

Exhibit F.

Referenced Exhibits Can Be Viewed As Indicated In The Table Of Contents

Environmental Impact Assessment

for

Herndon Farms

A Chatham County Active Adult Community

26th August 2020

Prepared By



M. Travis Blake, *MSPH-ESE*

ECAC, Inc. 919.260.4881
1506 East Franklin Street, Suite 300
Chapel Hill, NC 27514

Table of Contents

1. Introduction to Herndon Farms
2. Environmental Impact Assessment Requirement
 - 2.1. Scope of Work
 - 2.2. Limitations
3. Purpose and Need of Herndon Farms
4. Project Overview
5. Property Descriptions
 - 5.1. Geography and Topography
 - 5.2. Soils
 - 5.3. Current Land Use
 - 5.4. Existing Environment and Natural Resources
 - 5.5. Public Lands and Scenic, Recreational, and State Natural Areas
 - 5.6. Areas of Archaeological or Historical Value
6. Environmental Impacts
 - 6.1. Air Quality
 - 6.2. Noise Level
 - 6.3. Lighting Levels
 - 6.4. Traffic
 - 6.5. Surface and Groundwater Resources and Watershed Area
 - 6.5.1. Runoff
 - 6.5.2. Fish and Aquatic Habitats
 - 6.6. Wildlife and Natural Vegetation
 - 6.7. Forest Resources
 - 6.8. Protected Species
7. Hazardous Materials
8. No-Action Alternative
9. Conclusion
- References and Citations

List of Exhibits: Exhibit nomenclature has been changed to match all other documents.

1. Introduction to Herndon Farms

Herndon Farms is a proposed active adult community for individuals aged 55 and over on 97.86 acres in northern Chatham County, North Carolina; *Exhibit B.1.4: Vicinity Map*. In keeping with the history of both the property and the county, the project includes a working farm as an integral part of the community design. The farming operations are part of the overall goal to make the project reflective of the area in which it is located and serve as an amenity for the residents. Although the rural landscape is impacted by the housing component, this impact is minimized and the area enhanced by the buffer landscaping, the farm, planned gardens, and unique water features designed for this development.

Saprolite Development Company, the Developer, specializes in projects that uniquely fit the community in which they are built by incorporating desirable components of previous and current land uses. Each project is planned to be as environmentally sensitive as practical, with thoughtful efforts made to incorporate local history and land use. In addition to farming, the Herndon Farms project is planned to have a number of environmentally aggressive components.

- An innovative reuse wastewater treatment system, which includes *Exhibit J.6-AquaPoint's Aquafas Wastewater Treatment System*, additional tertiary treatment processes and onsite treatment. This system will produce highly treated Type 2¹ effluent which will be used in water features, farming operations and landscaping irrigation throughout the project.
- The Developer is partnering with a local concrete company to adapt new production technologies to create carbon-sequester concrete² to be used in the development and elsewhere.
- Community-maintained and professionally planned wildlife observation, documentation and habitat creation during construction and project buildout. This planned program is an amenity for the development and reflects the Developer's goal of creating an awareness of nature for the residents.
- Because of the planned changes to the topography and addition of more absorbent engineered soils, the expected total runoff volume velocity will be greatly reduced. This plan will contribute to less downstream erosion and flash flooding.

2. Environmental Impact Assessment Requirement

2.1. Scope of Work

An Environmental Assessment is required to inform the County and Public about the environmental impacts a project may have on the surrounding communities and environment. If impacts are revealed in the study a description on how they are to be mitigated will be proposed. This formal document is required to be prepared as specified in Chatham County's Subdivision Ordinance, and for the proposed Herndon Farms project, it is also required for the Compact Communities Ordinance for which rezoning is being requested.

2.2. Limitations

This document was prepared by using onsite evaluations, public documentation, government sources, and evaluations by other professionals. Past uses of the parcels was acquired through the current Owners. The Developer is required to follow-up on all requirements of the proposed mitigation of impacts, where they are applicable, and ECAC's involvement ends with the submittal and defense of this document.

3. Purpose and Need for Herndon Farms

The proposed Herndon Farms Community is planned to meet current and future senior housing demand in the region. The housing and amenities, as planned, will provide senior housing that encompasses the idea of aging-in-place, universal housing design, and a rural atmosphere of living. The Developer believes that what they have created will have an improved impact on the quality of life of the residents in Herndon Farms.

The proposed Herndon Farms development will provide residents the opportunity to comfortably age-in-place, should they choose, in a vibrant, amenity-rich environment. This active adult community is designed to meet the specific needs of active seniors but also affords comfortable living for all later-in-life stages.

The planned amenities include a community farm, community gardens with one dedicated to flowers and ornamental plants, a community dog park, a koi pond, and other water features that use reclaimed water. These amenities will give residents opportunities to develop and enhance their social experiences by facilitating healthy community activities and to connect with one another. In addition to contributing to social connectivity, studies have confirmed that all outdoor activities, such as gardening and community farming as proposed by the Developer, have beneficial impacts on people as they age.

While already a growing demographic Triangle-wide, "Empty Nesters" ready to downsize have particularly targeted Chatham County for its proximity to quality healthcare and accessibility to cultural and recreational activities in the Chatham County area.

Additionally, the project incorporates many of Chatham County's expressed goals of providing for the older segment of the population, as specified in Chatham County's Comprehensive Plan.

From the Chatham County Comprehensive Plan

Preferences

The senior population is likely to increase in the coming years, due to the youngest of the baby boomers reaching their older years. Research has shown that Millennials and Boomers have a stronger preference for lower maintenance yards and smaller housing types than other age groups. Making accommodations for the housing preferences of these

two age groups by providing opportunities for well-located housing products, such as cottage, patio homes, townhomes and condos, may help Chatham appeal to a broader demographic.

Goals

1. *Preserve the rural character and lifestyle of Chatham County.*
2. Preserve, protect, and enable agriculture and forestry.
3. Promote a compact growth pattern by developing in and near existing towns, communities, and in designated, well planned, walkable, mixed-use centers.
4. Diversify the tax base and generate more quality, in-county jobs to reduce dependence on residential property taxes, create economic opportunity and reduce out-commuting.
5. Conserve natural resources.
6. Provide recreational opportunities and access to open space.
7. Provide infrastructure to support desired development and support economic and environmental objectives.
8. Become more resilient by mitigating, responding, and adapting to emerging threats.
9. Provide equitable access to high quality education, housing, and community options for all.
10. Foster a healthy community

4. Project Overview

The proposed site plan includes ninety-three (93) single-family homes, sixteen (16) duplexes, thirty-four row houses (34) and nineteen (19) townhomes for a total of 161 residential units. The proposed commercial elements are a ten-thousand square foot (10,000 square foot) single-story daycare, with fitness as an alternative use, and 140-unit independent living facility. The independent living facility will be four (4) stories, 140,000 square feet. *Exhibit B.3 – East Side Site Plan* and *Exhibit B.2 – East and West Side Site Plan* both show the current detailed site plan.

5. Property Descriptions

The 97.86 acres that make up the proposed Herndon Farms project is bisected by the north-to-south US Highway 15-501. Approximately 40 acres are located on the west side of 15-501 and approximately 58 acres are on the east side of 15-501. Other than the placement of the wastewater treatment facility, all the development's activity will take place on the east side of 15-501. The current zoning of all parcels is residential. The Developer will seek to rezone the

project site to Compact Community, as per Chatham County's Compact Communities Ordinance.

Current uses of the project site are residential and tree farming. Past uses, going back one hundred or more years, were mainly subsistence farming and residential. A country store was located on parcel 18909 but was removed for the widening of 15-501. There is a small swell that runs through the east side parcels, which was the old roadbed for the road that went from Pittsboro to Chapel Hill, before being relocated to its current route. More information on past uses is provided in *Exhibit B.7.10 – History of Area*.

5.1. Geography and Topography

The project site is in the Carolina Slate Belt. The Carolina Slate Belt consists mostly of rocks originally deposited on or near the earth's surface by volcanic eruption and sedimentation (North Carolina Geological Survey 1985). This area is referred to as the Carolina Slate Belt because low-grade metamorphism has given many of the rocks a slaty cleavage. The area is cut in several places by coarse-grained intrusive rocks, generally termed granites, that are relatively undeformed because they apparently intruded following the metamorphism that affected the sedimentary and volcanic rocks.³

Many boulders can be seen strewn throughout the project site. These boulders exist from the earlier sedimentation processes and were most likely excavated during farming, home building and the construction of the old Pittsboro-to-Chapel Hill road which transverses the parcels on the east side of the development.

Exhibit B.1– Current Project Site Conditions is a map of the project site that shows the current conditions and contours. There are no natural water features on the project site and timber removal 15 years earlier has reduced the vegetative tree cover to mainly trees 10-inch caliper or less. Some trees were left from the timbering process to reseed after the clear-cut, these are larger in caliper. These are mainly red maple, poplar and a few oaks. There are several native American hollies trees (*ilex opaca* Aiton) which will be saved for replanting. There are also several cultivated trees which will be tagged and saved for use in the proposed project.

There are no prime farmlands on the project site. The purposed community farming activity is planned to include built-up soils to accommodate the indicated areas of crops and pastures. The reuse wastewater effluent will be used to irrigate these areas. As previously discussed, the effluent from this facility is planned to be Type 2, which meets a higher standard and is permitted for this purpose.

