



STATE OF DELAWARE  
EXECUTIVE DEPARTMENT  
OFFICE OF STATE PLANNING COORDINATION

May 18, 2015

Mr. Dev Sitaram  
17 Polly Drummond Center  
Suite 201  
Newark DE, 19711

RE: PLUS review 2015-04-06: Baker Farm

Dear Dev,

Thank you for meeting with State agency planners on April 22, 2015 to discuss the proposed plans for Baker Farm. According to the information received, you are seeking review of a rezoning of 65 acres from S to ST and a site plan for 143 residential units.

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 New Castle 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.**

**Strategies for State Policies and Spending**

This project is located in Investment Level 2 according to the *State Strategies for Policies and Spending*. Investment Level 2 reflects areas where growth is anticipated by local, county, and State plans in the near term future. State investments will support growth in these areas.

**Code Requirements/Agency Permitting Requirements**

Department of Transportation – Contact Bill Brockenbrough 760-2109

- Per Section 2.2.2.1 of the Development Coordination Manual, Traffic Impact Studies (TIS) are warranted for developments generating more than 500 vehicle trip ends per day or 50 vehicle trip ends per hour in any hour of the day. From the plan accompanying the PLUS application, we estimate that the development would generate 1,459 vehicle trip ends per day on a typical weekday. Based on this volume, the project would warrant a TIS.

However, per Section 2.2.2.4 of the Manual, if a development is located within a Transportation Improvement District (TID) and is consistent with the Land Use and Transportation Plan for that TID, then under certain conditions DelDOT may require participation in the TID in lieu of conducting a TIS and making improvements based on the TIS. This project is located in the Southern New Castle County TID, is consistent with the plan for that TID and the conditions in Section 2.2.2.4 are met.

The Southern New Castle County TID pre-dates Section 2.4 of the Manual, so its administration is somewhat different from what is described there. We have provided the applicant with a draft agreement regarding their participation in the TID and ask that they return it to us with any corrections or changes. We will need a signed final agreement from the applicant before we can issue any plan approvals for the project. Technical or procedural questions regarding the agreement may be directed to our consultant, Mr. Ray Harbeson, at [h4designllc@yahoo.com](mailto:h4designllc@yahoo.com). Any substantive questions or concerns should be directed to Mr. Marc Coté, DelDOT's Assistant Director for Development Coordination. Mr. Coté may be reached at (302) 760-2165.

- The subdivision streets, the site access on relocated Shallcross Lake Road and any site access that might be proposed on Greylag Road must be designed in accordance with DelDOT's Development Coordination Manual (formerly the Standards and Regulations for Subdivision Streets and State Highway Access), which is available at <http://www.deldot.gov/information/business/subdivisions/changes/index.shtml>.
- Title 17, Delaware Code Section 131 charges DelDOT with regulating access to State-maintained roads. Presently the proposed development would have access by way of an as-yet unbuilt relocation of Shallcross Lake Road, and connections to two as-yet unbuilt subdivision streets in the Boyd's Corner Farm development. We understand that New Castle County seeks to have the developer add an access point on Greylag Road to the plan. We further understand that the developer's objection to such an access is that they are being required to participate in the Southern New Castle County TID, that the TID does not include Greylag Road, and that if they were to access Greylag Road they would be required to improve the road without assistance from other developers. New Castle County has asked us if Greylag Road could be included in the TID.

As mentioned above, the Southern New Castle County TID pre-dates Section 2.4 of the Manual. It is set up as a series of voluntary agreements, such that we cannot add Greylag Road to the TID without the concurrence of all of the participating developers. With the exception of the applicant, if they should enter an agreement, none of the participating developers would benefit directly from adding Greylag Road to their agreements. For that reason, we are unwilling to attempt to include the road in the TID now. While we share what we believe is the County's desire to see Greylag Road improved, and we can appreciate that a connection there would be a real benefit to residents of the development, we believe there is a reasonable alternative to requiring full improvement of the road now. There are three aspects to our position:

