



Constance C. Holland, AICP  
 Director, Office of State Planning Coordination  
 State of Delaware  
 122 William Penn Street, Suite 302  
 Haslet Building, Third Floor  
 Dover, DE 19901

15 September 2008  
 Via: Fed Ex

2008 SEP 17 PM 1:27

OFFICE OF STATE PLANNING AND BUDGET

RE: PLUS review – PLUS 2008-04-03; The Moorings of Pepper's Creek

Dear Ms. Holland:

In regard to the above referenced project and pursuant to your comment letter dated 23 May 2008, please find the following point by point response in blue for your review. A revised site plan and additional exhibits have been included with this resubmittal and are referenced here on in.

**Office of State Planning Coordination – Contact: 739-3090**

The proposed project is located within future annexation area for the Town of Dagsboro, the Environmental Sensitive Development District as defined by the 2002 Sussex County Comprehensive Land Use Plan and is within a Level 4 Investment Area as defined by the Strategies for State Policy and Spending. *Please Note: that based upon the information provided by the developer for this project and the decision by Sussex County to qualify this site for affordable housing under the County's moderately priced housing ordinance, this office and other State and County agencies will provide more substantial comments and not the traditional Level 4 comments.* Given these circumstances, this office provides the following recommendations for consideration as you move forward:

- The proposed project has qualified for the affordable housing program through Sussex County. This office encourages the developer to work closely with Sussex County and the State Housing Authority to ensure successful marketing of these homes to first time buyers within Sussex County.
- The Site falls within an environmentally significant area within the Sussex County. This office encourages the developer to work closely with DNREC and Office of Historical and Cultural Affairs to develop a project of superior design, one that protects natural resources while preserving the State's archeological heritage.
- The proposed project is bisected by the proposed future Blue Route of the US 113 North/South Improvement Program as proposed by the Department of Transportation. The developer should contact Del-Dot as soon as possible to address concerns that you and the Department may have regarding the future of this project.

This office has no additional comments at this time; however, would ask that you consider the additional comments provided by the various State agencies included within this letter as you move forward. If you have any additional questions, please call.

Comments Acknowledged. The developer and designer recognize some of the challenges in developing this site, however we feel as though the site if developed properly and in conjunction with State and Local resources can provide a unique opportunity for affordable housing in Sussex County. All agency comments are appreciated and specific responses for each of these comments are included in the respective sections of this document.



**State Historic Preservation Office (SHPO) – Contact: Terrence Burns 739-5685**

The Delaware Division of Historic & Cultural Affairs is an agency of the State of Delaware that consists of archaeologists, architectural historians, curators, educational specialists, historians, historical interpreters, horticulturists, and historic preservation trade professionals, which fosters and oversees the state-federal historic preservation partnership programs in Delaware. The Division of Historic & Cultural Affairs also advises the State of Delaware legislative or government officials on historic preservation issues, participates in project planning under federal regulations, and fosters historic preservation efforts of the State's historic and cultural resources or sites through historical research, management of historic properties, interpretation, and public education.

Preserving the State of Delaware's historic heritage and highlighting its historic legacy are the guiding principles of the Division of Historical & Cultural Affairs. Through active historic preservation efforts, which involves increasing awareness about Delaware's historic and cultural resources or sites, such as historic properties, buildings, structures, areas, and archaeological sites, the Division of Historical & Cultural Affairs is committed to enhancing Delaware's quality of life by helping people connect with those aspects of our past that have made this state what it is today. Delaware's historic and cultural resources are very valuable and important the State's heritage and historic legacy, because they provide a visual connection that reflects the State's historical heritage, legacy, customs, and traditions. However, they are also irreplaceable and increasingly endangered because of their commercial attractiveness and the effects of natural forces and human intervention.

The role of the Division of Historical & Cultural Affairs in reference to the Preliminary Land Use Service process (Chapter 92 of Title 29 of the Delaware Code) is to provide information on the development's impact on Delaware's historic and cultural resources or sites, and be an advocate for their protection. In addition, the information that is provided is base on the archival resources and reference materials at the State Historic Preservation Office, which is a part of the Division of Historical & Cultural Affairs. The State Historic Preservation Office is also the central research and archive repository with information on Delaware's historic and cultural resources or sites, such as historic properties, buildings, structures objects, areas, and archaeological sites that were identified, researched, evaluated, recorded or documented.

Delaware has approximately 9,500 these historic and cultural resources or sites, listed in the National Register of Historic Places, which is the official list of the nation's historic and archaeological resources. The National Register of Historic Places is the Nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The National Register is administered by the National Park Service, which is part of the U.S. Department of the Interior.

In accordance with the Preliminary Land Use Service process, and based on the information from the archival resources and reference materials at the State Historic Preservation Office of Delaware, which is a part of the Division of Historical & Cultural Affairs, here are the following observations in reference to this Preliminary Land Use Service Application:

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- The developer should be aware that the proposed project site is in an area where there are some historic and cultural resource sites in the vicinity, but two of them seem to be nearby or close to the project site. Both of these historic and cultural resource sites are agriculture complexes (S-4418, S-4128). One is located 2/10 of mile northeast of Road 336A on south side of Road 336 (S-4418), the other is located on 1/10 mile west of Roads 336 and 336A (S-4428).
- According to the **Beers Atlas of 1868** (historic geographic map), it appears that the proposed project site is in the geographic region of Dagsborough Hundred. The **Beers Atlas of 1868** also indicates that there was one structure of some type somewhat close to where the proposed project site is located, and it appears the structure was associated with V. Thomas.
- As the developer is probably aware, this project site in a Level 4 Investment Area, according to the Preliminary Land Use Service process in Chapter 92 of Title 29 of the Delaware Code. Any type of construction or development project in a Level-4 area could affect the historic context of Delaware's rural heritage by intruding on agricultural lands and open space. It could also affect historic architectural resources that are historically associated with Delaware's agricultural areas and open space. In addition, it could also affect the prehistoric and historic archaeological sites, which have not recorded or studied yet, but could contain important information about Delaware's history and prehistory. The Division of Historical & Cultural Affairs is not in favor of any type of zoning change, construction, building project, or development in Level-4 area, because it could affect historic or cultural resource sites, such as an archaeological site or national register listed property.
- Since the following observations and analysis did indicate that there are some historical attributes and aspects in reference to this proposed project site, there is a possibility that there could potentially be of other historic or cultural resources or probably on this project site, which has not discovered yet. These historic or cultural resources could be potential archaeological resources such as a cemetery or burial ground, unmarked human remains, the contents of an historic building or structure of an earlier century.
- Prior to any demolition, ground-disturbing activities, or construction, the Division of Historic & Cultural Affairs strongly recommends that the developer should considers the possibility of hiring an archaeological consultant to examine the project site for any indication or evidence of a cemetery or burial ground, unmarked human remains, or the contents of a historic building, structure, or object. In addition, the Division of Historic & Cultural Affairs also recommends that developer read **Chapters 53 and 54, in Title 7, of the Delaware State Code**, which is in reference to the "Conservation of Archaeological Resources In or On State Lands", and the "**Delaware Unmarked Human Remains Act of 1987**".
- Finally, it also important for the developer to remember that proposed development or construction projects, whether they are big or small or whether they are located in rural areas or urban areas, have the capability to impact or affect historic and cultural resources through demolition or ground disturbance activities. The unexpected discovery of archaeological resources such as a cemetery or burial ground, unmarked human remains, the contents of an historic building or structure of an earlier century during demolition, ground-disturbing activities, or construction can result in significant delays.

