



STATE OF DELAWARE  
EXECUTIVE DEPARTMENT  
OFFICE OF MANAGEMENT AND BUDGET  
STATE PLANNING COORDINATION

January 24, 2006

Amanda Jones  
Morris & Ritchie Associates  
18 Boulden Circle, Ste. 36  
New Castle, DE 19720

RE: PLUS review – PLUS 2005-12-12; Winkler Property

Dear Ms. Jones:

Thank you for meeting with State agency planners on January 4, 2006 to discuss the proposed plans for the Winkler Property project to be located along Carpenter Bridge Road, between Winkler Road and Campground Road, northeast of Harrington. According to the information received, you are seeking subdivision plan approval for 351 residential units on 370.94 acres.

This proposal is located in Investment Level 4 according to the *Strategies for State Policies and Spending*, and is outside the growth zone according to the Kent County Comprehensive Plan. **The comments in this letter are technical, and are not intended to suggest that the State supports this development proposal. This letter does not in any way suggest or imply that you may receive or may be entitled to permits or other approvals necessary to construct the development you indicate or any subdivision thereof on these lands.**

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 as Kent County is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.

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

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

This project represents a major land development that will result in 351 residential units in an Investment Level 4 area according to the *2004 Strategies for State Policies and Spending*. This project is also located outside of the growth zone according to Kent County's certified comprehensive plan. Investment Level 4 indicates where State investments will support agricultural preservation, natural resource protection, and the continuation of the rural nature of these areas. New development activities and suburban development are not supported in Investment Level 4. These areas are comprised of prime agricultural lands and environmentally sensitive wetlands and wildlife habitats, which should be, and in many cases have been preserved.

From a fiscal responsibility perspective, development of this site is likewise inappropriate. The cost of providing services to development in rural areas is an inefficient and wasteful use of the State's fiscal resources. The project as proposed is likely to bring more than 900 new residents to an area where the State has no plans to invest in infrastructure upgrades or additional services. These residents will need access to such services and infrastructure as schools, police, and transportation. To provide some examples, the State government funds 100 percent of school transportation and paratransit services, up to 80% of school construction costs, and the cost of police protection in the unincorporated portion of Kent County where this development is proposed. Over the longer term, the unseen negative ramifications of this development will become even more evident as the community matures and the cost of maintaining infrastructure and providing services increases.

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

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

The project has the potential to impact cultural resources and therefore, the Division of Historical and Cultural Affairs recommends the property owner/developer consider undertaking a cultural resource study of the project area before proceeding. Both marked and unmarked burials are protected by Delaware law. Please refer to the following sections of the Delaware State Code: (1) Title 11 Sub-Chapter 1340, titled "Desecration of Burial Places"; and (2) Title 7 Chapter 54, known as the "Delaware Unmarked Human Remains Act". For more information about these laws and the implications for the project, contact Craig Lukesic or Faye Stocum of this office at 302-736-7400. The

Division provides a list of qualified consultants on our web site at <http://www.state.de.us/shpo/PDF/Consultants.pdf>

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

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

DelDOT strongly supports new development in and around existing towns and municipalities and in areas designated as growth zones in approved Comprehensive Plans. We encourage the use of transfer of development rights where this growth management tool is available. If this development proposal is approved, notwithstanding inconsistencies with the relevant plans and policies, DelDOT will provide technical review and comments.

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

**Investment Level 4 Policy Statement**

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

existing or imminent public health, safety or environmental risks only, with little provision for additional capacity to accommodate further development.

With continued development in Investment Level 4 areas, the State will have a difficult, if not impossible, time attaining water quality (e.g., TMDLs) and air quality (e.g., non-attainment areas for ozone and fine particulates) goals. Present and future investments in green infrastructure, as defined in Governor Minner's Executive Order No. 61, will be threatened. DNREC strongly supports new development in and around existing towns and municipalities and in areas designated as growth zones in certified Comprehensive Plans. We encourage the use of transfer of development rights where this growth management tool is available.