5.2. Soils

Exhibit B.7- Soils is the soil map made by S&EC for the project site to calculate loading rates for the proposed onsite wastewater treatment system.

Areas containing the Wehadkee soil series have been determined to be farmable area only if they are drained and protected from flooding or not frequently flooded during the growing

season. Within the project site, alluvial Wehadkee type soils are found. However, these soils are not currently used by farming and these areas are not planned to be part of the disturbed areas of the proposed project.

5.3. Current Land Use

The major feature of the east parcels and the eastern corner of the west parcels is the 90 to 120-foot Duke Power easement which cuts the east portion of the project site in two sections. The approximately 97.86 acres is made up of two residential parcels and three undeveloped parcels, all of which contain various crisscrossing easements. The Developer has assembled what are normally referred to as orphan lots and parcels that would be difficult to form any sizable community. However, with the thoughtful design, creative use of the Duke Power easement, and the available Compact Communities Ordinance, the Developer has created a unique project that, when built, should enhance the appearance of the Duke Easement and unify the hodgepodge appearance of the other parcels. Projects such as this, if done in a denser, urban area, are referred to as infill projects.

The two residences and associated structures on the project site will be removed during construction.

The East Side parcels are adjacent to commercially zoned parcels on two sides, a veterinary practice, and a commercially zoned vacant lot. The rest of the adjoining parcels are zoned residential. Herndon Farms is predominately residential, however, denser than the surrounding parcels.

5.4. Existing Environment and Natural Resources

There are no existing streams, wetlands, or other types of natural water features on the project site. The project site contains no prime farmland, as per the soil report discussion, nor other desirable natural resource that would need to be consider when the project site is developed.

5.5. Public Lands and Scenic, Recreational, and State Natural Areas

The project site does not contain any Public Lands, Scenic Locations, Public Recreational Facilities or specified Natural Areas. The trails of the Briar Chapel Community are connected to the west side of the project site. The Developer plans to work with Briar Chapel to study expanding the trail system into the proposed project.

5.6. Areas of Archaeological or Historical Value

The project site contains no known archeological or historic sites. ***Exhibit B.7.10 – History of Area*** is cited as a source of the history of the area. A small farmhouse that was built in the late 1800, burned in the 1900s, then rebuilt after that, has no have historical value will be removed. Some associated structures currently used for residential farming operations, also have no historical value and will be moved or rebuilt.

6. Environmental Impacts

6.1. Air Quality

Chatham County is in attainment status with respect to National Ambient Air Quality Standards and had nonattainment in only the years 2004, 2005 and 2006⁴. The north eastern portion of Chatham County, Wake County, Orange County, Durham County, and the north western half of Johnston County are currently within a North Carolina Recommended 8-hour Ozone Non-attainment Boundary. Non-attainment areas are those that have pollutants, such as ozone, that exceed federal air quality standards.

Below is the data for the Raleigh-Durham Area for 2019 from the EPA, which indicates the increasing improvement in air quality for our area from earlier nonattainment years.

No. of Days with AQI Values
Good < or = 50: 240
Moderate 51-100 :121
Unhealthy for Sensitive Groups 101-150: 0
Unhealthy 151-200 :0
Very Unhealthy 201-300 :0
Hazardous > 301: 0

There will be no significant negative impacts to air quality from the proposed project at buildout. During the construction phase of the proposed project, operation of machinery and equipment will produce emissions resulting from the combustion of petroleum products. Construction specifications for the proposed project will require mechanical equipment to meet emissions standards established by the State of North Carolina. There will be no burning permits required or sought, as all organic material will be ground and composted for reuse onsite for erosion control and soil augmentation.

There is always the potential for odors to be produced by an on-site wastewater treatment system. The system designed for the proposed project is aerobic rather than anerobic. Aerobic plants do not produce odors unlike an anerobic treatment system. In addition, the plant is located far from any existing residential and commercial sites, holding ponds are oversized and aerated, further reducing odor potential from treatment sources, and the collection system is predominantly gravity, which will avoid line break spills.

6.2. Noise Level

The only times of significantly elevated noise levels will be during the temporary period of horizontal construction to prepare the project site and vertical construction of the proposed buildings. Once construction is completed there is no noise-generating activity that would be detectable offsite that is not already in place namely farming and landscape maintenance of the current 40 acres.

The on-site wastewater treatment system produces only minimal noise created by the small aeration motors and is located well beyond where this noise can be detected by surrounding development. *Exhibit J.6.1– AquaPoint Noise Controls*

6.3. Lighting Levels

Lighting will meet or exceed all of Chatham County's lighting requirements. In addition, although the proposed project contains an excess of 100,000 square feet of commercial space, the space will require little area lighting and there is no planned retail space that uses excessive lighting. The Developer is committed to providing a lighting plan and fixtures to make the proposed project safe but with as little impact as possible on offsite wildlife and neighboring properties. ***Exhibit B.5– Duke Power Lighting Plan-*** shows the lighting plan for an earlier site plan, which demonstrates the intent by the Developer with Duke Power to meet or exceed the Chatham County Lighting Ordinance that regulating offsite land and sky lighting impacts.

6.4. Traffic

Exhibit E – Traffic Impact and Mitigation is the traffic report from Kimberly-Horn, which shows the potential increase in traffic count for the area and their analysis of the proposed project's traffic impact. This section of the report also details the improvements to 15-501 that will mitigate the increased in traffic the proposed project will generate.

6.5. Surface and Groundwater Resources and Watershed Area

There are no surface water sources on the site.

A non-discharge permit from the North Carolina Division of Water Quality will be necessary for the operation of the on-site wastewater treatment system.

Of the four deep wells known to exist on the project site, three are not in use and will be properly abandoned once grading begins. The remaining, highly productive deep well (50+ GPM) may be retained, if needed, to augment landscaping or other uses. However, the high-level treatment of the reuse wastewater will most likely make this well unnecessary. There is no activity that should have a negative effect on the groundwater. Recharging of the shallow groundwater will increase from the current rate once the site grade is reduced and artificial water bodies created.

Groundwater fluctuates from 14 to 24 feet and potable water wells on the site range from 130 to 320 feet. The drinking and fire control water source for the proposed project will be a connection to the Chatham County water distribution system.

The project site is in the Haw watershed of the upper Cape Fear River Basin. Jordan Lake is classified as "Nutrient Sensitive Waters", (NSW), which are those that have the potential to be impacted by high levels of nutrients from surface runoff in their watershed area. These rules were designed to improve and or maintain water quality in the Jordan Lake.

6.5.1. Runoff

The clearing and grading for the proposed project will result in soil disturbance only on the east side of the proposed project, except for a small area on the west side of the proposed project for the wastewater facility. The balanced-site grading process will move earth and

rocks from the higher elevations to the lower elevations and, when completed, stored topsoil will be placed back on areas to be landscaped. In addition, a mix of suitable soils, organic matter and off-site material will be applied to areas for gardening, animal pastures, and landscaping. During clearing and grading, some soils will be eroded, but the impacts from this will be minimized by following an approved site plan that conforms to the requirements of the North Carolina Sedimentation Pollution Control Act of 1973. No contamination of soils is expected from the development of the proposed project.

Runoff from the property eventually makes its way to Jordan Lake via Pokeberry Creek, which is more than a mile from the closest point of land disturbance on the east parcels.

6.5.2. Fish and Aquatic Habitats

There are no natural water features on the project site. Artificial wetlands, intermittent streams and holding ponds will be created during site preparation as part of the wastewater treatment system; these features will be encouraged to naturally populate.

6.6. Wildlife and Natural Vegetation

Because of the historical use of the land mainly residential subsistence farming and tree farming there are no desirable established vegetative or wildlife communities on the project site. The land is populated by native sapling trees, maple, pine, poplar, oak, hickory, sweetgum, and minor understory trees. The Developer plans to leave approximately 40 acres of this area undisturbed to continue the process of regrowth towards the next stages of forest growth seen in this part of North Carolina.⁵

The land-use activities, as previously discussed, have discouraged the establishment of invasive species. In addition, maintenance of the Duke Power easement, which has changed from mechanical control to primarily herbicide control, has greatly reduced the vegetation in that area. Once development or the proposed project is underway, the easement will be maintained by the community association and there will no longer be a need for broadcast herbicides to be used on the project site.

6.7. Forest Resources

Approximately 60 acres of the project site are currently designated for tree farming. Since the last cut, most of the land is within 10 years of its next productive harvesting of pulpwood and timber. The relatively small source of timber and pulpwood is not a significant impact on forest resources in Chatham County's over 18 million acres land available for timbering⁵.

6.8 Protected Species

No species classified as endangered, threatened, or a candidate for either by the US Fish and Wildlife Service has been found on the project site- **Exhibit B.7.11**. The red-cockade woodpecker is the only endangered species that could be present because of the existing habitat, but this bird has not been observed or reported in this area.

One of the planned community programs for residents will be the identification and documentation of the wildlife on the proposed project, with a focus on the west side 40 acres. As the vegetation on the west side of the project matures, participants will be able to document what wildlife returns to the project site. Wildlife in general will be encouraged to return to the proposed project through the installation of habitats such as ponds, wetlands, bat and bird house and appropriate wildlife feeders.

7. Hazardous Materials

There are no hazardous materials currently on the project site nor will there be any used or stored. The Homeowners Association rules and regulations will prohibit the use of pesticides unless acceptable chemicals are on an approved list. The proposed project's landscaping is planned towards low maintenance plants and features, reducing the need for chemical maintenance.

