



December 26, 2006

Douglas Warner  
Element Design Group  
34634 Bay Crossing Blvd., Ste. A  
Lewes, DE 19958

RE: PLUS review – PLUS 2006-11-11; Showfield

Dear Mr. Warner:

Thank you for meeting with State agency planners on November 29, 2006 to discuss the proposed plans for the Showfield project to be located adjacent to and east of Theodore Freeman Highway, south and west of Gills Neck road, partially within the City of Lewes.

According to the information received, you are seeking annexation into the City of Lewes with a rezoning from OR/AR-1 to OR with Old Town Development District Overlay (OTDD) and site plan approval for 600 residential units on 230 acres.

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that at this time the parcel is only partially within the City of Lewes. Until it is annexed, the County would be the governing authority over this land. If it is annexed into the City, the developers will need to comply with any and all regulations/restrictions set forth by the City of Lewes.

## **Executive Summary**

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

### **State Strategies/Project Location**

- This project is located within levels 1, 2, and 3 according to the Strategies for State Policies and Spending. In addition, it is located within the Sussex County growth area and within the future annexation/growth area identified in the City of Lewes Comprehensive Plan. Our office has no objections to the proposed rezoning and development of this property in accordance with the relevant City or County codes and ordinances.

### **Street Design and Transportation**

- Freeman Highway is an arterial road and Gills Neck Road is a local road. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 50 feet from the inside edge of the travelway on divided highways and 30 feet from the centerline on local roads. Therefore we will require right-of-way dedication along the frontage to provide any additional width needed from this project.
- DelDOT will also require the construction of a 10-foot wide shared use path in a 15-foot wide permanent easement across the Gills Neck Road frontages of the site.
- A traffic impact study will be required for the proposed development.
- The developer should anticipate a requirement to improve Gills Neck Road to meet DelDOT's local road standards.
- The Preliminary Project Plan (Exhibit E) does not clearly distinguish streets from alleys and alleys from walkways.
- The proposed middle entrance to the site should be aligned opposite Black Marlin Drive.

- As a general rule, individual driveways are undesirable on collector streets.
- On the west side of the site, a proposed street would split into two streets and then merge back into a single street after one block. That is reasonable, but we are concerned about the proposed alley shown between the two streets. Traffic calming maybe needed to prevent that alley from being used as a cut-through.
- In the northwest part of the site, a small triangular island is proposed in what appears to be an alley. For ease of circulation, DeIDOT recommends that it be eliminated.
- Farther east, a larger triangular island is proposed to be bounded by three streets. To reduced the paved area and maximize the utility of the open space, we recommend that one leg of the three streets be eliminated.

### **Natural and Cultural Resources**

- Based on Statewide Wetland Mapping Project (SWMP) mapping, palustrine emergent and palustrine unconsolidated bottom wetlands were mapped on the subject parcel. Impacts to wetlands should be avoided, particularly because this development is within the Environmentally Sensitive Developing Area. Wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. Vegetated buffers of no less than 100 feet should be employed from the edge of wetland complexes.
- In areas set aside for passive open space, the developer is encouraged to consider establishment of additional forested areas or meadow-type grasses. Doing so will provide wildlife habitat and it will create recreational opportunities for residents

The following are a complete list of comments received by State agencies:

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

- This project is located within levels 1, 2, and 3 according to the Strategies for State Policies and Spending. In addition, it is located within the Sussex County growth area and within the future annexation/growth area identified in the City of Lewes Comprehensive Plan. Our office has no objections to the proposed

rezoning and development of this property in accordance with the relevant City or County codes and ordinances.

**Division of Historical and Cultural Affairs – Contact: Alice Guerrant 739-5685**

This parcel contains two historic buildings (S-1056 and S-1052) and a prehistoric-period archaeological site (S-540). Three other historic buildings (S-1053, S-1054, and S-1055) are adjacent to this parcel along Gills Neck Rd. The line of the Delaware and Breakwater Junction Railroad also runs across this parcel. While this development will destroy the line, there are probably no archaeological remains associated with it, based on its raised appearance and testing elsewhere. Beers Atlas of 1868 shows only one property in this area, the Rev. D. McIlvain House. The site of this house was apparently in the path of the Freeman Hwy., near the canal. By the 1918 USGS 15' Rehoboth topographic map, six buildings appear within the parcel. The 1937 USDA aerial photograph shows a large farmstead in the center of the parcel, where S-1056 is recorded, as well as the other properties.

Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the Rev. McIlvain House, usually a good distance behind or to the side of the house. The developer should be aware of Delaware's Unmarked Human Remains Act of 1987, which governs the discovery and disposition of such remains. The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out, and the developer may want to hire an archaeological consultant to check for the possibility of a cemetery here if this development is approved. The DHCA would have to have a copy of any archaeological report done for this purpose. They will be happy to discuss these issues with the developer; the contact person for this program is Faye Stocum, 302-736-7400.

The DHCA requests that the developer include sufficient landscaping to protect the nearby historic houses from any visual or noise intrusion from this development. They would like an opportunity to document the surviving buildings prior to any demolition or rebuilding activities. If time permits, we would also like the opportunity to examine the known archaeological site and look for any others, to learn something about their location, nature, and extent prior to any ground-disturbing activities.

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

- 1) Freeman Highway is an arterial road and Gills Neck Road is a local road. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 50 feet from the inside edge of the travelway on divided highways and 30 feet from the centerline on local roads. Therefore

we will require right-of-way dedication along the frontage to provide any additional width needed from this project.

- 2) DelDOT will also require the construction of a 10-foot wide shared use path in a 15-foot wide permanent easement across the Gills Neck Road frontages of the site. Current plans for the Hawkseye subdivision and other pending developments along the south side of Gills Neck Road would continue this path out to Kings Highway. Therefore they will want to work with the developer in locating an appropriate point for the path to cross Gills Neck Road. Preliminarily, the crossing should be located at the west site entrance and should be built as part of that entrance.
- 3) A traffic impact study will be required for the proposed development. On November 17, 2006, a meeting was held to set the scope of work for that study. A copy of the minutes of that meeting is enclosed. One issue that was not resolved at that meeting is the development's connection, or lack thereof, to Monroe Avenue. The plan presented does not continue Monroe Avenue across Freeman Highway into the proposed development even though a stub street presently exists for that purpose. DelDOT understands from the discussion at the PLUS meeting that the connection is being added to the plan. While they do not, presently, require such a connection, they would like to hear from the City and the Delaware River and Bay Authority on this subject and any other issues they might like to have addressed in the study. A meeting has been scheduled for December 13, 2006, to discuss this matter.
- 4) The developer should anticipate a requirement to improve Gills Neck Road to meet DelDOT's local road standards. These requirements include but are not limited to 11-foot lanes and 5-foot shoulders. Notably, they also include requirements for curve radii. Immediately east of the proposed middle site entrance, there is a pair of obviously substandard curves. The plan for the development should include the realignment of the road through this area. DelDOT maintenance of Gills Neck Road stops about 1,000 feet east of these curves, but DelDOT would recommend that the City require the developer to examine and if necessary improve the alignment of the road within the City limits.
- 5) The Preliminary Project Plan (Exhibit E) does not clearly distinguish streets from alleys and alleys from walkways. DelDOT recommends that the City require a plan that does so and satisfy themselves that the street design allows drivers to circulate within the development without using the alleys or turning

around in driveways. They also have the following, more specific comments on the plan:

- a) The proposed middle entrance to the site should be aligned opposite Black Marlin Drive.
  - b) As a general rule, individual driveways are undesirable on collector streets. It is difficult to determine from the plan presented how many vehicles would use each of the proposed entrances, but DeIDOT standards prohibit driveways on streets serving more than 300 dwellings. Therefore DeIDOT suggests that the developer consider redesigning the lot layout near the east and middle site entrances to eliminate driveways within the first block or two of the entrances from Gills Neck Road.
  - c) On the west side of the site, a proposed street would split into two streets and then merge back into a single street after one block. That is reasonable, but we are concerned about the proposed alley shown between the two streets. Traffic calming maybe needed to prevent that alley from being used as a cut-through.
  - d) In the northwest part of the site, a small triangular island is proposed in what appears to be an alley. For ease of circulation, DeIDOT recommends that it be eliminated.
  - e) Farther east, a larger triangular island is proposed to be bounded by three streets. To reduced the paved area and maximize the utility of the open space, we recommend that one leg of the three streets be eliminated.
- 6) The developer's site engineer should contact Mr. Fiori regarding the specific requirements for entrance improvements. Mr. Fiori may be reached at (302) 760-2157.