Comments Acknowledged. Upon approval of the development, the Developer/Designer will further investigate the potential for historic structures and archeological sites on the

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property and will investigate the possibility of any family cemeteries and report back to the DHCA with any findings.

**Department of Transportation – Contact: Bill Brockenbrough 760-2109**

- 1) Piney Neck Road is classified as a local road. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 30 feet from the centerline on local roads. Therefore they will require right-of-way dedication along the frontage to provide any additional width needed from this project.

30' from centerline is provided along Piney Neck Road.

- 2) DelDOT will require the developer to provide a 15-foot wide permanent easement along the property frontage and to provide a 10-foot wide shared use path within that easement.

A 15 foot wide easement for a 10 foot wide shared use path shall be shown along the property frontage.

- 3) In their PLUS application, the developer indicated that they anticipate having a traffic impact study performed. DelDOT will require one. When they would like to begin work on such a study they should have their engineer contact Mr. Troy Brestel of this office to arrange a scoping meeting. Mr. Brestel may be reached at (302) 760- 2167.

Comment Acknowledged. The Traffic Impact Study is underway; scoping meeting was held on 06.27.08.

- 4) As proposed, the site entrance would be about 200 feet west of Hudson Street (Sussex Road 336A). A likely recommendation of the traffic impact study is that the developer realigns either Hudson Street or their site entrance to eliminate this offset. If the developer cannot obtain the necessary land themselves, DelDOT may use its real estate acquisition process to obtain the land at the developer's expense. The developer should also anticipate a requirement to improve Piney Neck Road between the limits of the property frontage, to meet DelDOT's local road standards. Those standards include 11-foot lanes and 5-foot shoulders. Depending on the condition of the existing road, a longer improvement may be required. A pavement overlay may also be required.

Comment Acknowledged. Element will coordinate this effort with the department. Currently the developer does not own the property required to align the entrance with Hudson Road. Road frontage improvements will be made in accordance with DelDOT requirements and the Traffic Impact Study.

- 5) DelDOT recommends that the portion of Parcel 2-33-11.00-83.00 presently used for access from Piney Neck Road be used to provide bicycle and pedestrian access to the development.

Comment Acknowledged. The access easement is partially located in the Delmarva Power and Light Easement. Element will coordinate with Delmarva Power to evaluate bicycle and pedestrian access in the Delmarva Power and Light Easement.

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- 6) DelDOT also recommends that stub streets be provided to the adjoining Sagers, Davidson, Handy, Lynch and Davidson parcels, respectively Tax Parcels 2-33-11.00-75.00, 78.01, 81.00, 81.02 and 82.00, to allow for interconnections if and when those parcels are redeveloped.

Comment Acknowledged. Element will coordinate with the Department to determine if connections to future adjacent developments are feasible or not. Given the undevelopable wetlands on the eastern portion of the site, the 150' Delmarva Power and Light Easement, and the single family residential property to the west, it is expected that future connections may not be practical. However, every effort will be taken to provide them, as well as the possibility for adding bicycle and pedestrian access to these areas.

- 7) One of the US 113 North/South Study's alternative alignments, specifically, the Blue Alternative would pass through this site. DelDOT is working to select a recommended Preferred Alternative and expects to do so in the fall of 2008. The developer may contact our project manager, Mr. Monroe Hite, at (302) 760-2120, to discuss coordination between our project and the proposed development.

Comment Acknowledged. Mr. Hite has been contacted. The Blue Route recommendation is anticipated by/before 12/08. Mr. Hite indicated that the alternative Route could be constructed in the 15-20 year timeframe. Once an alternative has been selected, we will work with the Department in outlining the appropriate steps to be taken.

- 8) The developer's site engineer should contact the Subdivision Manager for eastern Sussex County, Mr. John Fiori, regarding specific requirements for access and off-site improvements. Mr. Fiori may be reached at (302) 760-2260.

Comment Acknowledged. Element will coordinate with Mr. Fiori regarding all DelDOT access and offsite improvements.

**The Department of Natural Resources and Environmental Control – Contact:  
Kevin Coyle 739-9071**

**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., nonattainment areas for ozone and fine particulates) goals. Present and future investments in green infrastructure, as defined

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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 the increase in impervious cover, the loss/fragmentation of 5 out of 53 acres (or 9%) of forest, potential impacts to wetlands, the project's location in an excellent recharge area, tax ditch rights-of-way issues, the project's location in a State Resource Area, and the presence of rare species/Key Wildlife Habitat. 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.

Comment Acknowledged. Element will be coordinating investigations into the presence of all rare plant/animal species and habitats. Recommendations and plan updates will occur based on the findings. The current plan includes county sewer and green bmp's for water quality control to minimize impact to the existing conditions of the soil and its recharge potential. Additionally, approximately 1.9 acres of property perimeter buffer area will be landscaped to provide agricultural buffers along the property boundaries. This will reduce the overall impact to forested area. There are no plans to disturb or develop any wetlands on the property.

### **Soils**

Based on the Sussex County soil survey update, Fort-Mott Henlopen complex, Evesboro, Longmarsh, and Manahawkin were mapped on subject parcel. Fort-Mott Henlopen complex is a well-drained upland soil that, generally, has few limitations for development. Evesboro is an excessively well-drained upland soil that has limitations associated with rapid permeability. Longmarsh and Manahawkin are very poorly-drained wetland associated (hydric) soils that have severe limitations for development.

Comment Acknowledged. These conditions will be evaluated during final engineering. All wetland areas and associated soils will remain undisturbed.

### **Wetlands**

Based on the Statewide Wetland Mapping Project (SWMP) maps, tidally-influenced palustrine/ estuarine wetlands and nontidal palustrine wetlands were mapped over much of the southern one-half of the proposed project's combined parcel land area. The SWMP mapping of wetlands closely mirrors the mapped occurrence of the hydric soil mapping units.

The applicant is responsible for determining whether any State-regulated wetlands (regulated pursuant to 7 Del.C. Chapter 66 and the Wetlands Regulations) are present on the property. This determination can only be made by contacting the Division of Water Resources' Wetlands and Subaqueous Lands Section at 302/739-9943 and consulting the State's official wetland regulatory maps, which depict the extent of State jurisdiction. The area regulated by State law may be very

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different from the area under federal authority. No activity may take place in State-regulated wetlands without a permit from DNREC's Wetlands Section.

