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OFFICE OF STATE PLANNING COORDINATION

April 5, 2008

Ms. Constance Holland, AICP, Director  
Delaware Office of State Planning Coordination  
540 S. Dupont Highway, The Thomas Collins Building, 3<sup>rd</sup> Floor  
Dover, DE 19901

RE: Riverview  
Response to PLUS Review #2008-01-10 Comments

Dear Ms. Holland:

Thank you for your letter of February 25, 2008, containing the comments from State Agencies regarding the Riverview Conceptual Development Plan. Our responses to State Agency comments are as follows:

**Comment: Office of State Planning Coordination — Contact: Bryan Hall 739-3090**

*When the proposed was reviewed by this office in 2004, the Office of State Planning commented that we were particularly concerned with the access to the site and the amount of wetlands that would be impacted by the long bridge needed for access. At that time asked that the developer to consider alternatives for accessing the property. These comments are still valid. The new revised plan present in 2008 shows a road to access the site instead of a bridge which this office feels like other state agencies will have even greater negative impact to wetlands and water resources within and adjacent to the site.*

*While we recognize that it is within an Investment Level 3 area according to the Strategies for State Policies and Spending, the negative impacts that developing this parcel will have on the environmental features on and around the site should be considered and the State would prefer to see this parcel remain undeveloped and the developer work with various state, county and local agencies to identify other possible uses for this site.*

Response:

As indicated during the earlier processing of the Riverview plan, we would also prefer an alternative method of accessing the site. However, as you are aware, the narrow strip of property leading from the existing Walter's Bluff Road to the body of the site is the only means of providing access that we own. We have had numerous discussions with the adjoining property owner regarding some other means of access, or even a property swap. We intend to continue to discuss alternative access means to the site with our adjoining neighbor, but to date we have had no success.

During the previous processing of the Riverview development, the Sussex County Council conditioned their approval of the plan on the development being accessed by a road constructed to County standards, which has been interpreted to preclude timber bridges. Therefore, the current plan proposes an access road on fill, minimized to the maximum extent practicable by the use of vinyl sheet-piling on both sides of the

road to limit the road footprint. However, through numerous conversations with the Wetland and Subaqueous Lands Section (WSLS) of DNREC, as well as indicated later in your comments, we understand that they now support the construction of a bridge to the maximum extent practicable to avoid impacting tidal wetlands. We are prepared to present the WSLS's desire with the Sussex County Planning & Zoning Commission and Sussex County Council during the upcoming public hearings, and if they concur with the WSLS, we will adjust our plan accordingly to indicate timber bridges constructed as they allow.

**Comment: Division of Historical and Cultural Affairs — Contact: Terrance Burns 739-5685**

*At this time there are two known historic and cultural resources on this project area. One of the historic and cultural resources is reference to the Tunnell Cemetery [also known as Walters Cemetery] (S-10017), and the other is a known archaeological site (S-647, 7S-G- 21).*

*Another historical aspect is that according to the Beers Atlas of 1868, this project area appears to be within the area or vicinity of Baltimore Hundred, and there is a variety of historical attributes or aspects within the area or vicinity of Baltimore Hundred. Also according to the Beers Atlas of 1868, it appears that there were a few dwellings very close to where the project area is today, and those dwellings were associate or affiliated with someone by the name of J.D. Derrickson and another by the name of E. Walters. It is a possibility that there could be potential historic and cultural resources or potential archaeological resources associated with those dwellings or related to those dwellings.*

*Since this project area is in a location where there are some historical attributes or aspects, it is also an indication that it is a possibility that there could probably be potential historic and cultural resources or potential archaeological resources on or within this project area. The potential historic and cultural resources or potential archaeological resources could a cemetery, burial ground, unmarked human remains, or some other type of hidden contents or remains, which has historical attributes or aspects.*

*Prior to any type of ground-disturbing activities, demolition, or construction, the developer show review Chapters 53 and 54, in Title 7, of the Delaware State Code. Chapter 53 pertains to the discovery and disposition of "Conservation of Archaeological Resources In or On State Lands". Chapter 54 pertains to the "Delaware Unmarked Human Remains Act of 1987", such as the discovery and disposition of Unmarked Human Burials or Skeletal Remains". The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out.*

*Also prior to any type of ground-disturbing activities, demolition, or construction, the developer may want to hire an archaeological consultant to check and examine the project area thoroughly. The purpose for this is to make sure that there is no indication or evidence of a potential historic and cultural resource or potential archaeological resource such as a cemetery, burial ground, unmarked human remains, or some other type of hidden contents or remains, which has historical attributes or aspects.*

Response:

We understand the law with regard to both archeology and cemeteries and will cooperate with all regulating agencies in compliance with same. To date, we have contracted with Edward Otter Archeologist, Inc., to perform a study of both the onsite cemetery and the archeological site. Their studies are nearing completion, and the current plan has been developed in accordance with the cemetery limits they established to ensure that the existing cemetery will be preserved and not impacted. When completed, the reports prepared by Dr. Otter will be forwarded to the State for review, comment, and discussion.

**Comment: Department of Transportation — Contact: Bill Brockenbrouh 760-2109**

*1) With a projected trip generation of 492 trips per day, the proposed development would warrant a traffic impact study under DeIDOT's newly adopted Standards and Regulations for Subdivision Streets and State Highway Access. Grandfathering provisions will exempt developments for which an application has been filed with the relevant government and accepted for review by that local*

*government on or before March 31, 2008. While DeIDOT appreciates that significant work has gone into the planning of this development, their understanding of the Chancery Court decision is that the applicant must start over and that the County has not yet accepted their current application. Therefore DeIDOT anticipates requiring a traffic impact study.*

*Under the new regulations, responsibility for preparing the scope of work for a TIS has shifted to the developer's engineer. When you are ready for a scoping meeting, the developer's engineer may contact Troy Brestel or Bill Brockenbrough of the DeIDOT Planning Office to arrange it. Mr. Brestel may be reached at (302) 760-2167.*

*2) While they have not yet determined what they would be, DeIDOT anticipates requiring improvements to Walter's Bluff Road between the site entrance and Holt's Landing Road (Sussex Road 346), and possibly beyond that point to White's Neck Road (Sussex Road 347).*

*3) It is recommended that the plan for the project provide a stub street such that if the D&B Limited Partnership property, which largely separates the subject land from Walter's Bluff Road, ever develops a second connection can be made through that development's street system.*

*4) The applicant's engineer should contact the Subdivision Manager for eastern Sussex County, Mr. John Fiori, regarding requirements with regard to the design of the site entrance and any related road improvements on Walter's Bluff Road. Mr. Fiori may be reached at (302) 760-2260.*

Response:

1) We note that the proposed development was forwarded to the Sussex County Office of Planning & Zoning on January 3, 2008, and was officially accepted by the County for review on the same date. This was well before the March 31, 2008, date required to grandfather the plan for review under the then current DeIDOT regulations. Furthermore, Notice of Public Hearings were posted by the County on March 26, 2008. Therefore, the development of this site is grandfathered under the old regulations, and does not require a Traffic Impact Study.

We also note that we had previously discussed essentially the same development with representatives of DeIDOT during the previous zoning process, and received a letter from Mr. Drew Boyce, PE, Subdivision Engineer, Development Coordination, on October 1, 2003, indicating that the site was not required to perform a TIS.

2) We understand that off-site improvements may be required as part of the development of this site, in accordance with DeIDOT requirements.

3) We understand DeIDOT's desire for multiple points of access to any development, and will work with DeIDOT representatives to locate a proper stub street location during the construction plan approval process.

4) We have already been in contact with Mr. Fiori, and look forward to working with him on this development.

