



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

August 21, 2006

Ronald Sutton
Civil Engineering Associates
3 Shale Street
Townsend, DE 19734

RE: PLUS review – PLUS 2006-07-04; Bonniwell Property

Dear Mr. Sutton:

Thank you for meeting with State agency planners on July 26, 2006 to discuss the proposed plans for the Bonniwell Property project to be located on the south side of Jackson Ditch Road, approximately .3 miles east of Route 13.

According to the information received, you are seeking annexation into the City of Harrington with R-3 zoning to accommodate 272 age-restricted residential units on 56.9 acres. The Preliminary Land Use Service only reviews the development of the project. You will be required to follow annexation procedures set for in the City of Harrington regulations and §101 of Title 22, Delaware Code.

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 unit annexed 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 Levels 2 and 3 according to the *Strategies for State Policies and Spending*. This site is also located in the Kent County Growth Zone and is identified as an annexation area according to the City of Harrington's certified comprehensive plan. Investment Level 2 reflects areas where growth is anticipated by local, county, and State plans in the near term future. 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.
- It appears that this parcel may have difficulty meeting the contiguity requirements found in 22 Del. C. § 101. Please be advised that it is the responsibility of the City to demonstrate that these requirements have been met through the Plan of Service process.

Street Design and Transportation

- DelDOT does not anticipate requiring a traffic impact study for the proposed development. However, they will require that the developer participate financially in a planned improvement at the intersection of Route 13, Jackson Ditch Road, Carpenter Bridge Road (Kent Road 35) and Delaware Avenue (Kent Road 81).
- Jackson Ditch Road is classified as a local road. 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 they will require right-of-way dedication along the frontage to provide any additional width needed from this project.

- The developer will be required to improve Jackson Ditch Road, from US 13 to the easterly parcel limits, to meet DelDOT's local road standards, which include eleven-foot travel lanes and five-foot shoulders.
- The plan for the development should include a 10-foot wide shared use path in a 15-foot wide permanent easement across the frontage of the site.
- DelDOT has three comments on the proposed street layout:
 - a) While it is not apparent from the plan presented, tax maps show that the subject land includes additional frontage on Jackson Ditch Road in between the two proposed entrance locations. At the PLUS meeting, the developer's site engineer mentioned that some of this land was to be donated to the Town for utility rights-of-way. This additional frontage is opposite a similarly sized parcel on the north side of the road, Tax Parcel No. MN-00-171.00-02-39.00-000. From DelDOT's perspective it is generally desirable to place site entrances opposite one another rather than offset. Therefore, in the belief that the parcel on the north side will also be developed at some point, they ask that the subject plan be modified to include an entrance opposite that parcel's frontage.
 - b) DelDOT recommends that stub streets be provided for future connections to the Ricker Property (Tax Parcel No. MN-00-171.00-04-51.00-000).
 - c) Given the presence of long straight streets, DelDOT recommends that the developer design traffic calming measures into the street layout to discourage speeding.

Natural and Cultural Resources

- The DHCA would like an opportunity to document the historic house prior to any demolition activities. They request that sufficient landscaping be included along the road frontage to block the view of this development from the historic house across the road.
- The Drainage Program does not have a clear understanding how stormwater is to be conveyed to the stormwater management areas. The Drainage Program requests that the routing of major stormwater pipes through yards be prohibited.

- This project currently has inadequate wetland buffers and will result in the loss of a minimum of 10 acres of forest. Even small changes to the site plan could preserve additional forested land and we strongly encourage the applicant to consider the following site plan changes:
 1. We recommend that at least a 100-foot forested buffer be left intact around all wetland areas and along Browns Branch. This buffer zone should not contain lot lines and infrastructure which would reduce the width and function of the buffer. In addition, the buffer area should be permanently preserved so that future clearing is unlikely.
 2. Due to thousands of acres of forested lands being lost to development in Delaware and the resultant cumulative impacts, we recommend that a greater effort to preserve forest be made. The applicant should consider omitting lots and infrastructure in the wooded area, especially in the southern portion of the site plan
 3. (quadrant closest to Browns Branch). A larger area of forested open space could remain and be utilized by resident wildlife as well as residents of the development.
 4. There are three stormwater management ponds which should be relocated to a non-forested portion of the property or an alternate method of stormwater control be utilized. In addition, since all three ponds may not be necessary, reducing the number of ponds should also be considered, especially if some of them are merely an aesthetic feature of the plan.
 5. Trees that are cleared should not be removed from April 1st to July 31st to reduce impacts to birds and other species of wildlife that utilize forests for breeding. This recommendation would only protect those species during the breeding season; once trees are cleared the result is an overall loss of habitat.
- DNREC has not surveyed this property; therefore, it is unknown if there are state-rare or federally listed plants, animals or natural communities at this project site that would be affected by project activities. In order to provide more informed comments and to make reasonable recommendations, our program botanist and zoologist request the opportunity to survey the forested and wetland resources which could potentially be impacted by the project