- DelDOT will require that the project's initial access be on the relocated Shallcross Lake Road. Presently, we expect the developer of Bayberry South to build some or all of the relocation for recoupment credit under their TID agreement. If the applicant, having entered a TID agreement, finds that the developer of Bayberry South is not building the relocation in a sufficiently timely manner, they could build some or all of the relocation for recoupment credit themselves. We would require, at a minimum, construction of the relocated road from Route 896 south to the site entrance.
- On Greylag Road, we will require only that the applicant improve the road to meet our standards within the limits of their entrance construction.
- Construction of the subdivision street connections will be required, but it will be permitted only after the access by way of relocated Shallcross Lake Road is open to traffic. The Boyd's Corner Farm access on Route 896 is not designed to accommodate additional traffic from the Baker Farm development.
- As necessary, in accordance with Section 3.2.5 and Figure 3.2.5-a of the Development Coordination Manual, DelDOT will require dedication of right-of-way along the site's frontage on Route 896 and Greylag Road. By this regulation, this dedication is to provide a minimum of 40 feet of right-of-way from the road centerline on Route 896 and 30 feet of right-of-way from the road centerline on Greylag Road. The following right-of-way dedication note is required, "**An X-foot wide right-of-way is hereby dedicated to the State of Delaware, as per this plat.**"
- In accordance with Section 3.2.5.1.2 of the Development Coordination Manual, DelDOT will require the establishment of a 15-foot wide permanent easement across the property frontage on Route 896, Greylag Road and the relocated Shallcross Lake Road. The location of the easement shall be outside the limits of the ultimate right-of-way. The easement area can be used as part of the open space calculation for the site. The following note is required, "**A 15-foot wide permanent easement is hereby established to the State of Delaware, as per this plat.**"
- Referring to Section 3.4.1 of the Development Coordination Manual, because the proposed development would generate more than 200 vehicle trips per day, a Pre-Submittal Meeting is required before plans are submitted for review. This meeting was held on April 6, 2015.
- In accordance with Section 3.5.4.2 of the Development Coordination Manual, DelDOT will require the construction of Shared-Use Paths along the development's frontage on Route 896, relocated Shallcross Lake Road and Greylag Road. In accordance with Section 3.5.4.4 of the Manual, DelDOT will require the construction of access-ways to

connect the internal subdivision streets to the Shared-Use Paths in the following locations:

- An access-way should connect Flint Drive to Route 896 near the dividing line between Baker Farm and Boyd's Corner Farm.
- An access-way should connect the cul-de-sac bulb on Baker Farm Drive to relocated Shallcross Lake Road.
- If the terms of the Conservation Easement permit it and the road is not extended as a vehicular connection to Greylag Road, an access-way should connect the cul-de-sac bulb of Road D to Greylag Road.

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

#### **TMDLs.**

- The project is located in the greater Delaware River and Bay drainage area, specifically within the Appoquinimink River watershed. In this watershed, the State of Delaware has developed specific Total Maximum Daily Load (TMDL) pollutant reduction targets for nitrogen, phosphorus, and bacteria (under the auspices of Section 303(d) of the Clean Water Act). A TMDL is the maximum level of pollution allowed for a given pollutant below which a “water quality limited waterbody” can assimilate and still meet State water quality standards (e.g., dissolved oxygen, nutrients, and bacteria; State of Delaware Surface Water Quality Standards, as amended July 11, 2004) to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. The TMDL for the Appoquinimink River watershed calls for a 60 percent reduction in nitrogen and phosphorus from baseline conditions. The TMDL also calls for an 8 percent (freshwaters) reduction in bacteria from baseline conditions. The specific TMDL nutrient and bacterial load reductions for the Appoquinimink watershed can be viewed in the following web-link:

<http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessmentTMDLs.aspx>

A nutrient management plan is required under the *Delaware Nutrient Management Law (3 Del. Chapter 22)* for all persons or entities who apply nutrients to lands or areas of open space in excess of 10 acres. This project's open space may exceed this 10-acre threshold. Please contact the Delaware Nutrient Management Program at 739-4811 for further information concerning compliance requirements or view the following web-link for additional information: <http://dda.delaware.gov/nutrients/index.shtml>

#### **Water Supply**

- The project information sheets state water will be provided to the project by Artesian Water Company via a public water system. Our records indicate that the project is

located within the public water service area granted to Artesian Water Company under Certificate of Public Convenience and Necessity 94-CPCN-01.

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.