8. No-Action Alternative

The proposed Herndon Farms project will be making the best use of the land for where it is located. The proposed project meets the stated desires and needs of Chatham County and as planned will add to quality of life in the area. If the project does not go forward at this time, it is most likely that the land will be further broken up into smaller parcels for various uses and the highest and best use of the land, as currently envisioned, will be lost. As per all previous discussion there are no environmental or land use reason for this area not to be developed.

9. Conclusion

The proposed Herndon Farms project was conceived and planned to provide much needed housing in the active adult, 55 and over market and, at the same time, have a positive effect on the environment and quality of life for the surrounding area in Chatham County. Whenever possible, the Developer has sought to minimize or eliminate the impact on the environment by the proposed project on the project site. When completed, the proposed Herndon Farms project is planned to meet all environmental guidelines and limits placed on development projects by County, State and Federal Agencies.

Citation Sources or Links

¹NCDWQ Type II and Type I Effluent: 15A NCAC 02U .0301 RECLAIMED WATER EFFLUENT STANDARDS.

² <https://www.scientificamerican.com/article/cement-from-carbon-dioxide/> and <https://www.carboncure.com/>

³ <http://rla.unc.edu/Publications/pdf/ResRep25/Ch2.pdf>

⁴ https://www3.epa.gov/airquality/greenbook/anayo_nc.html

⁵ <https://dukeforest.duke.edu/forest-environment/forest-succession/>

⁶ <https://www.ncforestservice.gov/publications/2017BiennialReport.pdf>

Exhibit F.1

Addendum to EIA

The following information is provided in response to the peer review performed by Johnson, Mirmiran & Thompson, Inc. dated September 18th, 2020 of the previous information submitted.

The Environmental Impact Analysis (EIA) performed by ECAC, Inc. is limited in scope and is does not to provide all the detail outline in Section 6.2 B of the Chatham County Subdivision Regulations for Final Plat Submission. The EIA submitted addresses all the available information available in 6.2 B for Rezoning and First Plat Subdivision Approvals. Section 5.2 of the Major Subdivision Information Packet states *“(1) Assist the developer in the sound, environmentally appropriate, and economical development of his/her property through the examination of the suitability of the property for subdivision development before surveying expenses and improvement costs are incurred”*

Some of the information identified as “deficient” is not required at this point in the permitting process but will be available when detailed surveys and subsequent engineering are completed for this project before Final Plat. As the project progresses more detailed information pertaining to site plans, engineering and permits will be submitted as required, meeting the requirements for the Final Plat. However, this Addendum addresses point by point questions raised by the peer review. Subsequent to the EIA submission, preliminary rezoning and subdivision documents became available to the developer for review. These documents contain information relevant to the reviewer’s comments. Exerts from this preliminary submission, when appropriate, are included.

Reviewer’s Comments and Responses

1. Describe the overall project in detail, including all proposed phases. Reviewer’s Comments: *A complete discussion about proposed phases is not provided. Page 6 project overview discusses what will be built, but there is no discussion about timing and phasing. There is discussion about Millennials, but the intro says this a 55+ community. Are both age groups being targeted?*
 - a. Herndon Farms is a single-phase project.
 - b. Build-out is expected to take approximately four years from the time the site is ready for construction.
 - c. There is no discussion about Millennials in the EIA; the citation with this single reference is a direct quote from the Chatham County

Comprehensive Plan concerning “Preferences” and “Goals” by the County. Herndon Farms is an “Active Adult” community also referred to as a fifty-five-and-older community for seniors.

2. Provide a project location map showing surrounding areas.
 - a. Satisfied
3. Provide a project site plan showing existing and proposed facilities. Reviewer’s Comments: *Site drawings do not show proposed wastewater spray locations, gardening areas, utility connections. A Care Facility and Day Care is shown on the figure but not discussed. Please explain. The report mentions 60 acres that are currently “designated for tree farming”. Not shown on mapping. Does this mean the tract is certified Tree Farm?*
 - a. Preliminary wastewater reuse areas are show in **Exhibits J.1 and J.2**.
 - b. Utility connections to the Chatham County water system, other detailed utility information such as road bores will not be decided until a detailed survey and engineering are performed.
 - c. Preliminary garden areas are shown in the landscape plans **Exhibit B.4**.
 - d. The 140-unit congregate care facility and daycare are shown on the site plan **B.3**. There are no specific vendors for either facility. In both cases the typical characteristics associated with operation of each type facility is expected.
 - i. The planned congregant care facility, also referred to as an independent living facility, is residential in nature having community dining with additional activities, health/fitness, and living amenities provided for the senior residents. Health care/nursing care for the residents is not provided by this facility.
 - ii. The daycare is planned to be a typical daytime childcare facility serving infants through kindergarteners.
 - e. The tree farm tax designation is one of the existing conditions of some the property. This designation will cease once rezoned.
4. Describe how this project fits into larger plans or connects with adjacent projects.
 - a. Satisfied
5. List and describe public facilities or benefits provided by the project. Reviewers statement of exceptions. *Mentions possibly expanding the Briar Chapel trail system, but it is lacking details. Would the trails connect across 15/501? How would that happen? The way the existing Briar Chapel trail and spray systems are configured, the trails are in the spray pattern and recreational users occasionally get sprayed. The trails*

are adjacent to the west property where the wastewater would be sprayed, how would the trail system be configured so as to not have conflict as currently occurs at Briar Chapel? Discusses addition of "community farming" and "gardens", but only pasture areas are indicated on drawings. Will the day care be open to the public (people outside of Herndon Farms?).

- a. Any trail system attached to the Briar Chapel Trail system would have to be approved by Briar Chapel. The EIA states that this possibility will have to be studied with the cooperation of Briar Chapel; only preliminary discussion have taken place and any future agreement will be between the HOAs of both communities.
 - b. A crosswalk across 15-501 to Briar Chapel has been requested and is under study by NCDOT. **Exhibit E.1.2**
 - c. The site plan Exhibit B.2, B.3 and landscape plans Exhibit B.4., indicate the preliminary areas of pastures, gardens, and barn.
 - d. Details of the community farming operation have not been decided but will be driven by the community HOA.
 - e. Since the community is an Active Adult Community (no children allowed as residents) the daycare is for clients outside the community.
6. Discuss the land acreage to be disturbed during each phase.
- a. The development's preliminary "Stormwater and Grading Plans" plans are attached as Exhibits **B.6.1, B.6.2 and B.6.3**. This is a site-balanced project on the east side of 15-501. Most of the 53 acres on the east side will be cleared, topsoil stored, excavated and leveled to an approximately 5% grade; this is a single phased project. The area to be disturbed on the west side of 15-501 is limited to the wastewater treatment facility. Connection to the facility from the east side will necessitate a road bore and will most likely be located along the northern perimeter of the Duke Power easement.
7. List square footage and height (in stories) of new buildings.
- a. The square footage of the homes and buildings on the preliminary site plan may vary from the final site plan even after the final site plan is approved. The total number of residential units proposed, and the total square footage of the commercial area could also be reduced, but not increased. At the point of construction, each unit will have to acquire a Chatham County building permit that must meet the restrictions of the "to be approved" zoning, subdivision and building requirements.
8. Describe proposed uses of all buildings and proposed facilities.

- a. Satisfied
- 9. Show number of parking spaces in parking lots and decks.
 - a. Satisfied
- 10. Show areas to be cleared, graded, filled, paved and landscaped. Reviewer's Comments: *Cut and fill estimates are not provided, and grading limits are not shown. Limits of disturbance are not shown.*
 - a. The preliminary grading information is shown in Exhibits **B.6.1**, **B.6.2** and **B.6.3**.
 - b. Grading
 - i. Stored soil volume is approximately 42,900 cubic yards
 - ii. Cut volume is approximately 133,714 cubic yards
 - iii. Fill volume is approximately 135,668 cubic yards
 - iv. Engineered soil replacement will be approximately 80,000 cubic yards.
- 11. Show connections to existing utility and sewer lines or new utilities. Reviewer's Comments: *Location of the proposed wastewater plant is shown, but connections to it are not shown. Treated water is discussed for irrigation use, but connection to wastewater plant not shown.*
 - a. Utility connections and road bores will not be decided until a detailed survey and engineering are performed. This level of engineering is not provided at this stage of the rezoning and subdivision process. However, because of the elevation difference the sewer collection system will most likely be gravity and not a pressure system. The route of the main collection line may be place on the northern perimeter of the Duke Power easement on the western parcels.
- 12. Show wastewater management systems on a map. Reviewer's Comments: *Proposed spray areas not shown and no explanation of where that will be is given. More information is needed about the wastewater treatment facility. What is the expected daily load? How big will the treatment plant be (mgd and total square footage), what is the capacity, Will there be treatment/settling basins? What will be the disposition of the sludge? Will other communities be able to connect in the future? What will happen to the water that is not reused by the community? Will it be sprayed? If so, where? Is expansion planned?*
 - a. Exhibits **J.1** and **J.2** show the reuse Type 2 effluent discharge areas and types areas.
 - b. The following are exerts from the preliminary zoning and subdivision submissions:

- i. Wastewater Management: Herndon Farms has a design load of approximately 87,000 gallons per day (GPD). Our application to NC Department of Water Quality (DWQ) requests a 50% reduction for the installation of water saving devices in all the homes and businesses, making the actual water use and wastewater needs to be 43,500 GPD. Current calculated and verified usages for similar facilities are approximately 34,000 GPD.
- ii. The Wastewater Request being submitted by ECAC to DWQ for review is for the non-discharge permit needed for the onsite treatment system; see **Exhibit J**. The AquaPoint system uses an aerobic treatment technology, which is much more efficient than anaerobic treatment and which has low odor and noise impact. The treatment facility located on the westside parcels will produce a Type 2 effluent that is cleaner and has more allowed usages than Type 1. The attached citation in, **Exhibit J** "15A NCAC 02U .0301 RECLAIMED WATER EFFLUENT STANDARDS" from the NC Division of Water Quality specifies the difference between the two effluents.