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

#### **Soils**

*Based on the Sussex County soil survey update, Rosedale, Klej, Askecksy, Transquaking-Mispillion complex, and Purnell were mapped in the immediate vicinity of the proposed construction. Rosedale is well-drained upland soil that, generally, has few limitations for development. Klej is a somewhat poorly-drained transitional soil that is likely to have both wetland and upland soil components. Askecksy is a poorly-drained wetland associated (hydric) soil that has severe limitations for development. Transquaking-Mispillion complex and Purnell are very poorly-drained wetland associated (hydric) soils*

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*associated with tidally-influenced wetlands. Most of the soils mapped (estimated 70% on this parcel) are poorly to very poorly-drained.*

Response: We have reviewed the on site soils, and have already begun to work with a qualified geotechnical engineer to ensure proper engineering and construction practices will be observed.

#### **Wetlands**

*Based on the Statewide Wetland Mapping Project (SWMP) maps, palustrine forested riparian and estuarine emergent wetlands were mapped over most of subject parcel.*

*Impacts to Palustrine wetlands are regulated by the U.S. Army Corps of Engineers (USACE, or "the Corps") through Section 404 of the Clean Water Act. In addition, individual 404 permits and certain Nationwide Permits from the Corps 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 Management Program (DCMP) Section. Each of these certifications represents a separate permitting process. Please be advised that Nationwide Permits have been suspended in Delaware and are pending further coordination with the Corps. Therefore, contrary to past practices, Coastal Zone Management approval can no longer be assumed. Individual certifications must be granted from the DCMP office for each project intending to utilize a Nationwide Permit.*

*For more information on the Federal Consistency process, please contact the DCMP office at 302.739.9283. 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.*

*Based on a review of existing buffer research by Castelle et al. (1994), an adequately-sized buffer that effectively protects wetlands and streams is, in most circumstances, about 100 feet in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain or establish a minimum 100-foot upland buffer (planted in native vegetation) from all wetlands and water bodies (including ditches).*

Response:

All non-tidal wetlands are delineated on the plans in accordance with the Jurisdictional Determination as approved by the US Dept. of the Army. The tidal wetlands delineated on the conceptual plan submitted for PLUS review were delineated in accordance with the SWMP maps. However, as a result of field review by representatives of the DNREC Wetland and Subaqueous Lands Section and our wetland consultant, Environmental Resources, Inc., following the PLUS submittal, modifications in the tidal wetland boundary were required. As a result of these tidal wetland boundary adjustments, minor modifications to the proposed home configuration were required. The new plan continues to have no homes located within wetland areas and all wetland impacts, other than the entry roadway, have been avoided. A copy of the letter received from the WSLs is attached as Attachment A, and the modified plan is attached to this letter as Attachment B.

It is understood that permits will be required from both the DNREC WSLs and the US Dept. of the Army and we have already been in contact with both agencies, and look forward to working with both agencies to ensure the property is developed properly.

As you are aware, there is no requirement in the law for the "recommended" 100 foot buffers. In fact, we note that the research referenced has been demonstrated by others to be inconclusive on the exact width of an "effective" buffer, and understand that the State is currently engaged in an ongoing dialogue on this issue as it relates to possible proposed changes to the current buffer regulations. However, the current Sussex County required buffer of tidal wetlands is 50 feet, which has been provided in all locations.

***State Wetlands Permitting***

***The Wetland and Subaqueous Lands Section (WSLS) has serious concerns about the placement of fill materials in State-regulated tidal wetlands for an access roadway. It is strongly recommended that a bridge be constructed to avoid impacts to tidal wetlands.***

***The new site plan proposes two wetland walkways, each crossing several hundred linear feet of tidal wetlands. These structures far exceed the recommendations for wetland walkways in the WSLS Guidance Document and also exceed the lengths of walkways authorized by the Department for at least the past 5 years. Because the peninsula is surrounded by large expanses of tidal wetlands and construction of walkways would create significant impacts to wetlands, authorization for a wetland walkway would be difficult to obtain.***

Response:

We understand, and appreciate, the WSLS's desire to span the onsite tidal wetlands with a bridge. However, as previously stated, the Sussex County Council conditioned their previous approval of this property such that a bridge was prohibited. Based on conversations with the WSLS, we have agreed to revisit this issue during our upcoming public hearings before the Sussex County Planning & Zoning Commission and Sussex County Council, and have even requested the WSLS to prepare a letter specifically outlining their request, and forward it to the Sussex County Office of Planning & Zoning.

The two boardwalks which were shown on the plan were intended to provide a means of providing pedestrian access to the sections of sandy beach which are located on the property. As they were only intended to enhance the development, and are not necessary to otherwise develop the site, we have removed them from the modified plan. Please refer to Attachment B.

***Impervious Cover***

***The applicant estimates this project's post-construction surface imperviousness to reach about 10 percent. However, given the scope and density of this project (i.e., from the conceptual project layout), this estimate appears to be a significant underestimate. In contrast, the applicant's estimate of existing surface imperviousness (approximately 1.2%) appears to be an overestimate as this parcel has no apparent existing structural form of surface imperviousness.***

***When calculating surface imperviousness, it is important to include all forms of constructed surface imperviousness (i.e., rooftops, sidewalks, stormwater management structures, and roads) in the calculation for surface imperviousness; this will ensure a realistic assessment of this project's likely post-construction environmental impacts.***

***Since it is apparent that the applicant's estimate for surface imperviousness is a significant underestimate of their project's actual post-construction impacts, it should be recalculated to include all forms of constructed surface imperviousness. Accordingly, the estimate for this project's preconstruction surface imperviousness should also be recalculated. Failures to do so will significantly understate this project's true environmental impacts.***

***Studies have shown a strong relationship between increases in impervious cover to decreases in a watershed's overall water quality. It is strongly recommended that the applicant implement best management practices (BMPs) that reduce or mitigate some of its 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 some examples of practical BMPs that could easily be implemented to help reduce surface imperviousness.***

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Response:

Following receipt of this comment, we requested our engineers review their computations for impervious cover for both the pre- and post-developed conditions. Following a recalculation, they indicate that the pre-developed site contains 0.926 acre (1.2% of the total site area) of impervious surface (all of which is located within the portion of the Walters Bluff Road which is actually located on the property), and the post-developed site will contain 9.192 acres (11.8% of the total site area) of impervious surface. All impervious surfaces have been included in these computations.

Best Management Practices have already been incorporated into the proposed development through the direction of storm water runoff to proposed sand filter systems along the onsite roadway. Other anticipated BMP's include the planting of street trees and open space vegetation. Through the development plan approval process, we will coordinate with the appropriate local and State agencies to ensure the property is developed in accordance with all regulations.

#### ***ERES Waters***

***This project is located adjacent to receiving waters of the Inland Bays designated as waters having Exceptional Recreational or Ecological Significance (ERES). ERES waters are recognized as special assets of the State, and shall be protected and / or restored, to the maximum extent practicable, to their natural condition. Provisions in Section 5.6 of Delaware's "Surface Water Quality Standards" (as amended July 11, 2004), specify that all designated ERES waters and receiving tributaries develop a "pollution control strategy" to reduce non-point sources of pollutants through implementation of Best Management Practices (BMPs). Best Management Practices as defined in subsection 5.6.3.5 of this section, expressly authorizes the Department to provide standards for controlling the addition of pollutants and reducing them to the greatest degree achievable and, where practicable, implementation of a standard requiring no discharge of pollutants.***

Response:

We understand the laws with regard to ERES waters and Section 5.6 of Delaware's "Surface Water Quality Standards," and will cooperate with all regulating agencies in compliance with same.

#### ***TMDLs***

***Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Inland Bays 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. This project is located in the low nutrient reduction area requiring a 40 percent reduction in nitrogen and phosphorus, respectively. Additionally, 17 percent reduction in bacteria will also be required because of the project's immediate proximity to marine waters.***

Response:

We have already completed a computation for TMDL's which demonstrate the effectiveness of the proposed design in achieving a 40 percent reduction in nitrogen and phosphorus. A copy of the assessment is attached to this letter as Attachment C.