This particular development certainly compromises the integrity of the State Strategies and the preservation goals inherent in many of DNREC's programs. Of particular concern are: potential impacts to all three layers of green infrastructure (natural resource and recreation priorities, cropland and working forestland) and the project's location in an excellent recharge area. While mitigating measures such as conservation design, central wastewater systems instead of individual on-site septic systems, and other best management practices may help mitigate impacts from this project, not doing the project at all is the best avenue for avoiding negative impacts. As such, this project will receive no financial, technical or other support of any kind from DNREC. Any required permits or other authorizations for this project shall be considered in light of the project's conflict with our State growth strategies.

### **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.

### **Wastewater**

There are three steps required to obtain a permit to install a community wastewater system. The engineering firm must complete two detailed technical reports, the Soil Investigation Report and the Preliminary Groundwater Impact Assessment Report. Both of these reports must be reviewed and approved by DNREC before the applicant is allowed to submit a formal permit application. The permit application includes all of the engineering details required to construct the system, and constitutes the third and final step.

The applicants have not submitted either the Soil Investigation Report or the Preliminary Groundwater Impact Assessment to date, and as such have not complied with the required prerequisites which will allow them to submit a permit application to DNREC for a community wastewater system.

### **Soils**

Based on the Kent County soil survey Evesboro, Sassafra, Rumford, Woodstown, Klej, and Fallsington were mapped in the immediate vicinity of the proposed project. Evesboro is an excessively well-drained upland soil that has limitations associated with rapid permeability. Sassafra and Rumford are well-drained upland soils that, generally, have few limitations for development. Woodstown is a moderately well-drained soil of low-lying uplands that has moderate limitations for development. Klej is a moderately well-drained soil of low-lying uplands that has moderate limitations for development. Fallsington is a poorly-drained wetland associated (hydric) floodplain soil that has severe limitations for development.

### **Wetlands**

Statewide Wetland Mapping Project (SWMP) maps indicate the presence of palustrine unconsolidated bottom and palustrine farmed wetlands.

These wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. A 100-foot vegetated buffer should be implemented 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.

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. This delineation should be verified by the Army Corps of Engineers through the Jurisdictional Determination process. Please note that 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.

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.

It is also 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.

This project is located directly adjacent to headwater wetlands (headwater stream tributary or Jackson Ditch) associated with the Murderkill River – greatly increasing the probability of harmful impacts to surface and groundwater quality to all waters within

the Murderkill River watershed - making it more difficult for the State to achieve future required TMDL nutrient reductions. It should also be noted that harmful impacts to water quality result in the deterioration in the ecological function of a stream along its entire length, including the floodplain system further downstream. In recognition of the impacts to water and habitat quality and the necessity to protect it for long-term sustainable use, the Watershed Assessment Section strongly urges the applicant to consider the preserving the existing naturally-forested buffer in its entirety and increasing the buffer width (where applicable) to a minimum 100-foot width.

### **Impervious Cover**

Research has consistently shown that once a watershed exceeds a threshold of 10 percent imperviousness, water and habitat quality irreversibly decline. Based on analyses of 2002 aerial photography by the University of Delaware, the Murderkill watershed, at that time, had about 8.1 percent impervious cover. Although this data is almost 4 years old and likely an underestimate, it illustrates the importance of a proactive strategy to mitigate for predictable and likely cumulative environmental impacts. Since the amount of imperviousness generated by this project is likely to be much higher than the desirable watershed threshold of 10 percent, the applicant is strongly advised to pursue best management practices (BMPs) that mitigate or reduce some of the 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 via preservation or additional tree plantings are examples of practical BMPs that could easily be implemented to reduce surface imperviousness.

Based on a review of the submitted PLUS application, the applicant projects that only about 7.8% of this parcel will be rendered impervious following this parcel’s development. However, this figure appears to be a significant underestimate given the scope and density of this project. The applicant should be made aware that all forms of constructed surface imperviousness (i.e., rooftops, sidewalks and roads) should be included in the impervious surface calculation; otherwise, an inaccurate assessment of this project’s actual environmental impacts will be made. It is strongly advised, therefore, that the applicant recalculate this project’s surface imperviousness that considers all of above-mentioned forms of constructed imperviousness.