13. Show proposed areas of impervious and semi-pervious surfaces

- a. The Site plans **Exhibit B.2** and **B.3** proposes the following:
 - i. Impervious shown is as 19.7% well under the limit for the Compact Community's and Jordan Lake's NSW (nutrient sensitive waters) designation which requires a limit of 24% in its watershed area. Impervious numbers will change when detailed engineering is completed but will not exceed the limit of 24%.
 1. Developer's calculations for impervious are 21.49% which includes patios and sidewalks around the homes.
 - ii. Some optional semipervious surfaces may be used instead of paved parking. The 50% potential credit for these areas is not included.

14. Show and describe any proposed stormwater control devices. Reviewer's

Comments: SCMs are shown, but no details are given about sizing, type of SCM proposed, pipe connections, discharge, or maintenance.

- a. The preliminary storm control plans are attached as Exhibits **B.6.1**, **B.6.2** and **B.6.3**. Detailed SCM information will not be decided until a detailed survey and engineering are performed before Final Plat.

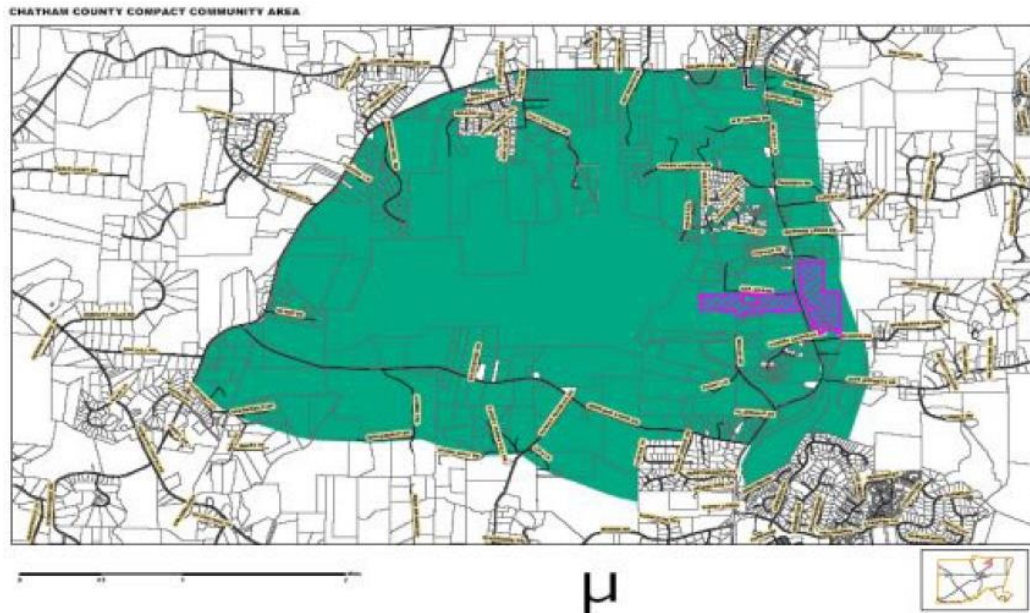
Alternative Analysis

1. Discuss and compare all reasonable development alternatives (site selection, facility layout, utilities, stormwater management, construction methods, open space preservation, any other pertinent alternative considerations. Reviewer's Comments: *No discussion of facility layout alternatives, options for other utility alternatives, or alternative stormwater treatment methods. The report mentions 40 acres on the west side of 15/501 remaining undeveloped aside from the wastewater treatment plant, however "open space" is not discussed.*
 - a. Site selection
 - i. Herndon Farms is in the only designated area a Compact Community is allowed by Chatham County. The landowners and developer have determined that this is the highest and best use of the property.
 - b. The developer has chosen to build its own onsite wastewater treatment system. Connection to the Briar Chapel system has been offered, but the developer has chosen to pursue development of its own system.
 - c. The following information is repeated from the rezoning submission documents concerning stormwater and final engineering will meet these requirements.
 - i. "In order to meet the watershed protection ordinance and the Nutrient Sensitive Waters (NSW) requirement for the Herndon Farms project, the site will provide stormwater management facilities that meet the requirements of the high-density option from the NPDES Phase II stormwater regulations. The main criteria that will be addressed are as follows:
 1. The measures shall control and treat the difference in stormwater runoff volume leaving the project site between the pre- and post-development conditions for the 1-year / 24-hour storm. Runoff drawdown time shall be between 2 to 5 days.
 2. All structural stormwater treatment devices will be designed to provide a minimum of 85% average annual removal for Total Suspended Solids from stormwater runoff generated from proposed impervious surfaces."
 - d. Open space information is shown on the site plans, Exhibits **B.2**, **B.3** and is calculated to be 41%. This number will change when final detailed

engineering has been completed but will meet the minimum requirement of 30%.

2. Discuss how the preferred alternative was selected and its benefits relative to other alternatives (including a no-build alternative, if applicable). Reviewer's Comments: *The no build alternative is discussed, but no other alternative to the proposed development is provided.*

- a. This project is requested to be rezoned under the Chatham County's Compact Communities Ordinance. This ordinance will allow for a denser residential area and allow for a high amount of commercial space. The location of a Compact Community is restricted to a specific area of Chatham County. This is because the County has deemed the designated area to be appropriate for this type of development and is the highest and best use for the land in this area. The area allowed to be developed under the CCO is as per the following map. The Herndon Farms development is in purple.



- b. The Developers analyzed other uses and other rezoning options. The landowners and the Developers concluded that taking advantage of the CCO was the best option for the project location.

Existing Environment and Project Impacts For each resource topic below, describe:

1. (A) Existing resources and conditions. Reviewer's Comments: *The land on the west side is described as young immature forest regrowth from logging which is partially accurate. This area also contains a large proportion of mature hardwood stands.*

- a. The attached vegetative land cover map in **Exhibit B.7.1** SAEC Maps, page 8, “Vegetative Land Cover Map” and on ground verification show that there are few substantial hardwoods on the west side of the property. The dominant tree is regrowth pines from past logging activities and sporadic small hardwoods within these areas. Some larger hardwoods are present, but not as substantial stands of hardwood trees, except a small area adjacent to Briar Chapel, shown as brown hatch of mixed upland hardwoods on the vegetative map. These trees and the other sporadic hardwoods were left from the last logging operations to promote reseedling.
2. (B) Anticipated impacts (short-term construction impacts, long-term operation impacts, and indirect or secondary impacts.) Reviewer’s Comments: *Indirect impacts have not been discussed. Discuss indirect impacts to water quality and wildlife. A Traffic Impact Analysis (TIA) is included, but several aspects of the study are based on proposed actions of other developers in the area. One of these developments, Williams Corner, has been postponed and the other, Vickers-Bennett has not yet been reviewed or approved by the County. Also, the TIA includes an anticipated traffic count from the daycare, but the approximately 55 vehicles per peak seems low for a 10,000 square foot facility. Indirect and secondary impacts from wastewater are not addressed. See 12 above - What will be the disposition of the sludge? What will be the impacts to water quality from that? Are additional connections planned in future? Discuss those impacts. What will happen to the water that is not reused by the community? Will it be sprayed? If so, where? Discuss impacts to water quality. Is expansion of the plant planned? The report mentions that the 40 acres on the west side of 15/501 will not be developed except for the wastewater treatment plant. The report also states that this tract will be allowed to revegetate. Will that interfere with the operation of the WWTP?*
 - a. Indirect impacts to water quality have been included as the development is meeting all local, state and federal requirements for stormwater runoff.
 - b. Impacts to wildlife and other natural communities are discussed in **Exhibit B.7.2** the Natural Heritage report.
 - c. Indirect traffic impacts are considered. Williams Corner is not delayed and is appropriately included in the study. The reviewer may not be aware that Williams Corner is being resubmitted with entirely different types of uses. In addition, the following comments are from of Kimley-Horn.
 - i. *“As required by NCDOT and per standard practice, we included both the trips from these developments along with the improvements proposed; if the project or projects are postponed or canceled, then the improvements won’t be there but the trips won’t be either.”*

- ii. *“Our source for trip generation calculations was the Institute of Transportation Engineers Trip Generation (10th Edition), which is the widely-recognized standard for trip generation, and those were reviewed and approved by NCDOT. Also, the TIA datasheet and the text in the report agree with ITE trip generation of 110 trips (58 in and 52 out) in the AM peak hour and 111 trips (52 in and 59 out) in the PM peak hour.”*
 - d. The Type 2 effluent from the wastewater treatment facility will be used for water features throughout the development, drip irrigation, artificial wetlands, wetland enhancement and spray irrigation. **Exhibit J.1** and **J.2** show some of these areas. Final grading plans will need to be available to determine the location of artificial wetlands and other water features.
 - i. The current water balance gives the development potential treatment capacity of 70,910 GPD. However, most of the land on the west side of 15-501 will not be used.
 - e. The operation of the wastewater facility will be by a private or public utility company qualified for this service such as Aqua America or EnviroLink. Specific details concerning the operation of the facility, such as sludge disposal and excess capacity, will be part of the NPDES permit required for the facility. This permit will be applied for once rezoning has been completed. Exhibit J further details the NPDES and DWQ application information.
- 3. (C) Discuss how potential impacts to the resource will be avoided and minimized through alternative selection, design strategies, construction methods, and long-term maintenance procedures. Reviewer's Comments: *Alternative analysis, design strategies, and, and maintenance are not provided in sufficient detail. Construction methods are not discussed.*
 - a. The current development design, layout, and features have been determined to be the best possible use of the property. Public input has and expected reviews from Chatham County will additionally verify the direction of the project. Under current zoning and regulations, the developer has over an eight-year period determined that this senior development is desired and needed in Chatham. The Chatham County Comprehensive plan encourages this type of development and the Compact Community Ordinance encourages its location.
 - b. Specific construction techniques, final grading plan, final utility placement, building designs, building construction and maintenance of the project are not available at this point in the permitting process.

