



P.O. Box 1008
Georgetown, DE 19947
www.axeng.com

Phone: 302 855-0810
Fax: 302 855-0812
E-mail: axiom@axeng.com

September 21, 2009

Constance C. Holland, AICP
Director
State Planning Coordination
122 William Penn Street
Haslett Armory, Suite 202
Dover, DE 19901

Transmitted by e-mail: Dorothy.Morris@state.de.us

RE: PLUS Review Comments; 2007-02-04
Woods at Johnson's Corner Subdivision

Dear Ms. Holland:

Thank you for your April 23, 2007 letter regarding the above referenced project. On behalf of the applicant, Bay Twenty,, LLC, we offer the following responses to the comments that were generated during the March 28, 2007 PLUS meeting and as outlined in your letter. A current, revised copy of the Preliminary Subdivision Plan for the proposed development is enclosed. This layout has been revised to address issues raised through the PLUS review.

Comment:
Office of State Planning Coordination:

This project represents a major land development that will result in 75 residential units in an Investment Level 4 area according to the *2004 Strategies for State Policies and Spending*. Investment Level 4 indicates where State investments will support agricultural preservation, natural resource protection, and the continuation of the rural nature of these areas. New development activities and suburban development are not supported in Investment Level 4 areas. These areas are comprised of prime agricultural lands and environmentally sensitive wetlands and wildlife habitats, which should be, and in many cases have been preserved.

From a fiscal responsibility perspective, development of this site is likewise inappropriate. The cost of providing services to development in rural areas is an inefficient and wasteful use of the State's fiscal resources. The project as proposed is likely to bring more than 195 new residents to an area where the State has no plans to invest in infrastructure upgrades or additional services. These residents will need access to such services and infrastructure as schools, police, and transportation. To provide some examples, the State government funds 100% of road maintenance and drainage improvements for the transportation system, 100% of school transportation and paratransit services, up to 80% of school construction costs, and about 90% of the cost of police protection in the unincorporated portion of Sussex County where this development is proposed. Over the longer term,

the unseen negative ramifications of this development will become even more evident as the community matures and the cost of maintaining infrastructure and providing services increases.

Because the development is inconsistent with the *Strategies for State Policies and Spending*, the State is opposed to this proposed subdivision.

Level 4 Response

The subject property has been zoned GR, General Residential, since Sussex County adopted zoning ordinances. GR zoning is intended to provide affordable housing options. The proposed development is in compliance with the Sussex County Zoning Ordinance and with the 2003 Comprehensive Plan, which was the current plan when the application was filed. Central water is available to the site from Artesian Water Company and central sanitary sewer is provided by the Johnson's Corner Sanitary Sewer District. In addition, the proposed road network is private with maintenance by the Home Owners' Association and DeIDOT sees no need for roadway or intersection improvements outside the development.

Comment

Division of Historical and Cultural Affairs:

The Division of Historical and Cultural Affairs is not in favor of this development in Level 4. This will lead to the further loss of the historic agricultural landscape in the area, and to the loss of archaeological sites within the development. There was a late-19th-c. house (S-2031) in the northeast corner of the parcel. There may be historic-period archaeological remains associated with this house. There is only a low potential for prehistoric-period archaeological sites here, due to the wet soils. There are a number of historic properties in the area around this parcel.

Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the late-19th-c. house, usually a good distance behind or to the side of the house. The developer should be aware of Delaware's Unmarked Human Remains Act of 1987, which governs the discovery and disposition of such remains. The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out, and the developer may want to hire an archaeological consultant to check for the possibility of a cemetery here if this development is approved. The DHACA would have to have a copy of any archaeological report done for this purpose. They will be happy to discuss these issues with the developer.

If this development is approved, the DHCA would like the opportunity to examine the area prior to any ground-disturbing activities, to see if there are in fact any archaeological sites on the parcel and to learn something about their location, nature, and extent. In addition, we request that the development include sufficient landscaping to block visual and noise intrusions on the nearby historic property.

Response Statement:

All aspects of the permitting process will be completed as necessary.

Comment:

Department of Transportation:

Because this development is proposed for a Level 4 Area, it is inconsistent with the *Strategies for State Policies and Spending*. As part of our commitment to support the *Strategies*, DelDOT refrains from participating in the cost of any road improvements needed to support this development and is opposed to any road improvements that will substantially increase the transportation system capacity in this area. DelDOT will only support taking the steps necessary to preserve the existing transportation infrastructure and make whatever safety and drainage related improvements are deemed appropriate and necessary. The intent is to preserve the open space, agricultural lands, natural habitats and forestlands that are typically found in Level 4 Areas while avoiding the creation of isolated development areas that cannot be served effectively or efficiently by public transportation, emergency responders, and other public services.

DelDOT strongly supports new development in and around existing towns and municipalities and in areas designated as growth zones in approved Comprehensive Plans. We encourage the use of transfer of development rights where this growth management tool is available.

If this development proposal is approved, notwithstanding inconsistencies with the relevant plans and policies, DelDOT will provide further technical review and comments.

Response Statement:

The project as proposed is consistent with the Sussex County Comprehensive Plan, and is located in the Johnson's Corner Sanitary Sewer District. DELDOT has issued a "Letter of No Objection" for the entrance location proposed with the project, and did not require a Traffic Impact Study.

Comment:

Department of Natural Resources and Environmental Control:

Investment Level 4 Policy Statement

This project is proposed for an Investment Level 4 area as defined by the *Strategies for State Policies and Spending* and is also located outside of a designated growth area in the relevant municipal and county certified comprehensive plans. According to the *Strategies* this project is inappropriate in this location. In Investment Level 4 areas, the State's investments and policies, from DNREC's perspective, should retain the rural landscape and preserve open spaces and farmlands. Open space investments should emphasize the protection of critical natural habitat and wildlife to support a diversity of species, and the protection of present and future water supplies. Open space investments should also provide for recreational activities, while helping to define growth areas. Additional state investments in water and wastewater systems should be limited to existing or imminent public health, safety or environmental risks only, with little provision for additional capacity to accommodate further development.

With continued development in Investment Level 4 areas, the State will have a difficult, if not impossible, time attaining water quality (e.g., TMDLs) and air quality (e.g., non-attainment areas for ozone and fine particulates) goals. Present and future investments in green infrastructure, as

defined in Governor Minner's Executive Order No. 61, will be threatened. DNREC strongly supports new development in and around existing towns and municipalities and in areas designated as growth zones in certified Comprehensive Plans. We encourage the use of transfer of development rights where this growth management tool is available.

This particular development certainly compromises the integrity of the State Strategies and the preservation goals inherent in many of DNREC's programs. Of particular concern are potential impacts to two out of three layers of the Green Infrastructure map (cropland and forest), the loss/fragmentation of 9 out of 12 acres (or 75%) of forest, the increase in the amount of impervious cover, and issues with tax ditch rights-of-way. While mitigating measures such as conservation design, central wastewater systems instead of individual on-site septic systems, and other best management practices may help mitigate impacts from this project, not doing the project at all is the best avenue for avoiding negative impacts. As such, this project will receive no financial, technical or other support of any kind from DNREC. Any required permits or other authorizations for this project shall be considered in light of the project's conflict with our State growth strategies.

Response Statement:

See page 2 for Level 4 response statement.

