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March 1, 2016

Office of State Planning Coordination
122 Martin Luther King Jr. Blvd, South
Third Floor
Dover, DE 19901
Attn: Ms. Constance C. Holland, AICP

RE: Summit Bridge Estates – PLUS Response
PLUS review 2015-12-02
669 Old Summit Bridge Road
New Castle County, Delaware
VCEA #15-01-NCC

Dear Ms. Holland:

We have received the review comments dated January 19, 2016 for the above referenced project and offer the following responses in **RED** for consideration.

Strategies for State Policies and Spending

- This project is located in Investment Level 3 according to the *Strategies for State Policies and Spending*. Investment Level 3 reflects areas where growth is anticipated by local, county, and state plans in the longer term future, or areas that may have environmental or other constraints to development. State investments may support future growth in these areas, but please be advised that the State has other priorities for the near future. We encourage you to design the site with respect for the environmental features which are present.

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. Preliminarily, we estimate the trip generation at 389 vehicle trip ends per day and 41 trips per hour in the weekday evening peak hour. Based on these volumes, this project would not warrant a TIS. **Noted.**
- The site accesses on Old Summit Bridge Road (New Castle Road 39) and Bethel Church Road (New Castle Road 433) and the subdivision streets must be designed in accordance with DelDOT's Development Coordination Manual (formerly the Standards and

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Regulations for Subdivision Streets and State Highway Access), which is available at <http://www.deldot.gov/information/business/subdivisions/changes/index.shtml>. *The roads will be designed in accordance with all applicable regulations.*

- Section 3.2.4.1 of the Manual addresses the placement of right-of-way monuments (markers) along subdivision streets. We will require that monuments be furnished and placed along the proposed streets in accordance with this section. *Noted.*
- Section 3.2.4.2 of the Manual addresses the placement of right-of-way monuments (markers) along the roads on which a property fronts, in this case Summit Bridge Road (Delaware Route 71), Old Summit Bridge Road and Bethel Church Road. Monuments sufficient to re-establish the permanent rights-of-way after the dedication discussed below should be shown on the plan and provided in the field in accordance with this section. *Noted.*
- 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 Summit Bridge Road, Old Summit Bridge Road and Bethel Church Road. By this regulation, this dedication is to provide a minimum of 40 feet of right-of-way from the road centerline on Summit Bridge Road and 30 feet of right-of-way from the road centerline on Old Summit Bridge Road and Bethel Church 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."** Preliminarily, it appears that, with the proposed dedication along Bethel Church Road, this requirement is met. *The notes are shown on the plans.*
- 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 Summit Bridge Road, Old Summit Bridge Road and Bethel Church 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."** *The notes are shown on the plans.*
- Referring to Section 3.4.2 of the Development Coordination Manual, the Initial Stage review fee shall be assessed to this project. *The required fees will be paid.*
- In accordance with Section 3.4 of the Development Coordination Manual, a record plan shall be prepared prior to issuing "Letter of No Objection". The following information will be required for the "Letter of No Objection" review: *All applicable items will be provided.*
 - Initial Stage Fee Calculation Form
 - Initial Stage Review Fee
 - Gate-Keeping Checklist – Site Plan
 - Design Checklist - Record Plan

- Sight Distance Spreadsheet
 - Owners and Engineers' name and e-mail address
 - Record Plan
 - Conceptual Entrance Plan
 - Submission of the Area-Wide Study Fee (If applicable)
- 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 PreSubmittal Meeting is required before plans are submitted for review. The form needed to request this meeting is available http://www.deldot.gov/information/business/subdivisions/Meeting_Request_Form.pdf.
We have already held our presubmittal meeting on this project.
 - Referring to Section 3.4.2.1 of the Development Coordination Manual, the following items, among other things, are required on the Record Plan: *The required information will be noted on the Record Plans.*
 - A Traffic Generation Diagram. See Figure 3.4.2-a for the required format and content.
 - Depiction of all existing entrances within 300 feet of the proposed entrances.
 - Notes identifying the type of off-site improvements, agreements (signal, letter) contributions and when the off-site improvements are warranted.
 - Section 3.5 of the Development Coordination Manual provides DeIDOT's requirements with regard to connectivity. The requirements in Sections 3.5.1 through 3.5.3 shall be followed for all development projects having access to state roads or proposing DeIDOT maintained public road for subdivisions. Private or municipal streets should follow the local land use agency's requirements for connectivity. *All applicable regulations will be followed.*
 - Section 3.5.4.2 of the Development Coordination Manual addresses requirements for shared-use paths and sidewalks. Projects located in Level 3 Investment Areas are required to install a shared-use path or sidewalk along the State-maintained road frontage PLUS review 2015-12-02 if the project abuts an existing facility. The Subdivision Engineer may waive the requirement where there is no facility on an abutting parcel. From Google Earth photography, no such facilities are apparent. *We have provided the shared use path to assist with the interconnectivity of the surrounding residential areas.*
 - According to the Investment Area Map, the parcel is in Level 3. Given that most of the land in the surrounding area is developed or developing, we anticipate requiring sidewalks or shared used paths along the property frontage, but a decision has not been made in this regard.

