



February 15, 2006

Marco Boyce
Morris & Ritchie Associates, Inc.
18 Boulden Circle, Ste. 36
Wilmington, De 19720

RE: PLUS review – PLUS 2006-01-02; Blessing Property

Dear Mr. Boyce:

Thank you for meeting with State agency planners on January 25, 2006 to discuss the proposed plans for the Blessing Property project to be located 1500 feet east of the intersection of McGinnis Pong Road and Barratts Chapel Road.

According to the information received, you are seeking site plan approval for a Planned Unit Development of 458 residential units on 176.90 acres.

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that 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.

Executive Summary

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

State Strategies/Project Location

- This project is located in Investment Level 3 according to the Strategies for State Policies and Spending. This site is also located in the Kent County Growth Zone. 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 will support growth in these areas, but please be advised that the State may have other priorities in the near term future.

Street Design and Transportation

- The proposed development would exceed DelDOT's traffic volume warrants for a traffic impact study (TIS), so we will require a TIS for this development. These studies typically take 6 to 12 months from their initial scoping meeting to the completion of DelDOT's review. The developer's traffic engineer has already contacted Mr. Todd Sammons of the DelDOT Development Coordination Section regarding this study. As necessary, Mr. Sammons may be reached at (302) 760-2134.
- DelDOT anticipates asking the developer to contribute to two road improvement projects in the area: improvements to Barratts Chapel Road and the Little Heaven Interchange (construction anticipated to begin in 2009 and end in 2012). Mr. Brad Herb, the project manager for Kent County, may be contacted for more information in these regards. He may be reached at (302) 266-9600.
- Barratts Chapel Road is classified as a local road. Local roads in Delaware typically have right-of-way widths ranging from 33 to 50 feet. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 30 feet from the centerline on local roads. Therefore DelDOT will require right-of-way dedication along the frontage to provide any additional width needed from this project.
- DelDOT will also require that a paved multi-modal path, located in a 15-foot wide permanent easement, be provided across the frontage of the site.
- DelDOT recommends that driveway easements be provided to allow or the future connection of the three outparcels on the north side of Barratts Chapel Road to the proposed subdivision streets.

Natural and Cultural Resources

- The Division of Historical and Cultural Affairs understands that the historic house within the south half of the parcel will be demolished. It is requested that the developer allow them to document that house and any outbuildings prior to any changes to the house and yard.
- They would appreciate the opportunity to check the area of the known archaeological site to learn something about its nature and extent, and to look at the rest of the parcel to locate any other sites that may be there and to learn something about their location, nature, and extent, prior to any ground-disturbing activities.
- Statewide Wetland Mapping Project (SWMP) maps indicate the presence of palustrine wetlands on this parcel. These wetlands provide water quality benefits, attenuate flooding (important when building in the floodplain) and provide important habitat for plants and wildlife. A 100-foot vegetated buffer should be implemented from the edge of the wetland complex.
- This project is located directly adjacent to sensitive headwater or near headwater riparian wetlands associated with the Pratt Branch. In recognition of this concern, the Watershed Assessment Section strongly recommends the applicant consider preserving the existing forested buffer in its entirety. Otherwise, a buffer width of at least 100-foot should be retained to protect the water and habitat quality of this waterway and its' wetlands.
- 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.
- The DNREC Water Supply Section has determined that the project site falls partially within an excellent recharge area (see attached map). Excellent recharge areas are areas where the aquifer may be adversely affected by land use activities or impervious cover. The DNREC Water Supply Section recommends that the portion of the new development within the excellent recharge area not exceed 20% impervious cover.
- The proposed development may increase the impervious cover. Ideally, relocating any open space areas to the part of the parcel within the excellent recharge area would decrease the total impervious area in the excellent area.

Augmenting the groundwater recharge with clean rooftop run-off systems are another alternative to reducing the total impervious cover.

