



STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF
STATE PLANNING COORDINATION

July 13, 2005

Mr. William Stephens
Stephens Environmental Consulting, Inc.
229 Lake Drive
Newark, DE 19702

RE: PLUS Review 2005-06-19, The Estuary

Dear Mr. Stephens,

Thank you for meeting with State agency planners on June 22, 2005 to discuss the proposed plans for the Estuary project located on 516 acres in the vicinity of Double Bridges Road, Camp Barnes Road, Millers Neck Road and Old Mill Bridge Road in Sussex County. According to the information received, you are seeking to construct 770 residential units and a shopping center in the Level 4 Environmentally Sensitive Developing area.

Executive Summary

This section includes some site-specific highlights from agency comments found in this letter and is provided for your convenience and reference. The full text of this letter represents the official state response to this project. ***The applicants are responsible for reading and responding to this letter and all comments contained within it.***

State Strategies/Project Location

- This development is proposed for an Investment Level 4 area according to the *Strategies for State Policies and Spending* and is in the Environmentally Sensitive Developing Area according to the Sussex County Comprehensive Plan. In this case, the Green Infrastructure value, forested areas, wetlands, and the State Resource Area/Natural Area on the site influenced the designation as Investment Level 4.

Street Design and Transportation

- Right-of-way dedication will be required along the frontage of Camp Barnes Road, Millers Neck Road and Old Mill Bridge Road.
- While cul-de-sacs are sometimes necessary to make efficient use of land with environmental constraints, they are not conducive to good traffic flow or a sense of community. Where possible, cul-de-sacs should be eliminated.
- A paved multi-modal path, located in a 15-foot wide permanent easement, is required across the frontage of the site on each road.
- DeIDOT will require a new traffic impact study (TIS) for this development. The applicant's traffic engineer should contact Todd Sammons, Development Coordination Section.

Natural and Cultural Resources

- Particularly because of the environmental sensitivity of this area, lots should be entirely removed from the wetland complex. Minimum 100 foot vegetated buffers comprised of native trees, shrubs or no-mow grasses should be employed from the edge of the wetland complex.
- All ditches on the property should be checked for function and cleaned if needed prior to the construction of homes. Wetland permits may be required in advance of ditch cleaning. Precautions should be taken to ensure that construction does not hinder any off-site drainage upstream or create off-site drainage problems downstream by the release of on-site storm water.
- Clearing trees here will cause fragmentation of the larger forest, resulting in a significant decrease in habitat value. The developer is strongly encouraged to preserve and enhance the forested resources on the site by minimizing clearing activities and removing lots and associated infrastructure, such as storm water management ponds, from forested areas.
- Portions of the site are within the 100-year floodplain. It is recommended that filling, construction activities and buildings be kept out of the floodplain.
- The proposed project lies within a 3-mile radius of a known Delmarva fox squirrel population at the Assawoman Wildlife Area. Delmarva fox squirrels were listed as federally endangered in 1967 and are protected by the Endangered Species Act. Because the project site contains potential Delmarva fox squirrel habitat, the requirements are included in the "Rare Species" portion of the letter.

- Because the project site is adjacent to the Assawoman Wildlife Area, the developer should work with Rob Gano, the Regional Wildlife Biologist, to address concerns.
- Because of the environmental sensitivity of the area, the developer should use pervious alternatives to asphalt and concrete where possible to reduce the amount of impervious cover.

Office of State Planning Coordination – Contact Ann Marie Townshend 739-3090

This development is proposed for an Investment Level 4 area according to the *Strategies for State Policies and Spending* and is in the Environmentally Sensitive Developing Area according to the Sussex County Comprehensive Plan. Based on the extensive data analysis used to develop the *Strategies*, the presence of Investment Level 4 in the Environmentally Sensitive Developing Area is an indication of sensitive natural resources on-site. In this case, the Green Infrastructure value, forested areas, wetlands, and the State Resource Area/Natural Area on the site influenced the designation as Investment Level 4.

In these areas, we recommend a design that is sensitive to the natural resources on and surrounding the site. We are aware that the developer has made efforts to design this project in a way that respects its natural surroundings; however, DNREC comments indicate significant environmental constraints on and surrounding the site. We ask that you continue to work with DNREC and the Department of Agriculture to address their issues regarding protection of natural resources in the development of the site.