4. (D) For unavoidable impacts, describe whether any compensatory mitigation is planned or required. Reviewer's Comments: *Will the developer construct the recommended improvements as laid out in the traffic analysis? The report does not state this one way or the other.*
 - a. The Developer will be responsible for constructing the recommended traffic improvements.

1. Geography

- a. Discuss the geographic setting, geology, and topography of the project area and adjacent areas.
 - i. Satisfied
 - b. Provide a topographic map of the property and surrounding area, use the county GIS website topography (2' contours interval) data at a scale appropriate for the project size, i.e., 1" = 100', etc.).
 - i. Satisfied
 - c. Identify any 100-year floodplains (FEMA Special Flood Hazard Areas) on or adjacent to the property. If present, provide an appropriate-scale map of the flood-prone areas defined by the NC Flood Mapping Program.
 - i. Satisfied
 - d. Show areas that will be graded or filled and provide estimated cut/fill volumes.
 - i. This detailed information will not be available until after rezoning and subdivision approvals. Refer to preliminary grading plan, **Exhibits B.6.1, B.6.2 and B.6.3**, indicated cut and fill as indicated and discussion in Section 10, b, i.
 - e. If the project includes pond or dam work, show areas that will be flooded.
 - i. Not Applicable
2. Soils and Prime Farmlands
- a. Identify dominant soils in the project area (county GIS or NRCS website) and show on a map. Reviewer's Comments: *Neither parcel boundaries or project limits are shown on the soils map. Hard to tell if the entire area is shown.*
 - i. Revised soil maps are attached as Exhibit B.7.1 SAEC Maps, page 3.
 - b. Discuss any soil constraints (fill, wetland soils, septic suitability, slopes, etc.) and indicate those areas on a map.
 - i. Satisfied.

- c. Describe any soil disturbance or contamination expected as a result of this project.
 - i. Satisfied
- d. If contamination is expected, discuss containment plans and procedures.
 - i. Not Applicable
- e. If soil will be relocated, specify the number of square yards/feet to be moved, and its relocation site.
 - i. Preliminary Grading Plan Exhibits **B.6.1**, **B.6.2** and **B.6.3** and Section 10, b, i.
- f. Describe runoff management plans for the project. Reviewer's Comments:
States that "Because of the planned changes to the topography and addition of more absorbent engineered soils, the expected total runoff volume velocity will be greatly reduced. This plan will contribute to less downstream erosion and flash flooding." However, no explanation or data is provided to support this claim. Is use of this proposed as a part of the stormwater management plan? Please provide more information on the addition of 'absorbent engineered soils' and quantity anticipated.
 - i. The current topography allows for rapid runoff from a rain event. After the site is graded, engineered soils distributed, and stormwater controls in place the site should have less rapid runoff than preconstruction volumes. This includes the allowance for impervious surfaces. Specific details will be available after rezoning and subdivision approvals and final engineered plans are provided.
 - ii. Current soils in this area have an absorption calculation (loading rate) of about 14.6" per year. The engineered soils are designed to have a loading rate between 12" and 40" per year. These soils will be mixed on site and applied to approximately 33 acres of the project.
 - iii. The reduced slope, artificial water features and more absorbent soils will contribute to the reduced runoff of the site and therefore also increase groundwater recharge and reduce runoff volume. The calculations for this will be available in the appropriate permits before grading begins.
 - iv. These calculations will be part of the stormwater design parameters and will be available after a detailed survey and engineering are performed before Final Plat
- g. If soil disturbance is proposed, describe the off-site impacts expected from this activity.

- i. Please refer to Preliminary Grading **Plan Exhibits B.6.1, B.6.2 and B.6.3** and Section 10, b, i.
- h. Provide a map of any prime or unique farmland soils in the project or service areas, and include reference used to make this determination.
Reviewer's Comments: USDA NRCS Websoil survey indicates that HeB and WeB are prime farmland soils and WeC and WeD are farmland soils of statewide importance, but the report states there are no prime farmland soils on site. Please clarify
 - i. **Exhibit B.7.1**, pages 1-15 show past and current farmland type soils. No farmland is currently under cultivation. However, the development will have approximately 15 acres that will be used as pastures and community gardens. This number will vary as the project progresses through permitting.
- i. Describe impacts to prime or unique farmland soils, including acreage estimates of lost farmland soils and retained farmland soils.
 - i. None of the current parcels are being cultivated.
 - ii. **Exhibit B.7.1**, pages 1-15.

3. Land Use

- a. Provide a map showing current use of land on the site and surrounding properties.
 - i. Satisfied
- b. Discuss how the current land use fits into the surrounding area (conservation, development, ecological function, etc.)
 - i. Satisfied
- c. Provide the current zoning of the project site and the surrounding area.
 - i. Satisfied
- d. Discuss how the proposed uses fit into the intended land use of the area (conservation, development, ecological function, quality of life).
 - i. Satisfied
- e. Indicate whether zoning or local land use plans will need to be changed after project completion.
 - i. Satisfied

4. Wetlands

- a. Indicate whether wetlands are present, describe the basis for this determination and identity of the person who made the determination.
 - i. Please refer to **Exhibit B.7.1**, page 5. Topographical Map.
 - 1. All the potential wetlands areas are on the Duke Power easement. Before the final grading plan is scheduled these

areas will have their final delineations and avoidance will be done as needed. Even if the areas are determined not to be jurisdictional wetland by the USACE, which is likely as they do not enter a stream, the areas will also be submitted to NCDWR to make sure they agree with the assessment.

- b. Show identified wetlands on a map, and describe all relevant details, such as acreage, types, delineation, function, etc.)
 - i. See **Exhibit B.7.1**, page 5.
 - ii. One area is about ½ acre and the other two about ¼ acre.
 - c. If wetlands are to be filled, specify the number of acres that will be affected.
 - i. Not applicable.
 - d. List all required permits and permitting agencies.
 - i. There are no permits required at this time for rezoning, As the development progresses Herndon Farms will need at the minimum following permits, other permits pertaining to building construction will also be required.
 1. NPDES non discharge permit for wastewater
 - a. NCDWQ will require permits for reclaimed water use
 - i. 15A NCAC O2U
 2. NCDWQ permits for erosion controls during grading
 3. NCDOT access and road modification permits
 4. Chatham County Land Disturbing Permit
 5. Others as required
 - e. If any diversions/additions/withdrawals of surface water will affect wetlands, describe those activities.
 - i. Not Applicable
5. Public lands and Scenic, Recreational, and State Natural Areas
- a. Provide a map of County or municipal parks, scenic, recreational or state natural areas (SNHAs, State or Federal Forests, etc.) on or adjacent to the site/project area. Reviewer's Comments: *The document states that there are no "Public Lands, Scenic Locations, Public Recreational Facilities or specified Natural Areas" on the property. What about in the vicinity? Where is the nearest? The applicant should include an NHP query for the site to document these claims. The report states that the trails of the Briar Chapel Community are connected to the west side of the project site and the Developer plans to work with Briar Chapel to study expanding the trail system into the proposed project. Would the trails connect across 15/501? How? Is the west side*

where the wastewater would be sprayed? Currently, the Briar Chapel trail system is in close proximity to areas of the wastewater spray system and users come into contact with sprayed discharge. How would the Herndon Farms trail system be configured so as to not have that conflict?

- i. The one area of the project that indicates NHP boundary **Exhibit B.7.2**, is on the back portion of the west side of the development and is not part of the area to be disturbed.