- The Office of Nature Preserves strongly urges the applicant to reduce the number of lots in such a way as to maintain the integrity of the existing forested lands on the site and to further ensure its viability, a buffer to the forested lands should be required and development up to the edge of those forested lands should not be encouraged.

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 Levels 2 and 3 according to the *Strategies for State Policies and Spending*. This site is also located in the Kent County Growth Zone and is identified as an annexation area according to the City of Harrington's certified comprehensive plan. It is our understanding that the applicants intend to annex this parcel into the City. Investment Level 2 reflects areas where growth is anticipated by local, county, and State plans in the near term future. 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. Our office has no objections to the proposed development of this project in accordance with the relevant City codes and ordinances.

It appears that this parcel may have difficulty meeting the contiguity requirements found in 22 Del. C. § 101. Please be advised that it is the responsibility of the City to demonstrate that these requirements have been met through the Plan of Service process. A survey and legal opinion of the City Solicitor may be required in cases where contiguity cannot be clearly demonstrated. An alternative to this would be to annex one or more adjacent properties at the same time in order to clearly demonstrate contiguity.

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

This parcel includes a historic agricultural complex (K-4900), which is in the same place as the D. Harrington House shown on Beers Atlas of 1868. The developer noted that the roof on this house has failed, and that they wish to give a small parcel containing the house to the City of Harrington for utility use. The outbuildings appear to be gone already in the 2002 aerial photograph. There may be archaeological resources related to the house however. Another historic agricultural complex (K-4729) is located across Jackson Ditch Rd from this parcel. The area generally has low potential for prehistoric archaeological sites, but there are areas of medium potential closer to the stream.

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

Since the sewer will need to cross Browns Branch, the developer or the City may need to get an Army Corps of Engineers permit. If this is the case, the project sponsor will need to consult with this office and may be required to do some archaeological testing depending on the Corps' determination of area of effect.

The DHCA would like an opportunity to document the historic house prior to any demolition activities. They request that sufficient landscaping be included along the road frontage to block the view of this development from the historic house across the road.

Department of Transportation – Contact: Bill Brockenbrough 760-2109

1. DelDOT does not anticipate requiring a traffic impact study for the proposed development. However, they will require that the developer participate financially in a planned improvement at the intersection of Route 13, Jackson Ditch Road, Carpenter Bridge Road (Kent Road 35) and Delaware Avenue (Kent Road 81). Because the improvement is essentially to relocate the Carpenter Bridge Road leg of the intersection farther north on Route 13, they will rely on a developer along that road to actually build the improvement.
2. Jackson Ditch Road is classified as a local road. 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 they will require right-of-way dedication along the frontage to provide any additional width needed from this project.
3. The developer will be required to improve Jackson Ditch Road, from US 13 to the easterly parcel limits, to meet DelDOT's local road standards, which include eleven-foot travel lanes and five-foot shoulders. In addition to widening the existing pavement, the developer may be required to overlay it. DelDOT will analyze the existing through travel lanes' pavement section and recommend an overlay thickness to the developer's engineer if it is needed.

