO. We are moving it here as regulation(s) are more appropriate within the various, applicable, sections rather than being contained within definitions.

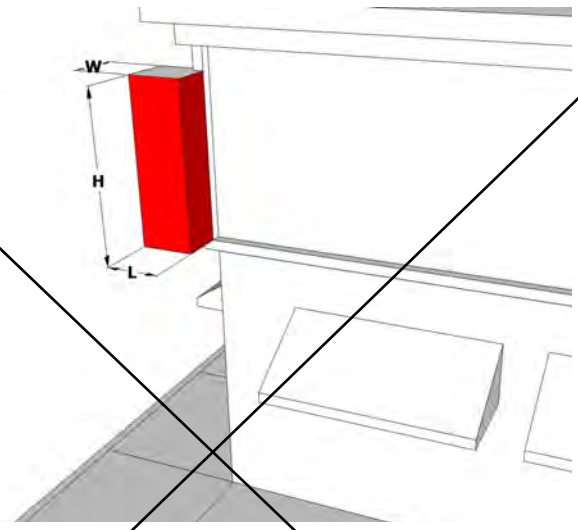
(ii) Has more than 300 feet of linear frontage along a NC Department of Transportation (NC DOT) maintained roadway

In these instances signs shall not exceed 64 square feet in area per sign face. [9]

(b) For parcels within Economic Development district(s), allowable sign area shall be in accordance with Section 6.12.14 of this Ordinance. [10]

~~(b)~~(c) Three-dimensional signs shall not exceed a maximum volume of 54 cubic feet with no dimension exceeding six feet.

Figure 6.12.12.A.6: Three-Dimensional Sign Allowable Volume



NOTE: L x W x H may not exceed 54 cubic feet with no dimension exceeding 6 feet.

(7) An on-premise commercial sign may contain a changeable copy sign as defined in this Ordinance. However, the total sign area, including the area of changeable copy, shall not exceed the maximum allowable area established in Section 6.12.12(A)(6)(a) above.

(8) No on-premise commercial sign shall be oriented is such a manner as to be directly visible from a major transportation corridor as established in this Ordinance.

(B) Off-Premise Commercial Signs

[9] This would only allow larger signs on property located in the 'urban' areas of the County (i.e, along US Highway 70, the Efland-Mebane-Buckhorn area, Hillsborough and Eno EDD's) and would not include rural nodes (i.e. Rural Neighborhood, Industrial, etc.). The typical width of a non-residential general use zoning district (i.e. amount of road frontage) is approximately 75 feet. A larger sign shall only be allowed if the project is located within an identified Activity Node, where we encourage large-scale non-residential development, and the lot has sufficient road frontage to accommodate a larger sign yet be proportional to the property.

[10] We are establishing the necessary reference(s) to the provisions of the UDO regulating allowable sign area within our various Economic Development districts.

(1) These signs shall comply with all state and county building codes and the National Electric Code. Clearance of signs is required from high voltage power lines and signs shall be located in such a way that they will maintain horizontal and vertical clearance of all overhead electrical conductors in accordance with the National Electric Code specifications, provided that no sign shall be installed closer than ten feet horizontally or vertically from any conductor or public utility guy wire.

(2) Off-premise commercial signs (billboards) shall be permitted within the GC-4, EC-5, I-1, and I-2 zoning districts.

(3) No electric tap outs allowing for an independent light source to receive power shall be allowed.

(4) Off-premise commercial signs shall be considered the principal use of property. There shall be no additional principal uses allowed on the same parcel. Off-premise commercial signs shall not be permitted as accessory uses.

(5) No off-premise commercial sign shall be located closer than 200 feet to the right-of-way of major thoroughfares (i.e. US 70, NC 86, NC 40, and NC 57) and 600 feet to the right-of-way for all other thoroughfares and streets.

(6) The height of an off-premise commercial sign shall not exceed 25 feet from the grade of the right-of-way or surface grade beneath the sign, whichever is less. The clearance of an off-premise sign shall not be less than eight feet from the grade of the right-of-way or surface grade beneath the sign, whichever is less.

(7) Off-premise commercial signs shall be limited to 480 square feet of sign area.

(8) In no case shall an off-premise commercial sign be located closer than 1,000 feet to an existing off-premise commercial sign.