### **TMDLs**

With the adoption of Total Maximum Daily Loads (TMDLs) as a “nutrient-runoff-mitigation strategy” for reducing nutrients in the Murderkill River watershed, reduction of nitrogen and phosphorus loading will be 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. Nutrient reductions prescribed under TMDLs are assigned to those watersheds or basins on the basis of recognized water quality impairments.

In the Murderkill watershed, the primary source of water quality impairment is associated with nutrient runoff from agricultural and/or residential development. In order to mitigate for the aforementioned impairments, a post-development TMDL reduction level of 50 and 30 percent will be required for nitrogen and phosphorus, respectively. Compliance with the post-development TMDL nutrient loading reduction requirements will be assessed via nutrient budget protocol, a computer-based model that quantifies post-development nutrient loading under a variety of land use scenarios in combination with a variety (or absence) of BMP types and intensities. This post-development loading rate is then compared with the pre-development loading rate as a means to assess whether the project meets the acceptable TMDL reduction levels. Based on a preliminary evaluation of this project using this model, the development as currently conceived **does not** meet the Murderkill River watershed TMDL nutrient reduction requirements for nitrogen and phosphorus. The applicant is strongly advised to consider the use of appropriate BMPs and Best Available Technologies (BATS) to ensure compliance. Examples of BMPs or BATs that should be used to significantly reduce nutrient loading from this project, include: practices that prevent or mitigate surface imperviousness; maintenance of recommended wetland buffer widths; and the use of innovative or “green-technology” stormwater methodologies. As mentioned previously, it is suggested that the applicant recalculate the projected amount of post-development impervious cover on the basis of a more realistic assessment (see the impervious cover section), since surface imperviousness is an important variable in the nutrient budget calculation. We suggest that the applicant verify their project’s compliance with the specified TMDL loading rates by running the model themselves (using the corrected impervious cover figure). Please contact Lyle Jones of Watershed Section at 739-9939 for the acceptable model protocol.

### **Water Resource Protection Areas**

A portion of the site falls within an excellent recharge area (see attached map).

According to the State law that created the Source Water Protection Program, county and municipal governments with more than 2,000 residents will be required to enact ordinances to protect Water Resource Protection Areas. Municipalities with fewer than 2,000 residents are encouraged to enact such ordinances. The following language has been excerpted from the Source Water Protection Guidance Manual for Local



Governments, Supplement 1 - Ground-Water Recharge Design Methodology. While the local ordinances may not yet be in place, the developer may find the language useful in modifying the site plan to protect water resources.

Water Resource Protection Areas (WRPAs) are defined as (1) surface water areas such as floodplains, limestone aquifers, and reservoir watersheds, (2) wellhead areas, or (3) excellent recharge areas. The purpose of an impervious cover threshold is to minimize loss of recharge and protect the quality and quantity of ground and surface water supplies in WRPAs.

New development in WRPAs may exceed the 20% impervious cover threshold, but be no more than 50% impervious, provided the applicant submits an environmental assessment report recommending a climatic water budget and facilities to augment recharge. The environmental assessment must document that post-development recharge will be no less than predevelopment recharge when computed on an annual basis.

Commonly, the applicant offsets the loss of recharge due to impervious cover by constructing recharge basins that convey relatively pure rooftop runoff for infiltration to ground water.

The Department recommends the following (ranked in order of preference):

- 1) Preserve WRPAs as open space and parks by acquisition or conservation easement.
- 2) Limit impervious cover of new development to 20% by right within WRPAs.
- 3) Allow impervious cover of new development to exceed 20% within WRPAs (but no more than 50% impervious) provided the applicant develops recharge facilities that directly infiltrate rooftop runoff.
- 4) Allow impervious cover of new development to exceed 20% within WRPAs (but no more than 50% impervious) provided the applicant develops recharge facilities that infiltrate stormwater runoff from forested and/or grassed surfaces with pretreatment.