State Historic Preservation Office (SHPO) – Contact Alice Guerrant 739-5685

SHPO opposes development of this site in the Level 4 area. Development as proposed will sacrifice historic farm landscape found in the area and will adversely affect the setting, noise level, and view shed of several historic properties nearby. In addition, there are two known archaeological sites on the parcel and other areas of high potential for historic and prehistoric period sites. The Beers Atlas of 1868 shows two properties, the J.W. Williams House and the E.F. Williams House, on the site. Generally, this area saw very early historic-period settlement so there is the potential for 17th- and 18th-century sites to be found along the creeks.

If an Army Corps of Engineers permit is required, the applicant will be required to consult with this office under Section 106 of the National Historic Preservation Act of 1966 (as amended). The applicant may also have to perform archaeological testing and/or data recovery excavations. If this development moves forward without an ACOE permit, SHPO requests the opportunity to perform archaeological testing to identify other sites within the property and to learn more about the character of known sites. Finally, it is recommended that any development be screened from nearby historic properties with appropriate landscaping.

Department of Transportation – Contact Bill Brockenbrough 760-2109

Most of the area where this development is proposed is designated as Level 4 in the *Strategies for State Policies and Spending*. 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 developments that cannot be served effectively or efficiently by public transportation, emergency responders, and other public services.

Recognizing that this project is in an Environmentally Sensitive Developing Area, as designated by the *Strategies* and the Sussex County Comprehensive Plan, DelDOT is providing a technical review despite the project's being proposed for a Level 4 area.

DelDOT strongly supports new development in and around existing towns and municipalities and in areas designated as growth zones in approved Comprehensive Plans. The use of transfer of development rights is encouraged where this growth management tool is available. Our technical comments are as follows:

- 1) Camp Barnes Road, Millers Neck Road and Old Mill Bridge Road are classified as local roads. Double Bridges Road is classified as a collector road. Local roads in Delaware typically have right-of-way widths ranging from 33 to 50 feet. Collector road rights-of-way vary but are generally wider. 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 and 40 feet from the centerline on collector roads. Therefore right-of-way dedication will be required along the frontage to provide any additional width needed from this project.
- 2) A paved multi-modal path, located in a 15-foot wide permanent easement, is required across the frontage of the site on each road.
- 3) DelDOT has seen several proposals for the development of more or less this same assemblage of parcels. On January 23, 2003, DelDOT commented to Sussex County on the results of a traffic impact study (TIS) done for a 750-dwelling proposal known as Palisades. This was followed by a July 2003 proposal for 381 dwellings under the name Williams Creek Estates and a September 2004 proposal for 1,460 dwellings under the name Double Bridges. The Double Bridges proposal was large enough to require a new traffic impact study. DelDOT received traffic counts for that study but has seen no further progress with regard to it.

While the Palisades proposal was for a similar number of dwellings, it included duplex units, townhouses and condominiums as well as single-family detached houses. For that reason, the Palisades proposal would have generated substantially less traffic than 770 single-family detached houses. Accordingly, and because the traffic counts used in it are now about three years old, DeIDOT will require a new TIS for this development.

These studies typically take 6 to 12 months from the initial scoping meeting to the completion of DeIDOT's review. The applicants should have their traffic engineer contact Mr. Todd Sammons, Development Coordination Section, (302) 760-2134, as soon as possible to obtain a scope for this study. DeIDOT will provide a copy of its January 2003 letter for the applicant's use with the final version of these comments.

- 4) Some of the proposed cul-de-sacs should be eliminated. Cul-de-sacs are sometimes necessary to make efficient use of land with environmental constraints, but are not conducive to good traffic flow or a sense of community. Where possible they should be eliminated.
- 5) The developer's site engineer should contact the DeIDOT Subdivision Manager for Sussex County, Mr. John Fiori, regarding requirements for access. Mr. Fiori may be reached at (302) 760-2260.

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

Green Infrastructure

Portions or all of the lands associated with this proposal are within the Livable Delaware Green Infrastructure area established under Governor Minner's Executive Order #61 that represents a network of ecologically important natural resource lands of special state conservation interest.

Green infrastructure is defined as Delaware's natural life support system of parks and preserves, woodlands and wildlife areas, wetlands and waterways, productive agricultural and forest land, greenways, cultural, historic and recreational sites and other natural areas all with conservation value. Preserving Delaware's Green Infrastructure network will support and enhance biodiversity and functional ecosystems, protect native plant and animal species, improve air and water quality, prevent flooding, lessen the disruption to natural landscapes, provide opportunities for profitable farming and forestry enterprises, limit invasive species, and foster ecotourism.