6. Areas of Archaeological or Historical Value

- a. Discuss any archaeological or historical studies of the project location; provide relevant references. Reviewer's Comments: *Report lacks basis for the archaeological determination and the person/firm who made that determination. A report titled The Riggsbee Community in Chatham County, NC was included but does not address the proposed project area. The figures in that document do not show all the locations of the buildings discussed in the EIA and shows additional resources not discussed in the EIA. Provide clear documentation specific to the project area and near vicinity and SHPO documentation.*
 - i. **Exhibit B.7.3** is the Hendon Farms SHPO report and map.
- b. Describe and identify on a map any structures (i.e., walls, buildings, etc.) on the site and provide estimated ages of those structures.
 - i. **Exhibit B.7.3** is the Hendon Farms SHPO report and map.
- c. Describe all impacts to any archaeological or historical resources in the proposed project area.
 - i. **Exhibit B.7.3** is the Hendon Farms SHPO report and map.
- d. Describe plans for demolishing or rebuilding any structures. Reviewer's Comments: *The report mentions moving or rebuilding buildings with no historical value. Please provide more detail on the developers plans for these buildings, such as where will they be moved to or rebuilt?*
 - i. **Exhibit B.7.3** is the Hendon Farms SHPO report and map.
- e. Provide photographs of any significant resources, including all structures older than 50-years.
 - i. **Exhibit B.7.3** is the Hendon Farms SHPO report and map.
- f. Provide relevant correspondence with the Chatham County Historical Association and NC SHPO.
 - i. Not Necessary as per above
 - ii. Information in lieu was provide.

7. Air Quality

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

- i. Satisfied
 - b. Describe plans for any open burning during or after construction.
 - i. Satisfied
 - c. Indicate the number of proposed parking spaces, if applicable.
 - i. Satisfied
 - d. Describe whether the project will increase odor levels, or the likelihood of odor complaints.
 - i. Satisfied
 - e. Provide a copy of any required traffic studies.
 - i. Traffic Report, **Exhibit E**. and additional comments include in Section 2 (B) c. from Kimley-Horn.
- 8. Noise Levels
 - a. Discuss current noise levels; use a benchmark if possible. Reviewer's Comments: *Current levels are generally discussed, but no benchmark or data is given. Please give a more detailed analysis.*
 - i. The development is predominately residential. The daycare, which will have exterior play activity is located next to 15-501 and not near adjacent properties. The congregate care facility will not generate noise. The increase traffic leaving and entering this facility will be at the existing intersection which is surrounded by commercial establishments that will not notice be impacted negatively from the increase in noise from traffic. Most commercial venues benefit from increased traffic.
 - ii. No traffic noise benchmarks are available and traffic noise impacts would be to the residents moving into the development. The one adjacent residential property is at the north-east, far away from the intersection of 15-501 and Vickers road that will have increased traffic. The property to the north is currently zoned R1 with a solar farm taking up a portion of the property.
 - b. Describe any increases in noise levels expected from this project.
 - i. No substantial noise source is planned for the development that would impact adjacent parcels.
 - c. Specify the distance at which the increased noise will be heard.
 - i. Not applicable
 - d. Discuss whether surrounding properties will be affected by noise levels.

- i. The only increase in noise would be at the intersection of Vickers Road and 15-501 from increased traffic levels. This location is zoned commercial on all four sides of the intersection.
- e. The congregate care facility and daycare are discussed in a. i. of this section.

9. Light Levels

- a. Describe lighting plans for the project, including how lighting will impact adjacent residents and wildlife. Reviewer's Comments: *Exhibit I shows the lighting plan, however discussion of impacts to wildlife on and adjacent to the property are not discussed.*
 - i. There will be no natural habitats remaining on the east side once grading is completed as the entire area will be graded. Lighting impacts to the residential properties to the north and east will be minimal. The lighting used will meet or exceed the Chatham County Lighting ordinance.
 - ii. There is also a substantial elevation difference between the planned finished elevation of Herndon Farms and the north adjacent properties and the east parcels. The lower elevation difference will have the additional effect of reducing light impacts off the project in those directions.

10. Surface and Groundwater Resources (discuss separately)

- a. Identify and provide a map of surface waters in the project area. Describe groundwater (aquifers) in the project area.
 - i. Not Applicable
- b. Include names, locations, classifications, and use support ratings for surface waters.
 - i. Not Applicable
- c. Specify and show on a map the river basin in which the project is located.
 - i. HUC identified in **Exhibit B.7.1** page 9, Watershed map.
- d. Discuss any known groundwater quality issues. Reviewer's comments: *States that "Recharging of the shallow groundwater will increase from the current rate once the site grade is reduced and artificial water bodies created." However, no data is provided to support that statement.*
 - i. Current and planned recharge rates will be available after a detailed survey and engineering are performed before Final Plat. These will be calculated from wells during soil absorption rate verification for

the reuse wastewater systems after engineered soils have been placed.

- e. Discuss drinking water sources. Reviewer's Comments: *States that "The drinking and fire control water source for the proposed project will be a connection to the Chatham County water distribution system." However, does not state if this is approved by the County.*
 - i. From the Rezoning and Subdivision Approval Request:
 - 1. Water Source and Requirements: Herndon Farms will have a buildout water design requirement of approximately 87,000 GPD, after 50% reduction, require 43,500 and the project will tap onto the Chatham County water supply system. The availability of water for the development is verified by a letter from the Chatham County Utility Department, Exhibit I.

11. Fish and Aquatic Habitats

- a. Describe fish and aquatic habitats in and adjacent to the site/project area. Reviewer's Comments: *See comment above regarding documentation of surface waters, wetlands, and aquatic habitats.*
 - i. This information is available in **Exhibit B.7.2** the Natural Heritage Report.
- b. Discuss impacts to fish and aquatic life and their habitats, including a map showing those habitats.
 - i. **Exhibit B.7.2** the Natural Heritage Report.

12. Wildlife and Natural Vegetation

- a. Describe and provide a map of natural community types on and adjacent to the site/project area. Reviewer's Comments: *A more complete description of vegetation and wildlife needs to be included. Saplings and minor understory trees are mentioned; however, the aerial maps show predominantly mature canopy. No map is provided. Natural communities are discussed but not shown on mapping. States that "Because of the historical use of the land mainly residential subsistence farming and tree farming there are no desirable established vegetative or wildlife communities on the project site." However, native wildlife should be expected to occur on and adjacent to the site.*
 - i. **Exhibit B.7.2** the Natural Heritage Report.
 - ii. **Exhibit B.7.1**, Vegetative Land Cover Map, page 8.
- b. List the species of dominant plants and animals observed on the site that typify those communities

- i. **Exhibit B.7.2** the Natural Heritage Report.
- c. Evaluate and discuss whether suitable habitat exists for rare, threatened, and /or endangered species, as described by the NC Natural Heritage Program. Reviewer's Comments: *The report states that there is habitat for red-cockaded woodpeckers on the site. Indicate where that habitat is on a map. Describe the habitat in the text. Explain how the habitat determination was made and give the credentials of who made it.*
 - i. **Exhibit B.7.2** the Natural Heritage Report.
- d. If wildlife will be displaced, discuss any limitation of adjacent areas to support them. Reviewer's Comments: *States that "One of the planned community programs for residents will be the identification and documentation of the wildlife on the proposed project, with a focus on the west side 40 acres. As the vegetation on the west side of the project matures, participants will be able to document what wildlife returns to the project site. Wildlife in general will be encouraged to return to the proposed project through the installation of habitats such as ponds, wetlands, bat and bird house and appropriate wildlife feeders." This is an aspirational, after the fact plan and does not provide for protection of wildlife currently utilizing the site. Back yard bird feeders do not provide a replacement for lost forested habitat. No information is provided about the proposed conserved land. What habitat will that provide? Will permanent protections such as a conservation easement will be put in place for this habitat?*
 - i. **Exhibit B.7.2** the Natural Heritage Report.
 - ii. There are no plans for a conservation easement.
 - iii. Over 40 acres of the 97.86 acres are being minimally disturbed.
- e. Identify, list, and describe the distribution of the invasive species present on the site. Consult the NC Botanical Garden's Web page, "Plants to Avoid in the Southeast US" for a list of invasive species common to the region. Reviewer's comments: *States that "land use activities have discouraged the establishment of invasive species". However, it is generally common that disturbance such as clearing for utility easements and logging encourage the establishment of invasive species. Provide data to support this claim.*
 - i. The east side will be completely cleared, so whatever invasive species are present will be removed.
 - ii. The west side is already past the primary forest stage. **Exhibit B.7.1**, Page 8 indicates the current tree canopy is predominately southern yellow pine. This tree suppresses most all understory vegetation. Invasive species are not an issue for these parcels.

- iii. Duke Power and the HOA will enter into Duke Power's standard "no spray agreement" and the HOA will maintain the easement after this agreement is executed.
 - f. If forest will be cleared, discuss the extent of planned deforestation and specify the forestry methods to be used, including BMPs.
 - i. The east side is planned to be completely cleared and graded. The west side will be left "as is" except for approximately two acres that will contain the WWTP and storage ponds. If some of the west side is used for spray irrigation these areas will be thinned out of smaller understory trees only.
13. Hazardous Materials
- a. List all hazardous materials to be stored or introduced during construction or operation.
 - i. Satisfied
 - b. For each hazardous material, other than de minimis quantities or for routine housekeeping purposes, describe the procedures to be used to ensure their proper management, storage, and disposal. Reviewer's Comments: *The Care Facility, WWTP, and gardens will likely utilize pesticides, fertilizers, chemical agents, fuels, gases, healthcare waste, etc. Was a Phase 1 ESA conducted to determine existing hazardous conditions? Provide this information.*
 - i. The Congregant Care Facility (independent living) is not a nursing home type facility. It does not provide medical care and will not have any materials other than what any typical household would generate.
 - ii. The wastewater treatment plant has not been designed or permitted. All chemicals used and materials generated will be regulated by the permits required for the facility.
 - iii. The landscaping is being designed to be low impact and not require intense maintenance. Generally approved over the counter pesticides will most likely be used.