With regard to the stated requirement for a "17% reduction in bacteria," we have reviewed the current regulations and find no such criteria. We also note that neither we, nor our engineer, have ever been required to provide computations on the bacterial removal efficiency of a proposed stormwater management system for any other prior development. Can the DNREC provide us with a current code reference for our review? Following receipt of this reference, we will work with the DNREC to ensure that all current regulations are complied with.

***Compliance with TMDLs through the PCS***

***As stated above, Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Inland Bays Watershed. The TMDL calls for a 40 percent reduction in nitrogen and phosphorus from baseline conditions. Additionally, a 17 percent reduction in bacteria will also be required from baseline conditions in marine waters. A Pollution Control Strategy (PCS) will provide the regulatory framework for achieving them. Additional nutrient reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses (and wetlands), increasing passive, wooded open space which helps reduce surface imperviousness (i.e., pervious payers), and the use of green-technology stormwater management technologies.***

***The Department has developed an assessment tool to evaluate how your proposed development may reduce nutrients to meet the TMDL requirements. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.***

Response:

As stated above, the Department's TMDL assessment tool has been utilized to demonstrate compliance with the required TMDL requirements. Please see Attachment C to the letter for a copy of the completed assessment tool.

***Water Supply***

***The project information sheets state that public water will be provided to the project by a Private Company. Our records indicate that the project is located within the public water service area granted to Public Water Supply (a.k.a. Tidewater Utilities) under Certificate of Public Convenience and Necessity (CPCN) 83-W-6. It is recommended that the developer contact Public Water Supply (a.k.a. Tidewater Utilities) to determine the availability of public water. Any public water utility providing water to the site must obtain a CPCN from the Public Service Commission. Information on CPCNs and the application process can be obtained by contacting the Public Service Commission at 302- 73 9-4247. Should an on-site Public/Miscellaneous Public well be needed, a minimum isolation distance of 150 feet is required between the well and any potential source of contamination, such as a septic tank and sewage disposal area, and it must also be located at least 150 feet from the outermost boundaries of the project. The Division of Water Resources will consider applications for the construction of on-site wells provided the wells can be constructed and located in compliance with all requirements of the Regulations Governing the Construction and Use of Wells. A well construction permit must be obtained prior to constructing any wells.***

***Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.***

***All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising.***

***Should you have any questions concerning these comments, please contact Rick Rios at 302-739-9944.***

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Response:

We have already had numerous conversations with representatives of Tidewater Utilities regarding their providing potable domestic and fire protection water service to this property. During these discussions, they have indicated their willingness to service this development, and we will continue our conversations following plan approval.

Should dewatering permits be required, we will apply for the required permits in accordance with all State requirements. We appreciate the provided information.

***Sediment and Erosion Control Stormwater Management***

***A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. Contact the reviewing agency to schedule a pre-application meeting to discuss the sediment and erosion control and stormwater management components of the plan as soon as practicable. The site topography, soils mapping, pre- and post-development runoff, and proposed method(s) and location(s) of stormwater management should be brought to the meeting for discussion. The plan review and approval as well as construction inspection will be coordinated through the Sussex Conservation District. Contact Jessica Watson at the Sussex Conservation District at (302) 856-7219 for details regarding submittal requirements and fees.***

***Because of the parcel's location in an impaired watershed and the amount of impervious surface, consider incorporating more green technology BMPs and low impact development practices to reduce stormwater flow and to meet water quality goals.***

***The Sediment and Stormwater Management Program ensures sediment and erosion control plans and stormwater plans comply with local land use ordinances and policies, including the siting of stormwater management facilities. However, we do not support placement in resource protection areas or the removal of trees for the sole purpose of placement of a stormwater management facility/practice.***

Response:

We will comply with the Sussex Conservation District's stormwater program. The use of "green technology" practices will be utilized to the extent feasible and DNREC's technical assistance will be utilized.

***Drainage***

***• The Drainage Program requests that the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project. The Drainage Program requests that the engineer check existing downstream ditches and pipes for function and blockages prior to the construction.***

Response:

The access roadway will be designed in a way to not impede the storm drainage from upstream, and the outfalls from the development will be to the tidal wetlands. As part of the wetland permitting process, it proposed that the existing ditches within the onsite wetlands be cleaned out to allow for better flushing.

***The Drainage Program encourages the elevation of rear yards to direct water towards the streets and alleyways where storm drains are accessible for maintenance. However, the Drainage Program recognizes the need for catch basins in yards in certain cases. Therefore, catch basins placed in rear and side yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, pools, 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.***

Should rear or side yard inlets become necessary, the above recommendations shall be implemented.

***• An increase of the side yard setback to 15 feet may be needed on all properties with a drainage easement on the side. The increase will allow room for equipment to utilize the entire easement and maneuver free of obstructions if the drainage conveyance requires periodic maintenance or future re-construction. The side yard setback would only increase on the side with the drainage easement.***

Response:

The property is intended to be developed in a condominium regime. Accordingly, there are no internal setbacks. However, there is a minimum 40 foot separation between building groups.

***• All catch basins in rear or side yards should have a 10-foot drainage easement around them on all sides. Place restrictions on fences, sheds, and other structures within the easement to prevent obstructions from being placed next to the catch basin. Record the easement on the deed.***

Response:

Should rear or side yard inlets become necessary, the above recommendations shall be implemented.

***• Have all drainage easements recorded on deeds and place restrictions on obstructions within the easements to ensure access for periodic maintenance or future re-construction. Future property owners may not be aware of a drainage easement on their property if the easement is only on the record plan. However, by recording the drainage easement on the deed, the second owner, and any subsequent owner of the property, will be fully aware of the drainage easement on their property.***

Response:

Should rear or side yard inlets become necessary, the above recommendations shall be implemented.

#### ***Floodplains***

***In the "Project Summary" that accompanied the PLUS application form, the applicant states that the Riverview neighborhood has been designed with the "health, safety, and welfare of the citizen's of Sussex County" [in mind]. The existing topography of the parcel goes from less than 2 feet to a small peak of 8 feet NAVD 88. The Base Flood Elevation on the portion of the property where the road will be located is 6.7 NAVD 88. This portion of the parcel is located in Flood zone AE 7 for Indian River Bay. A small portion of the property is in flood zone AE 8 and the Northeast corner is in zone VE 9. Essentially the road would be constructed almost 5 feet below the 100-year base flood elevation if it was constructed on existing grade. It is our understanding that fill will be used to construct the road. Given that the road crosses a wetland and is located in a State Resource Area (SRA), what is the likelihood that more than five feet of fill would be used to elevate the road? From a public safety standpoint, the lives of the 72 property owners and their families could be at risk, as well as the lives of any emergency personnel that would be required to access this subdivision in the event of a storm.***

Response:

The access road is proposed to be constructed above the Base Flood Elevation through the placement of fill within vinyl sheetpiling to limit the required access roads footprint. This roadway will be designed to be safe under all weather conditions that a non-fill road section would be considered safe. Furthermore, the construction of the remainder of the onsite roadways below the Base Flood Elevation is in keeping with the development practices of practically every other coastal development in the Sussex County area. In fact, a quick review of the surrounding area indicates that the majority of the coastal towns, as well as most other major and minor coastal developments have been developed in a similar manner.

However, as with most other coastal communities that are managed by a professional property management company, should a strong storm look like it is approaching the coastal area, door to door inspections of each property is conducted by the management companies well before the storms hit the area to ensure that all residents are given adequate time to evacuate, that lawn furniture and other outside equipment is properly stored, and that the community is prepared to weather the storm.

In summary, the Riverview development has been designed in accordance with all local, State and Federal guidelines and regulations, and will not endanger the lives of its occupants or emergency personnel any more than any other coastal community in Sussex County.