4. The plan for the development should include a 10-foot wide shared use path in a 15-foot wide permanent easement across the frontage of the site.
5. DelDOT has three comments on the proposed street layout:
 - a) While it is not apparent from the plan presented, tax maps show that the subject land includes additional frontage on Jackson Ditch Road in between the two proposed entrance locations. At the PLUS meeting, the developer's site engineer mentioned that some of this land was to be donated to the Town for utility rights-of-way. This additional frontage is opposite a similarly sized parcel on the north side of the road, Tax Parcel No. MN-00-171.00-02-39.00-000. From DelDOT's perspective it is generally desirable to place site entrances opposite one another rather than offset. Therefore, in the belief that the parcel on the north side will also be developed at some point, they ask that the subject plan be modified to include an entrance opposite that parcel's frontage.

DelDOT understands that the developer is concerned about such an arrangement for two reasons. First, a centrally located entrance might limit the property to one entrance, when they would like to have two. Second, a single entrance would require entrance improvements that might not fit in the existing right-of-way. DelDOT would like to explore both issues further and to identify a mutually acceptable arrangement if possible. The developer's site engineer should contact Mr. Brad Herb, project manager for Kent County, regarding specific requirements for access. He may be reached at (302) 266-9600.

- b) DelDOT recommends that stub streets be provided for future connections to the Ricker Property (Tax Parcel No. MN-00-171.00-04-51.00-000).
- c) Given the presence of long straight streets, DelDOT recommends that the developer design traffic calming measures into the street layout to discourage speeding. By including them in the design, the developer can take better advantage of horizontal measures, such as chicanes and neckdowns, and can make them features in the streetscape. Horizontal measures also tend to be better received by emergency personnel than vertical measures such as speed humps.

**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.

Site Plan Recommendations

This project currently has inadequate wetland buffers and will result in the loss of a minimum of 10 acres of forest. Even small changes to the site plan could preserve additional forested land and we strongly encourage the applicant to consider the following site plan changes:

1. It is unclear from the site plan and application exactly how wide the proposed wetland buffers are going to be, but the application does indicate that there will disturbance within 100 feet of wetlands. We recommend that at least a 100-foot forested buffer be left intact around all wetland areas and along Browns Branch. This buffer zone should not contain lot lines and infrastructure which would reduce the width and function of the buffer. In addition, the buffer area should be permanently preserved so that future clearing is unlikely.

2. Due to thousands of acres of forested lands being lost to development in Delaware and the resultant cumulative impacts, we recommend that a greater effort to preserve forest be made. When forested areas are cleared, forest dependent wildlife must disperse into surrounding areas which often results in an increase in human/animal conflicts, especially interactions on the roadways. The applicant should consider omitting lots and infrastructure in the wooded area, especially in the southern portion of the site plan
3. (quadrant closest to Browns Branch). A larger area of forested open space could remain and be utilized by resident wildlife as well as residents of the development.
4. There are three stormwater management ponds which should be relocated to a non-forested portion of the property or an alternate method of stormwater control be utilized. Trees function in flood abatement and erosion control, and it just does not make sense to remove them for stormwater management ponds. In addition, since all three ponds may not be necessary, reducing the number of ponds should also be considered, especially if some of them are merely an aesthetic feature of the plan.
5. Trees that are cleared should not be removed from April 1st to July 31st to reduce impacts to birds and other species of wildlife that utilize forests for breeding. This recommendation would only protect those species during the breeding season; once trees are cleared the result is an overall loss of habitat.

Soils

Based on the Kent County soil survey Rumford and Johnston were mapped in the immediate vicinity of this project. Rumford is a well-drained upland soil that, generally, has few limitations for development. Johnston is a very poorly-drained wetland associated (hydric) floodplain soil that has the highest severity level for development.

Wetlands

Statewide Wetland Mapping Project (SWMP) maps indicate the presence of palustrine wetlands along the entire southern boundary of the parcel.

These wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. The developer should maintain a 100-foot buffer vegetated buffer from the edge of the wetland complex and Browns Branch. 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.

This project is located directly adjacent to sensitive headwater or near headwater riparian wetlands associated with an unnamed tributary (or name unknown), greatly increasing the probability of harmful impacts to surface and groundwater quality of all waters within the greater Murderkill River watershed, and 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 as much of the existing forested buffer as possible. Otherwise, a buffer width of at least 100 feet should be retained or enhanced to protect the water and habitat quality of this waterway and its wetlands.

Wetland Permitting Information

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.