(9) Off-premise commercial signs are prohibited within the Major Transportation Corridor (MTC) overlay district.

(10) No person may, for the purpose of increasing or enhancing the visibility of any off-premises commercial sign, damage, trim, destroy, or remove any trees, shrubs, or other vegetation in the following locations:

(a) Within the right-of-way of any public street or road, unless the work is done pursuant to the express written authorization of the North Carolina Department of Transportation;

(b) On property that is not under the ownership or control of the person responsible for such work, unless the work is done pursuant to the express authorization of the property owner where the vegetation is located; and,

(c) In any area where such vegetation is required to remain under a permit issued in accordance with this Ordinance.

(C) Wall Signs

(1) Shall either be mounted or painted on a building.

(2) Wall signs may be internally illuminated and shall comply with all applicable state and county building codes and the National Electric Code.

(3) Wall Signs shall be permitted within the following zoning districts: LC-1, NC-2, CC-3, GC-4, EC-5, OI, EI, I-1, I-2, I-3, AS, MPD-CZ, ASE-CZ, REDA-CZ and all of the Economic Development zoning districts.

(4) All wall signs shall be offset a minimum of ten feet from the corner of the building on which it is mounted.

(5) Wall signs shall not protrude more than 12 inches from the face of building on which it is mounted.

(6) Number of Signs Permitted

(a) Only one wall sign shall be permitted per building facade. In cases where a building is located on a corner lot, an additional wall sign may be permitted on the building wall facing the second street right-of-way, subject to the requirements of this Ordinance.

(b) For multi-tenant buildings permitted as a conditional use or conditional zoning district additional wall signs may be permitted by the Board of County Commissioners.

(7) The allowable sign area shall be determined as follows:

One square foot of sign area for every ½ foot of building length facing a public right-of-way, not to exceed 32 square feet except for parcels zoned CC-3, GC-4, O/I, I-2, I-3, AS, and MPD-CZ that:

(i) Are larger than 40,000 square feet in area, and

(ii) The structure has more than 100 linear feet of building length facing a public right-of-way, and

(iii) Has more than 300 feet of linear frontage along a NC Department of Transportation (NC DOT) maintained roadway

In these instances signs shall not exceed 64 square feet in area per sign face.

(8) A changeable copy sign may be utilized as a wall sign.

(9) Wall signs shall not extend above the soffit, parapet, or eave line of the building to which it is attached.

(10) For parcels within Economic Development district(s), allowable sign area shall be in accordance with Section 6.12.14 of this Ordinance.

(D) Projecting Signs

(1) Projecting signs shall be mounted on a building.

(2) Projecting signs may be internally illuminated and shall comply with all applicable state and county building codes and the National Electric Code.

(3) Projecting signs shall be permitted within the following zoning districts: LC-1, NC-2, CC-3, GC-4, EC-5, OI, EI, I-1, I-2, I-3, AS, MPD-CZ and all of the Economic Development zoning districts.

(4) Projecting signs shall adhere to the minimum setback requirements established for all structures within the zoning district in which it is located.

(5) Only one projecting signs shall be permitted per building facade even in cases of a building located on a corner lot.

(6) The allowable sign area shall be determined as follows:

(a) One square foot of sign area for every ½ foot of building length, facing a public right-of-way, not to exceed 32 square feet in area.

(7) Projecting signs shall clear sidewalks and pedestrian paths by a height of at least ten feet above finished grade.

(8) Projecting signs shall not extend above the soffit, parapet, or eave line of the building to which it is attached.

(9) Projecting signs shall not be located at the corner of a building except at right angles to the building façade.

(E) Window Signs

(1) Window signs shall be permitted within the following zoning districts: LC-1, NC-2, CC-3, GC-4, EC-5, OI, EI, I-1, I-2, I-3, AS, MPD-CZ and all of the Economic Development zoning districts.

(2) Window signs shall be limited to a maximum of 30% of the total window area where the sign is to be located.

(3) Window signs may be utilized for advertising specials or sales within the business, or displaying the name and other pertinent business information associated with the principal use.

(4) Signs may be etched, painted or otherwise attached to be made a permanent addition to the pane of glass.