- Section 3.6 of the Development Coordination Manual provides DeIDOT's requirements with regard to noise analysis. Because the development is adjacent to Summit Bridge Road, which in this area is classified as a Principal Arterial road, we will require a noise analysis in accordance with this section. ***We will conduct this analysis as required.***
- In accordance with Section 3.8 of the Development Coordination Manual, storm water facilities, excluding filter strips and bioswales, shall be located a minimum of 20 feet from the ultimate State right-of-way along Summit Bridge Road, Old Summit Bridge Road and Bethel Church Road. ***The stormwater features will comply with these requirements.***
- Referring to Section 4.3 of the Development Coordination Manual, the Construction Stage review fee shall be assessed to this project. ***The required fees will be provided when applicable.***
- Referring to Section 4.3 of the Development Coordination Manual, an entrance plan shall be prepared prior to issuing entrance approval. The following information will be required for entrance Plan review: ***The applicable information will be provided.***
 - Construction Stage Fee Calculation Form
 - Construction Review Fee
 - Gate-Keeping Checklist – Entrance Plan
 - Design Checklist - Entrance Plan
 - Auxiliary Lane Spreadsheet
 - Entrance Plan
 - Pipe/Angle Spreadsheet (If applicable)
 - SWM Report and Calculations (If applicable)
- In accordance with Section 5.2.5.6 of the Development Coordination Manual, Turning Movement Diagrams shall be provided to verify vehicles can safely enter and exit the site entrance. As per Section 5.2.3 of the Manual, the entrance shall be designed for the largest vehicle using the entrance. ***We will provide these at the applicable time.***
- In accordance with Section 5.2.9 of the Development Coordination Manual, the Auxiliary Lane Worksheet should be used to determine whether auxiliary lanes are warranted at the site entrance and how long those lanes should be. The worksheet can be found at http://www.deldot.gov/information/business/subdivisions/auxiliary_lane_worksheet.xls. ***The worksheets will be provided with the entrance plan submittals.***
- In accordance with Section 5.4 of the Development Coordination Manual, sight distance triangles are required and shall be established in accordance with American Association of State Highway and Transportation Officials (AASHTO) standards. A spreadsheet has been developed to assist with this task. It can be found at

<http://www.deldot.gov/information/business/subdivisions/Intersection-Sight-Distance.xls>.
Site triangles with be depicted on the plans as required.

- Section 7.7.2 of the Manual addresses the need to provide 20-foot wide drainage easements for all storm drainage systems, open or closed, that fall outside the existing right-of-way or the drainage/utility easement. In accordance with this section, metes and bounds and total areas need to be shown for any drainage easements. The easements should be shown and noted on the record plan. *The required information will be depicted on the Record plan once the related drainage design is finalized.*
- This project is located within the regulated airspace zones of Summit Airport (EVY), which is a public-use facility. The proposed subdivision is located in very close proximity to the runway at Summit Airport. Federal Aviation Regulation (FAR) Part 77 imposes height restrictions on any structures within these zones. DelDOT requires that the applicant for this project submits a “Proposed Construction/Alteration in Airport Zones Notification Form” in accordance with Delaware Code (2 Del. C. § 602). *We have already reached out for an initial review of this site and it has been cleared for the heights proposed.*
 - This notification form can be submitted during the plan approval process with the local land use jurisdiction, but DelDOT’s Office of Aeronautics is willing to test hypothetical height numbers to prevent any future project complications. Please contact Josh Thomas with the Office of Aeronautics at (302) 760-4834 with any questions or concerns. A copy of the notification form can be found at this address: http://www.deldot.gov/information/community_programs_and_services/airports/pdfs/aviation_obstruction_review_form.pdf.

Department of Natural Resources and Environmental Control – Contact Michael Tholstrup 735-3352

The proposed development will result in increased impervious surface and new sources of greenhouse gas emissions. Opportunities exist to preserve natural resources while reducing the environmental impact on-site and providing additional energy efficiency alternatives to homeowners.