Voluntary stewardship by private landowners is essential to green infrastructure conservation in Delaware, since approximately 80 percent of the State's land base is in private hands. It is in that spirit of stewardship that the Department appeals to the

landowner and development team to protect sensitive resources through an appropriate site design.

Soils

According to the soil survey update, most of the soils mapped on this parcel (approx. 80%) are wetland associated hydric soils. Hurlock, Askecksy, Mullica-Berryland, and Broadkill mucky silt loam are major hydric soil units found on this parcel.

Wetlands

Statewide Wetland Mapping Project (SWMP) maps indicate the presence of palustrine and estuarine wetlands on this parcel. The parcel is bisected by numerous blue line streams. Site plans show impacts to drainage ditches, streams, palustrine and estuarine wetlands.

Particularly because of the environmental sensitivity of this area, lots should be removed in their entirety from the wetland complex. Vegetated buffers comprised of native trees, shrubs or no-mow grasses, of no less than 100 feet should be employed from the edge of the wetland complex. The developer should note that both DNREC and Army Corps of Engineers discourage allowing lot lines to contain wetlands to minimize potential cumulative impacts resulting from unauthorized and/or illegal activities and disturbances that can be caused by homeowners. Also, other infrastructure (roads, stormwater management ponds) should not be located within this buffer zone.

It is recommended that the Farm Services Agency of the USDA be contacted to assess whether the farmed wetlands on subject parcel meet the recognized criteria for classification as "prior converted wetlands." Prior converted wetlands are farmed wetlands that have drained or altered before December 23, 1985, and no longer meet the wetland criteria established under the 404 program. Such wetlands are considered exempt from regulatory protection provided that there is no proof of a continuous "fallow period" of five years or greater in that parcel's cropping history. Parcels converted after said date regardless of cropping history are considered jurisdictional by the Army Corps of Engineers (ACOE). The contact person for assessing a parcel's cropping history is Sally Griffin at the USDA – she can be reached at 678-4182.

It should also be noted that this parcel borders or contains headwater or near headwater riparian wetlands (Williams and Dirickson Creek) which eventually drain to the environmentally-sensitive Little Assawoman Bay subwatershed of the greater Inland Bays watershed system. Headwater riparian wetlands are important for the protection of water quality and the maintenance/integrity of the ecological functions throughout the length of the stream, including the floodplain system and/or waterbodies (Inland Bays) further downstream. Since such streams are a major avenue for nutrient-laden stormwater and sediment runoff, their protection deserves the highest priority. **In**

recognition of this concern, the Department strongly recommends that the applicant preserve the as much of the existing natural buffer as possible, including any immediately adjoining forested uplands. Otherwise – and as mentioned previously - a 100-foot buffer width is considered the minimum acceptable distance from all wetlands and waterbodies (including ditches). In cases where natural buffer vegetation has been removed or reduced by past development or farming activities, the developer is encouraged to restore/establish to said buffer width or greater with native herbaceous and/or woody vegetation.

Wetland Permitting Information

The developer and County should note that impacts to these wetlands and drainage ditches are regulated by both the DNREC Wetlands and Subaqueous Lands Section and the Army Corps of Engineers through the Delaware Subaqueous Lands Act and Section 404 of the Federal Clean Water Act. In addition, individual 404 permits and certain Nationwide Permits from the Army Corps of Engineers 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.

Because there is strong evidence that federally regulated wetlands exist on site, a wetland delineation, in accordance with the methodology established by the Corps of Engineers Wetlands Delineation Manual, (Technical Report Y-87-1) should be conducted. Once complete, this delineation should be verified by the Corps of Engineers through the Jurisdictional Determination process.

PLUS materials indicate that road crossings and bridges will run through the stream(s) on site. Impacts to streams and associated riparian wetlands, including road crossings, are regulated by the Subaqueous Land Section from DNREC Division of Water Resources and the Army Corps of Engineers.

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) 739-4691 to schedule a meeting.

Impervious Cover

Given the environmentally sensitive nature of this watershed, the Department believes that the applicant should devote more effort to the implementation of innovative efforts or BMPs to reduce impervious cover. The Department believes that the amount of imperviousness generated by this project (approximately 20%) should be reduced. Use of pervious materials (where possible) in lieu of impervious paving surfaces (asphalt or

concrete), can significantly reduce the amount of pollutant-laden surface runoff into wetlands and streams.