- It is recommended that you maintain the existing wood line on the southern end of the property along Spring Creek and Hudson Branch. The existing woods should be set aside and preserved as open space.
- PLUS materials indicate that 6.58 acres of forest (30%) will be removed. Due to the importance of the forest on this parcel as a riparian and wetland buffer, a greater effort to maintain the existing forest should be made. Omitting some of the lots and infrastructure, especially in the southern part of the plan, would allow for greater forest preservation. This area could then be preserved as a larger area of open space which is more beneficial to wildlife.
- Lot lines should be redesigned to avoid all impacts to the forested area. The developer is strongly encouraged to preserve, and where possible, enhance forested resources on site.
- DNREC has records of *Notropis chalybaeus* (iron color shiner) within Pratt Branch at this site, which is also a State Natural Area. There are also records of rare plants just upstream and they may be within the project site as well. There are freshwater tidal scrub-shrub wetlands bordering the stream and this type of habitat is very significant as it is becoming quite rare in Delaware. The current site plan does not provide adequate buffers to protect water quality, rare species and the integrity of this freshwater wetland system.
- The site plan/application states that a 100-foot buffer from the center of the stream will be maintained; however, 100 feet from the center of the stream only extends to the crest of the slope. The lot lines extend to the crest of the slope. The 100-foot buffer should extend from the crest of the slope to the lot line, not the center of the stream to the crest of the slope as it is currently. In addition, the proposed 50-foot tidal and 25-foot non-tidal wetland buffers are extremely inadequate and should be increased to 100 feet.

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

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

This project is located in Investment Level 3 according to the Strategies for State Policies and Spending. This site is also located in the Kent County Growth Zone. 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 will support growth in these areas, but please be advised that the State may have other priorities in the near term future. We encourage you to design the site with respect for the environmental features which are present. Please pay particular attention to the environmental design comments found later in this letter. Specifically, the design should be amended to retain all or a substantial part of the existing wooded buffer on the southern portion of the property. Woodland clearing is excessive and located in a marginal area of the site that is best left in its natural state. The clearing of this portion and the construction of lots will disrupt an important wildlife habitat corridor, in addition to having serious water quality impacts on adjacent waterways and the Murderkill watershed

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

There is a known prehistoric-period archaeological site (K-589) and a historic house (K-2747) in the southern part of this parcel. There is one historic house, the J. B. Tracey Tenant House (K-2750; Beers Atlas of 1868) on McGinnis Pond Rd. to the west of the northern part of the parcel. Historic maps also show that this section of Barratts Chapel Rd. did not exist prior to about 1920 or 1930. Beers Atlas also shows that the P. Grumell House was once located in what is now the north half of this parcel. It was probably oriented to the then-existing road which ran to the north and east of this location.

Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the P. Grumell House, usually a good distance behind or to the side of the house. The developer should be aware of Delaware's Unmarked Human Remains Act of 1987, which governs the discovery and disposition of such remains. The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out. The DHCA will be happy to discuss these issues with the developer; the contact person for this program is Faye Stocum, 302-736-7400.

The DHCA requests that the developer provide landscaping on the west side of the north half of the parcel to screen the J. B. Tracey Tenant House from this development. They understand that the historic house within the south half of the parcel will be demolished. It is requested that the developer allow the Division of Historical and Cultural Affairs office document that house and any outbuildings prior to any changes to the house and yard. Finally, they would appreciate the opportunity to check the area of the known archaeological site to learn something about its nature and extent, and to look at the rest of the parcel to locate any other sites that may be there and to learn something about their location, nature, and extent, prior to any ground-disturbing activities.

Department of Transportation – Contact: Bill Brockenbrough 760-2109

- 1) The proposed development would exceed DelDOT's traffic volume warrants for a traffic impact study (TIS), so we will require a TIS for this development. These studies typically take 6 to 12 months from their initial scoping meeting to the completion of DelDOT's review. The developer's traffic engineer has already contacted Mr. Todd Sammons of the DelDOT Development Coordination Section regarding this study. As necessary, Mr. Sammons may be reached at (302) 760-2134.
- 2) DelDOT anticipates asking the developer to contribute to two road improvement projects in the area: improvements to Barratts Chapel Road and the Little Heaven Interchange (construction anticipated to begin in 2009 and end in 2012). Mr. Brad Herb, the project manager for Kent County, may be contacted for more information in these regards. He may be reached at (302) 266-9600.
- 3) Barratts Chapel Road is classified as a local road. Local roads in Delaware typically have right-of-way widths ranging from 33 to 50 feet. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 30 feet from the centerline on local roads. Therefore DelDOT will require right-of-way dedication along the frontage to provide any additional width needed from this project.
- 4) DelDOT will also require that a paved multi-modal path, located in a 15-foot wide permanent easement, be provided across the frontage of the site.
- 5) DelDOT commends the developer for providing the proposed stub streets and interconnections.
- 6) DelDOT recommends that driveway easements be provided to allow or the future connection of the three outparcels on the north side of Barratts Chapel Road to the proposed subdivision streets.
- 7) The developer's site engineer should contact Mr. Brad Herb, the DelDOT project manager for Kent County, regarding our specific requirements for streets and access. A preliminary comment from Mr. Herb is that they require opposing left turn lanes at the site entrances.