Impervious Cover

Based on a review of the PLUS application, post-development surface imperviousness is estimated to be about 30 percent. However, given the scope and density of this project, said estimate may be an underestimate. The applicant should recognize that all forms of

constructed surface imperviousness (i.e., rooftops, sidewalks and roads) should be accounted for when calculating surface imperviousness; otherwise, an inaccurate assessment of this project's environmental impacts is inevitable. It is strongly advised that this figure be recalculated to accurately reflect these concerns.

Studies link increases in impervious cover to decreases in water and habitat quality. Studies have also firmly established that irreversible declines in water and habitat quality begin once aggregate watershed surface imperviousness exceeds 10 percent. Based on analyses of 2002 aerial photography by the University of Delaware, the Murderkill watershed had about 8.1 percent impervious cover. Although this data is about 4 years old and likely an underestimate, it underscores 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.

TMDLs

Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Murderkill watershed. A TMDL is the maximum level of pollution allowed for a given pollutant below which a "water quality limited water body" can assimilate and still meet water quality standards to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. Although TMDLs are required by federal law, states are charged with developing and implementing standards to support these desired use goals. In the Murderkill watershed, a post-development TMDL reduction level of 50 and 30 percent will be required for nitrogen and phosphorus, respectively.

TMDL Compliance through the Pollution Control Strategy (PCS)

As stated above Total Maximum Daily loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Murderkill Watershed. The TMDL calls for a 50% reduction for nitrogen and 30% for phosphorus from baseline conditions. The Department developed an assessment tool to evaluate how your proposed development may reduce nutrients to meet the TMDL requirements. Additional reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses, increasing passive, wooded open space, and the use

of stormwater management treatment trains. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

Water Resource Protection Areas

The DNREC Water Supply Section has determined that it falls partially within an excellent ground-water recharge area (see attached map). Excellent Ground-Water Recharge Areas are those areas mapped by the Delaware Geological Survey where the first 20 feet of subsurface soils and geologic materials are exceptionally sandy. As such, these soils are able to transmit water very quickly from the land surface to the water table. Consequently, ground water in these areas may very readily 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 ground-water recharge area not exceed 20% impervious cover. Some allowance for augmenting ground-water recharge should be considered if the impervious cover exceeds 20% but is less than 50% of that portion of the parcel within this area. However, the development should not exceed 50% regardless. A water balance calculation will be necessary to determine the quantity of clean water to be recharged via a recharge basin. The purpose of an impervious cover threshold is to minimize loss of recharge (and associated increases in storm water) and protect the quality and quantity of ground water and surface water supplies.

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

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.

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 or call (302) 739-9945.

Water Supply

The information provided indicates that the City of Harrington will provide water to the proposed annexation project(s) through a central public water system. DNREC files reflect that the City of Harrington does not currently hold a certificate of public convenience and necessity (CPCN) to provide public water in these areas. According to Senate Bill 135 that was signed on June 30, 2003 by Governor Minner, the municipality is required to give notice to the Public Service Commission when the annexation is complete. Information on CPCN requirements and applications can be obtained by contacting the Public Service Commission at (302)739-4247.

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

Requirements:

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 the Kent Conservation District for this project 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 the Kent Conservation District. 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 the City of Dover.
6. A soils investigation supporting the stormwater management facility design is required to determine impacts of the seasonal high groundwater level and soils for any basin design.

Comments:

1. The engineers for the site have met with us for a pre-application meeting; the District believes that the site has an adequate outfall and no major problems are foreseen.
2. The Kent Conservation District recommends that no residential lot be recorded within a subdivision that contains wetlands. Placing wetlands in open space will aid in protecting those areas from disturbance and reduce individual property owner complaints regarding poor drainage of areas on their property.
3. 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.

4. 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.
5. A letter of no objection to recordation will be provided once the detailed Sediment and Stormwater Management plan has been approved.

Drainage

This property is located along the Brown's Branch Tax Ditch main. The Drainage Program requests that the applicant/developer contact Brown's Branch Tax Ditch as well as the Kent Conservation District pertaining to established tax ditch right-of-ways.

The Drainage Program does not have a clear understanding how stormwater is to be conveyed to the stormwater management areas. The Drainage Program requests that the routing of major stormwater pipes through yards be prohibited.