In addition, most perennial streams and ditches and many intermittent streams and ditches are regulated pursuant to the Subaqueous Lands Act (7 Del.C. Chapter 72) and the Regulations Governing the Use of Subaqueous Lands. Ponds which are connected to other waters are also regulated, while isolated ponds are not. Any work in regulated streams, ditches or ponds requires a permit from the Wetlands and Subaqueous Lands Section. An on-site jurisdictional determination is recommended in order to determine whether any regulated watercourses exist on the property. Please contact the Wetlands and Subaqueous Lands Section at 302/739-9943 to schedule an on-site visit. Such appointments can usually be scheduled within 2 to 3 weeks.

Comment Acknowledged. Wetlands have been delineated by an approved consultant in accordance with the regulations set forth in 7 Del. C. Chapter 66 and the Wetlands Regulations; all proposed development occurs outside of the designated wetland.

The site plan submitted with the PLUS application form does not propose any water access for residents of the community. If that changes in the future, the applicant and/or the community need to be aware of the Department's position on water access. Centralized community structures such as small residential marinas, boat ramps or community fishing piers are preferred over individual docks and piers at individual waterfront lots. Should individual docks be preferred, application must be made by each waterfront property owner after the sale of the lot, and permit decisions will be made by the Department on a case by case basis. However, in making representations to prospective buyers, please be advised that the Department is required to consider cumulative impacts and avoidance measures when reviewing applications, so there is no guarantee that all, or even any, of the waterfront property owners will be granted such permits. Permits for speculative construction will not be issued to developers to construct individual waterfront docks and piers prior to the sale of the lot(s) in question.

Permits may be granted to developers who propose centralized community structures prior to the sale of any lots.

Comment Acknowledged. The HOA document for the subdivision will include requirements and/or limitations related to water access from the property.

The applicant should also be reminded that they must avoid construction/filling activities in those areas containing wetlands or wetland associated hydric soils as they are subject to regulatory jurisdiction under Federal 404 provisions of the Clean Water Act. A site specific field wetlands delineation using the methodology described in the 1987 United States Army Corps of Engineers (USACE, or "the Corps") manual is the only acceptable basis for making a jurisdictional wetland determination for nontidal wetlands in Delaware. The applicant is forewarned that the Corps views the use of the National Wetlands Inventory (NWI) mapping or the Statewide Wetlands Mapping Project (SWMP) mapping as an unacceptable substitute for a field-based jurisdictional wetland delineation (i.e., 1987 USACE manual). To ensure compliance with said Corps regulatory requirements, it is strongly recommended that a field wetlands delineation using the above-referenced methodology be performed on this parcel before commencing any construction activities. It is further recommended that the Corps be given the opportunity to officially approve the completed delineation. In circumstances where the applicant or applicant's consultant delineates what they

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believe are nonjurisdictional isolated (SWANCC) wetlands, the Corps must be contacted to evaluate and assess the jurisdictional validity of such a delineation. The final jurisdictional authority for making isolated wetlands determinations rests with the Corps; they can be reached by phone at 736-9763.

Comment Acknowledged. Wetlands have been delineated by an approved consultant in accordance with the regulations set forth in the USACE wetland delineation manual. The proposed developed portion of the site remains outside of the delineated wetlands area, and is therefore expected not to require any permitting.

Based on a review of existing buffer research by Castelle et al. (Castelle, A. J., A. W. Johnson and C. Conolly. 1994. *Wetland and Stream Buffer Requirements – A Review*. J. Environ. Qual. 23: 878-882), an adequately-sized buffer that effectively protects wetlands and streams, in most circumstances is about 100 feet in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from all wetlands and water bodies (including ditches). The 50-foot buffer proposed by the applicant is not sufficient to mitigate water quality impacts from this development.

Comment Acknowledged. Due to the limited developable area of the site (approximately 53% of the site) a 50 foot buffer from the forested wetland area was established at minimum. In the Site Plan included with this response package, it should be noted that the minimum distance from the wetlands to the nearest impervious source is 57 feet, but is typically 65'-120'.

### **Impervious Cover**

The applicant estimates this project's post-construction surface imperviousness to reach about 9 percent. However, given the scope and density of this project (i.e., as viewed from the conceptual project layout) this estimate appears to be a significant underestimate. When calculating surface imperviousness, it is important to include all forms of constructed surface imperviousness (i.e., rooftops, sidewalks, open-water stormwater management structures/ponds, and roads) in the calculation for surface imperviousness; this will ensure a realistic assessment of this project's likely post-construction environmental impacts. Therefore, surface imperviousness should be recalculated with all the above-mentioned forms of surface imperviousness included. Failure to do so will significantly understate this project's true environmental impacts.

Reference the impervious cover plan (Exhibit N). With the adjusted layout, approximately 16.4% of the site is proposed to be impervious. The 16.4% is conservative and includes the entire right-of-way (road, curb, gutter, and sidewalk), parking lot areas, roof tops for the twins, towns and 18 unit condominiums, amenities and an average impervious factor for the single family lots (based on SCS Methodologies)

Studies have shown a strong relationship between increases in impervious cover to decreases in a watershed's overall water quality. It is strongly recommended that the applicant implement best management practices (BMPs) that reduce or mitigate some of this project's 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.

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It is anticipated that green best management practices will be used to treat the stormwater management (at minimum for water quality) and then discharge to the wetland area to promote groundwater recharge. However, the stormwater design will ultimately depend on further soil investigations, which includes analyzing the groundwater and limiting zone elevations. Landscaping shall also be incorporated into the subdivision to reduce the runoff effects of the proposed development.

### **ERES Waters**

This project is located adjacent to receiving waters of the Inland Bays 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.

Comment Acknowledged. The project will conform to the review and approval of the Sussex Conservation District and will utilize best management practices.

### **TMDLs**

Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Inland Bays 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. This project is located in the **high** nutrient reduction area requiring an 85 and 65 percent reduction in nitrogen and phosphorus, respectively. Additionally, 40 percent reduction in bacteria is required.

Comment Acknowledged. During stormwater design of the site, it will be ensured that the nitrogen and phosphorus contents have been reduced to 85 and 65% respectively, and bacteria to 40%.

### **Compliance with TMDLs through the PCS**

As stated above, TMDLs for nitrogen and phosphorus have been promulgated through regulation for the Inland Bays Watershed. The TMDL calls for an 85 percent reduction in nitrogen and a 65 percent reduction in phosphorus from baseline conditions. Additionally, a 40 percent reduction in bacteria will also be required from baseline conditions. A Pollution Control Strategy (PCS) will provide the regulatory framework for achieving them. Additional nutrient reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses (and wetlands), increasing passive, wooded open space, use of pervious paving materials to reduce surface imperviousness (i.e., pervious pavers), and the use of green-technology stormwater management technologies.

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The Department has developed an assessment tool to evaluate how your proposed development may reduce nutrients to meet the TMDL requirements. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

Comment Acknowledged. To ensure the above mentioned reductions are met, Element will work with DNREC and utilize their DURMM model to calculate the percent reductions from pre to post development.