### **Source Water Protection Areas**

- The DNREC Water Supply Section, Ground-Water Protection Branch (GPB) has determined that the project falls entirely within an excellent ground-water recharge potential area for New Castle County (see attached map). New Castle County (NCC) refers to excellent ground-water recharge potential areas as ‘recharge areas’. Recharge areas are characterized as deposits of coarser grained material that have the best ability to transmit water vertically through the unsaturated zone to the water table. The NCC recharge areas were mapped using the methods described in the Delaware Geological Survey Open File Report No. 34, "Methodology for Mapping Ground-Water Recharge Areas in Delaware’s Coastal Plain" (Andres, 1991), and depicted in a series of maps prepared by the Delaware Geological Survey (Butoryak and Talley, 1993).

DNREC 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 implemented 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 (DNREC, 2005). A water balance calculation (environmental assessment) will be necessary to determine the quantity of clean water to be recharged via a recharge basin (Thornthwaite and Mather, 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.

These DNREC recommendations appear to be consistent with NCC Unified Code Sections: 40.10.380 (B), 40.10.384 (A), 40.10.385, and 40.10.410:

- Reduce impervious cover to less than 50%
- Perform an environmental assessment report showing that water quality as well as water quantity of post development recharge is equal to or greater than pre-development recharge (Kauffman et al., 2005).

- Quantify amount of recharge lost due to impervious cover and provide for onsite infiltration of water at least equal to or greater than pre-development recharge (Kauffman et al., 2005).
- Pretreatment of parking area runoff to remove dissolved chemical and nutrient loads prior to infiltration
- The site plans show a storm-water management pond within the area of excellent ground-water recharge potential. 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 (Schueler, 2000a). Changes to the structural soil properties may cause significant reduction in recharge capacity. Installing storm-water management ponds in excellent ground-water recharge areas has the potential to contaminate the ground water beneath it and infiltrate into the aquifer (Schueler, 2000b).

DNREC recommends:

- Pretreatment of parking area runoff to remove dissolved chemical and nutrient loads prior to infiltration
- Perform an environmental assessment report showing that water quality as well as water quantity of post development recharge is equal to or greater than pre-development recharge (Kauffman et al., 2005).
- Quantify amount of recharge lost due to impervious cover and provide for on-site infiltration of water at least equal to or greater (Kauffman et al., 2005)

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

*References:*

Andres, A. S., 1991, Methodology for Mapping Ground-Water Recharge Areas in Delaware's Coastal Plain: Delaware Geological Survey Open File Report No. 34, p. 18.

Butoryak, K. R., and Talley, J. H., 1993, Delineation of Ground-Water Recharge Resource Protection Areas in the Coastal Plain of New Castle County, Delaware: Delaware Geological Survey Project Report for the Water Resources Agency for New Castle County, p. 26.

DNREC, 2005, Source Water Protection Guidance Manual for the Local Governments of Delaware: Dover, DE, State of Delaware, Department of Natural Resources and Environmental Control, p. 144.

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

Schueler, T. R., 2000a, The Compaction of Urban Soils, in Schueler, T. R., and Holland, H. K., eds., The Practice of Watershed Protection: Ellicott City, MD, Center for Watershed Protection, p. 215-218.

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

Thornthwaite, C. W., and Mather, J. R., 1957, Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance: Drexel Institute of Technology, Publications in Climatology v. X, no. 3, p. 129.



### **Sediment and Stormwater Program**

- A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. Contact the reviewing agency 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. The plan review and approval as well as construction inspection will be coordinated through the New Castle County Department of Land Use Engineering Section. Contact the Department of Land Use at (302) 395-5470 for details regarding submittal requirements and fees.

### **Hazardous Waste Sites**

- If it is determined by the Department that there was a release of a hazardous substance on the property in question and the Department requires remediation pursuant to the Hazardous Substance Cleanup Act, the provisions of 7 Del.C., Chapter 91, Delaware Hazardous Substance Cleanup Act and the Delaware Regulations Governing Hazardous Substance Cleanup shall be followed.

### **Tank Management Section**

- If a release of a Regulated Substance occurs at the proposed project site, compliance of 7 Del.C. Chapter 60, 7 Del.C., Chapter 74 and DE Admin. Code 1351, State of Delaware *Regulations Governing Underground Storage Tank Systems* (the UST Regulations) is required.