DNREC recommends siting open space and storm water management ponds adjacent to the existing forested areas on the Southern border of the property to promote connectivity with the habitat leading to Crystal Run. Also because the project falls entirely within a Water Resource Protection Area (WRPA) which naturally filters water and contaminants into the underlying water table aquifer, the Department recommends using innovative/alternative technology wastewater treatment and disposal systems (I/A Systems) to protect the WRA.

Another recommendation, first offered during the December 16th, 2015, PLUS meeting, is to use high energy efficiency building standards (with consideration for alternative energy sources), and

the use of green infrastructure, wherever practicable, to protect water quality. DNREC further recommends an abundant use of native vegetation and shade trees throughout the landscape.

The following pages provide applicable regulations and detailed recommendations associated with this project, from various DNREC Divisions. We would like to be a partner in creating appropriate development that highlights the environment as a natural amenity of the landscape. The Department has resources and expertise that are available to help make this a reality, often at no expense to the landowner. ***We will consider all of these options as we progress with the project design.***

TMDLs.

- The project is located in the greater Delaware River and Bay drainage area – specifically within the C & D Canal watershed east. The State of Delaware has developed specific Total Maximum Daily Load (TMDL) pollutant reduction targets for nutrients (e.g., nitrogen, phosphorus), and bacteria (under the auspices of Section 303(d) of the Federal 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. However, a TMDL for the C & D Canal east has not been developed to date. Nonetheless, the applicant should still implement BMPs wherever practicable.

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 (302) 739-4811 for further information concerning compliance requirements – or view the following web link for additional information: <http://dda.delaware.gov/nutrients/index.shtml> ***We will contact DNMP as this project progresses.***

Water Supply. ***We will be working with the Utility company who will eventually service the site as the project progresses.***

- The information provided indicates that Tidewater Utilities will provide water to the proposed project through a public water system. Our files reflect that Tidewater Utilities does not currently hold a Certificate of Public Convenience and Necessity (CPCN) to provide public water in these areas. They will need to file an application for a CPCN with the Public Service Commission, if they have not done so already. Information on CPCN requirements and applications can be obtained by contacting the Public Service Commission at (302) 736-7547. Should an on-site public well be needed, a minimum isolation distance of 150 feet is required between the well and any potential source of contamination, such as a septic tank and sewage disposal areas, and at least 150 feet from the outermost boundaries of the project. The DNREC 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 DNREC 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.

Source Water Protection. *The site will comply with all applicable recharge regulations.*

- The DNREC Water Supply Section, Groundwater Protection Branch (GPB) has reviewed the above referenced PLUS project and determined that the project falls entirely within a water resource protection area (WRA) for New Castle County (see map).

New Castle County 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).

This map category (excellent) is an indicator of how fast contaminants will move and how much water may become contaminated (Andres, 2004). Land use activities or impervious cover on areas of excellent ground-water recharge potential may adversely affect ground water in these areas.

The application shows that each residence will utilize an individual on-site wastewater treatment system. DNREC recommends that these systems be constructed using innovative/alternative technology wastewater treatment and disposal systems (I/A Systems) to protect the WRA.

In addition, because the excellent ground water recharge area can readily affect the underlying aquifer if contaminants are spilled or discharged across the area, the storage of

hazardous substances or wastes should not be allowed within the area unless specific approval is obtained from the relevant state, federal, or local program.

References:

Andres, A. S., 1991, Methodology for Mapping Ground-Water Recharge Areas in Delaware's Coastal Plain: Delaware Geological Survey Open File Report No. 34, p. 18 -, 2004, GroundWater Recharge Potential Mapping in Kent and Sussex Counties, Delaware, Delaware Geological Survey Report of Investigations No. 66, p. 14.

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.

Sediment and Stormwater Management.

- 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 preapplication meeting to discuss the sediment and erosion control and stormwater management components of the plan. The site topography, soils mapping, pre-and postdevelopment 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. ***S&E plans will be prepared as required.***

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: ***Understood.***

For a complete listing of all Delaware applicable regulations, please look at our website:

<http://www.awm.delaware.gov/AQM/Pages/AirRegulations.aspx>.

Hazardous Waste Management.

- If it is determined by DNREC 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. ***Understood.***

There is one DNREC Site Investigation & Restoration Section (SIRS) site within a ½ -mile radius of the property in question:

4200 Summit Bridge Road (DE-1478) is located adjacent south of the project property.

- The Site is an active airport that tends to corporate and government aircraft.
- Paint stripping and other general maintenance of aircraft occurs on site.
- Above and underground storage tanks were located on site also and removed in 2008.
- Impacted soil from the USTs was removed and the site was monitored.
- The site was given a Certificate of Completion of Remedy in February 2015.