The Drainage Program encourages the elevation of rear yards to direct water towards the streets where storm drains are accessible for maintenance. 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, kennels, and other structures placed along the storm drains, or within 10 feet of the catch basins, can hinder drainage patterns as well as future maintenance to the storm drains or catch basins. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access.

The Drainage Program requests a 15-foot side yard setback on all lots with a drainage easement on the side. A 15-foot side yard setback will allow room for equipment to utilize the entire drainage easement and maneuver free of obstructions if the drainage conveyance requires periodic maintenance or future re-construction.

The Drainage Program requests a 10-foot drainage easement around all catch basins located on private property to ensure adequate room for maintenance. The Drainage Program recommends restrictions on fences, sheds, and other structures within the easement to prevent obstructions from being placed within 10 feet of the catch basin.

Record all drainage easements on deeds and place restrictions on obstructions within the easements to ensure access for periodic maintenance or future re-construction.

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 construction of townhomes. Notify downstream landowners of the change in volume of water released on them.

This project is within the Murderkill River Watershed, a designated critical area, with a promulgated Total Maximum Daily Load (TMDL). Existing riparian buffers should be preserved to aid in the reduction of nutrients, sediment, and other pollutants. For the further enhancement of water quality, the Drainage Program encourages additional water quality best management practices on this project.

Forest Preservation

According to PLUS materials 43% of the parcel is forested; 40% of the existing forest will be removed for development. This forest tract is extremely beneficial to the region as it is connected to a larger tract of forest. Large contiguous stretches of forest like this not only provide important water and air quality benefits, but provide important habitat for many wildlife species that depend on interior forest. Clearing portions of the forest within the parcel may reduce the habitat value of the entire forest stretch. The developer is encouraged to leave the forest intact in the open space area located in the central southern most portion of the development. The open space parcel in the southwestern portion of the development is an excellent candidate for reforestation. Reforestation of this area is strongly recommended both to increase the buffer zone to the forest and to decrease long term maintenance costs for the homeowners association.

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.

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 areas. Doing so will preserve and expand the existing buffers on site and its value for birds and wildlife and it will create recreational opportunities for residents.

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

A review of our database indicates Lampetra appendix (American brook lamprey), a state-rare fish species, occurs within Browns Branch. Because of the presence of this species, the forested riparian buffer zone along Browns Branch 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 (USACE). The information above will aid the Corps in their determination.

Site Visit Request

DNREC has not surveyed this property; therefore, it is unknown if there are state-rare or federally listed plants, animals or natural communities at this project site that would be affected by project activities.

In order to provide more informed comments and to make reasonable recommendations, our program botanist and zoologist request the opportunity to survey the forested and wetland resources which could potentially be impacted by the project. This would also allow the applicant the opportunity to reduce potential impacts to rare species and to ensure that the project is environmentally sensitive. Please contact Bill McAvoy, Kitt Heckscher, or Robert Coxe at (302) 653-2880 to set up a site visit.

Plant Rescue

Because there is forest and wetland loss associated with this project, DNREC recommends that the developer/landowner contact the Delaware Native Plant Society to initiate a plant rescue. Selected plants from the site of disturbance will be collected by Society members and transplanted to the Society's nursery. Plants will then be used in restoration projects and/or sold at the Society's annual native plant sale. This can be done

at no expense or liability to the developer/landowner. Please contact Lynn Redding at (302) 736-7726 or lynn.redding@ml.com.

Nuisance Waterfowl

Stormwater management ponds that remain in the site plan may attract waterfowl like 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 around ponds provide an attractive habitat for these species. However, native plantings, including tall grasses, wildflowers, shrubs, and trees at the edge and within a buffer area (at least 50 feet) around ponds, are not as attractive to geese because they do not feel safe from predators and other disturbance when their view of the area is blocked. These plantings should be completed as soon as possible as it is easier to deter geese when there are only a few than it is to remove them once they become plentiful. The Division of Fish and Wildlife does not provide goose control services, and if problems arise, residents or the home-owners association will have to accept the burden of dealing with these species (e.g., permit applications, costs, securing services of certified wildlife professionals). Solutions can be costly and labor intensive; however, with a reduction in the number of ponds, proper landscaping, monitoring, and other techniques, geese problems can be minimized.