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

Green Infrastructure

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

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

Voluntary stewardship by private landowners is essential to green infrastructure conservation in Delaware, since approximately 80 percent of the State's land base is in private hands. It is in that spirit of stewardship that the Department appeals to the landowner and development team to protect sensitive resources through an appropriate site design.

Soils

Based on the Kent County soil survey Sassafras, Rumford, Woodstown, and Johnston were mapped in the immediate vicinity of the proposed project. Evesboro is an excessively well-drained upland soil that has limitations for development because of its' rapid permeability. Sassafras 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. Johnston is a very poorly-drained wetland associated (hydric) soil that has severe limitations for development.

Wetlands

Statewide Wetland Mapping Project (SWMP) maps indicate the presence of palustrine wetlands on this parcel. These wetlands provide water quality benefits, attenuate flooding (important when building in the floodplain) 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.

PLUS application materials indicate that wetlands have been delineated (presumably a field delineation). 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.

This project is located directly adjacent to sensitive headwater or near headwater riparian wetlands associated with the Pratt Branch – greatly increasing the probability of harmful impacts to surface and groundwater quality of all waters within the greater Murderkill River watershed, and ultimately reducing the probability that the State will achieve the required TMDL nutrient reductions. Headwater streams and their associated wetlands are important for the protection of water quality and the maintenance/integrity of the ecological functions throughout the length of the stream, including the floodplain system downstream. In recognition of this concern, the Watershed Assessment Section strongly recommends the applicant consider preserving the existing forested buffer in its entirety. Otherwise, a buffer width of at least 100-foot should be retained to protect the water and habitat quality of this waterway and its' wetlands.

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 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 26.6% 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 result.

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 shellfish 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, will **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 using innovative or “green technology” stormwater methodologies. As mentioned previously, it is suggested that the applicant recalculate and/or correct the projected amount of post-development impervious cover on the basis of a more realistic assessment (see the impervious surfaces section), since surface imperviousness is an important variable in the nutrient budget calculation. DNREC suggests 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

The DNREC Water Supply Section has determined that the project site falls partially within an excellent recharge area (see attached map). Excellent recharge areas are areas where the aquifer may be adversely affected by land use activities or impervious cover.

The DNREC Water Supply Section recommends that the portion of the new development within the excellent recharge area not exceed 20% impervious cover. Some allowance for augmenting ground-water recharge should be considered if the impervious cover exceeds 20% but is less than 50% of that portion of the parcel within this area. However, the development should not exceed 50% regardless. A water balance calculation will be necessary to determine the quantity of clean water to be recharged via a recharge basin. The purpose of an impervious cover threshold is to minimize loss of recharge (and associated increases in storm water) and protect the quality and quantity of ground water and surface water supplies.

The proposed development may increase the impervious cover. Ideally, relocating any open space areas to the part of the parcel within the excellent recharge area would decrease the total impervious area in the excellent area. Augmenting the groundwater recharge with clean rooftop run-off systems are another alternative to reducing the total impervious cover.

In addition, because the excellent recharge areas could be the source of public drinking water, 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.

For more information refer to the Final Source Water Protection Guidance Manual for the Local Governments of Delaware

<http://www.wr.udel.edu/swaphome/phase2/SWPguidancemanual.html>

and

Ground-Water Recharge Design Methodology

http://www.wr.udel.edu/swaphome/phase2/Publications/swapp_manual_final/swapp_guidance_manual_supp_1_2005_05_02.pdf.

Please contact John Barndt at 302.739.9945 for more information.