**The 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**

Based on the Sussex County soil survey update, Evesboro, Downer, Fort Mott, Greenwich, Fallsington and Manahawkin were mapped on the subject parcel. Evesboro is an excessively well-drained upland soil that has moderate limitations of account of its rapid permeability. Downer, Fort Mott, and Greenwich are well-drained upland soils that, generally, have few limitations for development. Fallsington is a poorly-drained wetland associated (hydric) soil that has severe limitations for development. Manahawkin is a very poorly-drained wetland associated (hydric) floodplain soil that has severe limitations for development.

### **Wetlands**

Based on Statewide Wetland Mapping Project (SWMP) mapping, palustrine emergent and palustrine unconsolidated bottom wetlands were mapped on the subject parcel. Impacts to wetlands should be avoided, particularly because this development is within the Environmentally Sensitive Developing Area. Wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. Vegetated buffers of no less than 100 feet should be employed from the edge of wetland complexes. 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.

Impacts to Palustrine wetlands are regulated by the Army Corps of Engineers through Section 404 of the Clean Water Act. In situations where the applicant believes that the delineated wetlands on their parcel are nonjurisdictional isolated wetlands, the Corps must be contacted to make the final jurisdictional assessment. They can be reached by phone at 736-9763.

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 field 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 Corps of Engineers through the Jurisdictional Determination process.

To find out more about permitting requirements, the applicant is encouraged to attend a Joint Permit Process Meeting. These meetings are held monthly and are attended by federal and state resource agencies responsible for wetland permitting. Contact Denise Rawding at (302) 739-9943 to schedule a meeting.

As noted previously, this parcel contains SWMP-mapped headwater riparian wetlands. Headwater riparian wetlands are important for the protection of water quality and the maintenance/integrity of the ecological functions throughout the length of a stream, including the floodplain system and/or water bodies further downstream. Since streams are a major avenue for nutrient-laden stormwater and sediment runoff their protection deserves the highest priority.

### **Impervious Cover**

Based on a review of the PLUS application, post-development surface imperviousness was estimated via calculation to be about 28 percent. However, given the scope and density of this project, this estimate is likely an **underestimate**. The applicant's apparent use of natural areas (wetlands or buffers) and functional amenity areas (stormwater management structures) for meeting the County's open space requirements artificially lowers the amount of this project's post-development projection of surface imperviousness, ultimately underestimating its environmental impacts. Furthermore, the applicant should also realize that all created forms of constructed surface

imperviousness (i.e., rooftops, sidewalks, and roads) and their extent should be comprehensively accounted for when calculating surface imperviousness. It was not clear from the information submitted whether these factors were comprehensively assessed by the applicant. It is strongly recommended that the applicant address all of the above-mentioned concerns in the finalized calculation for surface imperviousness.

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 its most likely adverse impacts. Reducing the amount of surface imperviousness through the use of pervious paving materials ("pervious pavers") in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation or additional tree plantings are some examples of practical BMPs that could easily be implemented to help reduce surface imperviousness.

### **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.

### **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 **low** nutrient reduction area requiring a 40 percent reduction in nitrogen and phosphorus, respectively. A Total Maximum Daily Load (TMDL) is the maximum level of pollution for which a water quality limited water body can assimilate without compromising use and recreational goals such as swimming, fishing, drinking water, and shell fish harvesting.

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

As stated above, Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Inland Bays Watershed. The TMDL calls for a 40% reduction in nitrogen and phosphorus from baseline conditions. A Pollution Control Strategy (PCS) will provide the regulatory framework for achieving them. The Department developed an assessment tool to evaluate how your proposed development may reduce nutrients to meet the TMDL requirements. Additional reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses, and the use of innovative stormwater management treatment trains. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

### **Water Resource Protection Areas**

The Water Supply Section has determined that a significant portion of the proposed development falls within an excellent ground-water recharge area (see following map and attached map). The review did not find any wellhead protection areas.