### **Water Supply**

The information provided indicates that Tidewater Utilities will provide water to the project(s) through a central public water system. Our files reflect that Tidewater Utilities does not currently hold a Certificate of Public Convenience and Necessity (CPCN) to provide public water in this (these) areas (Parcel Identification #'s 2-33-11.00-75.04, however, the other two parcels (Parcel Identification #'s 2-33-11.00-77.00 and 2-33-11.00-83.00 are located within the public water service area granted to Tidewater Utilities under CPCN 05-CPCN-28. Information on CPCN requirements and applications can be obtained by contacting the Public Service Commission at (302)736-7547. Should an onsite public well be needed, a minimum isolation distance of 150 feet is required between the well and any potential source of contamination, such as a septic tank and sewage disposal area; furthermore, they must be located at least 150 feet from the outermost boundaries of the project(s). The Division of Water Resources will consider applications for the construction of on-site wells provided the wells can be located and constructed in compliance with all requirements of the Regulations Governing the Construction and Use of Wells. A well construction permit must be obtained prior to constructing any wells.

Comment Acknowledged. The site will be consolidated and utilize water provided by Tidewater Utilities, Inc.

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. Potential Contamination Sources exist in the area, and any well permit applications will undergo a detailed review that may increase turnaround time and may require site specific conditions/recommendations. In this case, there is a Groundwater Management Zone, associated with the Piney Neck sanitary sewer district along a small portion of Piney Neck Road, located within 1000 feet of the proposed project.

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

Comments Acknowledged. If a dewatering well is required during construction, a permit will be obtained beforehand from the Water Supply Section.

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### **Water Resource Protection Areas**

The Water Supply Section has determined that the project falls entirely within an excellent ground-water recharge area for Sussex County (see following map and attached map). The site plans show storm water management ponds in the area of excellent recharge.

Excellent Ground-Water Recharge Areas are those areas mapped by the Delaware Geological Survey where the first 20 feet of subsurface soils and geologic materials are exceptionally sandy. These soils are able to transmit water very quickly from the land surface to the water table. This map category (excellent) is an indicator of how fast contaminants will move and how much water may become contaminated (Andres, 2004). Land use activities or impervious cover on areas of excellent ground-water recharge potential may adversely affect ground water in these areas.

The construction phase of stormwater management ponds requires excavation, hauling, and grading. The heavy equipment used in this phase has the capacity to compact and degrade the structure of the strata that defines the area as an excellent ground-water recharge area (Schueler, 2000a). Changes to the structural soil properties may cause significant reduction in recharge capacity. Installing storm-water management ponds in excellent ground-water recharge areas has the potential to contaminate the ground water beneath it and infiltrate into the aquifer (Schueler, 2000b).

Ground Water Protection Branch recommends:

- Use Better Management Practices in the design, construction, and maintenance of a stormwater management system designed to address water quality with respect to nutrient and other pollutant loads.

The Water Supply Section recommends that the portion of the new development within the excellent ground-water recharge area not exceed 20% impervious cover (DNREC, 2005). The purpose of an impervious cover threshold is to minimize loss of recharge (and associated increases in storm water) and protect the quality and quantity of ground water and surface water supplies.

New development may exceed the 20% impervious cover threshold within Excellent Ground Water Recharge Potential Areas, but be no more than 50% impervious, provided the applicant submits an environmental assessment report including a climatic water budget and systems to augment recharge that assure water quality as well as quantity. The environmental impact assessment must document that post-development recharge will be no less than predevelopment recharge when computed on an annual basis (Kauffman, 2005).

The proposed development would change the impervious cover from 0.1 % to approximately 9 %. The developer provided these numbers on the PLUS application form. This figure appears to be an underestimation of impervious cover.

Ground Water Protection Branch recommends:

- Limiting impervious cover to less than 20%

In addition, because the excellent ground water recharge area can readily affect the underlying aquifer if contaminants are spilled or discharged across the area, the storage of hazardous substances or wastes should not be allowed within the area unless specific approval is obtained from the relevant state, federal, or local program.

### *References*



Andres, A. Scott, 2004, Ground-Water Recharge Potential Mapping in Kent and Sussex Counties, Delaware: Delaware Geological Survey Report of Investigations No. 66, p. 14.

<http://www.udel.edu/dgs/Publications/pubform.html#investigations>

Delaware Department of Natural Resources and Environmental Control (2005): *Source Water Protection Guidance Manual for the Local Governments of Delaware*.

Dover, DE, 144 p.

<http://www.wr.udel.edu/swaphome/Publications/SWPguidancemanual.html>

Kauffman, G.J., Wozniak, S.L., and Vonck, K.J., 2005, *Delaware Ground-Water Recharge Design Manual*. Newark, DE, Water Resources Agency, University of Delaware, p. 31.

[http://www.wr.udel.edu/swaphome/Publications/swapp\\_manual\\_final/swapp\\_guidance\\_manual\\_supp\\_1\\_2005\\_05\\_02.pdf](http://www.wr.udel.edu/swaphome/Publications/swapp_manual_final/swapp_guidance_manual_supp_1_2005_05_02.pdf)

Schueler, T. R., 2000a, The Compaction of Urban Soils, *in* Schueler, T.R., and Holland, H.K., eds., *The Practice of Watershed Protection: Ellicott City, MD*, Center for Watershed Protection, p. 210 - 218.

Schueler, T. R., 2000b, Pollutant Dynamics of Pond Muck, *in* Schueler, T.R., and Holland, H.K., eds., *The Practice of Watershed Protection: Ellicott City, MD*, Center for Watershed Protection, p. 453 - 460.

The impervious calculations have been reviewed and the following estimates (acreage and percentage of site) are provided:

Total site area	79.3 ac.
Total site area excluding wetlands	36.9 ac.
	<u>Acreage</u>
	<u>Overall Site</u>
	<u>% of Site</u>
Right-of-way/Sidewalks/ Driveways/Parking/Amenities	8.5 +/- Ac. 10.7 +/- %
Rooftops	2.8 +/- Ac. 3.5 +/- %
% Imp. on Single Family	1.7 +/- Ac. 2.1 +/- %
<b>Total</b>	<b>13 +/- Ac. 16.4 +/- %</b>

During final engineering, the stormwater management calculations will account for any impervious surfaces in accordance with regulatory requirements and industry standards. Pervious materials will be utilized where practical and careful consideration will be paid to landscaping that will assist in reducing impervious coverage.

#### **The Moorings of Pepper's Creek (PLUS 2008-04-03)**

Excellent ground-water recharge potential area is highlighted in green. The site plan submitted by the Developer is superimposed on the affected parcel.

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### **Drainage**

- There is a Special Flood Control channel located on this project that has an established right-of-way. The Drainage Program conducted a review of the rights-of-way for this project and the results were submitted to Sara Holland of Element. A copy of the review findings is included at the end of these comments. The placement of permanent obstructions within Special Flood Control rights-of-way is prohibited. Any change to the location of the channel, or the existing rights-of-way, will require a change to the Pepper Creek Tax Ditch court order. It is suggested to include Brooks Cahall in the pre-application meeting with the Sussex Conservation District to discuss drainage, stormwater management, flood control channel maintenance, and the release of stormwater into the flood control channel.