State Resource Areas/Natural Areas

The Office of Nature Preserves appreciates the effort taken to protect a portion of the forested lands on the site. However, the proposed site design substantially removes forest land in an area considered a State Resource Area. The Open Space Council recently moved to amend the State Resource Area map and identified the forested area on the site as a State Resource Area.

State Resource Area lands include any open lands characterized by great natural scenic beauty, or whose existing openness, natural condition or present state of use, if retained, would maintain important recreational areas and wildlife habitat, and enhance the present or potential value of abutting or surrounding urban development, or would maintain or enhance the conservation of natural or scenic resources, including environmentally sensitive areas.

In addition, the site is upstream of the Murderkill River and Browns Branch Natural Area. Natural Areas involve areas of land or water, or of both land and water, whether in public or private ownership, which either retains or has reestablished its natural character

(although it need not be undisturbed), or has unusual flora or fauna, or has biotic, geological, scenic or archaeological features of scientific or educational value.

That said, the Office of Nature Preserves strongly urges the applicant to reduce the number of lots in such a way as to maintain the integrity of the existing forested lands on the site and to further ensure its viability, a buffer to the forested lands should be required and development up to the edge of those forested lands should not be encouraged.

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.

Underground Storage Tanks

There are two inactive LUST site(s) located near the proposed project:

King's McCullough's, Facility # 1-000197, Project # K8706042

Shore Stop Harrington, Facility # 1-000463, Project # K9502043

No environmental impact is expected from the above inactive/active LUST site(s). However, should any underground storage tank or petroleum contaminated soil be discovered during construction, the Tank Management Branch must be notified as soon as possible. It is not anticipated that any construction specifications would need to be changed due to petroleum contamination. However, should any unanticipated contamination be encountered and PVC pipe is being utilized, it will need to be changed to ductile steel with nitrile rubber gaskets in the contaminated areas.

Air Quality

Once complete, vehicle emissions associated with this project are estimated to be 20.9 tons (41,749.2 pounds) per year of VOC (volatile organic compounds), 17.3 tons (34,565.5 pounds) per year of NO_x (nitrogen oxides), 12.8 tons (25,503.0 pounds) per year of SO₂ (sulfur dioxide), 1.1 ton (2,270.2 pounds) per year of fine particulates and 1,746.1 tons (3,492,264.2 pounds) per year of CO₂ (carbon dioxide).

Emissions from area sources associated with this project are estimated to be 8.4 tons (16,839.3 pounds) per year of VOC (volatile organic compounds), 0.9 ton (1,852.8 pounds) per year of NO_x (nitrogen oxides), 0.8 ton (1,537.6 pounds) per year of SO₂ (sulfur dioxide), 1.0 ton (1,984.2 pounds) per year of fine particulates and 34.1 tons (68,262.9 pounds) per year of CO₂ (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 3.3 tons (6,673.9 pounds) per year of NO_x (nitrogen oxides), 11.6 tons (23,213.6 pounds) per year of SO₂ (sulfur dioxide) and 1,712.0 tons (3,424,001.3 pounds) per year of CO₂ (carbon dioxide).

	VOC	NO _x	SO ₂	PM _{2.5}	CO ₂
Mobile	20.9	17.3	12.8	1.1	1746.1
Residential	8.4	0.9	0.8	1.0	34.1
Electrical Power		3.3	11.6		1712.0
TOTAL	29.3	21.5	25.2	2.1	3492.2

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 3.3 tons of nitrogen oxides per year and 11.6 tons of sulfur dioxide per year.

A significant method to mitigate this impact would be to require the builder to construct Energy Star qualified homes. Every percentage of increased energy efficiency translates into a percent reduction in pollution. Quoting from their webpage, <http://www.energystar.gov/>:

“ENERGY STAR qualified homes are independently verified to be at least 30% more energy efficient than homes built to the 1993 national Model Energy Code or 15% more efficient than state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of:

building envelope upgrades,
high performance windows,
controlled air infiltration,
upgraded heating and air conditioning systems,
tight duct systems and
upgraded water-heating equipment.”