ERES Waters

This project is located adjacent to receiving waters of 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 11.5 of Delaware's "Surface Water Quality Standards" (as amended August 11, 1999), specify that all designated ERES waters and receiving tributaries develop a "pollution control strategy" to reduce non-point sources of nutrient runoff through implementation of Best Management Practices (BMPs). Best Management Practices as defined in subsection 11.5(e) of this section, expressly authorizes the Department to provide standards for controlling the addition of pollutants and reducing them to the greatest degree practicable, or where attainable, a standard requiring no discharge of pollutants.

TMDLs

Adoption of Total Maximum Daily Loads (TMDLs) as a nutrient-runoff-mitigation strategy for the Inland Bays Watershed makes reduction of nitrogen and phosphorus loading mandatory. 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 authorized under federal code, states are charged with developing and implementing standards to support these desired use goals. The jurisdictional authority for these use goals falls under Section 11.5 of the Surface Water Quality Standards (as amended August 11, 1999), and will be achieved via nutrient reductions referred to as "pollution control strategies."

Nutrient reductions are assigned on the basis of water quality concerns. Regions of greatest environmental concern will require higher levels of nutrient reduction than those deemed less environmentally sensitive. In this watershed, the regions are demarcated as high and low reduction zones. The high reduction zone corresponds to the western portion and requires a reduction of nitrogen and phosphorus by 85 and 65 percent, respectively. The low reduction zone corresponds to the eastern portion and requires a reduction of nitrogen and phosphorus by 40 percent. **This project is proposed within the low nutrient reduction zone.**

The proposed Pollution Control Strategy for the Inland Bays watershed calls for wastewater treatment systems to meet performance standards for nutrient reduction. In order to assist in the achievement of water quality standards and the promulgated TMDLs, we recommend that the planned development incorporate the proposed

performance standards within its large community design as they are anticipated to be required in the future.

The inclusion of stormwater management and/or wastewater treatment areas in open space calculations may underestimate nutrient loading rates. In order for the applicant to verify compliance with the TMDL mandate, a full nutrient accounting process known as nutrient budget should be prepared. The developer/consultant should contact Lyle Jones in the Department's Watershed Assessment Section for further information regarding the acceptable protocol for calculating a nutrient budget. He can be reached as 739-4590.

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 **Sussex Conservation District**. Contact Jessica Watson, Program Manager, at (302) 856-7219 for details regarding submittal requirements and fees.

As of April 11, 2005, stormwater best management practices must also consider water quality as well as quantity in impaired water bodies. This action will help achieve the required TMDL reductions for the Inland Bays Watershed.

Drainage

This project involves both the Williams Canal and Brasure Branch Tax Ditch. The Drainage Section has met with representatives of this development effort and relayed the rights-of-way for ditches. They are awaiting a more detailed plan to review. Additional notes and concerns follow.

The Drainage Section requests all existing ditches on the property be checked for function and cleaned if needed prior to the construction of homes. Wetland permits may be required before cleaning ditches.

The Drainage Section requests that all precautions be taken 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 Section strongly recommends any drainage conveyance between two parcels within a subdivision be dedicated as a drainage easement and such easement be designated as passive open space, not owned by individual landowners. The easement should be of sufficient width to allow for future drainage maintenance as described below.

Along an open ditch or swale, the Drainage Section recommends a maintenance equipment zone of 25 feet measured from the top of bank on the maintenance side, and a

10-foot setback zone measured from top of bank on the non-maintenance side. These zones should be maintained as buffers to aid in the reduction of sediment and nutrients entering into the drainage conveyance. Grasses, forbs and sedges planted within these zones should be native species, selected for their height, ease of maintenance, erosion control, and nutrient uptake capabilities. Trees and shrubs planted within the maintenance zone should be native species spaced to allow for drainage maintenance at maturity. Trees should not be planted within 5 feet of the top of ditch to avoid future blockages from roots.

Along a stormwater pipe the Drainage Section recommends a maintenance equipment zone of 15 feet on each side of the pipe as measured from the pipe centerline. This zone should be maintained as buffers to aid in the reduction of sediment and nutrients entering into the drainage conveyance. Grasses, forbs and sedges planted within these zones should be native species selected for their height, ease of maintenance, erosion control, and nutrient uptake capabilities. Trees and shrubs planted within the maintenance zone should be spaced to allow for drainage maintenance at maturity.