#### **Rare Species**

**The site has never been surveyed for State-rare or federally listed plants, animals or natural communities by qualified scientists from our program. Therefore, it is unknown if rare species would be impacted by this project. Botanical and plant community surveys were conducted on adjacent parcels, but zoological surveys have not been conducted.**

Response:

Prior to the submittal of the original Riverview conceptual plan for both PLUS and County review, we requested a review by both DNREC and US Fish & Wildlife representatives of the presence, or lack thereof, of any federally or state listed endangered or threatened species on the subject site. We received a letter from both agencies, copies of which are attached for your files, indicating that they did not know of any known species on or near the site. Please see Attachment D.

Furthermore, prior to a recent meeting held on the site with representatives of the DNREC Wetlands and Subaqueous Lands Section, a request was made by the DNREC Heritage Program to participate in that meeting, and to review the site. Permission was granted at that time for the Heritage Program staff to be present, and to perform their reviews. Unfortunately, Heritage Program staff did not participate in that meeting, for reasons unbeknownst to us. Should the DNREC Heritage Program staff still desire to perform a review of the site, we will work with them to establish a mutually agreeable time for their visit.

#### ***Wetland Habitat***

***Long-term degradation of the marsh habitat could occur from the fragmentation and disturbance caused by this development. This project has the potential to impact a large expanse of wetlands because inadequate upland buffers are being proposed, wetlands will have to be filled for the access road and wetlands will be disturbed and fragmented by two long docks.***

***Upland buffers on the perimeter of the wetlands are extremely important for maintaining the function and integrity of the wetlands. Upland buffers not only protect water quality, but provide breeding habitat for wetland dependent species, and nesting and foraging habitat for many other species of wildlife.***

***The two docks being proposed will bisect and fragment the wetlands. Species utilizing the wetlands could be disturbed, not only during construction of the docks, but also when residents use the docks. This could especially impact birds that are attempting to nest, are incubating eggs or tending to young. In addition, the shoreline where the docks terminate could potentially be diamondback terrapin nesting habitat. The diamondback terrapin is a brackish water turtle found in the state's coastal inland bays, Delaware Bay and its tidal brackish tributaries. This species is considered to be a species of conservation concern, but there is inadequate data to determine degree of rarity. The Northeast Wildlife Diversity and Endangered Species Technical Committee consider the Diamondback terrapin a species of regional concern, and one that may warrant federal protection in the future. This species spends most of its life in the water, until spring when (primarily) females seek open upland sandy areas to lay eggs. Hatchlings utilize adjacent marsh areas as a nursery area.***

**Recommendations:**

- 1. It is recommended that the site plan be redesigned so that at least 100-foot upland buffers are left intact along the perimeter of the wetlands. Current county code and State regulatory requirements are not in sync with scientific research which indicates that upland buffers should be at least 100 feet in width in order to provide adequate protection.*
- 2. It is also recommended that the proposed docks be omitted. The necessity for these piers should be carefully considered as negative environmental impacts could outweigh the benefits. The piers will only benefit those who are permitted to use them, but could have much wider environmental impacts. One option for residents is Holts Landing State Park which is close by and can be used for many recreational endeavors.*

**Response:**

As previously mentioned, there is no law requiring a 100 foot buffer, and the required 50 foot buffer has been provided in all locations. In addition, the two docks shown on the plan will be removed from the plan.

**State Resource Areas**

*The wetlands surrounding the proposed development are a State Resource Area. All of the lots adjacent to the wetlands (lots 1 through 63) are too close to the wetlands. The lots should be located 100 feet away from the wetlands in an effort to maintain the integrity of the wetlands.*

**Response:**

It is our understanding that the State Resource Area mapping was recently voided by the Courts.

**Underground Storage Tanks**

*There is one inactive LUST site(s) located near the proposed project:*

*Tuckahoe Acres Camp ground, Facility # 5-000697, Project # S9203074*

*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.*

**Response:**

We will comply with the requirements.

**Air Quality**

*Once complete, vehicle emissions associated with this project are estimated to be 5.5 tons (11,051.2 pounds) per year of VOC (volatile organic compounds), 4.6 tons (9,149.7 pounds) per year of NOx (nitrogen oxides), 3.4 tons (6,750.8 pounds) per year of SO2 (sulfur dioxide), 0.3 ton (600.9 pounds) per year of fine particulates and 462.2 tons (924,422.9 pounds) per year of CO2 (carbon dioxide).*

*Emissions from area sources associated with this project are estimated to be 2.2 tons (4,457.5 pounds) per year of VOC (volatile organic compounds), 0.2 ton (490.5 pounds) per year of NOx (nitrogen oxides), 0.2 ton (407.0 pounds) per year of SO2 (sulfur dioxide), 0.3 ton (525.2 pounds) per year of fine particulates and 9.0 tons (18,069.6 pounds) per year of CO2 (carbon dioxide).*

*Emissions from electrical power generation associated with this project are estimated to be 0.9 tons (1,766.6 pounds) per year of NOx (nitrogen oxides), 3.1 tons (6,144.8 pounds) per year of SO2 (sulfur dioxide) and 453.2 tons (906,353.3 pounds) per year of CO2 (carbon dioxide).*

	VOC	NOx	SO2	PM2.5	CO2
Mobile	5.5	4.6	3.4	0.3	462.2
Residential	2.2	0.2	0.2	0.3	9.0
Electrical Power		0.9	3.1		453.2
TOTAL	7.7	5.7	6.7	0.6	924.4

*For this project the electrical usage via electric power plant generation alone totaled to produce an additional 0.9 tons of nitrogen oxides per year and 3.1 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 DNREC Energy Office 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. We highly recommend this project development and other residential proposals increase the energy efficiency of their homes.*

*We 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.*

Response:

We agree to work with the DNREC Energy Office in an effort to increase energy efficiency throughout this development.

**State Fire Marshal’s Office — Contact: Duane Fox 856-5298**

*These comments are intended for informational use only and do not constitute any type of approval from the Delaware State Fire Marshal’s Office. At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation (DSFPR):*

**a. Fire Protection Water Requirements:**

*> Where a water distribution system is proposed for single-family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required.*

*> Where a water distribution system is proposed for the Community Building, it shall be capable of*

*delivering at least 1000 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 800 feet spacing on centers are required.*

*> The infrastructure for fire protection water shall be provided, including the size of water mains.*

***b. Accessibility:***

*> All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from the main thoroughfare 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 turnaround or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or turn-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.*

*> The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.*

*> The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.*

***c. Required Notes:***

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

*> Name of Water Supplier*

***Proposed Use***

***National Fire Protection Association (NFPA) Construction Type***

*> Where townhouse are erected, 2-hr separation wall details shall be shown on site plans*

*> Maximum Height of Buildings (including number of stories)*

*> Provide Road Names, even for County Roads*

*Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website:*

*[www.statefiremarshal.delaware.gov](http://www.statefiremarshal.delaware.gov), technical services link, plan review, applications or brochures.*

Response:

All requirements of the Fire Marshal will be complied with.

**Department of Agriculture - Contact: Scott Blaier 698-4500**

***The Delaware Department of Agriculture has no objections to the proposed development. The Strategies for State Policies and Spending encourages environmentally responsible development in Investment Level 3 areas.***

Response:

We have nothing to add to this comment.

***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. To further support this concept the Delaware Forest Service does not recommend the planting of the following species due to the high risk of mortality from insects and disease:***

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***Callery Pear Ash Trees***

***Leyland Cypress***

***Red Oak (except for Willow Oak)***

***If you would like to learn more about the potential problems or impacts associated with these trees, please contact the Delaware Forest Service for more information at (302) 698-4500.***

Response:

A diverse landscape plan utilizing native trees and shrubs will be provided with final plans. We will utilize Delaware Forest Service personnel should questions arise during the design process.

***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.***

Response:

A diverse landscape plan utilizing native trees and shrubs will be provided with final plans.

**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.***

Response:

All Public Service Commission regulations will be complied with.