(F) Awning Signs

(1) Awning signs shall be permitted within the following zoning districts: LC-1, NC-2, CC-3, GC-4, EC-5, OI, EI, I-1, I-2, I-3, AS, MPD-CZ and all of the Economic Development zoning districts. See Section 6.12.14(E) for additional standards for Awning Signs located in Economic Development Districts.

(2) Awning Signs shall be located above the main entrance to a nonresidential land use and shall contain the name of the use.

(3) Awning Sign area shall be limited to a maximum of 50% of the total awning area erected over the entrance of a nonresidential land use. Where an awning sign is utilized at a multi-use development, the amount of sign area shall be computed as part of the overall sign area allotted to wall signs, not to exceed 50% of the total awning area.

(G) Drive-Through Menu Signs

(1) Applicants must establish to the satisfaction of the Planning Director that a drive-through menu sign is considered a customary accessory use to the principal business on the property and is necessary for the normal operations of the commercial operation.

(2) Signs shall be limited to 32 square feet in area.

(3) No external illumination shall be permitted.

(4) A land use that utilizes such a sign shall also be permitted an independent speaker box, no greater than 12 square feet in area with a height no greater that four feet.

6.12.13 Sign Standards for Specific Uses

In addition to the requirements contained herein, the following land uses shall adhere to these additional standards:

(A) Changeable Copy Signs Utilized by Churches or Public Entities

(1) Shall not exceed 32 square feet in area.

(2) Bulletin boards/reader boards may be internally illuminated.

(B) Service Stations/Gas Station

(1) Signs may be erected above gas pumps subject to the following standards:

(a) No internal or external illumination shall be permitted;

(b) Signs shall be limited to four square feet in area; and

(c) Signs must advertise items for sale on the property. Under no circumstances may a sign advertise a sale, activity, business, or product not associated with the principal use of property.

(2) Signs may be erected on the canopy covering gas pumps subject to the following standards:

(a) Advertising material shall be limited to trademarks, logos, and the name of the service station or other similar display.

(b) Such displays shall be limited to six square feet of area.

(3) The advertisement of gas prices may be displayed electronically as part of an approved on-premise sign.

(C) Yard Sales/Garage

(1) Signs shall be erected on the property where the sale is taking place.

(2) Signs shall be limited to four square feet of area.

(3) No off-site displays shall be permitted.

(4) Signs shall be removed no later than sunset of the day the event occurs.

(D) Institutional Uses and Private Parks Located within Residential Zoning Districts

(1) One ground and one wall sign shall be permitted;

(2) Maximum sign area shall be 32 square feet per sign face; and

(3) No ground sign shall exceed six feet in height.

(E) Home Occupations

(1) The Home Occupation shall have a valid Zoning Compliance Permit issued by Orange County;

(2) There shall only be one sign limited to eight square feet in area and four feet in height;

(3) Such sign shall not be illuminated by any means;

(4) Sign shall not be located within any public street right-of-way, sight visibility triangle, easement, vehicular area or other similar area; and

(5) The sign message shall be limited to the business name and telephone number.

(F) Parks, Public and Non-profit; Recreational Facilities, Non-Profit; Recreational Facilities, Golf Courses; and Recreational Facilities, Profit

(1) Purpose and Intent

(a) Unlike signs for non-residential development(s), signs for recreational land uses are intended to serve a different function and purpose. Signs within these types of land uses are intended to provide essential information concerning:

(i) Rules and regulations governing the operation of the facility;

(ii) Educational information identifying unique aspects of the facility, the property itself, or significant environmental features that are located on the property; and

(iii) Identification of sponsors or public/private partnerships that are responsible for the development, upkeep, and maintenance of existing recreational amenities.

(b) While some of this information could be construed as being advertising material, the County views such signs as identifying those responsible for the existence of the facility and allows for recognition of entities that have entered into partnerships with the operator of the facility to provide local residents with recreational opportunities.

(vi) Informational kiosks shall be located a minimum of five feet from any active recreational activity fields (i.e. soccer, baseball, football, etc) or one foot from any established nature, man-made trail, and/or passive recreational area.

(vii) Informational kiosks shall be set back a minimum of ten feet from all property lines.