There following confirmed leaking underground storage tank (LUST) project is located within a quarter mile from the proposed project area:

- Hubers Nurseries, Facility: 3-000645, Project: N9402061 (Inactive)

No environmental impacts are anticipated; however, per the UST Regulations: Part E, § 1. Reporting Requirements:

Any indication of a Release of a Regulated Substance that is discovered by any Person, including but not limited to environmental consultants, contractors, utility companies, financial institutions, real estate transfer companies, UST Owners or Operators, or Responsible Parties shall be reported within 24 hours to:

- The Department's 24-hour Release Hot Line by calling 800-662-8802; and
- The DNREC Tank Management Branch by calling 302-395-2500

**Air Quality**

- The applicant shall comply with all applicable Delaware air quality regulations. Please note that the following regulations in Table 1 – Potential Regulatory Requirements may apply to your project:

Regulation	Requirements
7 DE Admin. Code 1106 - Particulate Emissions from Construction and Materials Handling	Use dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads. Use covers on trucks that transport material to and from site to prevent visible emissions.
7 DE Admin. Code 1113 – Open Burning	Prohibit open burns statewide during the Ozone Season from May 1-Sept. 30 each year. Prohibit the burning of land clearing debris. Prohibit the burning of trash or building materials/debris.
7 DE Admin. Code 1135 – Conformity of General Federal Actions to the State Implementation Plan	Require, for any “federal action,” a conformity determination for each pollutant where the total of direct and indirect emissions would equal or exceed any of the de minimus levels (See Section 3.2.1)
7 DE Admin. Code 1141 – Limiting Emissions of Volatile Organic Compounds from Consumer and Commercial Products	Use structural/ paint coatings that are low in Volatile Organic Compounds. Use covers on paint containers when paint containers are not in use.
7 DE Admin. Code 1144 – Control of Stationary Generator Emissions	Ensure that emissions of nitrogen oxides (NO <sub>x</sub> ), non-methane hydrocarbons (NMHC), particulate matter (PM), sulfur dioxide (SO <sub>2</sub> ), carbon monoxide (CO), and carbon dioxide (CO <sub>2</sub> ) from emergency generators meet the emissions limits established. (See section 3.2). Maintain recordkeeping and reporting requirements.
7 DE Admin. Code 1145 – Excessive Idling of Heavy Duty Vehicles	Restrict idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.

For a complete listing of all Delaware applicable regulations, please look at our website:  
<http://www.awm.delaware.gov/AQM/Pages/AirRegulations.aspx>.

**State Historic Preservation Office – Contact Terrence Burns 736-7404**

- There are no known archaeological sites, or National Register-listed property on this parcel. However, if there will be any development project in the future, the developer

should be aware of the Unmarked Human Burials and Human Skeletal Remains Law, which is in Chapter 54 of Title 7, of the Delaware Code (7 Del. C. Ch. 54).

- Abandoned or unmarked family cemeteries are very common in the State of Delaware. They are usually in rural or open space areas, and sometimes near or within the boundary of an historic farm site. Even a marked cemetery can frequently have unmarked graves or burials outside of the known boundary line or limit. Disturbing unmarked graves or burials triggers the Delaware's Unmarked Human Burials and Human Skeletal Remains Law (7 Del. C. Ch. 54), and such remains or discoveries can result in substantial delays while the procedures required under this law are carried out. If there is a discovery of any unmarked graves, burials or a cemetery, it is very costly to have them archaeologically excavated and the burials moved. The Division of Historical & Cultural Affairs recommends that owners and/or developers have a qualified archaeological consultant investigate their project area, to the full extent, to see if there is any unmarked cemetery, graves, or burial sites. In the event of such a discovery, the Division of Historical & Cultural Affairs also recommends that the plans be re-drawn to leave the full extent of the cemeteries or any burials on its own parcel or in the open space area of the development, with the responsibility for its maintenance lying with the landowner association or development. If you would like to know more information pertaining to unmarked human remains or cemeteries, please check the following websites for additional information: [www.history.delaware.gov/preservation/umhr.shtml](http://www.history.delaware.gov/preservation/umhr.shtml) and [www.history.delaware.gov/preservation/cemeteries.shtml](http://www.history.delaware.gov/preservation/cemeteries.shtml).