The Drainage Section recommends any drainage/utility easement owned by an individual landowner should not have structures, decks, buildings, sheds, kennels, fences or trees within the drainage easement to allow for future drainage maintenance.

Floodplains

Portions of the site are within the 100-year floodplain. It is recommended that filling, construction activities and buildings be kept out of the floodplain. Development activities in the floodplain require approval by Sussex County and must conform to Sussex County's floodplain regulations.

Forests

According to 2002 aerial photos forested areas exist on this parcel; site plans show that lot lines will contain portions of the forest. 1937 images show that the existing trees were present at the time. Because of this, the forest is extremely beneficial as it is an old growth forest which provides important habitat for wildlife. PLUS materials indicate that 75 acres will be removed for development. This forest tract is extremely beneficial to the region as it is connected to the Assawoman Critical Natural Area. Large contiguous stretches of forest like this not only provide important water and air quality benefits, but provides important habitat for many wildlife species that depend on interior forest. Clearing portions of the forest within the parcel will reduce the habitat value of the entire forest stretch.

Old growth forests support a variety of species. The plants, wildlife, and insects found in this forest are dependent upon the ecological conditions that are present. These conditions do not occur in younger, less mature forests. Many species of birds that are present in old growth forests rely on these conditions, species such as; raptors, owls, and

songbirds. Critical nutrient recyclers, like lichens and fungi appear in mature forests rather than younger forests. The fallen trees in a mature forest provide shelter for insects and small mammals, such as bats. Because of this forests maturity, the developer is strongly encouraged to preserve, and where possible, enhance forested resources on site. This includes removing lot lines and infrastructure (such as storm water management ponds) from forested areas to the extent possible and minimizing any clearing activities. The forested areas on-site should be viewed as a community asset and managed appropriately.

Forested areas on-site set aside for conservation purposes should be placed into a permanent conservation easement or other binding protection. These areas should be clearly marked and delineated so that residents understand their importance and so that homeowner activities do not infringe upon these areas.

Open Space

To maximize the existing buffering capacity and wildlife habitat on site, it is recommended that lot lines and other infrastructure (such as storm water management ponds) be pulled out of the forest and that areas of community open space be designated along the forested areas.

In areas set aside for passive open space, the developer is encouraged to consider establishment of additional forested areas or meadow-type grasses. 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.

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.

Site Visit Request

Based on review of topographic maps, aerial photographs, and because Delaware Natural Heritage Program has not visited the site previously, their DNHP botanist and zoologist request the opportunity to survey the forested and wetland resources which could potentially be impacted by the project. Their observations would allow the program to make more informed comments on this project and would allow the applicant the opportunity to reduce potential impacts to rare species. Please contact Bill McAvoy and Kitt Heckscher at (302) 653-2880 to set up a site visit.

Rare Species

This project is adjacent to Assawoman Pond Natural Area which contains several state rare plants and the only known population of Hirst's Panic Grass in Delaware. Hirst's Panic Grass, a globally rare grass species, is known from only a few other sites in the United States. This development has the potential to alter the hydrology of the area and negatively impact these species.

In addition, the proposed project lies within three miles of a known Delmarva fox squirrel (*Sciurus niger cinereus*) population at the Assawoman Wildlife Area. Delmarva fox squirrels were listed as federally endangered in 1967 and are protected by the Endangered Species Act. They generally inhabit mature forests with open understories and wet woodlands, but can be opportunistic in their habitat choice. The proposed project area contains potential habitat for Delmarva fox squirrels and the following is required:

- Contact Trevor Clark (410-573-4527) of the US Fish and Wildlife Service for proper procedures prior to beginning work. A conference with the Service is required for any projects that will directly or indirectly impact habitat within 3 miles of the Assawoman Wildlife Area fox squirrel locations;

AND/OR

- Contact Trevor Clark (410-573-4527) of the US Fish and Wildlife Service for proper procedures prior to beginning work. Have surveys conducted to determine if Delmarva fox squirrels are present. In accordance with Delaware's fox squirrel site survey procedures, surveys must be conducted by a State approved fox squirrel surveyor two times between September and May: once in the fall, and again between March 15 and May 30. A list of qualified surveyors is available upon request. Please note that surveys may confirm the presence of fox squirrels but cannot confirm absence.