(viii) An informational kiosk may contain the name, logo, or slogan of a sponsor that is responsible for the development/upkeep/maintenance of the recreational amenity subject to the following limitations:

a. The name and/or logo of a sponsor shall not take up more than 20% of the total kiosk area.
b. No other advertising material shall be permitted on the kiosk.

(e) Directional Signs

(i) Shall be allowed in an effort to provide information to visitors on the location of recreational amenities or offices located on the property.

(ii) Directional signs shall be limited to six square feet in area.

(iii) Directional signs shall not include any advertising material.

(iv) All directional signs shall be ground mounted signs not exceeding seven feet in height.

(v) All directional signs shall be located a minimum of five feet from any active recreational activity field or one feet from any established nature or man-made trail, and shall be set back a minimum of ten feet from all property lines,

(f) Scoreboards

(i) One scoreboard, not to exceed 144 square feet, shall be permitted for each athletic field

6.12.14 Additional Standards for Economic Development Districts

In addition to the overall sign standards established herein, the following specific standards shall apply in the Economic Development Districts:

(A) General Standards

(1) A sign plan must be submitted and approved as part of the comprehensive site plan or master plan.

(2) For multiple use sites or buildings, unified directional/informational signs and the use of coordinated individual wall signs is the preferred approach to business identification.

(3) Sign colors must not be overpowering but must accent the building which the sign identifies or on which it is mounted.

(4) The light from an illuminated sign must not be permitted to shine into any road right-of-way or across property lines.

(5) In addition to the prohibited signs in Section 6.12.6, the following types of signs are prohibited in the Economic Development Districts: off premises advertising signs, billboards, inflatable, and portable signs.

(B) Identification Signs

(1) ~~Freestanding Identification~~On-premise Commercial Signs [11]

(a) Only one ~~freestanding identification~~on-premise commercial sign is permitted for each development. However, a second sign may be permitted where a site has more than one vehicular entrance on different sides of the building.

(b) A ~~freestanding identification~~on-premise commercial sign must be placed perpendicular to approaching vehicular traffic so that it is clearly visible and does not obstruct the view of any other identification or information sign.

(c) A ~~freestanding identification~~on-premise commercial sign must be located at least 10-feet from any property line or driveway.

(2) Buckhorn EDD & Eno EDD Only

The following criteria shall govern the number, size, and height of identification signs in the Buckhorn and Eno EDDs:

TABLE 6.12.14.B.3: BUCKHORN AND ENO EDD IDENTIFICATION SIGN STANDARDS	
Maximum Number of Signs	3 per use
Maximum Number of ~~Freestanding~~ On-premise Commercial Signs	1 per use
Maximum Total Square Footage of All Signs	200 sq. ft.
Maximum Size of Any Sign	75 sq. ft.
Maximum Height of Any Sign	12 ft. [12]

(C) Directional/Informational Signs

In lieu of the requirements contained in Section 6.12.11(G), the following requirements shall apply to Directional/Informational signs located in Economic Development Districts:

(1) Information signs must be placed perpendicular to approaching traffic so that they are visible and legible.

(2) Signs must be located outside of the site visibility triangle.

(3) Information signs must be positioned to avoid confusing backgrounds, particularly when they are intended to direct vehicular traffic on or to-and-from the site.

(4) Information signs may be placed no closer than six feet to the edge of a road or drive, and, in no case, may they be located within a street right-of-way unless they are erected by a governmental agency.

(5) Information signs may not exceed four feet in height.

(6) Information signs may not contain advertising material or exceed six square feet in area.

(D) Temporary Signs

(1) Temporary signs may be used for construction and real estate information, and future tenant identification, in accordance with the provisions of this Section.

(E) Awnings

[11] Staff is modifying existing language to ensure we are using consistent language throughout the UDO when identifying a sign.

[12] We are keeping the height of signs erected within our Economic Development Districts the same. From our standpoint there was a conscious decision by the County to have different allowable signs heights for projects in and outside of Economic Development districts and we are going to preserve this distinction.

Open Burning Of Trees, Limbs, Stumps And Construction Debris Associated With The Permitted Activity
The disposal of limbs, stumps and construction debris associated with the permitted activity by means of outdoor fires.

Open Space - (flexible development)
"Primary Conservation Areas" and "Secondary Conservation Areas", as defined in Section 7.13, which are preserved through conservation easements or other restrictions in a flexible development subdivision.