For more information, refer to:

Source Water Protection Guidance Manual for the Local Governments of Delaware at <http://www.wr.udel.edu/swaphome/phase2/SWPguidancemanual.html>

and

Ground-Water Recharge Design Methodology at  
[http://www.wr.udel.edu/swaphome/phase2/Publications/swapp\\_manual\\_final/swapp\\_guidance\\_manual\\_supp\\_1\\_2005\\_05\\_02.pdf](http://www.wr.udel.edu/swaphome/phase2/Publications/swapp_manual_final/swapp_guidance_manual_supp_1_2005_05_02.pdf)

### **Water Supply**

The project information sheets state that water will be provided to the project by a central water system. Our records indicate that the project site is not located in an area where public water service is available. Any public water utility providing water to the site must obtain a certificate of public convenience and necessity (CPCN) from the Public Service Commission. Information on CPCNs and the application process can be obtained by contacting the Public Service Commission at 302-739-4247. Should an on-site public well be needed, it must be located at least 150 feet from the outermost boundaries of the project. 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 wells.

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**

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 Kent Conservation District. Contact Jared Adkins, Program Manager, at (302) 741-2600, ext. 3, for details regarding submittal requirements and fees.

A Notice of Intent (NOI) for Stormwater Discharges Associated with Construction

Activity must be submitted to DNREC Division of Soil and Water Conservation along with the \$195 NOI fee prior to plan approval.

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

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

### **Drainage**

The Drainage Program requests the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project or create any off site drainage problems downstream by the release of on site storm water. The Drainage Program requests the engineer check downstream ditches and pipes for function and blockages prior to construction. Please notify downstream landowners if there will be a change in the volume of water released on them.

The Drainage Program encourages the elevation of rear yards to direct water towards the streets where storm drains are accessible for maintenance. The Drainage Program recognizes the need for catch basins in rear yards in certain cases. Catch basins placed in rear yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, and kennels should not be placed along the storm drain or near the catch basin. Deed restrictions or easements recorded on the deed, should be placed on the property to ensure maintenance access.

This project is within the Murderkill River Watershed, a designated critical area, with a promulgated Total Maximum Daily Load (TMDL). Preserve existing riparian buffers to aid in the reduction of nutrients, sediment, and other pollutants. For the further enhancement of water quality in the Murderkill watershed, the Drainage Program encourages additional widths of vegetated buffers and other water quality measures on this project. Please explore the use of a created wetland to filter excess nutrients in stormwater runoff from this site before releasing stormwater into Browns Branch.

### **Forest Preservation**

According to information presented in the PLUS application for this project, the applicant's intent is to remove all the remaining forested acreage (3.44 acres) on this parcel. The Watershed Assessment Section believes that the amount of forest cover proposed for removal is excessive and should be reduced substantially. Research has consistently shown that the clearing or subdividing a larger continuous forest into smaller fragments or blocks (fragmentation), such as proposed in this project, usually results in substantial degradation of water and habitat quality within a given watershed. Since deforestation and its impacts are cumulative at the watershed scale, efforts to protect the remaining forest remnants is essential for maintaining the watershed's environmental integrity. The Watershed Assessment Section, therefore, strongly recommends that the applicant consider revising and/or redesigning this project with a greater emphasis on forest cover preservation than they are currently proposing. It should also be noted that the Watershed Assessment Section strongly discourages the removal of forest cover to accommodate stormwater management or community wastewater disposal systems.

To reduce impacts to nesting birds and other wildlife species that utilize forests for breeding, we recommend that tree clearing not occur April 1st to July 31st.

### **Nuisance Waterfowl**

Stormwater management ponds, especially large ones such as in the current site plan, will likely attract waterfowl like resident Canada geese and mute swans. It is doubtful that all of these ponds are necessary for flood control and the applicant should consider reducing the size and number of ponds. High concentrations of waterfowl in ponds create water-quality problems, leave droppings on lawn and paved areas and can become aggressive during the nesting season. Short manicured lawns around ponds provide an attractive habitat for these species. We recommend native plantings of tall grasses, wildflowers, shrubs, and trees at the edge and within a buffer area (50 feet) around the perimeter. Waterfowl do not feel safe when they can not see the surrounding area for possible predators. These plantings should be completed as soon as possible as it is easier to deter geese when there are only a few than it is to remove them once they become plentiful. The Division of Fish and Wildlife does not provide goose control services, and if problems arise, residents or the home-owners association will have to accept the burden of dealing with these species (e.g., permit applications, costs, securing services of certified wildlife professionals). Solutions can be costly and labor intensive; however, with a reduction in the number and size of ponds, 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.