**Delaware State Housing Authority — Contact Vicki Powers 739-4263**

***The proposal is for a site plan review for 72 residential units on 78 acres, located on the east side of Walter's Bluff Road, south of Indian River Bay.***

***According to the State Strategies Map, the proposal is located in an Investment 3 and environmentally sensitive area. As a general planning practice, DSHA encourages residential development in areas where residents will have proximity to services, markets, and employment opportunities, such as Investment Level 2 area outlined in the State Strategies Map. While the prices of the units are not known at this time, we encourage the applicant to include prices that are affordable to low- and moderate-income households. For informational purposes, the most recent real estate data collected by DSHA shows the median home price in Sussex County to be \$280,000. However, households earning respectively 100% of Sussex County's median income only qualify for mortgages of \$164,791, thus creating an affordability gap of \$115,209. Households that cannot afford to live in the coastal resort area have been displaced to western Sussex County. The provision of units within reach of households earning at least 100% of Sussex County's median income would help increase their housing opportunities. To facilitate the units targeted for first-time homebuyers, DSHA encourages the developer to apply for Sussex County's Moderately Price Housing Unit (MPHU) Program, which provides the following incentives: an expedited review, density bonuses, and full utilization of the zoning designated for the parcel.***

***A Request for Proposal (RFP) process has been established to select initial program participants. The developer is encouraged to call William C. Lecates, Director of Sussex County's Community Development and Housing Division at (302) 855-7777 to learn more about the RFP application process.***

Response:

The 72 proposed homes are intended to be owned and occupied as second homes, or retirement move up housing. As such, they are not anticipated to be eligible for Sussex County's MPHU program.

**Department of Education — Contact: John Marinucci 735-4055**

***This proposed development is within the Indian River School District boundaries. DOE offers the following comments on behalf of the Indian River School District.***

- 1. Using the DOE standard formula, this development will generate an estimated 36 students.***
- 2. DOE records indicate that the Indian River School Districts' elementary schools are at or beyond 100% of current capacity based on September 30, 2007 elementary enrollment.***
- 3. DOE records indicate that the Indian River School Districts' secondary schools are not at or beyond 100% of current capacity based on September 30, 2007 secondary enrollment.***
- 4. In multiple correspondences from the Indian River School District administration, the district asserts that while the Indian River High Schools have capacity, the Indian River Middle Schools' student population exceeds student capacity.***
- 5. This development will create additional elementary school and middle school student population growth which will further compound the existing shortage of space. The developer is strongly encouraged to contact the Indian River School District Administration to address the issue of elementary and middle school over-crowding that this development will exacerbate.***
- 6. DOE requests developer work with the Indian River 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.***

Response:

The 72 proposed homes are intended to be owned and occupied as second homes, or as retirement move up housing. As such, full time resident school age children are not anticipated. However, we agree to work with the Indian River School District regarding their overcrowding problems to extent practicable, and to identify a suitable location for, and supply and install, a bus shelter should it be determined that there are school children in the development.

**Comment: Sussex County — Contact: Richard Kautz 855-7878**

***The Sussex County Engineer Comments:***

***The proposed project is in Holts Landing Sanitary Sewer District (HLSSD) Planning Area and connection to the sewer system is mandatory. The proposed project does not adjoin the current boundary of the HLSSD and a request for annexation must include additional parcels to establish adjacency. It will be the developer's responsibility to obtain the participation of additional property owners. The project is within planning study and capacity assumptions for sewer service from the HLSSD.***

***The proposed development will require a developer installed collection system in accordance with Sussex County standard requirements and procedures. In addition, it will be the developer's responsibility to install regional infrastructure from an approved connection point in accordance with the South Coastal Area Planning Study 2005 Update. The Sussex County Engineer must approve the connection point. The Sussex County Engineering Department requires that a Sewer Concept Plan be submitted for review and approval prior to requesting annexation to the HLSSD. A checklist for preparing conceptual plans along with a copy of the County's policy and steps for extending sewer district boundaries. All costs associated with extending sewer service will be the sole responsibility of the developer. One-time system connection charges will apply. Please contact Ms. Janna Wilcoxson at 302 7817 for additional information on charges.***

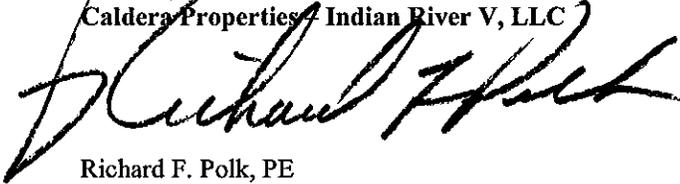
Ms. Constance Holland, AICP  
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Response:

All Sussex County requirements will be complied with.

This concludes our response to the comments provided by your office from the State agencies' review of our PLUS submittal. Should you have any questions, please contact us.

Sincerely,  
Caldera Properties / Indian River V, LLC

A handwritten signature in black ink, appearing to read "Richard F. Polk". The signature is written in a cursive, flowing style with a large initial "R".

Richard F. Polk, PE

Cc: Lawrence Lank, Sussex County Office of Planning & Zoning  
Jim Fuqua, Esq., Fuqua & Yori, PA  
Gene Bayard, Esq., Wilson, Halbrook & Bayard, PA  
Dennis Schrader, Esq., Wilson, Halbrook & Bayard, PA



WETLANDS & SUBAQUEOUS  
LANDS SECTION

STATE OF DELAWARE  
DEPARTMENT OF NATURAL RESOURCES &  
ENVIRONMENTAL CONTROL  
DIVISION OF WATER RESOURCES  
89 KINGS HIGHWAY  
DOVER, DELAWARE 19901  
April 2, 2008

TELEPHONE (302) 739-9943  
FACSIMILE (302) 739-6304

Environmental Resources, Inc.  
Attn.: Ed Launay  
One Plaza East, Suite 500  
100 East Main Street  
Salisbury, MD 21801-4981

Re: JD-132/08 Wetlands determination at the proposed Riverview Subdivision (Tax Map Parcel 1-34-4.00-7.01) off of Walters Bluff Road, Dagsboro, Sussex County, DE

Dear Mr. Launay,

On March 13, 2008, we conducted an on-site review of the above referenced property to verify the boundary of the State regulated tidal wetlands present on the property. The review was conducted with your assistance and in the presence of representatives of Caldera Properties-Indian River V, LLC, the property owner and developer. The review encompassed our visual evaluation of the State tidal wetland line flagged by you, based on the delineation depicted on the State of Delaware Tidal Wetland Map for this site (DNR056), vegetative indicators and site topographical considerations. Our evaluation concurred with your field delineation of the State of Delaware wetland boundary. This delineation is shown on a plan, dated March 18, 2008, submitted by you to this office and received on March 19, 2008, entitled "State Tidal Wetland Exhibit for Riverview Sussex County, Delaware (Sheet No. 1 of 1)". The State tidal wetland boundary depicted on this plan shall be recognized by this office as an accurate representation of the tidal wetland boundary for this property. This determination is valid for a period not to exceed five years from the date of this letter.

If you have any questions or need any additional information, please do not hesitate to call.