Exhibit F.2

Environmental Impact Assessment Addendum

Response to Peer Review

For Herndon Farms

Proposed Project Description and Need

1. Describe the overall project in detail, including all proposed phases.
 - a. Satisfied
2. Provide a project location map showing surrounding areas.
 - a. N/A – Satisfied Previously
3. Provide a project site plan showing existing and proposed facilities.
 - a. Satisfied. However, a large portion of the spray areas is located within the Duke Energy easement. Is an agreement with Duke in place? How will Duke's maintenance of the easement impact the spray systems?
 - i. *Duke Power has tentatively agreed or has stated in their published documents to:*
 1. *Not to spray herbicide on the easement areas.*
 2. *Allow effluent to be sprayed from the sides of the easement onto the easement,*
 3. *Allow parking, crossing and underground utilities to cross as per their published guidelines.*
 4. *Duke Power requires that the final site plan be completed and reviewed by them before executing an agreement.*
4. Describe how this project fits into larger plans or connects with adjacent projects.
 - a. N/A – Satisfied Previously
5. List and describe public facilities or benefits provided by the project.
 - a. Satisfied
6. Discuss the land acreage to be disturbed during each phase.
 - a. Satisfied
7. List square footage and height (in stores) of new buildings.
 - a. Not satisfied. Please provide an average range of square feet per house. Are proposed houses one story or two stories or three stories?
 - i. *Proposed Dwellings: Units and lot sizes may change in design and square footage, but not in the total number of units.*
 1. *Single Family Home- 2,200 Sq.', One Story*

2. *Duplex- 1,800 Sq.' per side, One Story*
3. *Row Home- 2,200 Sq.', Two story with walkout basement*
4. *Town Home- 1,300 Sq.', Two Story*

8. Describe proposed uses of all buildings and proposed facilities.
 - a. N/A – Satisfied Previously
9. Show number of parking spaces in parking lots and decks.
 - a. N/A – Satisfied Previously
10. Show areas to be cleared, graded, filled, paved and landscaped.
 - a. Satisfied
11. Show connections to existing utility and sewer lines or new utilities.
 - a. Satisfied. However, the proposed route to the treatment plant is discussed in text but not shown on the figures.
 - i. *Exhibit J.1 indicates road bores and projected route to plant for collection system and return for east side spray and drip.*
 - b. Show wastewater management systems on a map.
 - i. Not satisfied. How will sludge be disposed of? Report states that the WWTP capacity is 72,500 GPD and that current calculated and verified usages for similar facilities are approximately 34,000 GPD. Will other communities be able to connect in the future? Is expansion planned?
 1. *Sludge from wastewater treatment facilities is handled in several ways. For this type of facility and location, sludge is typically handled by a contract hauler who takes the sludge offsite for land application. Aqua America is currently expected to operate the plant and will be responsible for the plant's operation and proper sludge and debris disposal.*
 2. *Although the plant can be expanded, no offsite treatment is planned, except for 1,000 GPD from the adjacent veterinary facility property.*
 3. *A detailed engineered design of the reuse system will be submitted to NCDEQ that will meet all their required design criteria for a non-discharge permit. If areas of the property require setbacks for wetlands or streams, those areas will not be part of the reuse system.*
12. Show proposed areas of impervious and semi-pervious surfaces.
 - a. Satisfied
13. Show and describe any proposed stormwater control devices.
 - a. Satisfied. However, the proposed SCMs and pipe connections are shown but no conceptual information is given in text.

- i. Additional details of the stormwater control systems will be available at final plat. At this point the SCM are conceptual, and only enough site information has been generated to prove feasibility.*

Alternatives Analysis

1. Discuss and compare all reasonable development alternatives (site selection, facility layout, utilities, stormwater management, construction methods, open space preservation, any other pertinent
 - a. Not satisfied. The open space in question is on the west side of the property where NHP indicates the property takes in a portion of the Bennett Mountain SNHA. What is the plan for this area of open space – preservation of existing forest cover, alternative considerations, clearing for recreational fields, installation of trails, etc.? How will this significant natural area be protected?
 - i. The west portion will have limited development activity. Specifically, approximately one to two acres for the treatment facility and storage ponds will be cleared, but that is the full extent of the grading. This area is not in the Bennett Mountain SNHA. There are no recreation fields planned and future trails will follow existing wildlife paths, existing foot paths, clearings, easements, and roads. If any area is to be used for spray, there will only be minimal small-tree removal. The intent of the developer is to let this part of the development largely remain as it currently exists.*
2. Discuss how the preferred alternative was selected and its benefits relative to other alternatives (including a no-build alternative, if applicable).
 - a. Satisfied

Existing Environment and Project Impacts For each resource topic below, describe:

- A. Existing resources and conditions.
 - a. Satisfied
- B. Anticipated impacts (short-term construction impacts, long-term operation impacts, and indirect or secondary impacts.)
 - a. Not satisfied. Indirect and secondary impacts from wastewater are not addressed. See 12 above - How will sludge be disposed of? Are additional connections planned in future? The potential impacts to the Bennett Mountain SNHA are not discussed.
 - i. Discussed in 1. i. above.*
 - ii. No additional connections are planned except 1,000 GPD for the adjacent veterinary facility.*

- iii. *The developer planned for the wastewater treatment plant to generate Type II (2) effluent. This higher level of treatment is being done so the effluent generated by the wastewater plant can be used for multiple purposes. This type of effluent has evolved over recent years to be considered a resource for uses such as crop irrigation, rather than something to dispose. A local example is that OWASA currently sends their Type II treated effluent to UNC to be used in their evaporative cooling facilities.*
- iv. *The treatment facility will be producing Type II wastewater, which is more than twice as clean as Type I for most pollutants as per Section .300 Effluent Standards. This citation is provided in Exhibit J page 2.*
- v. *Exhibit B.7.4 shows where the westerly most portion of the property is in the Bennett Mountain Significant Natural Heritage Area, opposite side (east) of Pokeberry Creek. The entire property has been timbered regularly and the last select cut was done in 1993. The west side of the property will no longer be timbered but left as open/natural space. If Herndon Farms is not built, the land will continue to be timbered. Some oaks, red maple, tulip popular, hickory and large pines were left from the prior cut to encourage reseeded, but none of the property would currently be considered NC Piedmont mature or climax forest.*

- C. Discuss how potential impacts to the resource will be avoided and minimized through alternative selection, design strategies, construction methods, and long-term maintenance procedures.
 - a. Satisfied.
- D. For unavoidable impacts, describe whether any compensatory mitigation is planned or required.
 - a. N/A – Satisfied Previously

1. Geography

- Discuss the geographic setting, geology, and topography of the project area and adjacent areas.
 - N/A – Satisfied Previously
- Provide a topographic map of the property and surrounding area, use the county GIS website topography (2' contours interval) data at a scale appropriate for the project size, i.e., 1" = 100', etc.).
 - N/A – Satisfied Previously

- Identify any 100-year floodplains (FEMA Special Flood Hazard Areas) on or adjacent to the property. If present, provide an appropriate-scale map of the flood-prone areas defined by the NC Flood Mapping Program.
 - N/A – Satisfied Previously
- Show areas that will be graded or filled and provide estimated cut/fill volumes.
 - Satisfied
- If the project includes pond or dam work, show areas that will be flooded.
 - N/A

2. Soils and Prime Farmlands

- Identify dominant soils in the project area (county GIS or NRCS website) and show on a map.
 - Satisfied
- Discuss any soil constraints (fill, wetland soils, septic suitability, slopes, etc.) and indicate those areas on a map.
 - N/A – Satisfied Previously
- Describe any soil disturbance or contamination expected as a result of this project.
 - N/A – Satisfied Previously -
- If contamination is expected, discuss containment plans and procedures.
 - N/A
- If soil will be relocated, specify the number of square yards/feet to be moved, and its relocation site.
 - Satisfied
- Describe runoff management plans for the project.
 - Satisfied
- If soil disturbance is proposed, describe the off-site impacts expected from this activity.
 - Not satisfied. No discussion of off-site impacts. The report mentions a discussion in Section 10, b, I, but this is incorrect.
 - *Off-site impacts from site preparation will be controlled by an approved stormwater control plan (SWCP) by the State, adhering to the NC Sedimentation Control Act. The preliminary plans are shown in Exhibits B.6.1, B.6.2 and B.6.3. The current grading plans call for a balanced site. No offsite fill will be needed. Some areas will have on-site mixed soil to augment soils that will accept effluent from either spray or drip.*

- *In addition to the SWCP, only the east side portion of the project site is being heavily graded.*
- Provide a map of any prime or unique farmland soils in the project or service areas, and include reference used to make this determination.
 - Satisfied
- Describe impacts to prime or unique farmland soils, including acreage estimates of lost farmland soils and retained farmland soils.
 - Not satisfied. Prime and other important farmlands are identified based on soil types that meet specific criteria. Current or past cultivation practices do not factor in the determination. Land that has been developed no longer qualifies as farmland soil.
 - *Areas that were cultivated in years past have been abandoned to forest succession since the late 1960s. Therefore, there is no loss to Chatham's farmland inventory, and it is unlikely any of the property would be cultivated in the future. However, the development's stated purpose is to have some farming activities. This includes community gardens and pastured areas in the Duke Power Easement. Although these intended uses are minor, they add approximately six acres to Chatham County's farmland inventory rather than subtracting.*

3. Land Use

- Provide a map showing current use of land on the site and surrounding properties.
 - N/A – Satisfied Previously
- Discuss how the current land use fits into the surrounding area (conservation, development, ecological function, etc.)
 - N/A – Satisfied Previously
- Provide the current zoning of the project site and the surrounding area.
 - N/A – Satisfied Previously
- Discuss how the proposed uses fit into the intended land use of the area (conservation, development, ecological function, quality of life).
 - N/A – Satisfied Previously
- Indicate whether zoning or local land use plans will need to be changed after project completion.
 - N/A – Satisfied Previously

4. Wetlands

- Indicate whether wetlands are present, describe the basis for this determination.