**Air Quality**

Once complete, vehicle emissions associated with this project are estimated to be 26.9 tons (53,874.8 pounds) per year of VOC (volatile organic compounds), 22.3 tons (44,604.7 pounds) per year of NOx (nitrogen oxides), 16.5 tons (32,910.2 pounds) per year of SO2 (sulfur dioxide), 1.5 ton (2,929.6 pounds) per year of fine particulates and 2,253.3 tons (4,506,561.5 pounds) per year of CO2 (carbon dioxide).

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

Emissions from area sources associated with this project are estimated to be 10.9 tons (21,730.2 pounds) per year of VOC (volatile organic compounds), 1.2 ton (2,391.0 pounds) per year of NOx (nitrogen oxides), 1.0 ton (1,984.2 pounds) per year of SO2 (sulfur dioxide), 1.3 ton (2,560.5 pounds) per year of fine particulates and 44.0 tons (88,089.3 pounds) per year of CO2 (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 4.3 tons (8,612.3 pounds) per year of NOx (nitrogen oxides), 15.0 tons (29,955.7 pounds) per year of SO2 (sulfur dioxide) and 2,209.2 tons (4,418,472.2 pounds) per year of CO2 (carbon dioxide).

	VOC	NOx	SO <sub>2</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Mobile	26.9	22.3	16.5	1.5	2253.3
Residential	10.9	1.2	1.0	1.3	44.0

Electrical Power		4.3	15.0		2209.2
TOTAL	37.8	27.8	32.5	2.8	4506.5

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 4.3 tons of nitrogen oxides per year and 15.0 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: John Rossiter 739-4394**

These comments are intended for informational use only and do not constitute any type of approval from the Delaware State Fire Marshal’s Office. At the time of formal submittal,

the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation (DSFPR):

a. **Fire Protection Water Requirements:**

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

b. **Accessibility:**

- All premises which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from Carpenters Bridge Road, Camp Ground Road, Killens Pond Road, and Winkler 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.

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

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

d. **Required Notes:**

- Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”

- Name of Water Supplier
- Proposed Use
- National Fire Protection Association (NFPA) Construction Type
- Maximum Height of Buildings (including number of stories)
- Provide Road Names, even for County Roads

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

**Department of Agriculture - Contact: Milton Melendez 698-4500**

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

More importantly, the Department of Agriculture opposes this project because it negatively impacts those land uses that are the backbone of Delaware's resource industries - agriculture, forestry, horticulture - and the related industries they support. Often new residents of developments like this one, with little understanding or appreciation for modern agriculture and forestry, find their own lifestyles in direct conflict with the demands of these industries. Often these conflicts result in compromised health and safety; one example being decreased highway safety with farm equipment and cars competing on rural roads. The crucial economic, environmental and open space benefits of agriculture and forestry are compromised by such development. We oppose the creation of isolated development areas that are inefficient in terms of the full range of public facilities and services funded with public dollars. Public investments in areas such as this are best directed to agricultural and forestry preservation. This site is also a designated as a "Good Recharge" area, meaning that the area has valuable ground water recharge qualities.

In addition, this site overlaps with the State's Green Infrastructure Investment Strategy Plan. The Cropland layer is present in this site; this designation identifies areas that possess unique agricultural capability that makes it some of the most valuable land for preservation.



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

This site is a part of a “good recharge” area. DNREC has mapped all ground water potential recharge areas. A “good” rating is the second highest rating and designates an area as having important groundwater recharge qualities. 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.

**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.

Project is not within a certificated service territory for any water provider. Should water services be desired, the utility would need to apply to the Commission for a CPCN.

Project is not within a certificated service territory for any wastewater provider. Should wastewater services be desired and are unavailable from a governmental entity, the utility may need to apply to the Commission for a CPCN.