The Energy office in DNREC is in the process of training builders in making their structures more energy efficient. The Energy Star Program is excellent way to save on energy costs and reduce air pollution. They highly recommend this project development and other residential proposals increase the energy efficiency of their homes.

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

State Fire Marshal's Office – Contact: 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. (Assembly)
 - Where a water distribution system is proposed for single family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required. (One & Two- Family Dwelling)

- Where a water distribution system is proposed for the site, the infrastructure for fire protection water shall be provided, including the size of water mains for fire hydrants and sprinkler systems.

b. **Fire Protection Features:**

- All structures over 10,000 Sq. Ft. aggregate will require automatic sprinkler protection installed.
- Buildings greater than 10,000 sq.ft., 3-stories or more, over 35 feet, or classified as High Hazard, are required to meet fire lane marking requirements
- Show Fire Department Connection location (Must be within 300 feet of fire hydrant), and detail as shown in the DSFPR.
- Show Fire Lanes and Sign Detail as shown in DSFPR

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 Jackson Ditch 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)
- 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 proposed application. The *Strategies for State Policies and Spending* encourages environmentally responsible development in areas within Investment Level 2 and 3.

The northwest portion of this site has been designated as having “excellent” ground-water recharge potential. DNREC has mapped all ground-water recharge-potential recharge areas for the state. An “excellent” rating designates an area as having important groundwater recharge qualities.

Senate Bill 119, enacted by the 141st General Assembly in June of 2001, requires the counties and municipalities with over 2,000 people to adopt as part of the update and implementation of their 2007 comprehensive land use plans, areas delineating excellent ground-water recharge potential areas. Furthermore, the counties and municipalities are required to adopt regulations by December 31, 2007 governing land uses within those areas to preserve ground-water quality and quantity.

Maintaining pervious cover in excellent and good recharge areas is crucial for the overall environmental health of our state and extremely important to efforts which ensure a safe drinking water supply for future generations. Retention of pervious cover to ensure an

adequate future water supply is also important for the future viability of agriculture in the First State. The loss of every acre of land designated as “excellent” and “good” recharge areas adversely impacts the future prospects for agriculture in Delaware. The developer should make every effort to protect and maintain valuable ground-water recharge potential areas.

Right Tree for the Right Place

The Delaware Department of Agriculture Forest Service encourages the developer to use the “Right Tree for the Right Place” for any design considerations. This concept allows for the proper placement of trees to increase property values in excess 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.

Tree Mitigation

The Delaware Forest Service encourages the developer to implement a tree mitigation program to replace trees at a 1:1 ratio within the site and throughout the community. This will help to meet the community’s forestry goals and objectives and reduce the environmental impacts to the surrounding natural resources. To learn more, please contact our offices at (302) 349-5754.

Public Service Commission - Contact: Andrea Maucher 739-4247

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

Delaware State Housing Authority – Contact Karen Horton 739-4263

This proposal is a site plan review for 272 residential units on 56.9 acres located on the south side of Jackson Ditch Road (County Road 430), approximately 0.3 mi. east of Rt. 13. The project includes annexation into the City of Harrington and will be a subdivision of 272 homes in an age-restricted community. According to the State Strategies Map, the proposal is located in an Investment Level 2 area and therefore will ensure that residents will have proximity to services, markets, and employment opportunities. We recommend that some of the units be set aside for low- and moderate-income elderly persons as well. The 2003 Statewide Housing Needs Assessment indicates that the elderly is the fastest growing segment of Delaware's population and affordable housing is needed to meet this demand.

Department of Education – Contact: John Marinucci 739-4658

This proposed development is within the Lake Forest School District boundaries. DOE offers the following comments on behalf of the Lake Forest School District.

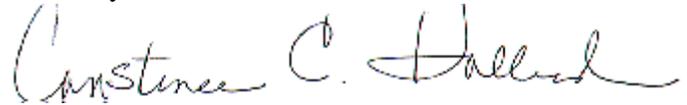
Using the DOE standard formula, this development will generate an estimated 136 students.