Therefore, prior to any demolition or ground-disturbing activities, the developer may want to hire an archaeological consultant to examine the parcel for any potential archaeological site or archaeological resources, such as cemetery, burial site, or unmarked human remains.

Furthermore, if there is any federal involvement with the project, in the form of licenses, permits, or funds, the federal agency, often through its client, is responsible for complying with Section 106 of the National Historic Preservation Act (36 CFR 800) and must consider their project's effects on any known or potential cultural or historic resources. Owners and developers who may plan to apply for an Army Corps of Engineers permit or for federal funding, such as HUD or USDA grants, should be aware of the National Historic Preservation Act of 1966 (as amended). Regulations promulgated for Section 106 of this Act stipulate that no ground-disturbing or demolition activities should take place before the Corps or other involved federal agency determines the area of potential effect of the project undertaking. These stipulations are in place to allow for comment from the public, the Delaware State Historic Preservation Office, and the Advisory Council for Historic Preservation about the project's effects on historic properties. Furthermore, any preconstruction activities without adherence to these stipulations may jeopardize the issuance of any permit or funds. If you need further information or additional details pertaining to the Section 106 process and the

Advisory Council’s role, please review the Advisory Council’s website at [www.achp.gov](http://www.achp.gov).

### **Recommendations/Additional Information**

This section includes a list of site specific suggestions that are intended to enhance the project. These suggestions have been generated by the State Agencies based on their expertise and subject area knowledge. **These suggestions do not represent State code requirements.** They are offered here in order to provide proactive ideas to help the applicant enhance the site design, and it is hoped (**but in no way required**) that the applicant will open a dialogue with the relevant agencies to discuss how these suggestions can benefit the project.

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

### **Soils Assessment**

- The soil mapping units mapped on this parcel are predominately well drained (Figure 1).

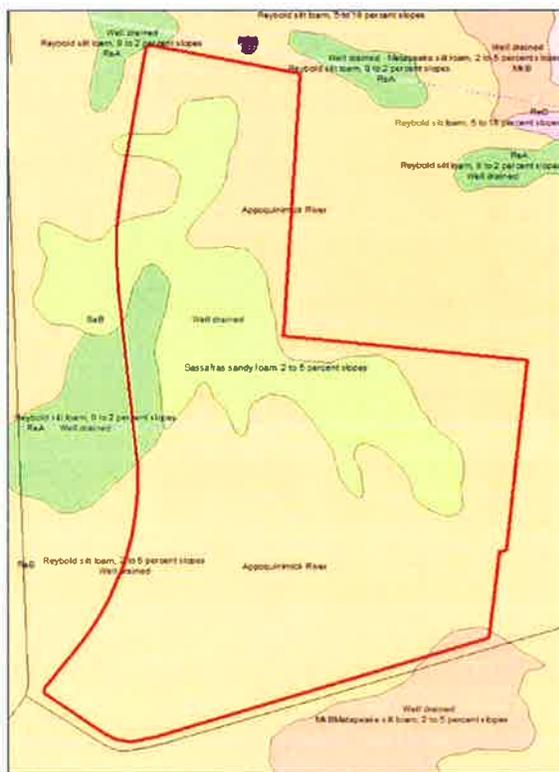


Figure 1 NRCS soil survey mapping update in the immediate vicinity of the proposed project

### **Habitat and Wet ponds**

- Wet ponds created for stormwater management purposes may attract resident Canada geese and mute swans that will create a nuisance for community residents. 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 surrounding ponds provide attractive habitat for these species. To deter waterfowl from taking up residence in these ponds, DNREC recommends planting the surrounding open space with a mix of native wildflower plantings (to be planted in accordance with the Sediment and Stormwater Plan approval agency requirements). It is best to mow the open space area surrounding the pond only once a year, either in February or March. If mowing must occur more often, it would be helpful to leave a minimum buffer of 15-30 feet in width to be mowed annually. This area would be necessary to adequately deter the waterfowl from inhabiting the area (when the view of the surrounding area from the pond is blocked, geese can't scan for predators and are less likely to reside and nest in the area of the pond). In addition to deterring nuisance waterfowl, the native wildflower mix will also serve to attract bees, butterflies, and other pollinators, and reduce run-off, which can contain oil and other pollutants that homeowners may use on their lawns and driveways. DNREC program botanist, Bill McAvoy would gladly assist in drafting a list of plants suitable for this site. Bill can be contacted at (302) 735-8668 or [William.McAvoy@state.de.us](mailto:William.McAvoy@state.de.us).