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

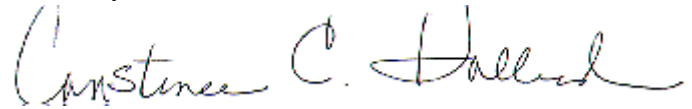
This proposal is to develop 351 units on 370 acres located along the north side of Carpenters Bridge Road, on both sides of Campground Road, between Winkler Road, and Killens Pond Road, and northeast of Harrington. According to the State Strategies Map, the proposal is located in Investment Level 4 area. As a general planning practice,

DSHA encourages residential development only in areas where residents will have proximity to services, markets, and employment opportunities, such as Investment Level 1 and 2 areas outlined in the State Strategies Map. Since, the proposal is located in an area targeted for agricultural and natural resource protection, and therefore inconsistent with where the State would like to see new residential development, DSHA does not support this proposal.

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

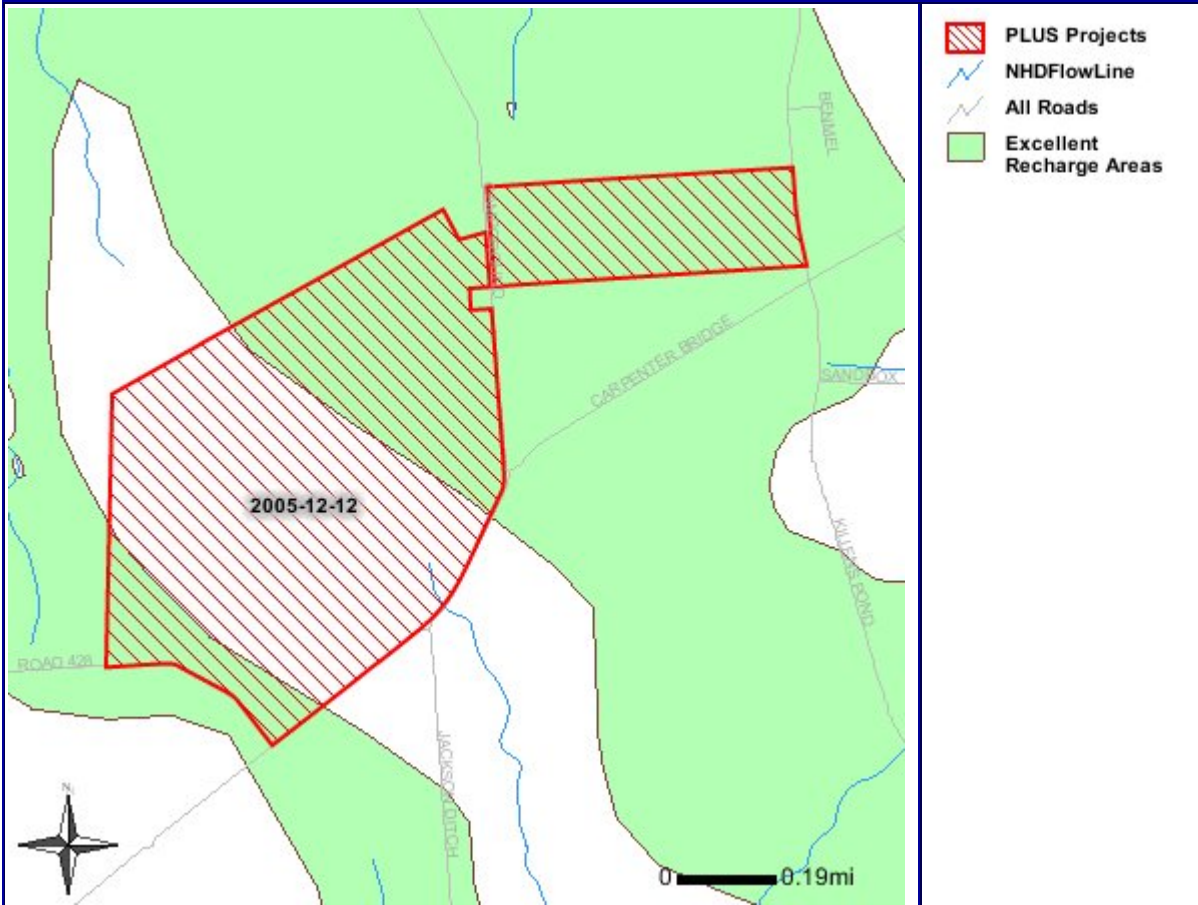
CC: Kent County

Attachments: WRPA map



# Winkler Property

2005-12-12



This map was produced by the Delaware Department of Natural Resources and Environmental Control.

