



July 7, 2021

Jason Sullivan  
Planning Director  
Chatham County  
P.O. Box 54  
80-A East St.  
Pittsboro, NC 27312

RE: Review Comments – Revised Environmental Impact Assessment for the proposed Pyewacket Subdivision  
JMT Job No. #19-03787-008

Dear Mr. Sullivan:

Johnson, Mirmiran & Thompson (JMT) has completed our review of the Revised Environmental Impact Assessment (EIA) prepared by Sage Ecological for the proposed Pyewacket Subdivision. Our comments have been compiled utilizing the *ERAC EIA Review Checklist* format. JMT reviewed the Revised EIA for completeness in accordance with the most recent version of the Chatham County Subdivision Regulations and the Chatham County Conservation Subdivision Guidelines for Conservation Space Selection.

In our opinion, with the additional information provided and the revisions to the proposed plan, the Revised EIA satisfies the requirements of the regulations and should be considered complete. However, we identified several areas that are worth noting:

1. **Impacts to Morgan Ridge NHA.** The site spans a significant portion of the Morgan Ridge Natural Heritage Area (NHA). The concept plan of the Pyewacket Conservation Subdivision proposes to develop “approximately 65% of the Morgan Ridge Natural Heritage Area”. The Conservation Subdivision Ordinance and subsequent guidance lists NHAs as the top priority for preservation.
2. **Riparian buffer width on Wilkinson Creek.** NHP recommended that a 200-foot buffer be put on Wilkinson Creek and its tributaries. The proposed plan appears to limit riparian buffers to the widths mandated under the Chatham County Watershed Protection Ordinance.
3. **Connectivity.** The Conservation Subdivision Ordinance and subsequent guidance emphasizes providing habitat corridors to connect Natural Space areas both within a development and off-site. There are several areas on the western site boundary where the corridor is too narrow to function in that capacity.
4. **Wetland and stream map changes.** The wetland and stream features depicted in the May 11 Revised EIA are substantially different from those originally presented in the February 19 EIA. No explanation is provided.

5. **Wetland and stream impacts.** Pyewacket Trail Road crosses two stream and wetland systems. Estimated impacts to wetlands, stream, and riparian buffers are not given.

If you have any questions or need further information, please do not hesitate to contact me at (984) 269-4923 or rbode@jmt.com.

Very truly yours,

JOHNSON, MIRMIRAN & THOMPSON, INC.



Ray Bode, PWS  
Senior Associate



Bill Jenkins, P.E.  
Vice President

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Environmental Impact Assessment Item	Adequately Described and Fully Discussed?	SECOND REVIEW
Proposed Project Description and Need		
1. Describe the overall project in detail, including all proposed phases.	Included	
2. Provide a project location map showing surrounding areas.	Included	
3. Provide a project site plan showing existing and proposed facilities.	Included. However, septic infrastructure is proposed for multiple locations in designated Natural Space. This is not allowed unless approved by the Environmental Quality Department (Subdivision Regulations pg 65), but approval is not mentioned in the EIA.	Addressed. Septic has been relocated outside the Natural Space.
4. Describe how this project fits into larger plans or connects with adjacent projects.	Included	
5. List and describe public facilities or benefits provided by the project.	Included	
6. Discuss the land acreage to be disturbed during each phase.	Included	
7. List square footage and height (in stories) of new buildings.	Included. EIA says Maximum height of houses is 2.5 stories. Average square footage of houses is not given.	Addressed.
8. Describe proposed uses of all buildings and proposed facilities.	Included	
9. Show number of parking spaces in parking lots and decks.	Included. Parking is not mentioned in the EIA. However, a small parking lot is shown on the concept plan near the community garden.	Addressed.
10. Show areas to be cleared, graded, filled, paved and landscaped.	Included. EIA states that the approximately 89 acres will be disturbed, and an overall concept plan is provided.	Additional Information Provided. Grading plan is not provided.