Comment:Soils

Soils

Based on the Sussex County soil survey update, Hammonton, Pepperbox, Klej, Hurlock, and Mullica-Berryland complex were mapped in the immediate vicinity of subject parcel(s). Hammonton and Pepperbox are moderately well-drained soil of low-lying uplands that have moderate limitations for development. Hurlock and Mullica are poorly to very poorly-drained wetland associated (hydric) soils that have severe limitations for development. About 50% of the soils on subject parcel(s) were mapped as Hurlock and Mullica.

As mentioned previously, a significant portion of the mapped soils on subject parcel(s) are mapped as poorly to very poorly-drained wetland associated hydric Hurlock and Mullica soils (estimated 50% of the parcel land area). Hydric soils that typically have a seasonal high water table at or near the soil surface (within one-foot of soil surface or less). Building in such soils is likely to leave prospective residents of this and adjoining properties susceptible to future flooding problems from groundwater-driven surface water ponding, especially during extended periods of high-intensity rainfall events such as tropical storms/hurricanes or "nor'easters." This is in addition to increased flooding probabilities from surface water runoff emanating from future created forms of structural imperviousness (roof tops, roads, and sidewalks).

Based on Chapter 99 Section 16A of the Sussex County Code, lands considered unsuitable for subdivision or development due to flooding potential or improper drainage shall not be developed should they prove reasonably harmful to the safety and general welfare to future and present inhabitants of a subdivision or adjoining residential areas. Since the Sussex County code requires suitable drainage conditions with little or no flooding potential, much of this combined parcel land area (approx. 50%) would be considered unsuited for development. Specifically, Hurlock and Mullica-Berryland soil mapping units would fit the criteria for unsuitable conditions under the Sussex County code. Therefore, all Hurlock and Mullica-Berryland soil mapping units should be avoided.

Response Statement:

The soils on the site were noted by DNREC as having variable limitations for development. The site is proposed to be served by a central wastewater system therefore; the variable soil limitation will not adversely affect the development of the parcel. Potential flooding problems will be addressed with the site design including adequate site drainage improvements and best management practices in accordance with Sussex Conservation District Criteria.

Comment:Wetlands

According to the Statewide Wetland Mapping Project (SWMP) mapping, palustrine forested wetlands were mapped throughout much of the combined parcel area of this project. Wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. PLUS materials indicate that 3.72 non-tidal acres were delineated and the developer anticipates wetland impacts for filling existing ditches and constructing road crossings through wooded wetlands.

Wetland Permitting Information

Impacts to palustrine wetlands are regulated by the U.S. Army Corps of Engineers (USACE or “the Corps”) through Section 404 of the Clean Water Act. In addition, individual 404 permits and certain Nationwide Permits from the Corps also require 401 Water Quality Certification from the DNREC Wetland and Subaqueous Land Section and Coastal Zone Federal Consistency Certification from the DNREC Division of Soil and Water

Conservation, Delaware Coastal Programs Section. Each of these certifications represents a separate permitting process. The wetland delineation should be verified by the Corps through the Jurisdictional Determination process.

Please be advised that the new Nationwide Permits from the Corps became effective March 19, 2007. The Delaware Coastal Management Program (DCMP) has not completed their Federal Consistency review of the new permits; therefore, contrary to past practices, Coastal Zone Management approval cannot be assumed. Individual certifications must be granted from the DCMP office for each project intending to utilize a Nationwide Permit. For more information on the Federal Consistency process, please contact the DCMP office at 302.739.9283.

To find out more about permitting requirements, the applicant is encouraged to attend a Joint Permit Process Meeting. These meetings are held monthly and are attended by federal and state resource agencies responsible for wetland permitting. Contact Denise Rawding at (302) 739-9943 to schedule a meeting. The developer should note that both DNREC and the Corps discourage allowing buildings and associated infrastructure to contain wetlands to minimize potential cumulative impacts.

Water Bodies

PLUS materials show impacts (road crossings) to a blue-line stream. Please note that impacts to streams, including road crossings, are regulated by the DNREC Wetlands and Subaqueous Lands Section, and by the Corps.

Response:

The applicant has retained the services of JCM Environmental, Inc. to delineate the wetlands and to process any wetland impacts proposed. Impacts to federal and state wetlands are limited to 0.20 acres on the entire project site. The relocation of the tax ditch on-site has been reviewed with the U.S. Army Corps of Engineers, the DNREC Wetlands and Subaqueous Lands Section, and the DNREC Drainage Section. Impact permit drawings have been submitted to all 3 agencies, and mitigation plans have been prepared. Preliminary meetings with all 3 agencies have indicated that the site can be developed as proposed. Mitigation for the proposed impacts includes the creation of a new ditch to be planted with appropriate wetland vegetation (adjacent to lots 21-27), the excavation of a new wetland area to be planted with appropriate wetland vegetation (behind lots 49-51), a forested buffer created in the vicinity of the relocated ditch (behind lots 27-30) and the recording of conservation easements including the forested wetland areas near the south end of the site (adjacent to lots 35-36 & 43-44). These easements will ensure that the HOA or property owners do not impact these areas for any future improvements to the property. Any wetland impacts shall be properly permitted in accordance with existing regulations.

Comment:

Impervious cover

Based on information provided by the applicant in the PLUS application, post-development surface imperviousness was estimated at about 35 percent for this project. However, given the scope and density of this project this estimate is likely a **significant underestimate**. Some of the major reasons for this underestimate are the applicant's improper use of natural areas (potential wetlands and/or buffers) and/or stormwater management areas to meet the County's open space requirements. Use of natural areas and/or stormwater management areas to meet the County's open space requirements significantly reduces the calculated amount of surface imperviousness, ultimately leading to a significant underestimate of its actual environmental impacts. Therefore, the parcel's calculated amount of surface imperviousness should use as its basis, a calculated open space figure that reflects the omission of all delineated wetlands (i.e., USACE-approved) and stormwater management areas. The applicant should also realize that all forms of constructed surface imperviousness (i.e., rooftops, sidewalks, and roads) be included in the calculation of surface imperviousness. It was unclear from the information submitted whether the applicant considered all of these forms comprehensively in their calculation. It is strongly recommended that the applicant address all of above-mentioned concerns in the manner just described to ensure that their finalized calculation reflects a realistic assessment of all post-construction impacts.

Studies have consistently shown a strong relationship between increases in surface imperviousness and subsequent declines in a watershed's water quality. It is strongly recommended, therefore, that the applicant implement best management practices (BMPs) that reduce or mitigate some of its most likely adverse impacts. Reducing the amount of surface imperviousness through the use of pervious paving materials ("pervious pavers") in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation or additional tree plantings are some examples of practical BMPs that could easily be implemented to help reduce surface imperviousness.

Response:

The applicant will comply with any existing regulations regarding impervious cover, including the stormwater management regulations as amended April 2005.

Comment:

ERES Waters

This project is located adjacent to receiving waters of the greater Little Assawoman watershed. Such waters are designated as waters having Exceptional Recreational or Ecological Significance (ERES). ERES waters are recognized as special assets of the State, and shall be protected and/ or restored, to the maximum extent practicable, to their natural condition. Provisions in Section 5.6 of Delaware's "Surface Water Quality Standards" (as amended July 11, 2004), specify that all designated ERES waters and receiving tributaries develop a "pollution control strategy" to reduce non-point sources of pollutants through implementation of Best Management Practices (BMPs). Best Management Practices as defined in subsection 5.6.3.5 of this section, expressly authorizes the Department to provide standards for controlling the addition of pollutants and reducing them to the greatest degree achievable and, where practicable, implementation of a standard requiring no discharge of pollutants.