Per Exhibit K, the developed area is outside of the flood control channel and its right-of-way. Element will continue to coordinate this project with the Sussex Conservation District and Brooks Cahall.

- The Drainage Program requests that the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project. The Drainage Program requests that the engineer check existing downstream ditches and pipes for function and blockages prior to the construction.

Comment Acknowledged. A field check of the existing ditches and pipes will be performed prior to construction.

- The Drainage Program encourages the elevation of rear yards to direct water towards the streets and alleyways where storm drains and swales are accessible for maintenance. However, the Drainage Program recognizes the need for catch basins in yards in certain cases. Therefore, catch basins and swales 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, catch basin, or swale. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access.

Comment Acknowledged. Where applicable, onsite and off-site drainage easements will be noted as such on the Final Record Plan and within the HOA Documents.

- 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.

Comment Acknowledged. Where applicable, onsite and off-site, drainage easements will be noted as such on the Final Record Plan and within the HOA Documents.

### **• Results of Right-of-Way Review**

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### **Rare Species**

DNREC has not surveyed most of the project area; therefore, it is unknown if State-rare or federally listed plants, animals or natural communities would be impacted by this project. Surveys along the power line were conducted in the early 1990s and a State-rare plant, Elliot's goldenrod (*Solidago latissimifolia*), was found within a forested wetland area. This species could occur in other locations on the property as well.

In addition, DNREC has records of Red-headed woodpecker (*Melanerpes erythrocephalus*) in the vicinity. This State-Endangered bird depends on open mature forested areas that contain some dead stranding trees and could be extirpated from Delaware if open mature forests aren't preserved.

Comment Acknowledged. All of the proposed site improvements are located entirely outside of the delineated wetlands and, at its minimum, a 50 foot wetland buffer is provided. The developer will work with DNREC to outline any mitigation required for the red-headed woodpecker.

### **Forest and Wetland Habitat Preservation**

Forested wetlands within this project area have been identified as Key Wildlife Habitat in the State's Wildlife Action Plan (Please see our program website

<http://www.dnrec.state.de.us/nhp> which contains a link to the Delaware Wildlife Action Plan).

DNREC appreciates efforts to design a site plan that maintains most of the existing forested area. Cumulative forest and wildlife habitat loss throughout the State is of utmost concern to the Division of Fish and Wildlife which is responsible for conserving and managing the State's wildlife (see [www.fw.delaware.gov](http://www.fw.delaware.gov) and the Delaware Code, Title 7). Because of an overall lack of habitat protection, we have to rely on applicants and/or the entity that approves the project (i.e. counties and municipalities) to consider implementing measures that will aide in habitat loss reduction.

### **Recommendations:**

1. The remaining areas of the parcel should be placed in permanent conservation so that future impacts are less likely to occur.
2. Rare plants on site should be located and protected from impacts or a plant rescue attempted. There was indication at the PLUS meeting that the developer would consider a plant rescue. The developer/landowner should contact either Lynn Redding at (302) 736-7726, ([lynn\\_redding@ml.com](mailto:lynn_redding@ml.com)) or William A. McAvoy at (302) 653-2880, ([william.mcavoy@state.de.us](mailto:william.mcavoy@state.de.us)) to initiate a rescue. The Delaware Native Plant Society will take selected plants from the site of disturbance and transplant them to the Society's nursery. Plants will then be used in restoration projects and/or sold at the Society's annual native plant sale. This is conducted at no expense or liability to the developer/landowner.
3. Trees should not be cleared from April 1st to July 31st to reduce impacts to nesting birds and other wildlife species that utilize forests for breeding. This clearing recommendation would only protect those species during one breeding season; because once trees are cleared the result is an overall loss of habitat.

Comment Acknowledged. Mr. Redding or Mr. McAvoy will be contacted to perform site reconnaissance at there discretion. Site clearing will be restricted as required to minimize wildlife habitat impacts.

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### **State Resource Area**

The forest on this property is considered to be a State Resource Area

Comment Acknowledged.

### **Underground Storage Tanks**

There are two inactive LUST site(s) located near the proposed project:

Murray Motors, Facility # 5-000646, Project # S9209224

Rust's Motor Service, Facility # 5-000448, Project # S9309174

No environmental impact is expected from the above inactive/active LUST site(s). 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 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.

Comment Acknowledged. The requested material will be implemented should petroleum contaminated soil be encountered during construction.

### **Site Investigation and Restoration**

The Site Investigation and Restoration Branch (SIRB) has determined that there are no SIRB sites were found within ½-mile radius of the proposed development. One salvage yard was found within the ½-mile radius. Murray Motors is located south of the proposed development, across Route 26. SIRB believes there will be no impact on the proposed development. However, because of the potential of contamination from the salvage yard and previous agricultural use of the proposed project site, which may have involved the use of pesticides and herbicides, SIRB recommends that a Phase I Environmental Site Assessment be performed prior to development. In addition, should a release or imminent threat of a release of hazardous substances be discovered during the course of development (e.g., contaminated water or soil), construction activities should be discontinued immediately and DNREC should be notified at the 24-hour emergency number (800-662-8802). SIRB should also be contacted as soon as possible at 302-395-2600 for further instructions.

A Phase One Environmental Site Assessment was completed by Hillis-Carnes in June, 2005 and revealed no Recognized Environmental Conditions and had no recommendations for additional environmental investigation at the site.

### **Air Quality**

The Air Quality Management Section appreciates the opportunity to comment on the Moorings at Pepper Creek subdivision. Housing developments may unnecessarily emit, or cause to be emitted, significant amounts of air contaminants into Delaware's air, which will negatively impact public health, safety and welfare. These negative impacts are attributable to:

- Emissions that form ozone and fine particulate matter; two pollutants relative to which Delaware currently violates federal health-based air quality standards,
- The emission of greenhouse gases which are associated with climate change, and
- The emission of air toxics.

Air emissions generated from housing developments include emissions from:

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- Area sources like painting, lawn and garden equipment and the use of consumer products like roof coatings and roof primers.
- The generation of electricity needed to support the homes in your development, and
- Car and truck activity associated with the homes in your new development.

These three air emissions components (i.e., area, electric power generation, and mobile sources) are quantified below, based on a per household/residential unit emission factor that was developed using 2002 Delaware data. These emissions in the table represent the actual impact the Moorings at Pepper Creek development may have.

**Emissions Attributable to Moorings at Pepper Creek Subdivision (Tons per Year)**

	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NO <sub>x</sub> )	Sulfur Dioxide (SO <sub>2</sub> )	Fine Particulate Matter (PM <sub>2.5</sub> )	Carbon Dioxide (CO <sub>2</sub> )
Direct Residential	4.6	0.5	0.4	0.5	18.8
Electrical Power Generation	0.0	1.8	6.4	0.0	944.1
Mobile	11.5	9.5	7.0	0.6	962.9
<b>Total</b>	<b>16.1</b>	<b>11.8</b>	<b>13.8</b>	<b>1.1</b>	<b>1925.8</b>

Note that emissions associated with the actual construction of the subdivision, including automobile and truck traffic from working in, or delivering products to the site, as well as site preparation, earth moving activities, road paving and other miscellaneous air emissions, are not reflected in the table above.