Tank Management. *Understood.*

- 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 Section by calling (302) 395-2500.

State Historic Preservation Office – Contact Terrence Burns 736-7404

All the below information has been noted.

- Nothing is known within this parcel. The proposed landscaping and buffer will protect the setting of and prevent visual and noise intrusions to the nearby historic properties, including the Rothwell House across Old Summit Bridge Road and the historic village of Summit Bridge immediately north of this proposed development. The inclusion of the road connecting Bethel Church Road and Old Summit Bridge Road on the north edge of the development will be a further benefit to the historic village by removing traffic from it. There is some low to moderate potential for prehistoric archaeological resources along the eastern edge of this parcel.
- This area appears to have been associated with the Rothwell farm. Abandoned and unmarked family cemeteries are common on farms in Delaware. Burials have also been found associated with prehistoric-period archaeological sites. Disturbing unmarked burials triggers Delaware's Unmarked Human Burials and Human Skeletal Remains Law of 1987 (7 Del. Code Ch. 54). Such discoveries can result in substantial delays while the procedures required under this law are carried out. DHCA recommends that owners and/or developers have a qualified archaeological consultant investigate their project area for the presence of such a cemetery. If one is discovered and delineated, it is very costly to have it archaeologically excavated and the burials moved. DHCA recommends that in the event of such a discovery, the plans be redrawn to leave the cemetery on its own parcel or in the open space area of the development, with the responsibility for its maintenance lying with a homeowners association or development owner. (For further information, see <http://history.delaware.gov/preservation/umhr.shtml> and <http://history.delaware.gov/preservation/cemeteries.shtml>)

- 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. Any preconstruction activities without adherence to these stipulations may jeopardize the issuance of a permit or receipt of funding if it is determined that such opportunity to comment has been foreclosed. (For further information on Section 106 and the Advisory Council's role, please review the Advisory Council's website at: 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 Transportation – Contact Bill Brockenbrough 760-2109

- The applicant should expect a requirement that any substation and/or wastewater facilities will be required to have access from the internal subdivision street with no direct access to Summit Bridge Road, Old Summit Bridge Road or Bethel Church Road.
- Please be advised that as of August 1, 2015, all new plan submittals and re-submittals, including major, minor and commercial plans, shall now be uploaded via the PDCA (Planning Development Coordination Application) with any review fee paid online via credit card or electronic check. Guidance on how to do this is available on our website at <http://www.deldot.gov/information/business/subdivisions/> **Understood.**
- Be advised that the Standard General Notes have been updated and posted to the DeIDOT website. Please begin using the new versions and look for the revision date of July 31, 2015. The notes can be found at http://www.deldot.gov/information/business/subdivisions/DeIDOT_Development_Coordination_Plan_Sheet_Notes.doc **The most recent notes will be shown on the plans.**
- Please check to determine whether any utilities will need to be relocated as part of this project. **We will be evaluating this as the design progresses.**

Department of Natural Resources and Environmental Control – Contact Michael Tholstrup 735-3352
Soils Assessment.

- Based on NRCS soils survey mapping update, Othello is the primary soil mapping unit of concern in this parcel. Othello is a poorly-drained wetland associated (hydric) soil that has severe limitations for development (Figure 1).

DNREC strongly discourages building on hydric soils because they are functionally important source of water storage (functions as a “natural sponge”); the loss of water storage through excavation, filling, or grading of intact native hydric soils increases the probability for more frequent and destructive flooding events. The probability for flooding is further compounded by increases in surface imperviousness as building density in the area increases over time. Moreover, destruction of hydric soils increases the amount pollutant runoff (i.e., hydric soils sequester and detoxify pollutants) which contributes to lower observed water quality in regional waterbodies and wetlands. *We have avoided proposing lots on the soils that present some concern.*

Habitat.

- The applicant may consider siting open space and storm water management ponds adjacent to the existing forested areas on the Southeast corner of the property to promote connectivity with the habitat leading to Crystal Run. *We have taken this into consideration as part of our layout.*

Nuisance Waterfowl. *It is our intent to limit open waters on the site.*

- 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, we recommend 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.