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	EIA states that grading plans have not been finalized and cut/fill will be balanced. However, a conceptual grading plan is not provided.	
11. Show connections to existing utility and sewer lines or new utilities.	N/A. There will be no public water and sewer connections. However, coordination with the state and permits will be required to drill the water wells. One well is labeled "Community Well", and one is just labeled "Well". No explanation of the difference is given.	Addressed.
12. Show wastewater management systems on a map.	Included. However, for lots that do not have on site septic, no proposed connection to the septic fields is shown. Not clear if force mains/pump stations/distribution boxes/etc be required.	Additional information provided. The revised EIA states that a corridor at least ten feet wide will be cleared to install offsite septic systems. The proposed connections are not shown on the site plan. On the First Plat June 15, 21 figure, Lot 48 has a septic system polygon area, but the polygon is not filled per the symbology. No explanation given.
13. Show proposed areas of impervious and semi-pervious surfaces.	Included. No semi-pervious areas are shown.	Addressed.
14. Show and describe any proposed stormwater control devices.	Included.	
<b>Alternatives Analysis</b>		
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.	Included.	
2. Discuss how the preferred	Included.	

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<p>alternative was selected and its benefits relative to other alternatives (including a no-build alternative, if applicable).</p>		
<p>Existing Environment and Project Impacts For each resource topic below, describe:</p>		
<p>A. Existing resources and conditions.</p>	<p>Included.</p>	
<p>B. Anticipated impacts (short-term construction impacts, long-term operation impacts, and indirect or secondary impacts.)</p>	<ol style="list-style-type: none"> <li>1. Proposed impacts to wetlands are discussed. However, preliminary calculations of impacts to wetlands and streams are not provided.</li> <li>2. The Morgan Ridge NHNA may be subject to indirect impacts from additional development pressure (Morgan Ridge Development to the west). Indirect impacts are not discussed.</li> <li>3. The EIA states that "preventative measures will be taken to avoid and minimize impacts". More detail is needed about these preventative measures (only E&amp;S Plans are mentioned).</li> </ol>	<ol style="list-style-type: none"> <li>1. Pyewacket Trail Road crosses two stream and wetland systems. Estimated impacts to wetlands, stream, and riparian buffers are not given; however, the EIA states "Proposed impacts are below current thresholds requiring mitigation."</li>   <li>The wetland and stream features depicted in the May 11 Revised EIA are different from those originally presented in the February 19 EIA. No explanation is provided.</li> <li>2. Additional Information Provided. According to the revised EIA, "approximately 65% of the Morgan Ridge Natural Heritage Area" will be impacted by the proposed subdivision. The Conservation Subdivision Ordinance and subsequent guidance lists NHAs as the top priority for preservation. Indirect, secondary, and cumulative impacts are not addressed.</li> <li>3. Addressed.</li> </ol>

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<p>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.</p>	<ol style="list-style-type: none"> <li>1. Responsibility and long term maintenance and of the wells and septic systems are not discussed.</li> <li>2. The Utilities and Public Services Strategy in Section 1.1 is referenced on page 7, but Section 1.1 does not include a discussion of that.</li> <li>3. Construction methods are not discussed.</li> <li>4. There is no discussion of any long-term maintenance procedures.</li> <li>5. The conceptual plan shows septic fields located in several Natural Space locations. No discussion of impacts to Natural Space from clearing, installation, and maintenance of the systems is provided.</li> </ol>	<ol style="list-style-type: none"> <li>1. Addressed.</li> <li>2. Not addressed.</li> <li>3. Addressed.</li> <li>4. Addressed.</li> <li>5. Addressed. Septic has been relocated outside the Natural Space.</li> </ol>
<p>D. For unavoidable impacts, describe whether any compensatory mitigation is planned or required.</p>	<p>Not included.</p>	<p>The revised EIA does not provide a preliminary calculation of wetland/stream/buffer impacts.</p>
<p>1. Geography</p>		
<ul style="list-style-type: none"> <li>• Discuss the geographic setting, geology, and topography of the project area and adjacent areas.</li> </ul>	<p>Included.</p>	
<ul style="list-style-type: none"> <li>• Provide a topographic map of the property and surrounding area, use the county GIS</li> </ul>	<p>Included.</p>	