Open Space - (land use intensity)
A. Open space is the total horizontal area of uncovered open space plus half the total horizontal area of covered open space subject to limitations set forth below.
B. Uncovered open space is total gross land area not covered by buildings, plus open exterior balconies and roof areas improved as recreation space.
C. Covered open space is usable open space closed to the sky, but having two clear unobstructed open or partially open sides. Partially open sides is to be construed as 50% or more. Examples of covered space are covered balconies, covered portions of improved roof areas, or space under buildings supported on columns or posts or cantilevered. The square footage countable as covered open space shall not exceed the square footage of the open space sides.

Open Space Ratio
The minimum square footage of open space required for each square foot of gross land area. This area includes parking and vehicular access areas and it can also include balconies, and roofs improved for recreation.

Outdoor Advertising

See Sign, Off-premise Commercial

Outdoor Advertising Industry
The organizations that provide outdoor displays or display space on a lease or rental basis.

Outdoor Lighting
Installation of lighting equipment, whether attached to poles, building structures, the earth, or any other location to allow for the illumination of a building and exterior area(s) within the confines of a defined property line. Included are open air spaces on a property, which are under a roof or other cover and not fully enclosed such as a canopy, pavilion, drive-through bay, or parking deck.

Outdoor Lighting, Cutoff Fixture
A fixture shielded or constructed in such a manner that no more than 2 ½% of the total light emitted by the fixture is projected above the horizontal plane of the fixture.

Outdoor Lighting, Direct Light
Light emitted directly from the lamp, off of the reflector diffuser, or through the refractor or diffuser lens, of a luminaire.

Outdoor Lighting, Fixture
The assembly that houses the lamp or lamps and can include all or some of the following parts: a housing, a mounting bracket or pole socket, a lamp holder, a ballast, a reflector or mirror, and/or a refractor or lens.

Outdoor Lighting, Flood Lamp
A form of lighting designed to direct its output in a specific direction with a reflector formed from the glass envelope of the lamp itself. Such lamps are so designated by the manufacturers and are typically used in residential outdoor area lighting.

A sign structure advertising an establishment, merchandise, service, or entertainment that is not sold, produced, manufactured, or furnished at the property on which said sign is located. This definition includes billboards and other similar outdoor advertising mechanisms.

- Example of an off-premise commercial sign includes:

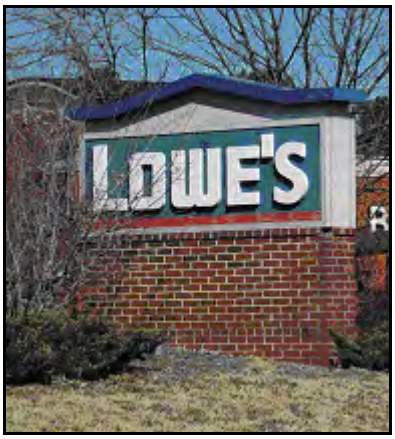
Sign, Off-Premise Religious

A sign located off the property of a religious facility intended to provide directional information as to the location of a specific religious facility. Such signs shall only be erected at major roadway intersections and contain the name and address of the facility as well as a directional arrow to provide motorists an idea of which road is necessary to access the facility.

Sign, On-Premise Commercial

A sign that pertains to the use of the premises where it is located and can include pole mounted and/or ground;monument signs. On-Premise Commercial Signs can contain changeable copy or a reader board so long as the total square footage allowed for the sign is not exceeded. ~~For the purpose of this ordinance, pole mounted signs shall not be permitted. Pole mounted signs shall be considered signs mounted on a single pole or mast rather than on two posts or poles or ground mounted.~~ [13]

- Examples of on-premise commercial signs include:



Sign Owner

A person recorded as such on official records. The owner of property on which a sign is located is presumed to be the owner of the sign unless facts to the contrary are officially recorded or otherwise brought to the attention of the Planning Director (e.g., a sign leased from a sign company).

Sign, Pole

A sign that is elevated above the ground by ~~one or more~~ upright supports placed upon the ground and not attached to any part of a building.

Sign, Political

For the purposes of this Ordinance, a sign used in connection with a local, state, or national election or referendum.

Sign, Portable

[13] Standard moved to Section 6.12.12 (5) (a)