TMDLs

Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Assawoman watershed. A TMDL is the maximum level of pollution allowed for a given pollutant below which a "water quality limited water body" can assimilate and still meet water quality standards to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. Although TMDLs are required by federal law, states are charged with developing and implementing standards to support these desired use goals. In the Little Assawoman watershed, "target-rate-nutrient reductions" of 40 percent will be required for both nitrogen and phosphorus. Additionally, "target-rate-reductions" of 40 percent will be required for bacteria.

TMDL Compliance through the Pollution Control Strategy (PCS)

As indicated above, Total Maximum Daily loads (TMDLs) for nitrogen and phosphorus have been proposed for the Little Assawoman watershed. The TMDL calls for a 40 percent reduction in nitrogen and phosphorus from baseline conditions. The TMDL also calls for a 40 percent reduction in bacteria. A pollution control strategy will be used as a regulatory framework to ensure that these nutrient reduction targets are attained. The Department has developed an assessment tool to evaluate how your proposed development may reduce nutrients to meet the TMDL requirements. Additional nutrient reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses, increasing passive, wooded open space, and the use of green-technology stormwater management treatment trains. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

Response:

The applicant will develop the site in accordance with existing regulations. All applicable regulations shall be adhered to in the final design of the project.

Comment: Water Supply

The project information sheets state water will be provided to the project by Artesian Water Company via a public water system. Our records indicate that the project is located within the public water service area granted to Artesian Water Company under Certificate of Public Convenience and Necessity 03-CPCN-26.

Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.

All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising.

Should you have any questions concerning these comments, please contact Rick Rios at 302-739-9944.

Response:

Central water will be provided by Artesian Water Company.

Comment:
Sediment and Erosion Control/Stormwater Management

A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. The plan review and approval as well as construction inspection will be coordinated through the Sussex Conservation District. Contact the Sussex Conservation District at (302) 856-7219 for details regarding submittal requirements and fees.

A Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity must be submitted to the Division of Soil and Water Conservation along with the \$195 NOI fee prior to plan approval.

Applying practices to mimic the pre-development hydrology on the site, promote recharge, maximize the use of existing natural features on the site, and limit the reliance on structural stormwater components, such as maintaining open spaces, should be considered in the overall design of the project as a stormwater management technique. Green Technology BMPs must be given first consideration for stormwater quality management. Each stormwater management facility should have an adequate outlet for release of stormwater.

It is strongly recommended that you contact the reviewing agency to schedule a preliminary meeting to discuss the sediment and erosion control and stormwater management components of the plan. The site topography, soils mapping, pre- and post- development runoff, and proposed method(s) and location(s) of stormwater management should be brought to the meeting for discussion.

Response Statement:

The sediment and erosion control plan shall be completed in accordance with Sussex Conservation District criteria. Green technologies will be contemplated if the hydrology and soils support such practices.

Comment:
Drainage

1. This project is located within the Bear Hole Tax Ditch and the Batson Branch Tax Ditch, which have existing tax ditch right-of-way. Lots 1-8 are within the existing tax ditch right-of-way. Any modification of the tax ditch, including piping or relocation, will require approval of the Tax Ditch Association and a court order change to the tax ditch. Please contact the Drainage Program in Georgetown at (302) 855-1930 as soon as possible to request a review of the tax ditch and to discuss the releasing of stormwater into the tax ditch.

Response Statement:

Please note that lots 1-8 have been re-numbered as lots 17-24 on the revised subdivision plan. Axiom Engineering has met with the DNREC-Drainage Section regarding this project. The drainage section expressed concern that the adjacent property where the Fenwick Medical Complex is proposed relies upon a prong of the tax ditch to maintain drainage. This prong extends outside of the recorded Tax Ditch easements. The Drainage Section indicated the easement on the lands of Bay Twenty, LLC could be abandoned and replaced with a private easement granted to the Fenwick Medical Center property. The easement has been indicated on the wetland impact permit applications, and will be included in the final Record Plan for the Woods at Johnson's Corner Subdivision.

2. Lots 27, 28, 35, and 75 are adjacent to forested wetlands. The amount of proposed tree removal from these areas appears excessive. The Drainage Program recommends limited tree removal in these areas. Where practical, plant native trees, and shrubs to compensate for the loss of nutrient uptake and stormwater absorption the removed trees provided. Even with these measures this area may not provide adequate residential drainage. Crawl spaces and basements within these areas are very questionable. If this area is developed as proposed, especially with crawl spaces and basements, a statement should be on the deed informing the prospective buyers that future drainage problems are very likely.

Response Statement:

Please note that lots 27, 28, 25 & 75 have been re-numbered as lots 43, 44, 55 & 56 on the revised subdivision plan. Axiom Engineering concurs with the Department's recommendation against basements for this project site.

3. The Drainage Program requests that the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project or create any off site drainage problems downstream by the release of on site storm water. The Drainage Program requests

that the engineer check existing downstream ditches and pipes for function and blockages prior to the construction. Notify downstream landowners of the change in volume of water released on them.

Response Statement:

Axiom Engineering has met with the DNREC - Drainage Section regarding downstream ditch maintenance. Bay Twenty, LLC has agreed to cooperate with other developers in the Batson Branch Tax Ditch watershed to ensure drainage is improved downstream of the development area.

4. The Drainage Program encourages the elevation of rear yards to direct water towards the streets where storm drains are accessible for maintenance. However, the Drainage Program recognizes the need for catch basins in yards in certain cases. Therefore, catch basins placed in rear and side yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, pools, and kennels can hinder drainage patterns as well as future maintenance to the storm drain or catch basin. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access.
5. An increase of the side yard setback to 15 feet may be needed on all properties with a drainage easement on the side. The increase will allow room for equipment to utilize the entire easement and maneuver free of obstructions if the drainage conveyance requires periodic maintenance or future re-construction. The side yard setback would only increase on the side with the drainage easement.
6. All catch basins in rear or side yards should have a 10-foot drainage easement around them on all sides. Place restrictions on fences, sheds, and other structures within the easement to prevent obstructions from being placed next to the catch basin. Record the easement on the deed.
7. Have all drainage easements recorded on deeds and place restrictions on obstructions within the easements to ensure access for periodic maintenance or future re-construction. Future property owners may not be aware of a drainage easement on their property if the easement is only on the record plan. However, by recording the drainage easement on the deed, the second owner, and any subsequent owner of the property, will be fully aware of the drainage easement on their property.

Response Statement:

Axiom Engineering concurs that all drainage infrastructure requires easements to ensure private landowners will not prevent the proper function of the infrastructure. Any maintenance easement shown on the Final Subdivision Plan shall include a prohibition against constructing structures within the easement. Easements shall be indicated on the final Record Plan for review and approval by the Sussex Conservation District, the Sussex County Engineering Department, and any other regulatory agency.

8. Preserve existing riparian buffers on this site to aid in the reduction of nutrients, sediment, and other pollutants entering the watershed. Please explore methods to filter excess

nutrients in stormwater runoff from this site before releasing the stormwater into the watershed.

9. The Drainage Program does not support the removal of trees for the creation of stormwater management areas. However, the Drainage Program recognizes that tree removal is unavoidable in some cases. Where practical, plant native trees and shrubs to compensate for the loss of nutrient uptake and stormwater absorption the removed trees provided.

Response:

Stormwater Management, Sediment and Erosion Control Plan shall be completed in accordance with Sussex Conservation District criteria.