Excellent recharge areas are near-surface areas within which precipitation infiltrates the land surface to the unconfined aquifer at a more rapid rate than other areas. The Delaware Geological Survey Report of Investigations No. 66 published in 2004 identifies and maps recharge areas of Kent and Sussex Counties. The intent of the project was to identify areas of excellent recharge to protect them as critical areas. The Report states that the recharge potential “map categories are indicators of how fast contaminants will move and how much water may become contaminated” (Andres, 2004, pg 1). This proposed development shows storm-water management ponds within the excellent ground-water recharge area.

The construction phase of this type of pond 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. 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.

The proposed development would change the total impervious cover from 0.5% to approximately 28%. Developer on the PLUS application provided these numbers. The

The Water Supply Section recommends that the portion of the new development within the excellent ground-water recharge area not exceed 20% impervious cover. Some allowance for augmenting ground-water recharge should be considered if the impervious cover exceeds 20% but is less than 50% of that portion of the parcel within this area. However, the development should not exceed 50% regardless. A water balance calculation will be necessary to determine the quantity of clean water to be recharged via a recharge basin (Thorntwaite, 1957). 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.

Ideally, relocating any open space areas to the part of the parcel within the excellent ground-water recharge area would decrease the total impervious area. Augmenting the groundwater recharge with clean rooftop run-off systems are another alternative to maintaining the quality and quantity of water recharging the aquifer.

**Map of Showfield (PLUS 2006-11-02)** Excellent ground-water recharge potential areas are highlighted in green. The impacted parcels are outlined in blue.



#### 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#nvestigations>

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.

Listed as: "Supplement 1 – Groundwater Recharge Design Methodology"

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

#### Climatic Water Budget

Thornthwaite, C. W. and Mather, J. R., 1957, Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance: Drexel Institute of Technology, Laboratory of Climatology, Volume x, Number 3

### **Water Supply**

The project information sheets state that the City of Lewes will be used to provide water for the proposed project. DNREC records indicate that the project is located within the public water service area granted to Lewes Board of Public Works under Certificate of Public Convenience and Necessity number 01-CPCN-07 and 03-CPCN-06. According to SB 135 that was signed on June 30, 2003 by Governor Minner, the municipality is required to give notice to the Public Service Commission when the annexation is complete. It is recommended that the developer contact the Lewes Board of Public Works to determine the availability of public water. Any questions concerning CPCNs should be directed to the Public Service Commission at 302-739-4247. The Division of Water Resources will consider applications for the construction of on-site wells provided the wells can be constructed and located 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 well(s).

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

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

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

## **Sediment and Erosion Control/Stormwater Management**

### Standard Comments:

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

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

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

Applying practices to mimic the pre-development hydrology on the site, promote recharge, maximize the use of existing natural features on the site, and limit the reliance on structural stormwater components, such as maintaining open spaces, should be considered in the overall design of the project as a stormwater management technique.

Each stormwater management facility should have an adequate outlet for release of stormwater. Any drainage conveyed onto this site from neighboring properties must be adequately conveyed through the site to the discharge point without interruption.

Clearly address how Stormwater Quality and Quantity Treatment will be provided. If this project is eligible for a Quantity Waiver, please make the request in the stormwater narrative citing the specific regulation.

Please indicate on the sediment and stormwater management plan who shall be responsible for maintenance of the stormwater management facilities both during construction and after. During the design of the sediment control and stormwater management plan, considerations should be made for maintenance (i.e. access, easements, etc.) of any structures or facilities.

If a stormwater management pond is going to be utilized as a sediment trap/basin during construction it must be designed to accommodate 3600 cubic feet of storage per acre of contributing drainage area until project stabilization is complete.

All ponds are required to be constructed per Pond Code 378.

Please note that if the stormwater facilities will impact wetlands, a permit must be provided to the District prior to receiving approval. Please address.

A Certified Construction Reviewer (CCR) is required for any project that is 50 acres or greater.

DNREC regulations require no more than 20 acres to be disturbed at more time. A phased erosion and sediment control plan and sequence of construction will be required.