Sincerely,

Joanne M. Lee  
Environmental Scientist  
Wetlands and Subaqueous  
Lands Section

Sincerely,

James T. Chaconas  
Environmental Scientist  
Wetlands and Subaqueous  
Lands Section

c. Laura Herr, DNREC, WSLS  
Richard Polk, Caldera Properties

**SITE DATA**

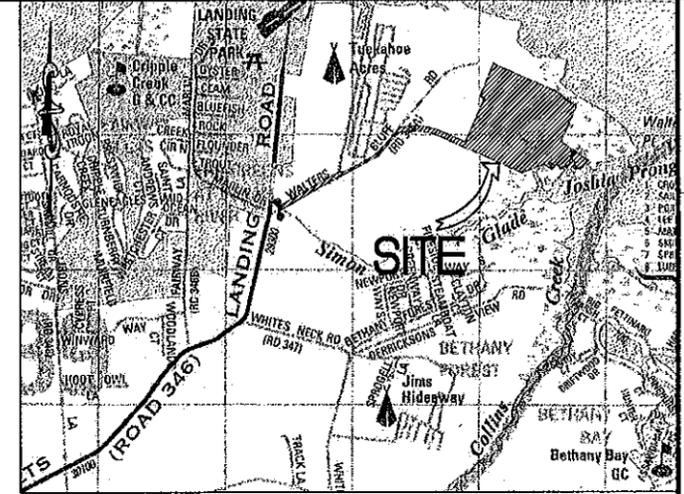
- OWNER OF RECORD:  
CALDERA PROPERTIES - INDIAN RIVER V, LLC  
P.O. BOX 8105  
WILMINGTON, DE 19803
- ENGINEER/SURVEYOR:  
McCORMICK, INC.  
119 NAYLOR HILL ROAD, SUITE 6  
SALISBURY, MD 21801  
PHONE: (410) 548-1492  
FAX: (410) 548-2055  
CONTACT: JASON PALKEWICZ, P.E.
- TAX MAP: 134-4.00, PARCEL 7.01  
TOTAL AREA= 78.228± AC.  
DEED REFERENCE: 2764/282
- DEVELOPER:  
CALDERA PROPERTIES - INDIAN RIVER V, LLC  
P.O. BOX 8105  
WILMINGTON, DE 19803
- ZONING: MR (MEDIUM RESIDENTIAL)  
  
SINGLE FAMILY STRUCTURE REQUIREMENTS:  
TABLE 1 REQUIREMENTS  
SETBACKS:  
LOT WIDTH: 75'  
LOT DEPTH: 100'  
FRONT: 30'  
REAR: 10'  
SIDE: 10'  
MAX. BUILDING HEIGHT = 42'  
  
MULTI-FAMILY STRUCTURE REQUIREMENTS:  
TABLE 2 REQUIREMENTS  
LOT AREA: 3,830  
FRONT YARD 40'  
SIDE YARD 10'  
REAR YARD 10'  
MAX BUILDING HEIGHT: = 42'
- FLOOD ZONE: ZONE AE - BASE FLOOD ELEVATIONS DETERMINED, BASE FLOOD ELEVATION 7 PER FIRM PANEL NUMBER 10005C0005J, REVISED JANUARY 6, 2005.
- SOIL TYPES:  
EVA - EYEBORO LOAMY SAND  
K1 - KLEJ LOAMY SAND  
Oa - OSIER LOAMY SAND  
RuA - RUMFORD LOAMY  
Tm - TIDAL MARSH, SALTY
- ELEVATIONS ARE BASED ON NAVD 88 AND COORDINATES ARE BASED ON DELAWARE STATE PLAN COORDINATE SYSTEM "NAD83/91"
- WETLAND DELINEATION PREPARED BY ENVIRONMENTAL RESOURCES, INC.
- WETLAND DISTURBANCE: (SUBJECT TO AGENCY REVIEW)  
PERMANENT DISTURBANCE:  
SECTION 404 WETLAND (PHRAGMITES)  
MAPPED AS STATE TIDAL WETLAND: 13,394 S.F.  
SECTION 404 WETLAND: 27,434 S.F.
- WETLAND MITIGATION: (SUBJECT TO AGENCY REVIEW)  
RESTORATION OF SECTION 404 WETLAND PHRAGMITES MAPPED AS DNREC TIDAL WETLANDS = 1.86AC± = 80,984 S.F.  
RESTORATION OF SECTION 404 PHRAGMITES WETLAND = 1.13 AC± = 49,099 S.F.  
CREATION OF TIDAL WETLAND FROM UPLANDS = 0.04 AC± = 1,760 S.F.  
  
TOTAL = 3.03 AC± = 131,843 S.F.  
  
WOODED WETLANDS: 0.763 AC±  
NON-TIDAL WETLANDS: 3.462 AC±  
TIDAL WETLANDS: 54.409 AC±

**DENSITY CALCULATIONS**  
GROSS AREA = 78.228 AC±  
AREA SET ASIDE FOR STATE WETLANDS = 54.409 AC±  
NET DEVELOPMENT AREA = 23.819 AC±  
  
25% OF NET DEVELOPMENT AREA = 5.955 AC±  
ACTUAL AREA OF STREETS = 3.312 AC±  
3.312 AC. < 5.955 AC., THEREFORE USE 3.312 AC. FOR DEDUCTION  
  