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website topography (2' contours interval) data at a scale appropriate for the project size, i.e., 1" = 100', etc.).		
<ul style="list-style-type: none"> <li>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.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Show areas that will be graded or filled and provide estimated cut/fill volumes.</li> </ul>	Conceptual grading plan is not provided. EIA states that grading plans have not been finalized and cut/fill will be balanced. However, estimated quantities are not discussed.	Grading plan is not provided.
<ul style="list-style-type: none"> <li>If the project includes pond or dam work, show areas that will be flooded.</li> </ul>	N/A	
<b>2. Soils and Prime Farmlands</b>		
<ul style="list-style-type: none"> <li>Identify dominant soils in the project area (county GIS or NRCS website) and show on a map.</li> </ul>	Included	
<ul style="list-style-type: none"> <li>Discuss any soil constraints (fill, wetland soils, septic suitability, slopes, etc.) and indicate those areas on a map.</li> </ul>	Septic suitability is mentioned but not shown on a map or discussed in proper detail nor is a report attached.	Addressed. The revised EIA provides a detailed soil/site evaluation and mapping.
<ul style="list-style-type: none"> <li>Describe any soil disturbance or contamination expected as a result of this project.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>If contamination is expected, discuss containment plans and procedures.</li> </ul>	Soil contamination is not discussed.	Addressed.
<ul style="list-style-type: none"> <li>If soil will be relocated, specify the number of square yards/feet to be moved, and its relocation site.</li> </ul>	N/A. Balance earthwork is proposed.	
<ul style="list-style-type: none"> <li>Describe runoff management plans for the project.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>If soil disturbance is proposed,</li> </ul>	N/A. Balance earthwork is	

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describe the off-site impacts expected from this activity.	proposed.	
<ul style="list-style-type: none"> <li>Provide a map of any prime or unique farmland soils in the project or service areas, and include reference used to make this determination.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Describe impacts to prime or unique farmland soils, including acreage estimates of lost farmland soils and retained farmland soils.</li> </ul>	Included.	
<b>3. Land Use</b>		
<ul style="list-style-type: none"> <li>Provide a map showing current use of land on the site and surrounding properties.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Discuss how the current land use fits into the surrounding area (conservation, development, ecological function, etc.)</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Provide the current zoning of the project site and the surrounding area.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Discuss how the proposed uses fit into the intended land use of the area (conservation, development, ecological function, quality of life).</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Indicate whether zoning or local land use plans will need to be changed after project completion.</li> </ul>	Included.	
<b>4. Wetlands</b>		
<ul style="list-style-type: none"> <li>Indicate whether wetlands are present, describe the basis for this determination and identity of the person who made the determination.</li> </ul>	Included.	The wetland and stream features depicted in the May 11 Revised EIA are different from those originally presented in the February 19 EIA. No explanation or updated delineation information is provided.
<ul style="list-style-type: none"> <li>Show identified wetlands on a map, and describe all relevant details, such as acreage, types, delineation, function, etc.)</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>If wetlands are to be filled, specify the number of acres</li> </ul>	Not included.	