Comment Acknowledged.

**Recommendations:**

The applicant shall comply with all applicable Delaware air quality regulations. These regulations include:

<b>Regulation 6 -</b> Particulate Emissions from Construction and Materials Handling	<ul style="list-style-type: none"> <li>• Using dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads.</li> <li>• Using covers on trucks that transport material to and from site to prevent visible emissions.</li> </ul>
<b>Regulation 1113 -</b> Open Burning	<ul style="list-style-type: none"> <li>• Prohibiting open burns statewide during the Ozone Season from May 1-Sept. 30 each year.</li> <li>• Prohibiting the burning of land clearing debris.</li> <li>• Prohibiting the burning of trash or building materials/debris.</li> </ul>

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<b>Regulation 1145 – Excessive Idling of Heavy Duty Vehicles</b>	<ul style="list-style-type: none"> <li>• Restricting idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.</li> </ul>
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Additional measures may be taken to substantially reduce the air emissions identified above. These measures include:

- **Constructing only energy efficient homes.** Energy Star qualified homes are up to 30% more energy efficient than typical homes. These savings come from building envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems and upgraded water-heating equipment. Every percentage of increased energy efficiency translates into a percent reduction in pollution. The Energy Star Program is excellent way to save on energy costs and reduce air pollution.
- **Offering geothermal and/or photo voltaic energy options.** These systems can significantly reduce emissions from electrical generation, and from the use of oil or gas heating equipment.
- **Providing tie-ins to the nearest bike paths and links to any nearby mass transport system.** These measures can significantly reduce mobile source emissions.
- **Funding a lawnmower exchange program.** New lawn and garden equipment emits significantly less than equipment as little as 7 years old, and may significantly reduce emissions from this new development. The builder could fund such a program for the new occupants.

Additionally, the following measures will reduce emissions associated with the actual construction phase of the development:

- **Using retrofitted diesel engines during construction.** This includes equipment that are on-site as well as equipment used to transport materials to and from site.
- **Using pre-painted/pre-coated flooring, cabinets, fencing, etc.** These measures can significantly reduce the emission of VOCs from typical architectural coating operations.

This is a partial list, and there are additional things that can be done to reduce the impact of the development on air quality. The applicant should submit a plan to the DNREC Air Quality Management Section which address the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into the Moorings at Pepper Creek development. Air Quality Management Section points of contact are Phil Wheeler and Deanna Morozowich, and they may be reached at (302) 739-9402.

Comment Acknowledged.

**State Fire Marshal's Office – Contact: Duane Fox 856-5298**

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):

This Agency has no objection to the re-zoning request. The information provided below shall be considered when plans are being designed.

**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.
- Where a water distribution system is proposed for townhouse type dwellings it shall be capable of delivering at least 1000 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 800 feet spacing on centers are required.
- The infrastructure for fire protection water shall be provided, including the size of water mains.

**b. Fire Protection Features:**

- For townhouse buildings, provide a section/detail and the UL design number of the 2-hour fire rated separation wall on the Site plan
- All structures over 10,000 sq.ft. aggregate will require automatic sprinkler protection installed.
- Buildings greater than 10,000 sq.ft., 3-stories or more, over 35 feet, or classified as High Hazard, are required to meet fire lane marking requirements
- Show Fire Department Connection location (Must be within 300 feet of fire hydrant), and detail as shown in the DSFPR.
- Show Fire Lanes and Sign Detail as shown in DSFPR

**c. 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 Piney Neck Road (and any main thoroughfares that, in the future, will serve as an ingress path for emergency vehicles) must be constructed so fire department apparatus may negotiate it. If a "center island" is placed at an entrance into the subdivision, it shall be arranged in such a manner that it will not adversely affect quick and unimpeded travel of fire apparatus into the subdivision.
- 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.

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

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

**e. 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"
- Proposed Use
- Square footage of each structure (Total of all Floors)

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- National Fire Protection Association (NFPA) Construction Type
- Maximum Height of Buildings (including number of stories)
- Name of Water Provider
- Letter from Water Provider approving the system layout
- Townhouse 2-hr separation wall details shall be shown on site plans
- 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.statefiremarshal.delaware.gov](http://www.statefiremarshal.delaware.gov), technical services link, plan review, applications or brochures.

Comment Acknowledged. All Fire Protection requirements for water supply, hydrant spacing and equipment access will be incorporated into the site design and building construction documents. Buildings over 10,000 sf will include fire suppression systems. All required notes will be included in the Fire Marshal Plan at time of final engineering.

**Department of Agriculture - Contact: Scott Blaier 739-4811**

The Department is opposed to development in areas designated as Investment Level 4 under the *Strategies for State Policies and Spending*. The *Strategies* do not support isolated development of these areas. 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 also 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:

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(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 Department also reminds the developer to comply with the County’s forested buffer requirement. This buffer is essential for separating inherently disparate land uses (agriculture and residential) and mitigating the conflict that often arises as a result.

A large portion of the site is located within an area designated as having “excellent” groundwater recharge potential. DNREC has mapped all ground-water recharge-potential recharge areas for the state, and an “excellent” rating designates an area as having important groundwater recharge qualities.

Senate Bill 119, enacted by the 141st General Assembly in June of 2001, requires the counties and municipalities with over 2,000 people to adopt as part of the update and implementation of their 2007 comprehensive land use plans, areas delineating excellent ground-water recharge potential areas. Furthermore, the counties and municipalities are required to adopt regulations by December 31, 2007 governing land uses within those areas to preserve ground-water quality and quantity.

Maintaining pervious cover in excellent and good recharge areas is crucial for the overall environmental health of our state and extremely important to efforts which ensure a safe drinking water supply for future generations. Retention of pervious cover to ensure an adequate future water supply is also important for the future viability of agriculture in the First State. The loss of every acre of land designated as “excellent” and “good” recharge areas adversely impacts the future prospects for agriculture in Delaware. The developer should make every effort to protect and maintain valuable ground-water recharge potential areas.

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.

Comment Acknowledged. Element will evaluate BMP methods for infiltration of groundwater where possible to minimize the impact of impervious surfaces.

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### *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. To further support this concept the Delaware Forest Service does not recommend the planting of the following species due to the high risk of mortality from insects and disease:

Callery Pear  
Leyland Cypress

Ash Trees  
Red Oak (except for Willow Oak)

If you would like to learn more about the potential problems or impacts associated with these trees, please contact the Delaware Forest Service for more information at (302) 698-4500.

Comment Acknowledged. The final landscaping will only specify native species to increase survival and reduce irrigation needs.

### *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 landuse 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 can minimize the introduction of pollutants to our rivers and streams. 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.

Comment Acknowledged. The final landscaping will only specify native species to increase survival and reduce irrigation needs.

### **Public Service Commission - Contact: Andrea Maucher 739-4247**

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.

Comment Acknowledged. Any expansion, if applicable, will adhere to the Pipeline Safety guidelines.