23.819 AC. - 3.312 AC. = 20.507 AC.  
  
**ALLOWABLE DENSITY:**  
85 UNITS / 20.507 AC. = 4.145 UNITS/AC.  
  
**PROPOSED DENSITY:**  
72 UNITS / 20.507 AC. = 3.511 UNITS/AC.

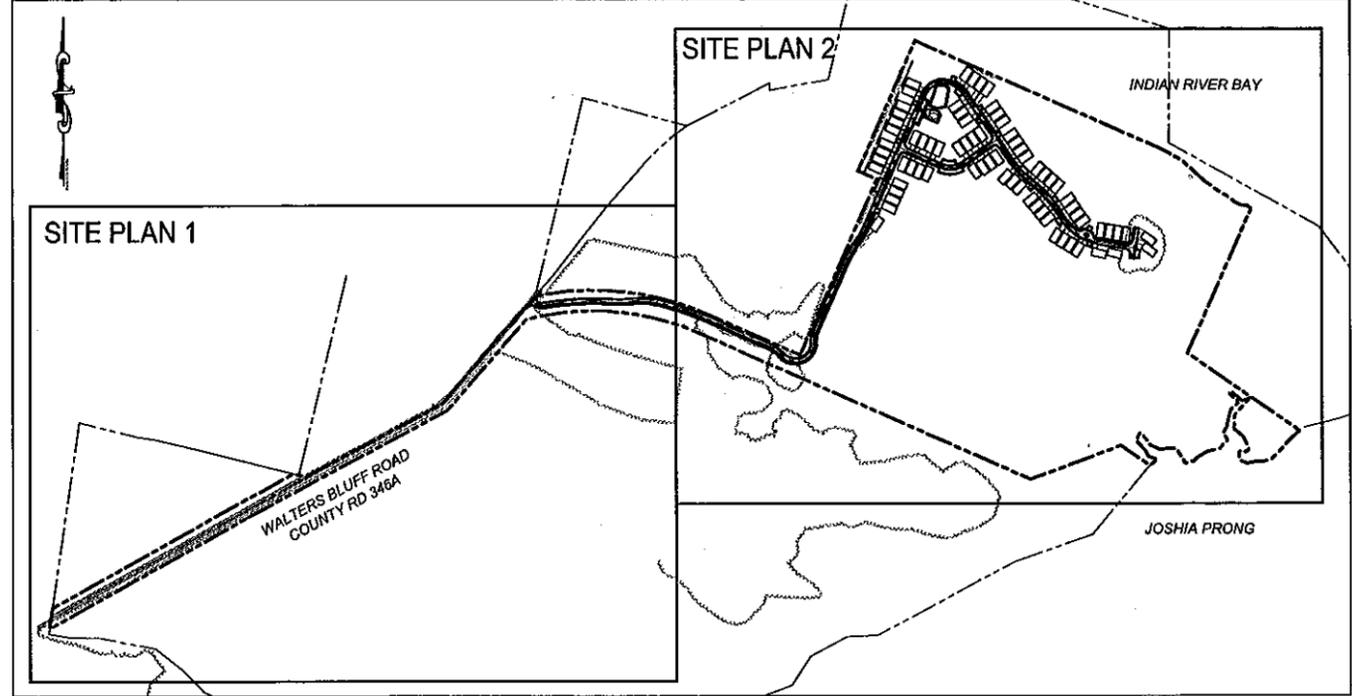
**SHEET INDEX**

NO.	SHEET NAME
S1	COVER SHEET
S2	EXISTING CONDITION PLAN
S3	SITE PLAN 1
S4	SITE PLAN 2

# CHANGE OF ZONE MR to MR-RPC FOR RIVERVIEW SUSSEX COUNTY, DELAWARE



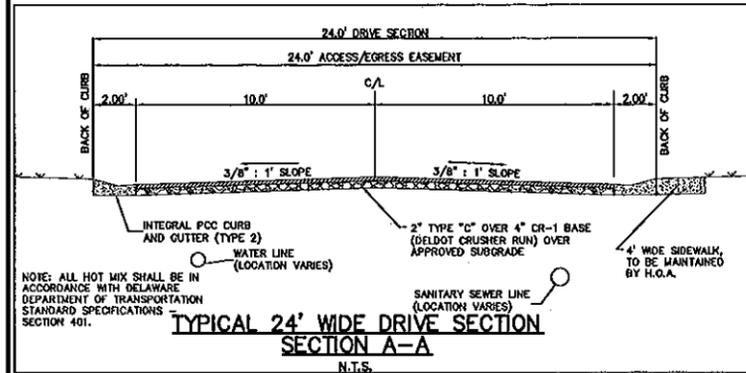
VICINITY MAP  
SCALE 1" = 2500±'  
COPYRIGHT ADC THE MAP PEOPLE PERMITTED USE No. 20705139



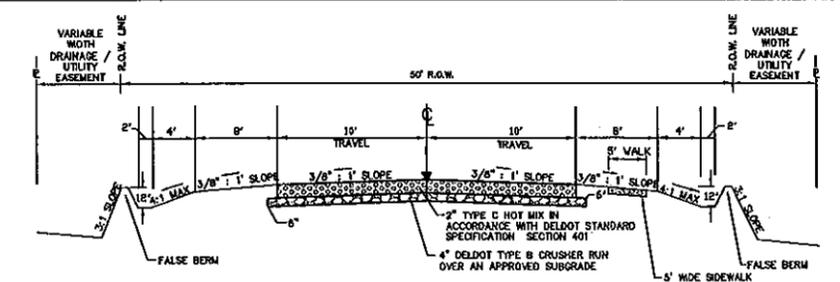
SITE PLAN  
1" = 400'

**LEGEND**

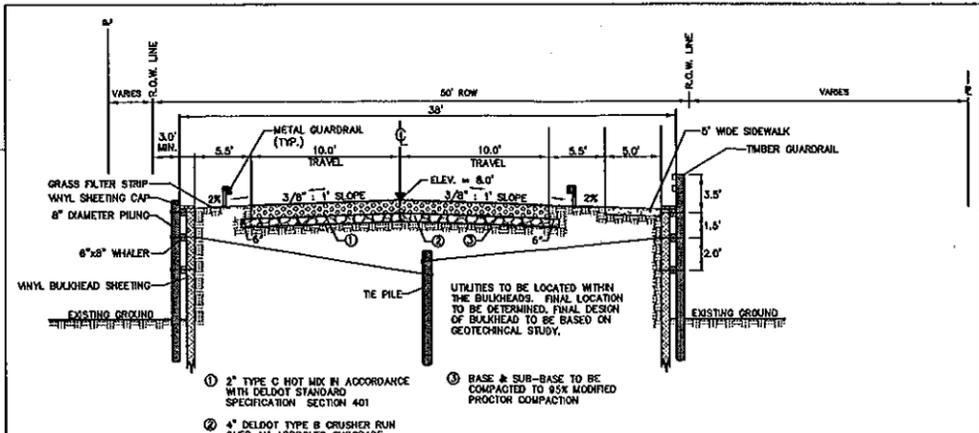
EXISTING	PROPOSED
PROPERTY LINE	---
R.O.W. LINE	---
SETBACK LINE	---
CONCRETE MONUMENT FOUND	CAF □
BENCH MARK	▲ ELEV. 100.00
SPOT ELEV. LABEL	x 100.01
MAJOR CONTOUR	--- 25 ---
MINOR CONTOUR	--- 24 ---
ROAD CENTERLINE	---
EDGE OF PAVEMENT	---
EDGE OF DIRT ROAD	---
PAVEMENT HATCH	▨
BOUNDARY OF DNREC MAPPED TIDAL WETLAND	W
DNREC TIDAL WETLAND BUFFER	W
BOUNDARY SECTION 404 WETLAND	W
FLOOD ZONE	N/A
CATCH BASIN	□
STORM PIPE	SD
CENTERLINE OF DITCH	---
WOODS LINE	---
TREE/SHRUB	○
UTILITY POLE	○
LIGHT POLE	☆
MALBOX	□
SEN	...
QUADRANT	N/A
BULKHEAD	N/A
WATER PIPE	W
FIRE HYDRANT	⊕
SEWER PIPE	SS
SEWER STRUCTURE	⊕
BUILDING	□



TYPICAL 24' WIDE DRIVE SECTION  
SECTION A-A  
N.T.S.



CROWNED ACCESS ROAD THROUGH UPLANDS  
TYPICAL SECTION B-B  
N.T.S.



BULKHEAD ACCESS ROAD THROUGH WETLANDS  
TYPICAL SECTION C-C  
N.T.S.

**REVISIONS**

REV. #	DATE	DESCRIPTION

**McCORMICK**  
Environmental Sciences  
Land Planning & Surveying  
Construction Services  
ANAPOLIS • CENTREVILLE • COVER • ELKTON • RICHMOND • SALISBURY  
113 NAYLOR HILL ROAD, SUITE 6  
SALISBURY, MD 21801  
PHONE 410-548-1492 FAX 410-548-2055  
www.mccormickinc.com

DATE	4/1/08
JOB NUMBER	D0800054
SCALE	AS SHOWN
DRAWN BY:	LHH
DESIGNED BY:	LHH
APPROVED BY:	JP
FOLDER REFERENCE:	N/A

COVER SHEET  
FOR  
**RIVERVIEW**  
BALTIMORE HUNDRED  
SUSSEX COUNTY, DELAWARE

# ATTACHMENT C

## Nutrient Loading Assessment Protocol Work Sheet (Version 01/31/06)

Please answer the following questions. This Protocol is intended to evaluate whether proposed future land use will reduce nutrient loads when compared to the base period for the applicable TMDL. The Protocol works on a parcel basis and does not take into account cumulative impacts. It serves as a guide to the county and municipal agencies as to the impact of the proposed development on water quality and provides potential ways to mitigate the project's impact. This Protocol is a tool. It does not suggest project approval. Therefore, the applicant should be aware that final project approval is contingent upon the satisfactory completion of all County, Municipal, State and/or Federal regulatory requirements. Enter 0.00 if the question does not apply.