Open Space

In areas set aside for passive open space, the developer is encouraged to consider establishment of additional forested areas or meadow-type grasses. Doing so will provide wildlife habitat and it will create recreational opportunities for residents. Once established, these ecosystems provide increased water infiltration into groundwater, decreased run-off into surface water, air quality improvements, and require much less maintenance than traditional turf grass, an important consideration if a homeowners association will take over responsibility for maintenance of community open spaces. Natural habitat could consist of increasing tree canopy density, reforesting portions of open space or establishing meadow grasses. The developer is encouraged to review "Community Spaces, Natural Places: A guide to restoration, management, and maintenance of community open space". This document provides a reference of practical and successful open space management techniques that emphasize natural landscape alternatives other than turf grass management. The guidebook is available online at:
<http://www.dnrec.state.de.us/dnrec2000/Divisions/Soil/dcmp/>.

Open space containing forest and/or wetlands should be placed into a permanent conservation easement or other permanent protection mechanism. Conservation areas should also be demarked to avoid infringement by homeowners.

Forested Wetland Habitat

The current site plan does not appear to consider the forest or wetland attributes of the site, but rather is designed in spite of them. Because PLUS is supposed to be a preliminary process, recommending changes is within the realm of this process.

- 1) Forested wetlands, which can support an array of plant and animal species, will be impacted by both lots and infrastructure. Upland buffers around wetlands are important for maintaining the integrity of the wetlands and serve as habitat for many wetland dependent species during a portion of their life cycle. A vegetative buffer of at least 100 feet is needed to filter nutrients, sediments and chemicals from run-off prior to ending up in the wetlands. An ecological need for at least a 100-foot buffer is well documented by peer reviewed scientific literature.

- 2) DNREC recommends that the applicant omit lot #s 20-29 and associated infrastructure. By omitting these lots, adequate wetland buffers can be maintained and there will not be a need to fill wetlands for a road crossing. This space can be maintained as forested open space to be enjoyed by all residents and utilized by wildlife species being displaced in other areas of the site. There are additional forested wetlands on the property and they are surrounded by lot #s 35-42, 75. These lots are well within 100 feet of the wetlands and while it is true that the wetlands will not be directly filled, there is a high probability that they will become degraded from run-off generated by those surrounding lots.

Response:

Please note that lots 20-29, 35-42 & 75 have been re-numbered as lots 36-45 & 45-56 on the revised subdivision plan. The total impact to regulated wetlands on the project site is limited to 0.20 acres, which qualifies the site for inclusion in the Nationwide Permit process. Please see page 6 for additional responses to this comment.

Nuisance Waterfowl

There are 6 areas designated as stormwater management and if these are going to be wet ponds, they may attract waterfowl. High concentrations of waterfowl in ponds create water-quality problems, leave droppings on lawn and paved areas and can become aggressive during the nesting season. Short manicured lawns around ponds provide an attractive habitat for these species; therefore we recommend native plantings of tall grasses, wildflowers, shrubs, and trees at the edge and within a buffer area around the perimeter. Waterfowl do not feel safe when they can not see the surrounding area for possible predators. These plantings should be completed as soon as possible as it is easier to deter geese when there are only a few than it is to remove them once they become plentiful. The Division of Fish and Wildlife does not provide goose control services, and if problems arise, residents or the home-owners association will have to accept the burden of dealing with these species (e.g., permit applications, costs, securing services of certified wildlife professionals). Solutions can be costly and labor intensive; however, with proper landscaping, monitoring, and other techniques, geese problems can be minimized.

Solid Waste

Each Delaware household generates approximately 3,600 pounds of solid waste per year. On average, each new house constructed generates an additional 10,000 pounds of construction waste. Due to Delaware's present rate of growth and the impact that growth will have on the state's existing landfill capacity, the applicant is requested to be aware of the impact this project will have on the State's limited landfill resources and, to the extent possible, take steps to minimize the amount of construction waste associated with this development.

Underground Storage Tanks

There are no LUST site(s) located near the proposed project. However, should any underground storage tank or petroleum contaminated soil be discovered during construction, the Tank Management Branch must be notified as soon as possible. It is not anticipated that any construction specifications would need to be changed due to petroleum contamination. However, should any

unanticipated contamination be encountered and PVC pipe is being utilized, it will need to be changed to ductile steel with nitrile rubber gaskets in the contaminated areas.

Air Quality

Once complete, vehicle emissions associated with this project are estimated to be 5.8 tons (11,511.7 pounds) per year of VOC (volatile organic compounds), 4.8 tons (9,530.9 pounds) per year of NOx (nitrogen oxides), 3.5 tons (7,032.1 pounds) per year of SO₂ (sulfur dioxide), 0.3 ton (626.0 pounds) per year of fine particulates and 481.5 tons (962,940.5 pounds) per year of CO₂ (carbon dioxide).

However, because this project is in a level 4 area, mobile emission calculations should be increased by 118 pounds for VOC emissions for each mile outside the designated growth areas per household unit; by 154 pounds for NOx; and by 2 pounds for particulate emissions. A typical development of 100 units that is planned 10 miles outside the growth areas will have additional 59 tons per year of VOC emissions, 77 tons per year of NOx emissions and 1 ton per year of particulate emissions versus the same development built in a growth area (level 1,2 or 3).

Emissions from area sources associated with this project are estimated to be 2.3 tons (4,643.2 pounds) per year of VOC (volatile organic compounds), 0.3 ton (510.9 pounds) per year of NOx (nitrogen oxides), 0.2 ton (424.0 pounds) per year of SO₂ (sulfur dioxide), 0.3 ton (547.1 pounds) per year of fine particulates and 9.4 tons (18,822.5 pounds) per year of CO₂ (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 0.9 tons (1,840.2 pounds) per year of NOx (nitrogen oxides), 3.2 tons (6,400.8 pounds) per year of SO₂ (sulfur dioxide) and 472.1 tons (944,118.0 pounds) per year of CO₂ (carbon dioxide).

	VOC	NOx	SO ₂	PM _{2.5}	CO ₂
Mobile	5.8	4.8	3.5	0.3	481.5
Residential	2.3	0.3	0.2	0.3	9.4
Electrical Power		0.9	3.2		472.1
TOTAL	8.1	6.0	6.9	0.6	963.0

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 0.9 tons of nitrogen oxides per year and 3.2 tons of sulfur dioxide per year.

A significant method to mitigate this impact would be to require the builder to construct Energy Star qualified homes. Every percentage of increased energy efficiency translates into a percent reduction in pollution. Quoting from their webpage, <http://www.energystar.gov/>:

“ENERGY STAR qualified homes are independently verified to be at least 30% more energy efficient than homes built to the 1993 national Model Energy Code or 15% more efficient than state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of:

- building envelope upgrades,
- high performance windows,

controlled air infiltration,
upgraded heating and air conditioning systems,
tight duct systems and
upgraded water-heating equipment.”

The DNREC Energy office in DNREC is in the process of training builders in making their structures more energy efficient. The Energy Star Program is excellent way to save on energy costs and reduce air pollution. They highly recommend this project development and other residential proposals increase the energy efficiency of their homes.

The Energy Office also recommends that the home builders offer geothermal and photo voltaic energy options. Applicable vehicles should use retrofitted diesel engines during construction. The development should provide tie-ins to the nearest bike paths, links to mass transit, and fund a lawnmower exchange program for their new occupants.

Response:

The applicant shall develop the site in accordance with existing law and regulations.