- Satisfied. However, a formal delineation was not conducted, and no verification has been and identity of the person who made the determination. conducted by USACE or the County. A formal delineation and verification will be required at some point during the development review phase.
 - *A formal delineation has been scheduled.*
- Show identified wetlands on a map, and describe all relevant details, such as acreage, types, delineation, function, etc.)
 - Satisfied. However, a formal delineation was not conducted, and no verification has been conducted by USACE or the County.
 - *A formal delineation has been scheduled.*
- If wetlands are to be filled, specify the number of acres that will be affected.
 - Not satisfied. A formal delineation was not conducted, and no verification has been conducted by USACE or the County. The report says that there will be no wetland impacts, but Exhibit J.1 shows a feature labeled Deep Pond on top of a feature indicated as a potential wetland. Potential wetlands are located in the spray field.
 - *A formal delineation has been scheduled. The potential locations of wetlands are indicated on Exhibit B.7.1 page 5. If any of the areas are certified as wetlands or streams, buffers will be marked, and those areas avoided. An examination of this map clearly shows that most of the areas involved are on the west portion of the project site or on the Duke Power Easement where no construction is planned. If wetlands or streams are confirmed appropriate buffers will be delineated and maintained.*
- List all required permits and permitting agencies.
 - Satisfied. However, a USACE 404 and Chatham County Riparian Buffer permitting may be required pending results of delineation and verification.
- If any diversions/additions/withdrawals of surface water will affect wetlands, describe those activities.
 - N/A

5. Public lands and Scenic, Recreational, and State Natural Areas

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

6. Areas of Archaeological or Historical Value

- Discuss any archaeological or historical studies of the project location; provide relevant references.
 - Not satisfied. There is no indication of coordination with SHPO for archaeology. It is up to SHPO's discretion as to whether the old farmhouse is potentially eligible. The SHPO website is not comprehensive and only acts as a guide.
 - *Communication emails with the Chatham County Historical Association are provided in Exhibit B.7.5. This structure is not considered historical, it is structurally unremarkable and has been modified significantly since its construction in the early 1900s.*
- Describe and identify on a map any structures (i.e., walls, buildings, etc.) on the site and provide estimated ages of those structures.
 - Not satisfied. See above. Also, although the house is shown on the figure, no estimate of the age of the structure is given.
 - *The structure was built about 1908 by James Bennett Riggsbee. It was partially rebuilt after a fire in the 1930s and again updated in the early 70s.*
- Describe all impacts to any archaeological or historical resources in the proposed project area.
 - Not satisfied. See above.
 - *See previous narratives and Exhibit B.7.5.*
- Describe plans for demolishing or rebuilding any structures.
 - Not satisfied. See above.
 - *All structures on the east side of the project will be removed.*
- Provide photographs of any significant resources, including all structures older than 50-years.
 - Satisfied
- Provide relevant correspondence with the Chatham County Historical Association and NC SHPO
 - Not satisfied. See above.
 - See Exhibit B.7.5.

7. Air Quality

- Describe the project's impacts on ambient air quality.
 - N/A – Satisfied Previously
- Describe plans for any open burning during or after construction.
 - N/A – Satisfied Previously
- Indicate the number of proposed parking spaces, if applicable.
 - N/A – Satisfied Previously

- Describe whether the project will increase odor levels, or the likelihood of odor complaints.
 - N/A – Satisfied Previously
- Provide a copy of any required traffic studies.
 - Satisfied

8. Noise Levels

- Discuss current noise levels; use a benchmark if possible.
 - Satisfied
- Describe any increases in noise levels expected from this project.
 - Not satisfied. Construction is supposed to last for 4 years. Please provide a statement about the anticipated increase of noise during construction.
 - *During the grading phase, (horizontal construction) heavy machinery will be used to log, grub, and grade the east portion of the project. This process will take at least six months and will have a significant noise impact on neighboring properties. The developer has the contact information for all the adjoining properties, and each will be notified of the construction schedule. By notifying adjacent property owners of impending noise generating activities, perceived impacts will be minimized.*
 - *The building (vertical) phase of construction could last four years and offsite noise from this activity will have a noise impact on neighboring properties, but not significant, and this activity is intermittent. In addition, the point source noise generated by the horizontal and vertical construction phase of the project will be taking place during normal working hours.*
- Specify the distance at which the increased noise will be heard.
 - Not satisfied
 - *The point source of any noise generating activity has highly variable perception distances. The project is a rural area but has adjacent residential and commercial uses that construction activity will be perceived. Communication with adjacent properties of the planned activities is the best mitigation for any noise impact of the project.*
- Discuss whether surrounding properties will be affected by noise levels.
 - Satisfied
- If commercial uses are proposed, specify the hours of operation.
 - Satisfied

9. Light Levels

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

10. Surface and Groundwater Resources (discuss separately)

- Identify and provide a map of surface waters in the project area. Describe groundwater (aquifers) in the project area.
 - Satisfied. The maps in B.7.1 show a potentially jurisdictional stream. However, a formal delineation was not conducted, and no verification has been conducted by USACE or the County.
- Include names, locations, classifications, and use support ratings for surface waters.
 - Not satisfied. See above.
 - *Potential stream and wetland features have been identified. The results of the verification by The USACE and Chatham County will be incorporated in the final site plans for the project.*
 - *Pokeberry Creek is not on the property but is the closest perennial stream to the property. The entire project is within Jordan Lakes WS-IV watershed protection area and drains to this creek and Jordan Lake.*
- Specify and show on a map the river basin in which the project is located.
 - Satisfied
- Discuss any known groundwater quality issues.
 - Satisfied
- Discuss drinking water sources.
 - Satisfied

11. Fish and Aquatic Habitats

- Describe fish and aquatic habitats in and adjacent to the site/project area surface water.
 - Not satisfied. See above comment concerning.
 - *The potential jurisdictional wetlands and stream marked in **Exhibit B.7.1**, page 5 are not suitable habitats for fish or any other aquatic animal. Although they have been identified as potential sites, they completely dry up in the summer months. The reason they were not previously mentioned in this statement is that they were not wet when a preliminary evaluation was done in the summer of 2019. Only after the unusual wet weather during the fall/winter of 2020 did the sites appear as potentials. The intermittent nature of these areas may support some wetland vegetation, but not aquatic life.*

- Discuss impacts to fish and aquatic life and their habitats, including a map showing those habitats.
 - Not satisfied. See above. The maps in B.7.1 show a potentially jurisdictional stream in an area designated as a spray zone.
 - *The final site plans will adjust for stream and wetland buffers once official determinations have been made.*

12. Wildlife and Natural Vegetation

- Describe and provide a map of natural community types on and adjacent to the site/project area.
 - Satisfied
- List the species of dominant plants and animals observed on the site that typify those communities.
 - Satisfied
- Evaluate and discuss whether suitable habitat exists for rare, threatened, and /or endangered species, as described by the NC Natural Heritage Program.
 - Satisfied
- If wildlife will be displaced, discuss any limitation of adjacent areas to support them.
 - Satisfied
- Identify, list, and describe the distribution of the invasive species present on the site. Consult the NC Botanical Garden’s Web page, “Plants to Avoid in the Southeast US” for a list of invasive species common to the region.
 - Not satisfied. Identification, listing, and description of the distribution of the invasive species present on the site has not been provided. No data has been provided to support the claim that land use has discouraged the establishment of invasive species.
 - *Exhibit B.7.6 are the invasive plants observed. However, many of these plants are on the east portion of the property and will be removed during grading. The west portion of the project is thirty-five years past the last timbering and most herbaceous invasive species have been crowded out by the tree canopy. Most of the other plants listed exist in small numbers on the perimeter of the Duke Power easement or existing open areas under the two Duke Power easements. These easements are periodically clear by Duke Power and approximately seven years ago were sprayed with herbicides to kill all small trees and woods shrubs. No significant populations of invasive plants have been observed.*
 - *Once the development is completed the landscape maintenance will prevent invasive species from establishing.*

- *The west portion of the project is planned to be left to continue to evolve into mature then climax forest. These piedmont habitats significantly inhibit invasive species.*
- If forest will be cleared, discuss the extent of planned deforestation and specify the forestry methods to be used, including BMPs.
 - Satisfied.

13. Hazardous Materials

- List all hazardous materials to be stored or introduced during construction or operation.
 - N/A – Satisfied Previously
- For each hazardous material, other than de minimis quantities or for routine housekeeping purposes, describe the procedures to be used to ensure their proper management, storage, and disposal.
 - Satisfied