Water Supply

The project information sheets state water will be provided to the project by Artesian Water Company via a central water system. DNREC 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 03-CPCN-10.

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

1. Land disturbing activities in excess of 5,000 square feet are regulated under the Delaware Sediment and Stormwater Regulations. A detailed sediment and stormwater management plan must be reviewed and approved by our office prior

- to any land disturbing activity (i.e. clearing, grubbing, filling, grading, etc.) taking place.
2. The review fee and a completed Application for a Detailed Plan are due at the time of plan submittal to our office. Construction inspection fees based on developed area and stormwater facility maintenance inspection fees based on the number of stormwater facilities are due prior to the start of construction. Please refer to the fee schedule for those amounts.
 3. The following notes must appear on the record plan:
 - The Kent Conservation District reserves the right to enter private property for purposes of periodic site inspection.
 - The Kent Conservation District reserves the right to add, modify, or delete any erosion or sediment control measure, as it deems necessary.
 - A clear statement of defined maintenance responsibility for stormwater management facilities must be provided on the Record Plan.
 4. Ease of maintenance must be considered as a site design component and a maintenance set aside area for disposal of sediments removed from the basins during the course of regular maintenance must be shown on the Record Plan for the subdivision.
 5. All drainage ways and storm drains should be contained within drainage easements and clearly shown on the plan to be recorded by Kent County.

Comments:

1. The Kent Conservation District objects to any lots being located within wetlands and wetlands buffers.
2. Based on the site characteristics, a pre-application meeting is suggested to discuss stormwater management and drainage for this site.
3. The preferred methods of stormwater management are those practices that maximize the use of the natural features of a site, promote recharge and minimize the reliance on structural components.
4. Access to the proposed stormwater facility must be provided for periodic maintenance. This access should be at least 12 feet wide to leading to the facility and around the facility's perimeter.

5. It is recommended that the stormwater management areas be incorporated into the overall landscape plan to enhance water quality and to make the stormwater facility an attractive community amenity.
6. Proper drainage of developed lots and active open space should be considered in the development of the grading plan for this subdivision.
7. A letter of no objection to recordation will be provided once the detailed Sediment and Stormwater Management plan has been approved.

Drainage

The Drainage Program requests that all storm drains and catch basins for this project be on open space or within street right-of-ways. However, the Drainage Program recognizes the need for catch basins in rear yards in certain cases. Therefore, catch basins placed in rear yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, and kennels can hinder drainage patterns as well as future maintenance to the storm drain or catch basin. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access. Drainage easements for storm drains and catch basins should be 15 feet on each side of the pipe or catch basin.

The Drainage Program requests that 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 that the engineer check existing downstream ditches and pipes for function and blockages prior to the start of construction.

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 Hudson Branch and Spring Creek.

Site recommendation:

Maintain the existing wood line on the southern end of the property along Spring Creek and Hudson Branch. The existing woods should be set aside and preserved as open space.

Floodplains

Kent County does not permit the subdivision of land in the 100-year floodplain. As long as no development is proposed in the floodplain, then no additional flood studies or design restrictions would apply.

Forest Preservation

PLUS materials indicate that 6.58 acres of forest (30%) will be removed. Due to the importance of the forest on this parcel as a riparian and wetland buffer, a greater effort to maintain the existing forest should be made. Omitting some of the lots and infrastructure, especially in the southern part of the plan, would allow for greater forest preservation. This area could then be preserved as a larger area of open space which is more beneficial to wildlife.

Lot lines should be redesigned to avoid all impacts to the forested area. The developer is strongly encouraged to preserve, and where possible, enhance forested resources on site. This includes removing lot lines and infrastructure (such as storm water management ponds) from forested areas to the extent possible and minimizing any clearing activities. Clearing portions of the forest within the parcel will reduce the habitat value by allowing invasive species such as multiflora rose, oriental bittersweet and autumn olive to occupy the forest edge. Invasive species such as these prosper in disturbed areas and pose a threat to mature trees and native shrubs. Therefore, the developer is strongly encouraged to preserve, and where possible, enhance forested resources on site. In addition, the developer should provide the community with a detailed landscape management plan that outlines how to manage open space areas, as well as controlling for invasive species. Forested areas on-site should be viewed as a community asset and managed appropriately.