Comment:

State Fire Marshall's Office:

These comments are intended for informational use only and do not constitute any type of approval from the Delaware State Fire Marshal's Office. At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation (DSFPR):

a. Fire Protection Water Requirements:

- Where a water distribution system is proposed for single-family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required.
- The infrastructure for fire protection water shall be provided, including the size of water mains.

b. Accessibility:

- All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from Zion Church Rd. must be constructed so fire department apparatus may negotiate it.
- Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.
- Any dead end road more than 300 feet in length shall be provided with a turn-around or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or turn-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.

- The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.
- The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.

c. **Gas Piping and System Information:**

- Provide type of fuel proposed, and show locations of bulk containers on plan.

d. **Required Notes:**

- Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”
- Name of Water Supplier
- Proposed Use
- National Fire Protection Association (NFPA) Construction Type
- Maximum Height of Buildings (including number of stories)
- Provide Road Names, even for County Roads

Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website: www.delawarestatefiremarshal.com, technical services link, plan review, applications or brochures.

Response:

Fire protection features and accessibility shall be designed in accordance with the State Fire Prevention regulations. All required notes and specific comments indicated will be addressed on the final construction drawings to be submitted for the project.

Comment:

Department of Agriculture:

The proposed development is in an area designated as Investment Level 4 under the *Strategies for State Policies and Spending*. The *Strategies* do not support this type of isolated development in this area. The intent of this plan is to preserve the agricultural lands, forestlands, recreational uses, and open spaces that are preferred uses in Level 4 areas. The Department of Agriculture opposes development which conflicts with the preferred land uses, making it more difficult for agriculture and forestry to succeed, and increases the cost to the public for services and facilities.

More importantly, the Department of Agriculture opposes this project because it negatively impacts those land uses that are the backbone of Delaware’s resource industries - agriculture, forestry, horticulture - and the related industries they support. Often new residents of developments like this one, with little understanding or appreciation for modern agriculture and forestry, find their own lifestyles in direct conflict with the demands of these industries. Often these conflicts result in compromised health and safety; one example being decreased highway safety with farm equipment and cars competing on rural roads. The crucial economic, environmental and open space benefits of agriculture and forestry are compromised by such development. We oppose the creation of isolated development areas that are inefficient in terms of the full range of public facilities and services funded

with public dollars. Public investments in areas such as this are best directed to agricultural and forestry preservation.

Section 1. Chapter 99, Code of Sussex Section 99-6 may apply to this subdivision. The applicant should verify the applicability of this provision with Sussex County. This Section of the Code states:

G. Agricultural Use Protections.

- (1) Normal agricultural uses and activities conducted in a lawful manner are preferred. In order to establish and maintain a preference and priority for such normal agricultural uses and activities and avert and negate complaints arising from normal noise, dust, manure and other odors, the use of agricultural chemicals and nighttime farm operations, land uses adjacent to land used primarily for agricultural purposes shall be subject to the following restrictions:
 - (a) For any new subdivision development located in whole or in part within three hundred (300) feet of the boundary of land used primarily for agricultural purposes, the owner of the development shall provide in the deed restrictions and any leases or agreements of sale for any residential lot or dwelling unit the following notice:

“This property is located in the vicinity of land used primarily for agricultural purposes on which normal agricultural uses and activities have been afforded the highest priority use status. It can be anticipated that such agricultural uses and activities may now or in the future involve noise, dust, manure and other odors, the use of agricultural chemicals and nighttime farm operations. The use and enjoyment of this property is expressly conditioned on acceptance of any annoyance or inconvenience which may result from such normal agricultural uses and activities.”

(b) For any new subdivision development located in whole or in part within fifty (50) feet of the boundary of land used primarily for agricultural purposes no improvement requiring and occupancy approval for a residential type use shall be constructed within fifty (50) feet of the boundary of land used primarily for agricultural purposes.

The Delaware Department of Agriculture supports growth which expands and builds on existing urban areas and growth zones in approved State, county and local plans. Where additional land preservation can occur through the use of transfer of development rights, and other land use measures, we will support these efforts and work with developers to implement these measures. If this project is approved we will work with the developers to minimize impacts to the agricultural and forestry industries.

Response:

The property is currently in cropland but is zoned GR, General Residential which was approved by Sussex County with the intention of realizing development of a neighborhood on 10,000 sf lots.. The surrounding properties include residential uses and an approved medical complex, thus, no conflict exists. A forested buffer is provided on the south-east property line adjacent to the existing tilled property. The forested buffers proposed were approved by the Department of Agriculture in their May 17, 2007 letter to Sussex County Planning & Zoning (Technical Advisory Committee response) The development of a residential subdivision on the property will not adversely affect area agriculture.

Comment:

Right Tree for the Right Place

The Delaware Department of Agriculture Forest Service encourages the developer to use the “Right Tree for the Right Place” for any design considerations. This concept allows for the proper placement of trees to increase property values in upwards of 25% of appraised value and will reduce heating and cooling costs on average by 20 to 35 dollars per month. In addition, a landscape design that encompasses this approach will avoid future maintenance cost to the property owner and ensure a lasting forest resource.

Native Landscapes

The Delaware Department of Agriculture and the Delaware Forest Service encourages the developer to use native trees and shrubs to buffer the property from the adjacent land-use activities near this site. A properly designed forested buffer can create wildlife habitat corridors and improve air quality to the area by removing six to eight tons of carbon dioxide annually and will clean our rivers and creeks of storm-water run-off pollutants. To learn more about acceptable native trees and how to avoid plants considered invasive to our local landscapes, please contact the Delaware Department of Agriculture Plant Industry Section at (302) 698-4500.

Tree Mitigation

The Delaware Forest Service encourages the developer to implement a tree mitigation program to replace trees at a 1:1 ratio within the site and throughout the community. This will help to meet the community’s forestry goals and objectives and reduce the environmental impacts to the surrounding natural resources. To learn more, please contact our offices at (302) 349-5754.

Response:

The applicant acknowledges the suggestions made by the Department of Agriculture and will attempt to address these issues during preparation of the final construction drawings.

Comment:

Public Service Commission:

Any expansion of natural gas or installation of a closed propane system must fall within Pipeline Safety guidelines. Contact: Malak Michael at (302) 739-4247.

Response:

Acknowledged.

Delaware State Housing Authority:

This proposal is for a site plan review of 75 single-family residential units on 34 acres located on the South side of Route 20 at the intersection of Route 20 and Bunting Road near Bethany Beach. According to the State Strategies Map, the proposal is located in an Investment Level 4 area and outside the growth zone. As a general planning practice, DSHA encourages residential development only in areas where residents will have proximity to services, markets, and employment opportunities, such as Investment Level 1 and 2 areas outlined in the State Strategies Map. Since,

the proposal is located in an area targeted for agricultural and natural resource protection, and therefore inconsistent with where the State would like to see new residential development, DSHA does not support this proposal.

Response:

The applicant shall develop the site in accordance with existing law and regulations.

Comment:

Department of Education – Contact: John Marinucci 735-4055

DOE recognizes that this development project is in level 4 of the State Strategies for Policies and Spending and as such, DOE does not support the approval of this project.

DOE offers the following comments on behalf of the Indian River School District.

1. Using the DOE standard formula, this development will generate an estimated 38 students.
2. DOE records indicate that the Indian River School Districts' *elementary schools are at or beyond 100% of current capacity* based on September 30, 2006 elementary enrollment.
3. DOE records indicate that the Indian River School Districts' *secondary schools are not at or beyond 100% of current capacity* based on September 30, 2006 secondary enrollment. In multiple correspondences from the Indian River School District administration, the district asserts that while the Indian River High School has capacity, the Indian River Middle Schools' student population exceeds student capacity.
4. This development will create additional elementary school and middle school student population growth which will further compound the existing shortage of space. The developer is strongly encouraged to contact the Indian River School District Administration to address the issue of elementary school over-crowding that this development will exacerbate.
5. DOE requests developer work with the Indian River School District transportation department to establish developer supplied bus stop shelter ROW and shelter structures, interspersed throughout the development as determined and recommended by the local school district.