#### **Additional information on TMDLs and water quality.**

- In response to concerns about the need for reducing nonpoint source nutrient (nitrogen and phosphorus) and bacterial pollutants to levels sufficient to meet the prescribed TMDL reduction requirements in the Appoquinimink watershed, a multifaceted and comprehensive process known as a Pollution Control Strategy (PCS) has been developed to enable such reductions. Specifically, a PCS is a combination of best management practices and control technologies that reduce nutrient and bacterial pollutant runoff loading in waters of a given watershed to level(s) consistent with the TMDL(s) reduction levels specified for that watershed. The PCS for the Appoquinimink River watershed consists of recommendations from the following four areas: agriculture, land preservation (open space), stormwater, and wastewater. A Pollution Control Strategy (PCS) to achieve the required TMDL nutrient and bacterial load reduction requirements has been established for the Appoquinimink watershed. Additional information about Appoquinimink River PCS is available from the follow web link: <http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedManagementPlans.aspx>.
- In further support of the PCS, the applicant is strongly urged to reduce nutrient and bacterial pollutants through voluntary commitment to the implementation of the following recommended BMPs:
  - Maintain as much of the existing open space as possible; we further suggest additional native tree and native herbaceous planting, wherever possible.
  - Calculate post-construction surface imperviousness with all forms of created (or constructed) surface imperviousness (e.g., rooftops, driveways, parking lots, sidewalks, open-water storm water management structures, and roads) included in the calculation for surface imperviousness. We strongly recommend that the applicant calculate post-construction surface imperviousness with all forms of

created (or constructed) surface imperviousness (e.g., rooftops, driveways, parking lots, sidewalks, open-water storm water management structures, ponds, and roads) included in the calculation for surface imperviousness. Omission of any of the above-stated forms of surface imperviousness will result in an underestimate of the actual post-development surface imperviousness and associated environmental impacts – thus the omission of any form of surface imperviousness is not considered an acceptable BMP.

- Use rain gardens, and green-technology storm water management structures (in lieu of open-water management structures) as BMPs to mitigate or reduce nutrient and bacterial pollutant impacts from runoff or discharges from impervious surfaces. Please contact Lara Allison at 739-9939 for further information about the possibility for installing a raingarden(s) on this parcel.
- Since this project will create additional impervious surface that will increase the probability for increased pollutant load runoff impacts to adjoining streams and wetlands in the greater Appoquinimink watershed, wherever practicable, Use pervious paving materials (instead of conventional asphalt and concrete) to mitigate the aforementioned pollutant runoff impacts from parking lots and roads. We especially recommend the use of pervious paving materials in areas designated for parking.
- Applicant should voluntarily assess nutrient and bacterial pollutant loading at the preliminary project design phase. To this end, the Watershed Assessment Section has developed a methodology known as the “Nutrient Load Assessment protocol.” The protocol is a tool used to assess changes in nutrient loading (e.g., nitrogen and phosphorus) that result from the conversion of individual or combined land parcels to a different land use(s), while providing applicants with quantitative information about their project’s impact(s) on baseline water quality. We strongly encourage the applicant/developer use this protocol to help them design and implement the most effective BMPs. Please contact John Martin or Jen Walls at 302-739-9939 for more information on the protocol.

#### **Additional information on hazardous waste sites**

- DNREC strongly recommends that the land owner perform environmental due diligence of the property by performing a Phase I Environmental Site Assessment (including a title search to identify environmental covenants) and a Phase II or Facility Evaluation in accordance to Section 9105(c) (2) of the Delaware Hazardous Substance Cleanup Act (HSCA) and the HSCA Guidance Section 2, part 2.3 (page 2-1). While this is not a requirement under HSCA, it is good business practice and failure to do so will prevent a person from being able to qualify for a potential affirmative defense under Section 9105(c) (2) of HSCA.

Additional remediation may be required if the project property or site is re-zoned by the county.

Should a release or imminent threat of a release of hazardous substances be discovered during the course of development (e.g., contaminated water or soil), construction activities should be discontinued immediately and DNREC should be notified at the 24-hour emergency number (800-662-8802). SIRS should also be contacted as soon as possible at 302-395-2600 for further instructions.