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

To reduce impacts to nesting birds and other wildlife species that utilize forests for breeding, it is recommended that, if any tree clearing occurs, it not occur April 1st to July 31st.

Open Space

To maximize the existing buffering capacity and wildlife habitat on site, it is recommended that lot lines and other infrastructure (such as storm water management ponds) be pulled out of the forest and that areas of community open space be designated along the forested/riparian areas. Doing so will accomplish two things: it will preserve and expand the existing riparian buffers on site and its value for birds and wildlife and it will create recreational opportunities for residents by allowing them access to and views of the forest and stream.

In areas set aside for passive open space, the developer is encouraged to consider establishment of additional forested areas or meadow-type grasses. Once established, these ecosystems provide increased water infiltration into groundwater, decreased run-off into surface water, air quality improvements, and require much less maintenance than traditional turf grass, an important consideration if a homeowners association will take over responsibility for maintenance of community open spaces.

Open space containing forest and/or wetlands should be placed into a permanent conservation easement or other permanent protection mechanism. Conservation areas should also be demarked to avoid infringement by homeowners.

Rare Species and Wetland Buffers

DNREC has records of *Notropis chalybaeus* (iron color shiner) within Pratt Branch at this site, which is also a State Natural Area. There are also records of rare plants just upstream and they may be within the project site as well. There are freshwater tidal scrub-shrub wetlands bordering the stream and this type of habitat is very significant as it is becoming quite rare in Delaware. The current site plan does not provide adequate buffers to protect water quality, rare species and the integrity of this freshwater wetland system.

The site plan/application states that a 100-foot buffer from the center of the stream will be maintained; however, 100 feet from the center of the stream only extends to the crest of the slope. The lot lines extend to the crest of the slope. The 100-foot buffer should extend from the crest of the slope to the lot line, not the center of the stream to the crest of the slope as it is currently. In addition, the proposed 50-foot tidal and 25-foot non-tidal wetland buffers are extremely inadequate and should be increased to 100 feet.

State Natural Heritage Site

Because of the presence of the species mentioned above and the existence of a State Natural Area, this project lies within a State Natural Heritage Site. This is one of the

criteria used to determine the presence of Critical Resource Waters. The final decision regarding Critical Resource Waters – if this is an issue – will be made by the U.S. Army Corps of Engineers (ACOE). The information above will aid the ACOE in their determination.

Nuisance Waterfowl

Stormwater management ponds may attract waterfowl like resident Canada geese and mute swans. High concentrations of waterfowl in ponds create water-quality problems, leave droppings on lawn and paved areas and can become aggressive during the nesting season. Short manicured grasses around ponds provide an attractive habitat for these species. We recommend native plantings of tall grasses, wildflowers, shrubs, and trees at the edge and within a buffer area around the perimeter. Waterfowl do not feel safe when they can not see the surrounding area for possible predators. These plantings should be completed as soon as possible as it is easier to deter geese when there are only a few than it is to remove them once they become plentiful. The Division of Fish and Wildlife does not provide goose control services, and if problems arise, property managers or owners will have to accept the burden of dealing with these species (e.g., permit applications, costs, securing services of certified wildlife professionals). Solutions can be costly and labor intensive; however, with proper landscaping, monitoring, and other techniques, geese problems can be minimized.

State Resource Areas/Natural Areas

The southern forested portion of the property is a part of the Murderkill River Natural Area and is in a State Resource Area. Natural Areas contain lands of statewide significance identified by the Natural Area Advisory Council as the highest quality and most important natural lands remaining in Delaware. Therefore, the Office of Nature Preserves strongly recommends removal of lots in the forested portion of the site and instead consider dedicating the Natural Area as a Nature Preserve through a conservation easement or donation of land to the State.

State Resource Areas are comprised of lands that contain a variety of natural, cultural and open space resources significant to the state. Again, consideration should be given to protecting these resources during design and construction of this project.

Stormwater discharge from the stormwater management facilities should be directed away from the Natural Area. Rather, conservation design techniques should be utilized to minimize runoff to the Natural Area.