Response:

The residents of the proposed community will pay transfer taxes a portion of which is used to fuel schools in Delaware. As such, they will be doing their part to add capacity to the system, should such be necessary, as have all other citizens of Delaware in the past. School overcrowding is NOT the result of adding neighborhoods to the larger community but, rather, the lack of adding additional capacity when needed with tax money intended for same. Additionally, the site is likely to draw retirement age residents, who will provide a growing tax base, with likely limited impact on the student population.

Comment:
Sussex County

Because the proposed subdivision is split between two different Tax Ditch districts, the boundary line should be shown for assessment purposes.

The State Wetlands map indicates the possibility of wetlands impacting the location of proposed subdivision lots and roads. Therefore a jurisdictional determination letter should be provided to support the proposed design for that area and that the lot layout does not contain any wetlands. This letter should be obtained prior to the request for approval of any final plan.

The developer should relocate the stormwater management ponds located along the property frontage to an interior, less visible location.

A landscaped berm or other visual natural buffer should be installed between any lot and the adjoining public road, especially at the intersection of Routes 20 and 382A.

Response:

Wetland Impact permits have been filed with the U.S. Army Corps of Engineers, the DNREC - Wetlands and Subaqueous Lands Section and the DNREC- Drainage Section. Permit approvals shall be obtained before Final Approval is sought from the Planning and Zoning Commission. The development density calls for 10% open space, and the project proposed over 25% open space.

The Sussex County Engineer Comments:

The project proposes 75 residential units on 34 acres, which results in a density of 2.2 EDUs per acre. The number of units is within the allocation based on the South Coastal Area Planning Study, Update 2005. The proposed project is within the boundaries of the proposed Johnson's Corner Sanitary Sewer District (JCSSD). A tentative date for the referendum is July 21, 2007, at a time and place to be determined. Currently there is no sewer available and until a valid referendum is passed the Sussex County Engineering Department cannot provide a schedule for service. Sussex County requires design and construction of the collection and transmission system to meet Sussex County Engineering Department's sewer standards and specifications. A sewer concept plan must be reviewed and approved prior to any sewer construction. A checklist for preparing sewer concept plans was handed out at the meeting. All costs associated with extending sewer service will be the sole responsibility of the developer. Also, please note system connection charges will be due prior to receiving any building permits.

Response:

It is the applicant's understanding that since the PLUS review, the Johnson's Corner Sanitary Sewer District has been established, and the subject property is located within the district. The developer has agreed to transfer real estate to Sussex County ownership (between lots 9 and 63) for the installation of a regional sanitary sewer pump station.

Again, the applicant would like to take the opportunity to thank the Office of State Planning Coordination for their questions, comments and concerns. If there are any other questions, comments or concerns, please feel free to contact me at 302-855-0810.

Thank you very much.

Sincerely,

Kenneth R. Christenbury, P.E.
President
Axiom Engineering, L.L.C.

Enclosure



REVISION	DESCRIPTION OF REVISION	DATE	BY
1	REVISED SUBMITTAL TO PLANNING AND ZONING	8/22/2008	KRC
2	ADD CONSERVATION EASEMENTS FOR WETLAND MITIGATION PERMITS	8/22/2008	KRC
3	RESPONSE TO DELDOT COMMENTS	2/6/2009	KRC
4	UPDATE SURVEY GPS CONTROL & ADD WETLAND MITIGATION AREAS	6/20/2008	KRC
5		6/20/2008	KRC
6		6/20/2008	KRC
7		6/20/2008	KRC
8		6/20/2008	KRC
9		6/20/2008	KRC
10		6/20/2008	KRC
11		6/20/2008	KRC
12		6/20/2008	KRC
13		6/20/2008	KRC
14		6/20/2008	KRC
15		6/20/2008	KRC
16		6/20/2008	KRC
17		6/20/2008	KRC
18		6/20/2008	KRC
19		6/20/2008	KRC
20		6/20/2008	KRC
21		6/20/2008	KRC
22		6/20/2008	KRC
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30		6/20/2008	KRC
31		6/20/2008	KRC
32		6/20/2008	KRC
33		6/20/2008	KRC
34		6/20/2008	KRC
35		6/20/2008	KRC

PRELIMINARY SUBDIVISION PLAN

THE WOODS

AT JOHNSON'S CORNER

SUBDIVISION 2007-6
BALTIMORE HUNDRED SUSSEX COUNTY, DELAWARE



AXIOM ENGINEERING L.L.C.
18 CHESTNUT STREET
GEORGETOWN, DE 19947
PHONE: 855.081.1010
FAX: 855.081.1012
WWW.AXIOMENG.COM

ENGINEER	KRC	PROJECT NO.	0004-0503
DESIGNER	KRC	DRAWING	P-2
DRAFTER	KRC	DATE	2/21/2008
CHECKED BY	KRC	TAX MAP	5-33-11, 45.01 & 46.03
DATE	2/21/2008	SCALE	1" = 50'
WARNING	IF THIS BAR DOES NOT DRAWING IS NOT TO SCALE		
SHEET	2 OF 3		

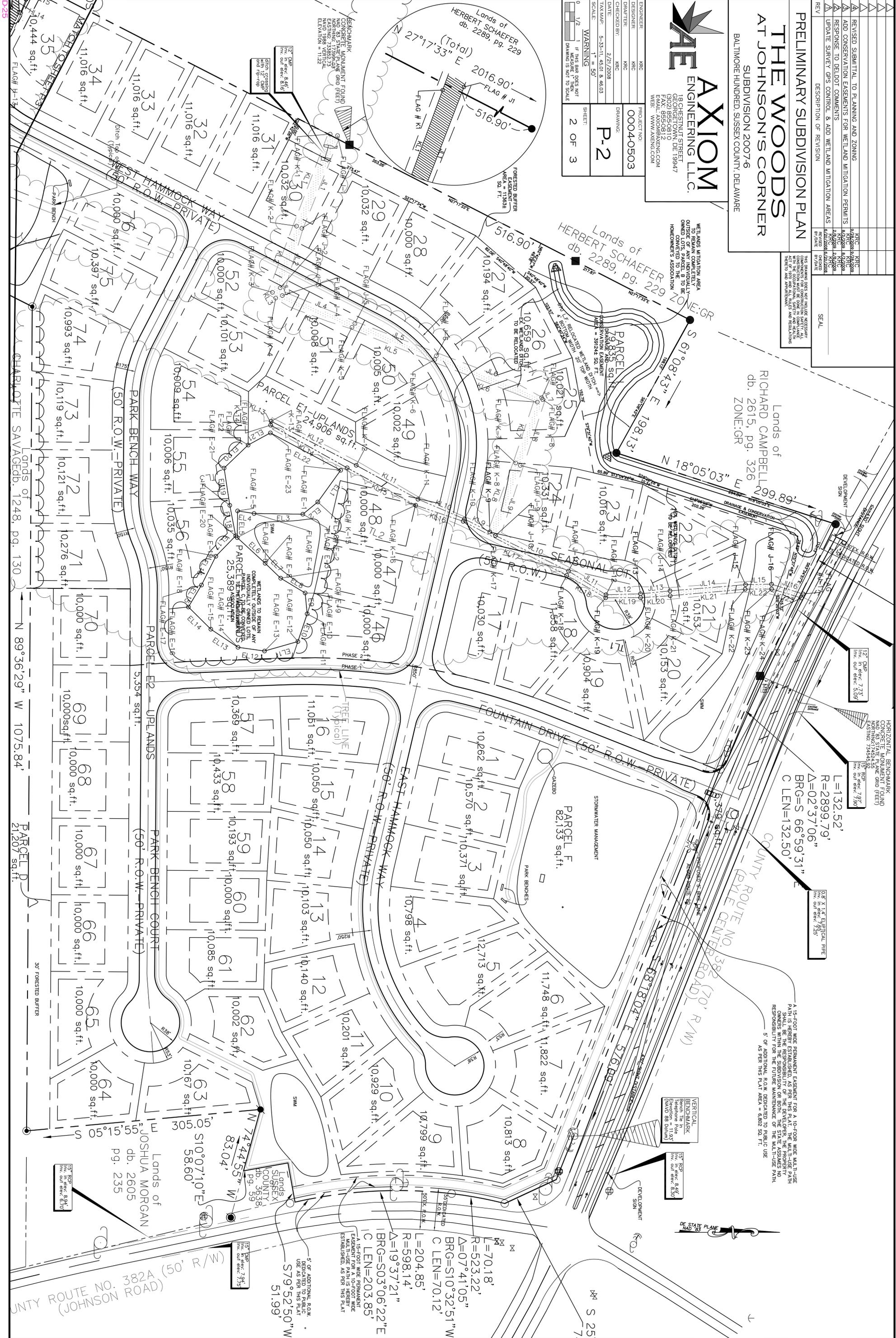
THIS DRAWING DOES NOT INCLUDE NECESSARY CONSERVATION EASEMENTS FOR WETLAND MITIGATION PERMITS. THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND REGULATIONS HEREON AND THEREON.