Under the DNREC Health and Safety Memo of 2000, all wet ponds are required to have an open space depth of 3 feet or more that comprises 50-75 percent of the area of the pond.

Consideration should be made for any adjacent properties during the design of the project, including drainage and erosion/sediment control.

### **Open Space**

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

In addition, a detailed open space management plan should be recorded on the record plan. This plan should outline how to manage each open space area, as well as invasive species. 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.

### **Nuisance Geese**

The applicant indicated that 'appropriate stormwater management measures' would be taken for nuisance species; however, methods were not discussed. The applicant did indicate that 50-foot buffers would be left intact around water features. We recommend that the buffer be planted with native species of trees, shrubs, and tall grasses as nuisance geese do not feel as safe if they can't scan the surrounding area for predators. These plantings should be completed as soon as possible as it is easier to deter geese when there are only a few than it is to remove them once they become plentiful. The Division of Fish and Wildlife does not provide goose control services, and if problems arise, residents or the home-owners association will have to accept the burden of dealing with these species (e.g., permit applications, costs, securing services of certified wildlife professionals). Solutions can be costly and labor intensive; however, with proper landscaping, monitoring, and other techniques, geese problems can be minimized.

### **Solid Waste**

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

### **Site Investigation and Restoration**

There were three SIRB sites within a half mile radius of the proposed site:

1. Pagonis Property (DE-1035) is located west of the proposed site. It was investigated in 1995. The recommendation was no further action. DNREC does not foresee any negative impact on the proposed site.
2. Lewes Coal and Gas (DE-190) is located west of the proposed site. PAHs were detected during an investigation in 1989. Further investigation revealed presence

of BTEX and TPH at concentrations slightly above the URS values. A remedial Investigation (RI) to determine the extent and degree of contamination is complete. The RI recommended an O & M plan to monitor the contaminants. This plan has been implemented. The contaminants are expected to naturally attenuate with time. **DNREC recommends public water use at the proposed site.**

3. Lewes Site (DE-217) is located north of the proposed site. A preliminary assessment was conducted. No further action was recommended. Therefore, DNREC does not foresee any negative impact on the proposed site.

### Air Quality

Once complete, vehicle emissions associated with this project are estimated to be 46.0 tons (92,093.7 pounds) per year of VOC (volatile organic compounds), 38.1 tons (76,247.4 pounds) per year of NO<sub>x</sub> (nitrogen oxides), 28.1 tons (56,256.7 pounds) per year of SO<sub>2</sub> (sulfur dioxide), 2.5 ton (5,007.8 pounds) per year of fine particulates and 3,851.8 tons (7,703,523.9 pounds) per year of CO<sub>2</sub> (carbon dioxide).

Emissions from area sources associated with this project are estimated to be 18.6 tons (37,145.6 pounds) per year of VOC (volatile organic compounds), 2.0 ton (4,087.1 pounds) per year of NO<sub>x</sub> (nitrogen oxides), 1.7 ton (3,391.7 pounds) per year of SO<sub>2</sub> (sulfur dioxide), 2.2 ton (4,376.9 pounds) per year of fine particulates and 75.3 tons (150,579.9 pounds) per year of CO<sub>2</sub> (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 7.4 tons (14,721.8 pounds) per year of NO<sub>x</sub> (nitrogen oxides), 25.6 tons (51,206.4 pounds) per year of SO<sub>2</sub> (sulfur dioxide) and 3,776.5 tons (7,552,944.0 pounds) per year of CO<sub>2</sub> (carbon dioxide).

	VOC	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Mobile	46.0	38.1	28.1	2.5	3851.8
Residential	18.6	2.0	1.7	2.2	75.3
Electrical Power		7.4	25.6		3776.5
TOTAL	64.6	47.5	55.4	4.7	7703.6

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 7.4 tons of nitrogen oxides per year and 25.6 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. They highly recommend this project development and other residential proposals increase the energy efficiency of their homes.

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

**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:**

- 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, Apartments, and Townhouses)
- 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 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
- For townhouse buildings, provide a section / detail and the UL design number of the 2-hour fire rated separation wall on the Site plan.

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 Gill's Neck 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)
- Townhouse 2-hr separation wall details shall be shown on site plans
- 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](http://www.delawarestatefiremarshal.com), technical services link, plan review, applications or brochures.