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 35.1 tons (70,298.2 pounds) per year of VOC (volatile organic compounds), 29.1 tons (58,202.2 pounds) per year of NO_x (nitrogen oxides), 21.5 tons (42,942.6 pounds) per year of SO₂ (sulfur dioxide), 1.9 ton (3,822.6 pounds) per year of fine particulates and 2,940.2 tons (5,880,356.6 pounds) per year of CO₂ (carbon dioxide).

Emissions from area sources associated with this project are estimated to be 14.2 tons (28,354.5 pounds) per year of VOC (volatile organic compounds), 1.6 ton (3,119.9 pounds) per year of NO_x (nitrogen oxides), 1.3 ton (2,589.0 pounds) per year of SO₂ (sulfur dioxide), 1.7 ton (3,341.0 pounds) per year of fine particulates and 57.5 tons (114,942.7 pounds) per year of CO₂ (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 5.6 tons (11,237.7 pounds) per year of NO_x (nitrogen oxides), 19.5 tons (39,087.6 pounds) per year of SO₂ (sulfur dioxide) and 2,882.7 tons (5,765,413.9 pounds) per year of CO₂ (carbon dioxide).

	VOC	NO _x	SO ₂	PM _{2.5}	CO ₂
Mobile	35.1	29.1	21.5	1.9	2940.2
Residential	14.2	1.6	1.3	1.7	57.5
Electrical Power		5.6	19.5		2882.7
TOTAL	49.3	36.3	42.3	3.6	5880.4

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 5.6 tons of nitrogen oxides per year and 19.5 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:**
 - Water distribution system capable of delivering at least 1000 gpm for 1-hour duration, at 20-psi residual pressure is required. Fire hydrants with 800 feet spacing on centers. (Townhouses)

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

b. **Fire Protection Features:**

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

c. **Accessibility**

- All premises which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from Barrett's Chapel Road must be constructed so fire department apparatus may negotiate it.
- Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.
- Any dead end road more than 300 feet in length shall be provided with a turn-around or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or turn-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.
- The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.
- The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.

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

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

e. **Required Notes:**

- Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”
- Proposed Use
- Alpha or Numerical Labels for each building/unit for sites with multiple buildings/units
- Square footage of each structure (Total of all Floors)
- National Fire Protection Association (NFPA) Construction Type
- Maximum Height of Buildings (including number of stories)
- Townhouse 2-hr separation wall details shall be shown on site plans
- Note indicating if building is to be sprinklered
- Name of Water Provider
- Letter from Water Provider approving the system layout
- Provide Lock Box Note (as detailed in DSFPR) if Building is to be sprinklered
- Provide Road Names, even for County Roads

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

Department of Agriculture - Contact: Milton Melendez 698-4500

The Delaware Department of Agriculture has no objections to the Blessing Property application. The site is located on a controlled development area. The *Strategies for State Policies and Spending* encourages environmentally responsible development in areas within a Growth Level 3 Zone. This site is a part of a “good recharge” area. DNREC has mapped all ground water potential recharge areas. A “good recharge” rating is the 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.

Right Tree for the Right Place

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

Native Landscapes

The Delaware Department of Agriculture and the Delaware Forest Service encourages the developer to use native trees and shrubs to buffer the property from the adjacent land-use activities near this site. A properly designed forested buffer can create wildlife habitat corridors and improve air quality to the area by removing six to eight tons of carbon dioxide annually and will clean our rivers and creeks of storm-water run-off pollutants. To learn more about acceptable native trees and how to avoid plants considered invasive to our local landscapes, please contact the Delaware Department of Agriculture Plant Industry Section at (302) 698-4500.

Public Service Commission - Contact: Andrea Maucher 739-4247

Any expansion of natural gas or installation of a closed propane system must fall within Pipeline Safety guidelines. Contact: Malak Michael at (302) 739-4247.

Department of Education – Contact: John Marinucci 739-4658

Accommodation of DelDOT and State Fire Marshal requirements for road widths, turning radii and fire lanes will address the needs of school bus access.

Request developer work with the local school district transportation department to establish developer supplied bus stop shelter ROW and shelter structures, interspersed throughout the development as determined and recommended by the local school district.

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". The signature is written in black ink and is positioned above the printed name and title.

Constance C. Holland, AICP
Director

CC: Kent County