Assawoman Wildlife Area

The project contains lands identified as part of the Inland Bays State Resource Area and borders the Assawoman Wildlife area. The state is concerned that the wildlife area may be negatively affected by this development. Developments that displace wildlife often put greater pressure on wildlife areas and increase animal-human conflicts. The following items are issues that should be discussed with the Regional Wildlife Biologist, Rob Gano (302-530-3160) prior to initiation of construction activities and should be disclosed to potential buyers:

1. Because this project borders the wildlife area and an area containing rare species, an adequate buffer should be left intact between the project site and the wildlife area. This buffer should be forested and be placed in a conservation easement so that future clearing does not occur.

2. The developer should be aware that the property in question will be subject to the effects of legal hunting activities in the Wildlife Area, such as firearm noise or dogs barking when pursuing game. The northeast portions of this development lie along Miller Creek. The State maintains waterfowl hunting blinds along this estuary. Legal hunting for deer, wild turkey, waterfowl, quail, gray squirrel, rabbit, and dove take place within the Wildlife Area and the developer should consider placing dwellings at least 100 feet from the property boundary for safety reasons.
3. The use of ATV's on Wildlife Areas is illegal. This has been a problem on other Wildlife Areas that are in close proximity to housing developments, and could become an on-going enforcement issue.
4. During construction, measures should be taken so that on-site construction trash does not blow onto the Wildlife Area. In addition, planting a wind break would be useful in preventing residential trash from blowing onto the wildlife area. Residents should be aware that dumping trash on wildlife areas is illegal.

Nuisance Waterfowl

Stormwater management ponds that remain in the site plan may attract waterfowl like resident Canada geese. 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 grasses around ponds provide an attractive habitat for these species. DNREC recommends 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, property managers or owners 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.

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 be 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 in the contaminated areas.

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 estimate the amount of solid waste that will be generated as a result of construction and occupancy.

Air Quality

Air pollution threatens the health of human beings and other living things on our planet. While often invisible, pollutants in the air create smog and acid rain, cause cancer or other serious health effects, diminish the protective ozone layer in the upper atmosphere, and contribute to the potential for world climate change. Breathing polluted air can have numerous effects on human health, including respiratory problems, hospitalization for heart or lung disease, and even premature death. Some can also have effects on aquatic life, vegetation, and animals.

Once complete, vehicle emissions associated with this project are estimated to be 59.1 tons (118,187.0 pounds) per year of VOC (volatile organic compounds), 48.9 tons (97,850.8 pounds) per year of NOx (nitrogen oxides), 36.1 tons (72,196.1 pounds) per year of SO2 (sulfur dioxide), 3.2 ton (6,426.7 pounds) per year of fine particulates and 4,943.1 tons (9,886,189.0 pounds) per year of CO2 (carbon dioxide).

Emissions from area sources associated with this project are estimated to be 23.8 tons (47,670.2 pounds) per year of VOC (volatile organic compounds), 2.6 ton (5,245.2 pounds) per year of NOx (nitrogen oxides), 2.2 ton (4,352.7 pounds) per year of SO2 (sulfur dioxide), 2.8 ton (5,617.0 pounds) per year of fine particulates and 96.6 tons (193,244.2 pounds) per year of CO2 (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 9.4 tons (18,893.0 pounds) per year of NOx (nitrogen oxides), 32.9 tons (65,714.9 pounds) per year of SO2 (sulfur dioxide) and 4,846.5 tons (9,692,944.8 pounds) per year of CO2 (carbon dioxide).

	VOC	NOx	SO ₂	PM _{2.5}	CO ₂
Mobile	59.1	48.9	36.1	3.2	4943.1
Residential	23.8	2.6	2.2	2.8	96.6
Electrical Power		9.4	32.9		4846.5
TOTAL	82.9	60.9	71.2	6.0	9886.2

The Department of Natural Resources and Environmental Control is asking that local jurisdictions consider mitigation to help resolve this issue. Mitigation might involve limiting large new developments to growth zones, focusing development to urban areas capable of providing mass transit services, requiring more energy efficient homes which would lessen air quality impacts, and promoting walkability and bikability within and between developments and town centers.

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 9.4 tons of nitrogen oxides per year and 32.9 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 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. We highly recommend this project development and other residential proposals increase the energy efficiency of their homes.