Lands of
RICHARD CAMPBELL
db. 2615, pg. 326
ZONE:GR

Lands of
HERBERT SCHAEFER
db. 2289, pg. 229
ZONE:GR

Lands of
JOSHUA MORGAN
db. 2605
pg. 235

Lands of
SUSSEX COUNTY
db. 3638
pg. 39



REVISION	DESCRIPTION OF REVISION	DATE	BY	CHKD
1	REVISED SUBMITTAL TO PLANNING AND ZONING	10/26/2007	KRC	KRC
2	ADD CONSERVATION ELEMENTS FOR WETLAND MITIGATION PERMITS	10/26/2007	KRC	KRC
3	RESPONSE TO DELDOT COMMENTS	10/26/2007	KRC	KRC
4	UPDATE SURVEY GPS CONTROL & ADD WETLAND MITIGATION AREAS	10/26/2007	KRC	KRC

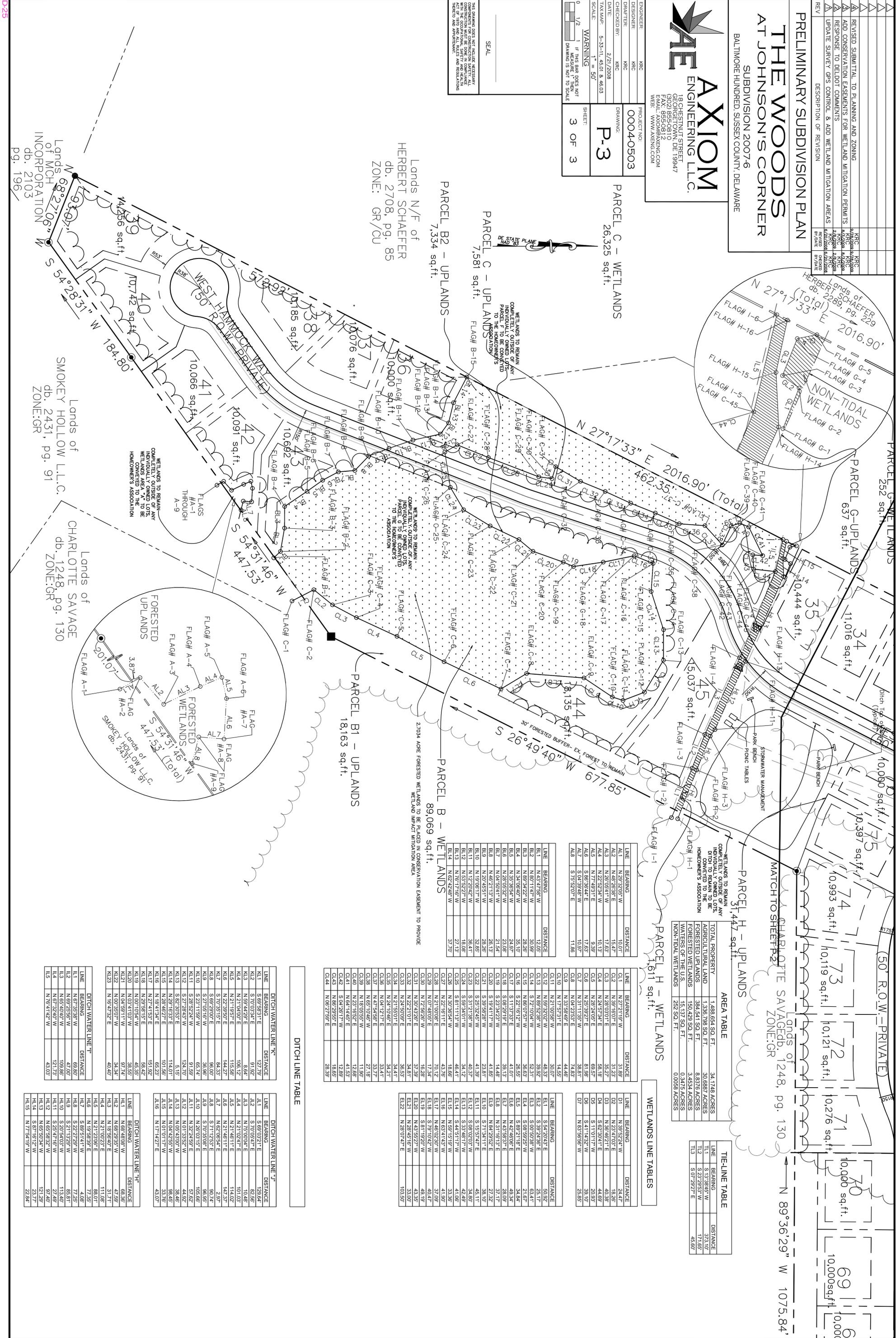
PRELIMINARY SUBDIVISION PLAN
THE WOODS
AT JOHNSON'S CORNER
 SUBDIVISION 2007-6
 BALTIMORE HUNDRED SUSSEX COUNTY, DELAWARE



18 CHESTNUT STREET
 GEORGETOWN, DE 19647
 (302) 855-0810
 FAX: 855-0812
 E-MAIL: WWW.AXENGIN.COM
 WEB: WWW.AXENGIN.COM

ENGINEER	KRC	PROJECT NO.	0004-0503
DESIGNER	KRC	DRAWING	P-3
DRAWN	KRC	DATE	2/21/2008
CHECKED BY	KRC	TAX MAP	5-33-11, 4501 & 4603
SCALE	1" = 50'	WARNING	IF THIS DRAWING IS NOT TO SCALE DRAWING IS NOT TO SCALE
SHEET	3 OF 3	SEAL	