### **Delaware Division of Public Health- Health Promotion Bureau- contact Michelle Eichinger (302) 744-1011**

Ensuring that new residential and commercial development incorporates pedestrian- and bicycle-friendly features allows people to travel by foot or by bicycle and promotes physical activity as part of daily routines. Regular physical activity offers a number of health benefits, including maintenance of weight and prevention of heart disease, type 2 diabetes and other chronic diseases.<sup>1</sup> Research shows that incorporating physical activity into daily routines has the potential to be a more effective and sustainable public health strategy than structured exercise programs.<sup>2</sup> This is particularly important

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considering about 65% of adult Delawareans are either overweight or obese. 3 This current obesity crisis is also affecting children. Approximately 37% of Delaware's children are overweight or obese 4, which places them at risk for a range of health consequences that include abnormal cholesterol, high blood pressure, type 2 diabetes, asthma, depression and anxiety. 1

In Delaware, as in other states across the nation, certain patterns of land use can act as a barrier to physical activity and healthy eating for children and adults alike. Examples of such barriers include neighborhoods constructed without sidewalks or parks and shopping centers with full-service grocery stores situated too far from residential areas to allow for walking or biking between them.

This proposed development is in a Level 4 area. Developing in such an area is inconsistent with the *Strategies for State Policies and Spending*. DPH is committed to the *Strategies* and therefore, does not support development in the proposed area.

DPH supports new development in and around existing towns and municipalities where compact and mixed land use patterns facilitate physical activity.

Comment Acknowledged. The Final Site Plan will incorporate sidewalks and areas designated for multi-use paths. This will encourage the use of bicycles and walking within the community and between the community and the Town of Dagsboro.

#### **Delaware State Housing Authority – Contact Vicki Powers 739-4263**

This proposal is for a site plan review of 79 acres for a 150-unit Residential Planned Community located on Piney Neck Road northeast of Dagsboro. According to the *State Strategies Map*, the proposal is located in an Environmentally-Sensitive Area. 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. DSHA supports the fact that this proposal targets first-time homebuyers. According to the most recent real estate data collected by DSHA, the median home price in Sussex County is \$280,000. However, families earning respectively 100% of Sussex County's median income only qualify for mortgages of \$164,791, thus creating an affordability gap of \$115,209. The provision of units within reach of families earning at least 100% of Sussex County's median income will ensure housing that is affordable to first-time homebuyers.

DSHA supports the developer's participation in the Sussex County's Moderately-Priced Housing Units Program. Households that cannot afford to live in the coastal resort area have been displaced to western Sussex County. The provision of moderately-priced units for first-time homebuyers helps support the housing needs of low-and moderate-income families employed by the local retail, service, and tourism economy.

Comment Acknowledged. This project is approved by the Moderately Priced Housing Unit Pilot Program initiated by the Department of Housing and Urban Development. This subdivision will directly address the concerns of the DSHA.

#### **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 projects located in level 4. This proposed

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development is within the Indian River School District boundaries. 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 75 students.

Comment Acknowledged. The proposed 10 year development buildout timeframe will stagger the addition of children to the development therefore not impacting the schools all at once.

2. DOE records indicate that the Indian River School Districts' *elementary schools are at or beyond 100% of current capacity* based on September 30, 2007 elementary enrollment.

Comment Acknowledged. The Developer and/or Element will work with the School District to alleviate the rise in students as best as possible.

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, 2007 secondary enrollment.

Comment Acknowledged. The Developer and/or Element will work with the School District to alleviate the rise in students as best as possible.

4. In multiple correspondences from the Indian River School District administration, the district asserts that while the Indian River High Schools have capacity, the Indian River Middle Schools' student population exceeds student capacity.

Comment Acknowledged. Element will work with the School District to determine their school bus shelter requirements and incorporate them as necessary into the final plans.

5. 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 and middle school over-crowding that this development will exacerbate.

Comment Acknowledged. The proposed 10 year development buildout timeframe will stagger the addition of children to the development therefore not impacting the schools all at once.

6. 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.

Element will work with the Indian River School District to determine their school bus shelter requirements and incorporate them as necessary into the final site plan.

**Sussex County – Contact: Richard Kautz 855-7878**

element

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As this is both a rezoning review and a site plan review the following comments are offered. In order to assist County inspectors with their field inspections relating to required 50 foot buffers adjacent to streams and wetlands, more detailed information will be requested to be shown on site plans. Your cooperation is appreciated. Accordingly, because this proposed development appears to contain or to be adjacent to tidal waters, tidal tributary streams, tidal wetlands or perennial non-tidal rivers or non-tidal streams, a 50-foot buffer (see Article 115-193 of the County Code of the Sussex County Zoning Ordinance) is required and the following must be shown on the appropriate plan.

1. Where adjacent to or when containing State tidal waters, tidal tributary streams or tidal wetlands, the location of the mean high water line and the DNREC map number source for the State tidal boundary,
2. Where adjacent to or when containing perennial non-tidal rivers and non-tidal streams, the location of the ordinary high water line and the method or source for locating or determining such line,
3. The landward limits of the 50 foot buffer zones adjacent to the tidal waters, tidal tributary stream, tidal wetlands or the perennial rivers/streams shown in # 1 and/or #2 above,
4. An appropriate description of the buffer zone native vegetation consistent with the definition as a contained in Article 115-193A,
5. The location of the appropriate required building setbacks for lots adjacent to the buffer zone,
6. No building setback lines within the buffer zone,
7. No wetlands within any lot,
8. No man-made encroachments or disturbances within the buffer zone unless there is no alternate design option,
9. When the buffer zone will be purposely established,
10. The type/location of monuments or fencing that distinguishes the upland edge of the buffer zone,
11. A notation to the effect that all silt fences will be on the upland edge of any buffer zone required under Article 115-193 of the County Code, and
12. Any deviations from mapped State tidal boundaries shall be highlighted and any areas of dispute which are to be resolved with DNREC shall be so noted.

Comment Acknowledged. The final site plan will incorporate 50' minimum buffers from all structures for all wetland areas. The wetlands will be clearly designated in the final plan set and protected by all Erosion and Sediment Controls required by the Sussex Conservation District.

Per page 15 of the Comprehensive Plan, "any increased density by rezoning should only be permitted with proper environmental safeguards." Because this project is situated in an Environmentally Sensitive Development Area, the required report should include how this requirement and the PLUS comments have been addressed and how the plan has been revised accordingly. Use of Low Impact Design principals and Green Technology could help address the environmental issues.

All sidewalks and trails within the development and any constructed at the request of DelDOT should tie together internally and with adjacent development so that persons using wheelchairs or pushing strollers can navigate without hindrance.

The preliminary subdivision plat should provide details of how/when the required forested buffer will be planted.

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The final site plan shall incorporate to the fullest extent possible low impact design principals and green technology. Sidewalks and trails within the development shall tie together internally and with adjacent developments as required by DelDOT and Sussex County Engineering Departments. The preliminary subdivision plat shall outline the details of how and when the forested buffer will be planted.