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that will be affected.		
<ul style="list-style-type: none"> <li>List all required permits and permitting agencies.</li> </ul>	Wetland/stream impacts are mentioned but permitting was not discussed. PJD was not yet acquired at the time of the EIA submission.	<p>Additional Information Provided. The Revised EIA states that a Jurisdictional Determination has not yet been issued.</p> <p>Pyewacket Trail Road crosses two stream and wetland systems. The project will require a Section 404/401 Permit.</p>
<ul style="list-style-type: none"> <li>If any diversions/additions/withdrawals of surface water will affect wetlands, describe those activities.</li> </ul>	N/A	
5. Public lands and Scenic, Recreational, and State Natural Areas		
<ul style="list-style-type: none"> <li>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.</li> </ul>	Included.	
6. Areas of Archaeological or Historical Value		
<ul style="list-style-type: none"> <li>Discuss any archaeological or historical studies of the project location; provide relevant references.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Describe and identify on a map any structures (i.e., walls, buildings, etc.) on the site and provide estimated ages of those structures.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Describe all impacts to any archaeological or historical resources in the proposed project area.</li> </ul>	EIA states that a request was submitted to SHPO Feb 2, but response had not been received at the time of EIA submittal. A response should be available now. This information should be provided.	Addressed. An archaeological evaluation of the site (Draft Report) was included in the Revised EIA.
<ul style="list-style-type: none"> <li>Describe plans for demolishing or rebuilding any structures.</li> </ul>	No structures were described in the EIA as observed onsite other than remnants of a stone	Addressed. An archaeological evaluation of the site (Draft Report) was included in the Revised EIA.

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	fireplace. Response from SHPO may provide more information.	
<ul style="list-style-type: none"> <li>Provide photographs of any significant resources, including all structures older than 50-years.</li> </ul>	Included	
<ul style="list-style-type: none"> <li>Provide relevant correspondence with the Chatham County Historical Association and NC SHPO.</li> </ul>	<ol style="list-style-type: none"> <li>EIA states that a request was submitted to SHPO Feb 2, but response had not been received at the time of EIA submittal. A response should be available now. This information should be provided.</li> <li>EIA states that CCHA conducted a field survey, but no correspondence is included. More information is needed about the findings of that survey.</li> </ol>	Addressed. An archaeological field review was conducted in April 2021 that addressed main concerns cited in the SHPO response letter. However, the Revised EIA does not state if the archaeological evaluation of the site, included in the Revised EIA, was submitted to the SHPO or CCHA for review and concurrence.
<b>7. Air Quality</b>		
<ul style="list-style-type: none"> <li>Describe the project's impacts on ambient air quality.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Describe plans for any open burning during or after construction.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Indicate the number of proposed parking spaces, if applicable.</li> </ul>	Not included.	Addressed
<ul style="list-style-type: none"> <li>Describe whether the project will increase odor levels, or the likelihood of odor complaints.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Provide a copy of any required traffic studies.</li> </ul>	N/A. Traffic study not required.	
<b>8. Noise Levels</b>		
<ul style="list-style-type: none"> <li>Discuss current noise levels; use a benchmark if possible.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Describe any increases in</li> </ul>	Included.	

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noise levels expected from this project.		
<ul style="list-style-type: none"> <li>Specify the distance at which the increased noise will be heard.</li> </ul>	Not included.	Not addressed.
<ul style="list-style-type: none"> <li>Discuss whether surrounding properties will be affected by noise levels.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>If commercial uses are proposed, specify the hours of operation.</li> </ul>	N/A. No commercial uses are proposed.	
<b>9. Light Levels</b>		
<ul style="list-style-type: none"> <li>Describe lighting plans for the project, including how lighting will impact adjacent residents and wildlife.</li> </ul>	Included.	
<b>10. Surface and Groundwater Resources (discuss separately)</b>		
<ul style="list-style-type: none"> <li>Identify and provide a map of surface waters in the project area. Describe groundwater (aquifers) in the project area.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Include names, locations, classifications, and use support ratings for surface waters.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Specify and show on a map the river basin in which the project is located.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Discuss any known groundwater quality issues.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Discuss drinking water sources.</li> </ul>	Included. Two wells are shown on the Concept Plan. Discussion of coordination with the state and permits for the water wells is not provided. One well is labeled "Community Well", and one is just labeled "Well". No explanation of the difference is given.	Addressed.
<b>11. Fish and Aquatic Habitats</b>		
<ul style="list-style-type: none"> <li>Describe fish and aquatic habitats in and adjacent to the site/project area.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Discuss impacts to fish and aquatic life and their habitats,</li> </ul>	Included.	