**Department of Agriculture - Contact: Scott Blaier 698-4500**

The Delaware Department of Agriculture has no objections to the proposed subdivision application. The *Strategies for State Policies and Spending* encourages environmentally responsible development in areas in Investment Levels 1, 2 and 3.

Some of this site has been designated as having “excellent” ground-water 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 141<sup>st</sup> 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.

*Right Tree for the Right Place*

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

*Native Landscapes*

The Delaware Department of Agriculture and the Delaware Forest Service encourages the developer to use native trees and shrubs to buffer the property from the adjacent land-use activities near this site. A properly designed forested buffer can create wildlife habitat corridors and improve air quality to the area by removing six to eight tons of carbon

dioxide annually and will clean our rivers and creeks of storm-water run-off pollutants. To learn more about acceptable native trees and how to avoid plants considered invasive to our local landscapes, please contact the Delaware Department of Agriculture Plant Industry Section at (302) 698-4500.

**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.

**Delaware State Housing Authority – Contact Vicki Walsh 739-4263**

This proposal is for a master planned community of 600 residential units on 230 acres, located adjacent to and east of Theodore Freeman Highway, south and west of Gills Neck Road, adjacent to and north of Breakwater subdivision, partially in Lewes. According to the *State Strategies Map*, the proposal is located in Investment Level 1, 2 and 3 areas. As a general planning practice, DSHA encourages residential development inside growth zones such as this, where residents will have proximity to services, markets, and employment opportunities. The 2003 Statewide Housing Needs Assessment indicates that there are serious housing challenges in the Lewes CCD. Of the 10,218 units in this CCD, 699 are substandard, and 2,711 are occupied by low-income households. In addition, real estate data collected by DSHA for the second quarter of 2006 indicates that the median home price is \$332,000, which is outside the affordability level of low- and moderate-income households. Conversely, the affordability price for low- and moderate-income households earning 100% of area median income is estimated to be \$171,216. Therefore, it is recommended, as part of the annexation process, that units targeted for first time homebuyers be required to have a long term affordability mechanism attached to the units to ensure the homes will be affordable to first time homebuyers.

**Department of Education – Contact: John Marinucci 739-4658**

This proposed development is in the Cape Henlopen School District.

DOE offers the following comments on behalf of the Cape Henlopen School District.

1. Using the DOE standard formula, this development will generate an estimated 300 students.
2. DOE records indicate that the Cape Henlopen School Districts' *elementary schools are not at or beyond 100% of current capacity* based on September 30, 2005 elementary enrollment.

3. DOE records indicate that the Cape Henlopen School Districts' *secondary schools are not at or beyond 100% of current capacity* based on September 30, 2005 secondary enrollment.
4. While the Cape Henlopen School District secondary and elementary schools are not currently beyond capacity, *the district does NOT* have adequate student capacity to accommodate the additional students likely to be generated from this development given the number of planned and recorded residential sub divisions within district boundaries.
5. Continued development will cause significant burden to the Cape Henlopen School District without the provision for additional educational infrastructure.
6. The developer is strongly encouraged to contact the Cape Henlopen School District Administration to address the issue of school over-crowding that this development will exacerbate.
7. DOE requests the developer work with the Cape Henlopen 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 school district.

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

A portion of the proposed project is within the boundary of the West Rehoboth Expansion of the Dewey Beach Sanitary District (WRE), a County operated sewer system. The PLUS application indicates the entire project will be annexed into the City of Lewes and will receive sewer service from the City's wastewater system. Sussex County supports the entire project annexing into the City of Lewes and connecting to the City of Lewes wastewater system.

The portion of the project that is located within the boundary of the WRE must be de-annexed from the WRE before the project can connect to the City of Lewes System. A de-annexation process is similar to the procedure for being brought into a sewer district. It requires advertising and posting Public Notices, then conducting a Public Hearing followed by a majority vote of the Sussex County Council approving the de-annexation. There will be a fee of \$1500.00 to cover the cost of advertising and administrative procedures. A letter from the applicant requesting de-annexation should be submitted to the Utility Planning Division of the Sussex County Engineering Department.

**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: City of Lewes  
Sussex County