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):

a. **Fire Protection Water Requirements:**

- Water distribution system capable of delivering at least 1500 gpm for 2-hour duration, at 20-psi residual pressure is required. Fire hydrants with 800 feet spacing on centers. (Storage)
- Water distribution system capable of delivering at least 1000 gpm for 1-hour duration, at 20-psi residual pressure is required. Fire hydrants with 800 feet spacing on centers. (Assembly)
- 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. (One & Two- Family Dwelling)
- Where a water distribution system is proposed for the site, the infrastructure for fire protection water shall be provided, including the size of water mains for fire hydrants and sprinkler systems.

b. **Fire Protection Features:**

- All structures over 10,000 Sq. Ft. aggregate will require automatic sprinkler protection installed.
- Buildings greater than 10,000 sq.ft., 3-stories of more or 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 Old Mill Bridge Road 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.

- 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
 - Alpha or Numerical Labels for each building/unit for sites with multiple buildings/units
 - Square footage of each structure (Total of all Floors)
 - National Fire Protection Association (NFPA) Construction Type
 - Maximum Height of Buildings (including number of stories)
 - Note indicating if building is to be sprinklered
 - Name of Water Provider
 - Letter from Water Provider approving the system layout
 - Provide Lock Box Note (as detailed in DSFPR) if Building is to be sprinklered
 - 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.

Department of Agriculture - Contact Milton Melendez 698-4500

The Delaware Department of Agriculture does not oppose the Estuary; however they encourage the developer to implement environmentally sensitive design and tree mitigation, as well as reduce impervious surfaces. The Delaware Forest Service encourages the developer to take extra measures to minimize environmental impacts. This development as proposed may lessen the value of the environmental resources found within and adjacent to this site. The Delaware Forest Service encourages the developer to preserve some of the larger more mature trees present within the site. The Delaware Department of Agriculture Forest Service offers it services to the developer in the re-design of this project, to learn more please contact our office at (302) 698-4500.

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 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 reduce the environmental impacts to the surrounding natural resources. To learn more, please contact our offices at (302) 349-5754.

Delaware State Housing Authority – Contact Jimmy Atkins, 739-4263

A This proposal is to develop 770 units on 516 acres located Southeast of Double Bridges Road, on either side of Camp Barnes Road, north of Old Mill Bridge Road, and on either side of Miller Neck Road, between Dirickson Creek and Millers Creek and east of Bayard and west of Assawoman Bay. According to the *State Strategies Map*, the proposal is located in an Investment Level 4 area and in an environmentally sensitive developing area. As a general planning practice, DSHA encourages residential development in areas where residents will have proximity to services, markets, and employment opportunities such as Investment Level 1 and 2. However, the proposal is located in an environmentally sensitive developing area, which the State Strategies Map does permit limited development to occur. Furthermore, the proposal targets units for first time homebuyers, which will help create affordable housing opportunities for low- and moderate-income families.

Public Service Commission - Contact Andrea Maucher 739-4247

The application notes that Tidewater Utilities, Inc. will provide water to the project; however, Tidewater holds a Certificate of Public Convenience and Necessity (CPCN) for

only a portion of the project. Other parcels in the project area are in an Artesian Water Company certificated service territory, and other parcels have not been included in any public water utility service territory.

The application notes that Tidewater Utilities will provide wastewater services; however, the project is not within one of its certificated service areas. Tidewater will need to apply to the Commission for a Certificate of Public Convenience and Necessity (CPCN).

Any expansion of natural gas or installation of a closed propane system must comply with Federal Pipeline Safety guidelines.

Sussex County – Contact Richard Kautz 855-7878

Because this project is an AR-1 Cluster subdivision, the developer must include in the application a plan for the management of all open space. Also, the developer must document for the Planning and Zoning Commission how the proposed development: provides for a total environment and design which are superior to that which would be allowed under the standard lot option; preserves the natural environment and historic or archeological resources; and, will not have an adverse effect on any of the items included under Ordinance Number 1152 (County Code 99-9C). These issues can be addressed by including in the application an explanation of how the developer plans to mitigate the issues raised by the State agencies.

This summer Sussex County will be considering implementation of a Source Water Protection Program required by the State. Depending on the requirements adopted by the County Council this project might be affected. Any well location should insure that the wellhead protection area is entirely on site.

The Sussex County Engineer Comments:

The project proposes the use of a private central community wastewater treatment system. However, its location lies within Sussex County's South Coastal Wastewater Planning Area boundary, and the Engineering Department opposes private wastewater treatment facilities being constructed within its defined planning areas. The proposed project is contiguous to an existing sewer district and can readily be annexed when the developer completes certain administrative procedures. This will require the construction of regional transmission sewers that will have the added benefit of making sewer service available to existing residents as well as other proposed development. The project proposes 770 units on 516 acres, which results in a gross density of 1.50 EDU's/acre. All sewer infrastructure must be constructed in accordance with Sussex County Sanitary Sewer Standards as well as the South Coastal Area Planning Study, Update 2004. A sewer concept plan must be approved prior to any construction plan review.