Our 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

Additional information on TMDLs and water quality. *The below will be taken into consideration as the design progresses.*

- A Pollution Control Strategy (PCS) to achieve the required TMDL nutrient and bacterial load reduction requirements has not been established for the C&D Canal. However, DNREC strongly encourages the applicant to take responsibility for reducing nutrient and bacterial pollutants through voluntary implementation of the following recommended BMPs, which would:
 - Preserve and/or maintain as much of the existing open space as possible; we further suggest additional native tree, shrub and/or native herbaceous vegetation plantings, wherever possible.
 - Conduct a United States Army Corps of Engineers (USACE) approved field wetlands delineation before commencing any development activities on this parcel(s). The USACE can be reached by phone at (302) 736-9763. According to the PLUS application, a wetlands delineation was conducted but not approved by the USACE, nor was the delineation submitted to DNREC.
 - Maintain an adequate buffer width. Based on a review of existing buffer research by Castelle et al. (Castelle, A. J., A. W. Johnson and C. Conolly. 1994. *Wetland and Stream Buffer Requirements – A Review*. J. Environ. Qual. 23: 878-882.), an adequately-sized buffer that effectively protects wetlands and streams, in most circumstances, is about 100 feet in width. In recognition of this research and the need to protect water quality, the DNREC Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from all waterbodies (including ditches) and wetlands (field delineated and approved by the USACE).
 - 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. Omission of any of the above-stated forms of surface imperviousness will result in an underestimate of the actual post-development surface imperviousness and the associated environmental impacts.
 - Employ green-technology storm water management and rain gardens (in lieu of openwater management structures) as BMPs to mitigate or reduce nutrient and bacterial pollutant runoff. Please contact Lara Allison at (302) 739-9939 for further information about the possibility of installing rain gardens on this parcel.

- Use pervious paving materials instead of conventional paving materials (e.g., asphalt or concrete) to help reduce the amount of water and pollutant runoff draining to adjoining streams and wetlands. Pervious pavers are especially recommended for areas designated for parking.
- Assess nutrient and bacterial pollutant loading at the preliminary project design phase. To this end, the DNREC 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) resulting from the conversion of individual or combined land parcels to a changed land use; thus providing applicants and governmental entities with quantitative information about the project’s impact(s) on baseline water quality. We strongly encourage the applicant/developer use this protocol to help design and implement the most effective BMPs. Please contact John Martin or Jen Walls of the Division of Watershed Stewardship, at (302) 739-9939 for more information on the protocol.

Additional information on tank management. *Understood.*

- 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 DNREC Tank Management Section (TMS). If any ASTs greater than 12,500 gallons are installed, they are also subject to installation approval by the TMS.

Additional information on hazardous waste. *We will evaluate the site as necessary based on information that may be of concern on the property.*

- 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) in accordance to Section 9105(c) (2) of the Delaware Hazardous Substance Cleanup Act (HSCA). 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 air quality. *We will look at the below recommendations as the plans are developed.*

- DNREC encourages developers and builders to consider all sustainable growth practices in their design, but we believe, however, that the air quality impacts associated with the project should be completely considered. New homes, businesses, and schools 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 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 facility, and
- All transportation activity.

Based on the information provided, the three air emissions components (i.e., area, electric power generation, and mobile sources) were quantified. Table 2 – Projected Air Quality Emissions represents the actual impact the Summit Bridge Estates project may have on air quality.

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, 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 an 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.
- Constructing with high albedo, high solar reflectance materials. This includes roofing and hardscape. These materials help to reduce heat island impacts and, by extension, help to minimize the potential for localized ground-level ozone formation.
- These materials also help reduce demands on air conditioning systems and save on energy costs.
- Providing shade for parking lot areas. Approaches may include architectural devices, vegetation, or solar panels. Providing shade for parking areas helps to reduce heat island impacts, and, by extension, helps to minimize the potential for localized ground-level ozone formation. Such measures can also have the additional benefit of channeling or infiltrating stormwater.
- Providing charging stations for plug-in electric vehicles. This measure helps to reduce localized air pollution by supporting the use of non-gasoline powered vehicles. Please refer to the US Department of Energy's website for electric vehicle readiness information: http://www1.eere.energy.gov/cleancities/electric_vehicle_projects.html
- Encouraging the use of safe multimodal transportation. This measure can significantly reduce mobile source emissions. For every vehicle trip that is replaced by the use of a sidewalk, bike path, or mass transit, 7 pounds of VOC and 11.5 pounds of NOx are reduced each year. There is an opportunity to connect the project to a transit network via an existing DART bus stop located within walking distance of the property on US 1.
- Using retrofitted diesel engines during construction. This includes equipment that is 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 emissions by trapping dust particles and replenishing oxygen. Trees also reduce energy emissions by cooling during

the summer and by providing wind breaks in the winter, whereby 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 project. The applicant should submit a plan to the DNREC Division of Air Quality (DAQ) which addresses the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into the Summit Bridge Estates project. The DAQ point of contact is Deanna Cuccinello; she may be reached at (302) 739-9402 or Deanna.Morozowich@state.de.us

Please let us know if you have any additional questions.

Sincerely,

Scott Lobdell, P.E.