The Sussex County Engineer Comments:

The project is within the boundary of the Dagsboro/Frankford Sanitary Sewer District and connection to the sewer system is mandatory. The proposed project is in a recent expansion area and sanitary sewer service has not been extended to the parcels. Sussex County does not have a schedule to extend sewer service. The developer will be required to construct a regional pumping station and forcemain to the existing treatment plant. The proposed project is within planning study assumptions for sewer service and there will be adequate capacity at the treatment plant.

Sussex County requires design and construction of the collection and transmission system to meet Sussex County Engineering Department's requirements and procedures. The Sussex County Engineer must approve the connection points. A sewer concept plan must be submitted for review and approval prior to any sewer construction. Attached is a checklist for preparing sewer concept plans. Please also provide a phasing plan and realistic schedule for when the phases would begin connecting. The concept plan and phasing plan should be submitted together. All costs associated with extending sewer service will be the sole responsibility of the developer. One-time system connection charges will apply. Please contact Ms. Denise Burns at 302 854-5017 for additional information on charges

Comment Acknowledged. Element is coordinating with adjacent subdivisions to define the required pump station(s) and force main system to meet Sussex County requirements. A sewer concept plan will be submitted for review by the Sussex County Engineering Department.

Upon your review of the above, should you have any questions or require additional information, please do not hesitate to contact this office at 302.645.0777. Thank you.

Sincerely,  
Element

Douglas M. Warner, PE

Cc: Sussex County (w/o Enc.)  
Lincoln Davis, OAA (w/o Enc)  
File

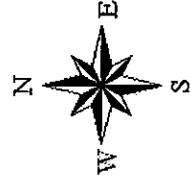
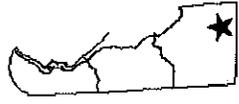


# Pepper Creek Tax Ditch Flood Control Channel

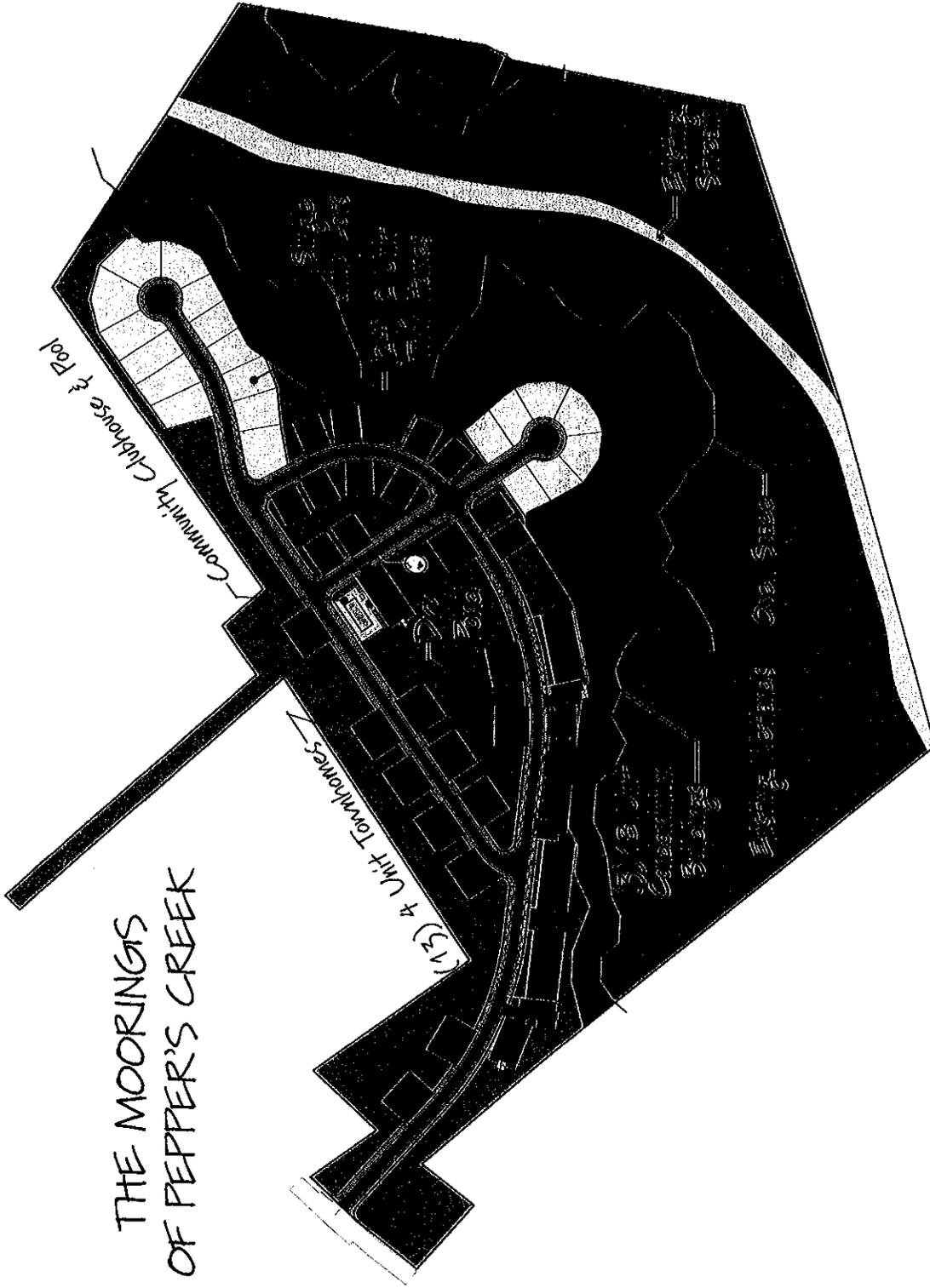
This map was compiled by the DNREC Division of Soil & Water Conservation, Drainage Section for tax ditch official business only. Ditch locations are approximate and based on original tax ditch maps. This map does not replace legal instruments on file at the county prothonotary office.

Property lines are approximate and may have changed since the date the map was made.

USGS Quarter Quad ID:  
Name: FRANKFORD SW  
NAD83 Delaware State Plane  
Coordinates in feet at Center of Map is:  
708886 201757  
Date of Photo if shown: March 2002  
Date of map:  
1003 AM, Thu 28 February 2008



# THE MOORINGS OF PEPPER'S CREEK



Wetlands Area = 36.7 +/- acres

Open Space = 27.8 +/- acres  
(Buffers, Woods, Lawns,  
Landscaping, Stormwater)

Roof Area = 2.8 +/- acres  
(Twins, Towns,  
Condominiums)

Paved Area = 8.5 +/- acres  
(RW, Parking, Driveways,  
Amenities)

Single Family Lots:  
38% impervious @ 1/4 acre  
Lot Average = 1.7 +/- acre

**TOTAL IMPERVIOUS: 13.0 +/- ACRE**



ELEMENT

**EXHIBIT N: Impervious Cover Plan**  
**PLUS SUBMITTAL: 01 AUGUST 2008**  
 e0821 - Moorings of Pepper's Creek - Sussex County, DE