**Additional information on tank management.**

- When contamination is encountered, PVC pipe materials should be replaced with ductile steel and nitrile rubber gaskets in the contaminated areas.
- If any aboveground storage tanks (ASTs) less than 12,500 gallons are installed, they must be registered with the TMS. If any ASTs greater than 12,500 gallons are installed, they are also subject to installation approval by the TMS.

**Additional information on air quality.**

- New homes may emit, or cause to be emitted, air contaminants into Delaware’s air, which will negatively impact public health, safety and welfare. These negative impacts are attributable to:
  - Emissions that form ozone and fine particulate matter; two pollutants relative to which Delaware currently violates federal health-based air quality standards,
  - The emission of greenhouse gases which are associated with climate change, and
  - The emission of air toxics.

Air emissions generated from commercial spaces include emissions from the following activities:

- Area sources such as painting, maintenance equipment and the use of consumer products like roof coatings and roof primers.
- The generation of electricity needed to support the commercial space, and
- All transportation activity.

Based on the information provided, the three air emissions components (i.e., area, electric power generation, and mobile sources) for the development were quantified. Table 2 represents the actual impact the Baker Farm project may have on air quality.

<b>Table 2: Projected Air Quality Emissions for Baker Farm</b>					
Emissions Attributable to Baker Farm (Tons per Year)	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NOx)	Sulfur Dioxide (SO <sub>2</sub> )	Fine Particulate Matter (PM <sub>2.5</sub> )	Carbon Dioxide (CO <sub>2</sub> )
Direct Area Source	4.4	0.5	0.4	0.5	17.9
Electrical Power Generation	*	1.8	6.1	*	900.1
Mobile	6.5	6.8	0.2	0.1	4,226.4

<b>Total</b>	10.9	9.1	6.7	0.6	5,144.4
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(\*) *Indicates data is not available.*

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

DNREC encourages sustainable growth practices that:

- Control sprawl;
- Preserve rural and forested areas;
- Identify conflicting land use priorities;
- Encourage growth on previously developed sites and denser communities while at the same time protect our diminishing land base;
- Coordinate transportation, housing, environment, and climate protection plans with land use plans; and
- Demonstrate that communities can achieve the qualities of privacy, community, and contact with nature without degrading the natural environment or generating unacceptable environmental costs in terms of congestion, use of natural resources, or pollution.

Additional measures may be taken to substantially reduce the air emissions identified above.

These measures include:

- **Constructing with only energy efficient products.** Energy Star qualified products are up to 30% more energy efficient. Savings come from building envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems and upgraded water-heating equipment. Every percentage of energy efficiency translates into a percent reduction in pollution. The Energy Star Program is excellent way to save on energy costs and reduce air pollution.
- **Offering geothermal and/or photo voltaic energy options.** These systems can significantly reduce emissions from electrical generation, and from the use of oil or gas heating equipment.
- **Providing tie-ins to the nearest bike paths and links to any nearby mass transport system.** These measures can significantly reduce mobile source emissions. For every vehicle trip that is replaced by the use of a sidewalk, a bike path or mass transit, 7 pounds of VOC and 11.5 pounds of NO<sub>x</sub> are reduced each year.
- **Using retrofitted diesel engines during construction.** This includes equipment that are on-site as well as equipment used to transport materials to and from site.
- **Using pre-painted/pre-coated flooring, cabinets, fencing, etc.** These measures can significantly reduce the emission of VOCs from typical architectural coating operations.

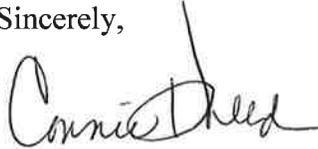
- **Planting trees in vegetative buffer areas.** Trees reduce energy emissions by cooling during the summer and by providing wind breaks in the winter, thereby reducing air conditioning needs by up to 30 percent and saving 20 to 50 percent on fuel costs.

This is a partial list, and there are additional things that can be done to reduce the impact of the development. The applicant should submit a plan to the DNREC DAQ which address the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into this project.

**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,



Constance C. Holland, AICP  
Director, Office of State Planning Coordination

CC: New Castle County