LANDS N/F of HERBERT SCHAEFER db. 2708, pg. 85 ZONE: GR/CU



AREA TABLE

TOTAL PROPERTY	1,489,654 SQ. FT.	34.1748 ACRES
AGRICULTURAL LAND	1,336,798 SQ. FT.	30.6887 ACRES
FORESTED UPLAND	384,541 SQ. FT.	8.8376 ACRES
FORESTED WETLANDS	150,429 SQ. FT.	3.4534 ACRES
WATERS OF THE U.S.	15,137 SQ. FT.	0.3475 ACRES
NON-TIDAL WETLANDS	252 SQ. FT.	0.0058 ACRES

TIE-LINE TABLE

LINE	BEARING	DISTANCE
T11	S 133°36'45" W	373.10
T12	S 23°28'53" E	171.65
T13	S 07°28'27" E	45.80

WETLANDS LINE TABLES

LINE	BEARING	DISTANCE
D1	N 39°52'24" W	24.47
D2	N 23°17'03" E	18.26
D3	S 86°40'21" E	40.38
D4	S 11°01'17" W	20.92
D5	S 41°43'32" W	39.10
D7	N 83°56'56" W	25.85

WETLANDS LINE TABLES

LINE	BEARING	DISTANCE
E1	S 54°40'43" E	50.92
E2	S 39°24'36" E	25.17
E3	S 00°50'38" W	63.41
E4	S 08°59'25" W	21.67
E5	S 59°21'18" E	34.84
E6	S 92°46'06" E	49.34
E7	S 11°37'33" E	41.01
E8	N 33°53'37" E	28.09
E9	N 31°16'31" E	31.17
E10	N 24°29'52" E	21.22
E11	S 12°54'11" E	38.10
E12	S 08°02'03" W	34.80
E13	S 33°48'17" W	42.49
E14	S 44°51'17" W	41.06
E15	N 69°15'19" W	33.36
E16	N 63°14'33" W	41.90
E17	N 46°02'30" W	37.09
E18	S 79°10'42" W	40.47
E19	S 81°19'20" W	48.19
E20	N 43°55'27" W	43.35
E21	N 28°45'16" W	33.00
E22	N 28°07'47" E	103.50

DITCH WATER LINE TABLE

LINE	BEARING	DISTANCE
K1	S 69°58'31" E	127.79
K2	S 70°03'34" E	91.92
K3	N 59°44'29" E	8.64
K4	N 12°04'03" E	106.12
K5	N 22°38'59" E	144.27
K6	N 22°38'59" E	84.37
K7	S 70°33'15" E	96.70
K8	S 68°23'00" E	36.96
K9	S 27°06'16" W	65.74
K10	S 23°11'59" W	91.59
K11	S 28°52'24" W	124.70
K12	S 27°28'43" W	124.70
K13	S 82°30'53" E	5.15
K14	N 29°16'33" E	114.01
K15	N 28°46'27" E	101.56
K16	N 18°41'34" E	65.23
K17	N 27°41'53" E	151.92
K18	N 29°58'19" E	58.42
K19	N 00°10'34" W	45.35
K20	N 03°41'03" W	38.55
K21	N 04°59'11" W	97.74
K22	N 00°33'01" W	34.34
K23	N 18°47'52" E	40.80

DITCH WATER LINE TABLE

LINE	BEARING	DISTANCE
L1	S 69°03'21" E	129.64
L2	S 70°03'34" E	91.92
L3	N 59°44'29" E	8.64
L4	N 12°04'03" E	106.12
L5	N 22°38'59" E	144.27
L6	N 22°38'59" E	84.37
L7	S 70°33'15" E	96.70
L8	S 68°23'00" E	36.96
L9	S 27°06'16" W	65.74
L10	S 23°11'59" W	91.59
L11	S 28°52'24" W	124.70
L12	S 27°28'43" W	124.70
L13	S 82°30'53" E	5.15
L14	N 29°16'33" E	114.01
L15	N 28°46'27" E	101.56
L16	N 18°41'34" E	65.23
L17	N 27°41'53" E	151.92
L18	N 29°58'19" E	58.42
L19	N 00°10'34" W	45.35
L20	N 03°41'03" W	38.55
L21	N 04°59'11" W	97.74
L22	N 00°33'01" W	34.34
L23	N 18°47'52" E	40.80

DITCH WATER LINE TABLE

LINE	BEARING	DISTANCE
M1	N 67°38'38" W	69.80
M2	N 69°28'56" W	47.00
M3	N 65°40'40" W	109.88
M4	N 67°32'40" W	121.73
M5	N 78°41'42" W	43.03

WETLANDS LINE TABLES

LINE	BEARING	DISTANCE
F1	N 27°17'33" E	31.89
F2	N 39°16'07" E	31.85
F3	N 28°30'24" E	31.25
F4	N 29°16'33" E	39.22
F5	N 28°46'27" E	69.57
F6	N 23°59'27" E	81.96
F7	N 31°13'55" W	38.81
F8	N 04°23'53" E	74.83
F9	N 33°58'49" E	44.46
F10	N 17°57'31" E	14.55
F11	N 21°00'58" W	30.07
F12	N 59°32'08" W	48.33
F13	N 59°25'38" W	39.92
F14	S 72°10'04" W	52.31
F15	N 86°07'57" W	36.63
F16	S 22°16'12" W	26.55
F17	S 11°37'33" E	41.01
F18	S 08°29'19" E	39.13
F19	S 23°34'23" W	14.46
F20	S 39°41'11" W	41.85
F21	S 39°52'35" W	23.81
F22	S 57°21'58" W	40.32
F23	S 57°21'58" W	36.41
F24	S 59°34'01" W	34.12
F25	S 81°11'33" W	46.41
F26	N 30°35'64" W	16.66
F27	N 21°00'09" E	70.12
F28	N 22°16'11" E	43.75
F29	N 07°46'05" E	17.34
F30	N 72°56'56" E	16.28
F31	N 30°43'26" E	37.39
F32	N 22°21'01" E	34.81
F33	N 24°50'09" E	36.53
F34	N 21°55'01" E	34.41
F35	N 04°10'46" E	34.21
F36	N 04°12'17" E	33.41
F37	N 47°54'58" E	33.77
F38	N 67°10'48" W	21.76
F39	N 16°55'52" W	11.96
F40	N 64°14'46" E	41.53
F41	S 04°26'17" W	12.82
F42	N 86°29'55" E	16.65
F43	N 06°27'59" E	28.39



WOODS AT
JOHNSON'S
CORNER

REV	DESCRIPTION OF REVISION	REVISOR	DATE

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREIN AND APPURTENANT.

TAX MAP: 5-33-11, 45.01 & 46.03

ENGINEER:	KRC
DESIGNER:	KRC
DRAFTER:	KRC
CHECKED BY:	KRC
DATE:	9/28/09
SCALE:	1" = 400'

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SEAL

AXIOM ENGINEERING L.L.C.
18 CHESTNUT STREET
GEORGETOWN, DE 19947
(302) 855-0810
FAX: 855-0812
EMAIL: AXIOM@AXIOM.COM
WEB: WWW.AXIOM.COM

AERIAL OVERLAY
THE WOODS AT JOHNSON'S CORNER
BALTIMORE HUNDRED, SUSSEX COUNTY, DELAWARE

PROJECT NO: 0004-0503
DRAWING: CR-1
SHEET: 1 OF 2