See attached, "Checklist for preparing concept plan drawings" and "Policy for Extending District Boundaries in a Sussex County Water and/or Sanitary Sewer District".

For questions regarding these comments, contact Chris Calio, Sussex County Engineering Department at (302) 855-7839.

CHECKLIST FOR PREPARING CONCEPT PLAN DRAWINGS

Concept plans should show that the proposed system is in harmony with present and future water and/or sanitary sewer development plans and should include the following information:

- ? Project name
- ? Sewer District
- ? Project Summary Box
 - * Tax Map & Parcel Numbers
 - * Gross Acres
 - * Number of Residential Units by Type
 - * Community Buildings & Estimated EDUs
 - * Density Calculation
 - * Commercial Uses by Type & Square Footage
 - * Owners
 - * Developer/Applicant
- Date
- Location Map
- Scale
- North Arrow
- Applicant's P.E. Stamp and signature
- Pipeline sizes and alignments
- Adjacent parcels and Property owners
- Proposed phasing plan
- Documentation of existing inverts (verified by survey) at connection point to existing pipelines or manholes
- Subdivision layout, including:
 - Lot lines
 - Open spaces
 - Stormwater management areas
 - Wastewater treatment and disposal areas, if applicable
 - Existing utility easements or pipelines
 - Existing Right-of-ways
 - Pump station locations
 - Preliminary Pump Station calculations (i.e. gpm, TDH and velocity) for major stations or stations with long forcemains.
 - Flow arrows
 - Topography (at 5 foot intervals) or spot elevations (at 100 foot intervals) along pipeline alignments
 - Waterways and ditches
 - State & Federal wetland delineations

100-year flood plain

Lot area

April 22, 2005

POLICY FOR EXTENDING DISTRICT BOUNDARIES
IN A SUSSEX COUNTY WATER AND/OR SANITARY SEWER DISTRICT

1. Property owner (developer) and/or his representative shall meet with the applicable planning and zoning agency to determine if zoning is appropriate for the development being planned.
2. With appropriate zoning, property owner (developer) and/or his representative shall meet with the Sussex County Engineering Department.
3. The developer's engineer shall file with the Sussex County Engineering Department a conceptual plan for the water and/or sanitary sewer system, showing as a minimum the following:
 - a) The proposed water and/or sanitary sewer system, including how it will connect to the existing facilities;
 - b) The proposed system is in harmony with present and future water and/or sanitary sewer development plans; and
 - c) Proposed rights-of-way, lots, and open space (if applicable).
4. With approval of conceptual plans, the property owner or his representative shall send a letter (with appropriate application fee as listed below) requesting the Sussex County Council to consider extending the water and/or sanitary sewer district boundaries (Section 110-136, Sussex County Code).
 - a. Application Fees
 - i. Less than 2 acres \$500.00
 - ii. 2 - 9.99 acres \$750.00
 - iii. 10 - 150.00 acres \$1,500.00
 - iv. Greater than 150.00 acres \$2,500.00
5. The Sussex County Engineering Department shall meet with the Sussex County Administrator concerning request.
6. The Sussex County Engineering Department shall present, for Sussex County Council's consideration, posting of notices for the proposed extension of the district boundaries.

7. The Sussex County Council approves posting notices for the proposed extension of the boundaries. (If approval to post the notices is not given, the application fee will be refunded.)
8. Within 30 days of the posting of the notices, the Sussex County Council approves/disapproves extending the boundaries.
9. If the boundary extension is approved, the property owner or his representative obtains appropriate Planning and Zoning plot plan approval (if applicable).
10. The Sussex County Council approves/disapproves of the extension of the water and/or sanitary sewer pipelines under the appropriate Sussex County Ordinance.

Following receipt of this letter and upon filing of an application with the local jurisdiction, the applicant shall provide to the local jurisdiction and the Office of State Planning Coordination a written response to comments received as a result of the pre-application process, noting whether comments were incorporated into the project design or not and the reason therefore.

Thank you for the opportunity to review this project. If you have any questions, please contact me at 302-739-3090.

Sincerely,

A handwritten signature in cursive script that reads "Constance C. Holland".

Constance C. Holland, AICP
Director

CC: Sussex County