1. DOE records indicate that the Lake Forest School Districts' *elementary schools are at or beyond 100% of current capacity* based on September 30, 2005 elementary enrollment.
2. DOE records indicate that the Lake Forest School Districts' *secondary schools are very close to 100% of current capacity* based on September 30, 2005 secondary enrollment.
3. The Superintendent of Lake Forest School District has communicated to the DOE the district's lack of capacity given the number of planned and recorded residential sub divisions within district boundaries.
4. This development will create additional elementary and secondary student population growth which will further compound the existing shortage of space.
5. The developer is strongly encouraged to contact the Lake Forest School District Administration to address the issue of school over-crowding that this development will exacerbate.
6. DOE requests developer work with the Lake Forest 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 to the right of the word "Sincerely,".

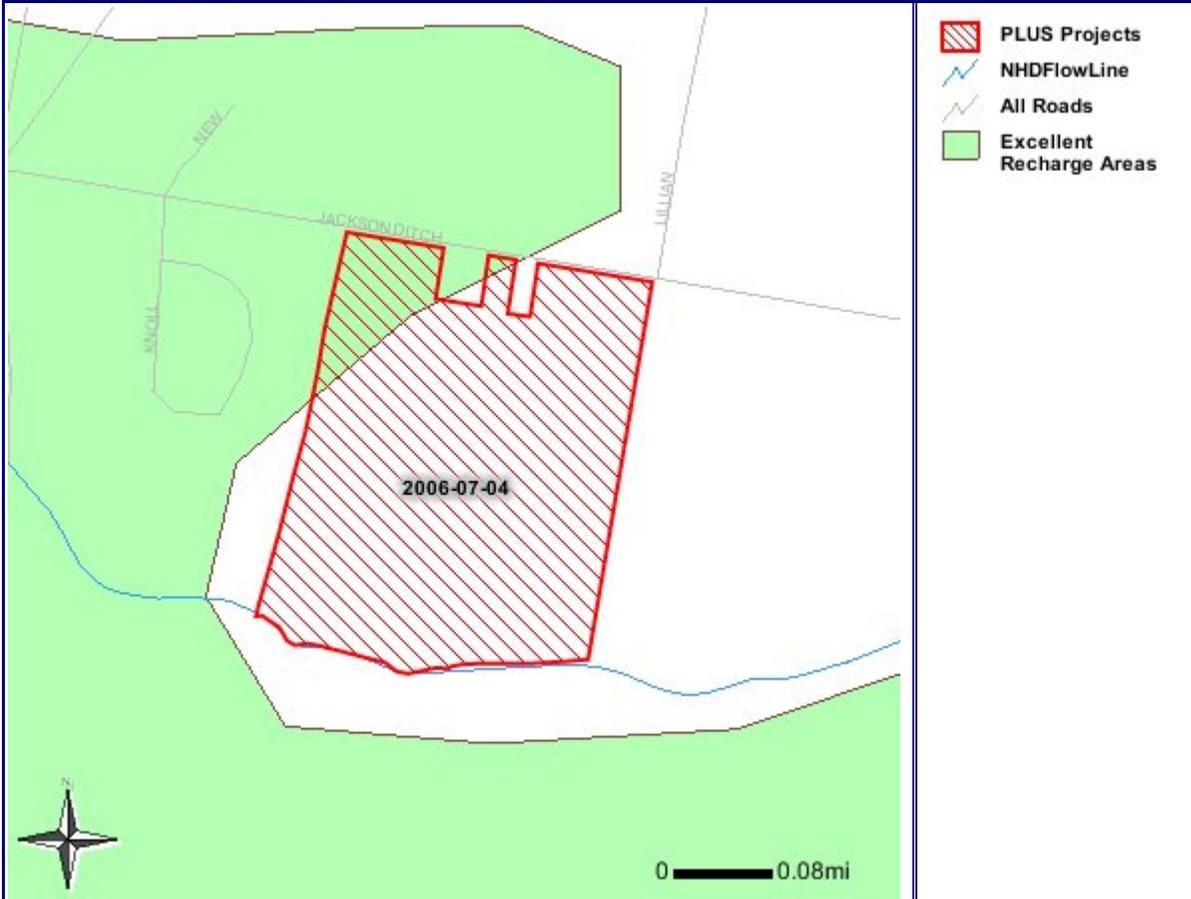
Constance C. Holland, AICP
Director

CC: Kent County
City of Harrington



Bonniwell

2006-07-04



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