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including a map showing those habitats.		
12. Wildlife and Natural Vegetation		
<ul style="list-style-type: none"> <li>Describe and provide a map of natural community types on and adjacent to the site/project area.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>List the species of dominant plants and animals observed on the site that typify those communities.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>Evaluate and discuss whether suitable habitat exists for rare, threatened, and /or endangered species, as described by the NC Natural Heritage Program.</li> </ul>	<ol style="list-style-type: none"> <li>The EIA states, "The portion of Wilkinson Creek along the southern Site boundary is large enough to support Cape Fear shiner." However, no survey for the Cape Fear shiner was performed. NHP recommended a 200-foot buffer. Only a 100-foot buffer is proposed. A survey is not required; however, more stringent E&amp;S control measures for areas draining into the stream is recommended.</li> <li>The concept plan shows that the Morgan Ridge development is heavily impacting the Morgan Ridge NHNA adjacent to the southeastern boundary of the Pyewacket site. The Pyewacket plan includes Natural Space along that</li> </ol>	<ol style="list-style-type: none"> <li>Addressed. However, NHP recommended that a 200-foot buffer be put on Wilkinson Creek and its tributaries. The proposed plan appears to limit riparian buffers to the widths mandated under the Chatham County Watershed Protection Ordinance. A habitat assessment and/or survey of Cape Fear shiner is not discussed. More stringent E&amp;S controls are not discussed.</li> <li>Addressed. Septic areas adjacent to Lots 22-30 and Lots 20-21 have been removed and several lots off Maribelle Court (Road C) have been reconfigured, reducing impacts Natural Space area on the west side of the development. However, the Natural Space corridor along the west edge remains a very narrow strip between Morgan Ridge and Pyewacket subdivisions. Likely this will not</li> </ol>

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	<p>edge. However, this is a very narrow strip between Morgan Ridge lots 10, 11, 16a, 17a, 18a, and 19a and Pyewacket lots 21, 22, 32,33, and 34. Likely this will not provide adequate habitat to function as a connection to habitat areas to the north. Also, septic fields are shown within the Natural Space at either end of that corridor. Installation and maintenance of these septic fields will likely require clearing and permanent loss of forested habitat, further impacting the ecological value of the proposed corridor.</p>	<p>provide adequate habitat to function as a connection between the Wilkinson Creek buffer and habitat areas to the north.</p>
<ul style="list-style-type: none"> <li>• If wildlife will be displaced, discuss any limitation of adjacent areas to support them.</li> </ul>	<p>Included.</p>	
<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<p>Included.</p>	
<ul style="list-style-type: none"> <li>• If forest will be cleared, discuss the extent of planned deforestation and specify the forestry methods to be used, including BMPs.</li> </ul>	<p>Methods for clearing forests were not discussed.</p>	<p>Addressed.</p>
<p>13. Hazardous Materials</p>		

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<ul style="list-style-type: none"> <li>List all hazardous materials to be stored or introduced during construction or operation.</li> </ul>	Included.	
<ul style="list-style-type: none"> <li>For each hazardous material, other than deminimis quantities or for routine housekeeping purposes, describe the procedures to be used to ensure their proper management, storage, and disposal.</li> </ul>	Included.	
References	Included.	
Exhibits (Maps, Figures, Tables, Photos, etc.)	Included.	
State and Federal Permits Required	Included. However, several likely needed permits are not listed.	<p>Missing permits may include but are not limited to:</p> <ul style="list-style-type: none"> <li>NCDOT Subdivision roadway permit</li> <li>NCDOT Encroachment agreement</li> </ul>