What is the name of your project?		Riverview	
What is the project area's tax parcel number(s)?		16344701	
Which watershed is the parcel located in? (If unsure go to Map link worksheet.)		Inland/Bays/Low/Reduction/Arca	
PLUS project number?			
What is/are the pre-development land use(s) on the proposed project parcel?			
4a. Is this project a redevelopment of a golf course?		no	
		<b>Acres</b>	
4b. What is the total acreage of the parcel?		78.23	
4c. How many acres are Agricultural?		16.89	
4.d How many acres of agricultural land had routine application of chicken manure?		16.89	
4.e How many acres of constructed agricultural buffers are on the land?		0.00	
		0	
		0	
4f. How many acres of Forest are managed with water control structures?		0.00	
4h. How many acres are already developed (urban)?		0.00	
4i. How many acres are Forest?		4.21	
4j. How many acres of forest are also nontidal wetlands?		0.94	
4k. How many acres of wetlands are on the parcel?		58.07	
4.l Acres of tidal wetlands		52.10	
4.m Acres of non-tidal wetlands		5.97	
4n. How many acres of Grassland are on the parcel (including buffers)?		0.00	
4o. How many acres of Brushland are on the parcel?		0.00	
4p. Are there any Gravel pits? If so how many acres?		0.00	
		0.00	
		acres	
5a. How many acres are you proposing to disturb?		19.49	
5b. Do you have an estimate of percent of impervious cover?		yes	
5c. What is that percentage?		35.0	
6a. How many acres of wetlands are removed in this proposed project?		0.97	
6b. Tidal wetlands removed?		0.16	
6c. Non-Tidal removed?		0.81	
These many acres of forest have been removed.		0.00	
6d. Acres that will not be developed or will remain in their natural state.		62.04	
6e. How many Upland Forested acres will remain?		0.00	
6f. How many of the Upland Forested acres will remain?		1.64	
Forested wetlands		0.94	
Tidal wetlands		52.10	
non-tidal wetlands which are not forested		5.030	
Acres of wetlands that will not be disturbed		58.07	
6.g Are any lands going to be replanted into Forests?		3.5	
7a. How many acres will be mitigated as a result of wetlands removal?		0.00	
Acreage available for development.		16.19	
		N/A	
		0.00 acres	
8a. How many acres will be used for residential or commercial purposes including right of ways?		16.19	
8b. How many dwelling units are being proposed for this development?		77	
8.c How many acres and dwelling units are allocated for all single family units?		0.00	
8d. How many acres and dwelling units are allocated for all Multi-family units?		16.19	
8e. How many acres will be developed for Commercial uses?		0.00	
Acreage for Clubhouse or Conference Center		0.00	
Acreage for Retail		0.00	
8f. How many acres will be used for active recreational facilities (i.e. pool, tennis/basketball courts, bike path, etc.)		0.00	
Acres of impervious cover resulting from this development		5.67	
Total developed acres with impervious area		16.19	
Undeveloped Acreage		62.04	
8g. Number of open space acres that will be managed/manicured (parks, lawns, athletic fields, playgrounds, community open spaces, excluding golf courses) etc)?		0.00	
8h. Will this development have a Golf Course, if so how many acres?		0.00	
Total acreage in development		78.23	
9a. Are you going to use buffers in this development?		(yes/no) yes	

9b. What type of buffer grass or forested?		Forested buffers	
9c. What is the average width of the buffer?		30	
9d. How many linear feet of buffers are you planning?		47916	
10a. Are stormwater BMPs going to be used independently, in series, or both implies some areas will have individual stormwater BMPs and other areas will have stormwater BMPs in a treatment train?		Independent	2
10b. How many of BMPs will be used on the site?		5	
		<b>10c. Stormwater BMPs</b> (For Independent BMPs used the actual acreage treated and for BMPs used in a treatment train (Series) calculate the total acreage treated by the train. For Combination indicate the acres treated by individual BMPs and the acreage treated by the BMP used in Series. Sum of acreage treated by all the BMPs should equal acreage area disturbed in question 5.)	
2	1	BMP 1	Sand Filters 3.89
2	1	BMP 2	Sand Filters 3.9
2	1	BMP 3	Sand Filters 3.9
2	1	BMP 4	Sand Filters 3.9
2	1	BMP 5	Sand Filters 3.9
2	1	0	none of these 0
2	1	0	none of these 0
2	1	0	none of these 0
11a. How will your wastewater be handled?		South Coastal Sewer System	
11b. Do you have an estimated wastewater flow for this project?		21,600	
		0	
11d. Will any septic systems be eliminated due to sewerage or by community wastewater system being developed for the project? (yes/no)		no	
		0	



Cl  
4b

### Nutrient Loading Assessment Protocol RESULTS

Please answer the following questions. This Protocol is intended to illustrate whether proposed future land use will reduce nutrient loads when compared to the base period for the applicable TMDL. The protocol works on a parcel basis and does not take into account cumulative impacts. It serves as an indicator to the county and municipal agencies as to the impact of the proposed development on water quality and provides potential ways to mitigate the project's impact. This Protocol is a tool. It does not suggest project approval. Therefore, the applicant should be aware that final project approval is contingent upon the satisfactory completion of all County, Municipal, State and/or Federal regulatory requirements.

1	
32	
33	
34	
35	

**Congratulations you met the required TMDL reduction!**

POST DEVELOPMENT NUTRIENT LOADS will be lower than the proposed development's loads which in turn will reduce the nutrient loading to the water body. With your proposed BMPs, your proposed development meets required TMDL reduction for both Total Nitrogen and Phosphorus!

**Congratulations you met the required TMDL reduction!**

THIS PROJECT MEETS THE REQUIRED TMDL REDUCTION FOR BOTH TOTAL NITROGEN AND PHOSPHORUS!



STATE OF DELAWARE  
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL  
DIVISION OF FISH & WILDLIFE  
NATURAL HERITAGE PROGRAM  
4876 HAY POINT LANDING ROAD  
SMYRNA, DELAWARE 19977

TELEPHONE: (302) 653-2660  
FAX: (302) 653-3431

Mr. Kenneth W. Redinger  
Atlantic Resource Management, Inc.  
3 Division Street  
Onancock, VA 23417

19 December, 2001

Dear Mr. Redinger:

Thank you for soliciting the DE Natural Heritage Program for rare species information for the following development projects.

**1) Caldera Properties; Tax parcel 1-34-4-7.01**

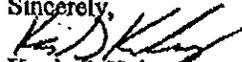
A review of our Biological and Conservation Database has revealed that this project site lies within five miles of a known Delmarva Fox Squirrel population at Assowoman Wildlife Area. The property has forested areas that could potentially be used by the Delmarva Fox Squirrel. You will need to contact United States Fish and Wildlife Service to make further inquiries into this issue. The person that should be contacted is Mr. Trevor Clark who can be reached at (410)573-4527.

This project site does not lie within a State Natural Heritage Site. However, the final decision regarding Critical Resource Waters will be made by the U.S. Army Corps of Engineers (ACOE). The information above will aid the ACOE in the review of this project.

**INVOICE - PAYMENT DUE**

It is our policy to charge a fee for this environmental review service. Please consider this letter to be an invoice for \$29.50 (\$29.50/hour for a one-hour minimum). Please make payable to and submit to:  
DE Division of Fish and Wildlife  
89 Kings Hwy.  
Dover, DE 19901  
ATTN: Carla Cassell-Carter

Sincerely,

  
Kevin S. Kalasz  
Assistant Zoologist

cc: Carla Cassell-Carter (Fish and Wildlife Coordination/Accounting)  
Mr. Trevor Clark (United States Fish and Wildlife Service)

*Delaware's Good Nature Depends on You!*



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Chesapeake Bay Field Office  
177 Admiral Cochrane Drive  
Annapolis, MD 21401

January 30, 2002

Mr. Kenneth Redinger  
President  
Atlantic Resource Management, Inc.  
3 Division Street  
Onancock, Virginia 23417

**RECEIVED**  
BY KWR. 1 MAR 27/02

RE: *Tax Parcel 1-34-4-7.01*  
*Baltimore Hundred, Sussex County, DE*

Dear Mr. Redinger:

This responds to your November 30, 2001, request for information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

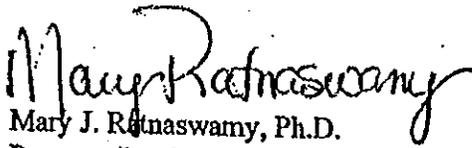
Except for occasional transient individuals, no proposed or federally listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further Section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For further information on other rare species, you should contact Karen Bennett of the Delaware Natural Heritage Program at (302) 653-2880.

An additional concern of the Service is wetlands protection. The Service's wetlands policy has the interim goal of no overall net loss of Delaware Bay's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Philadelphia District should be contacted for permit requirements. They can be reached at (215) 656-6726.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Charisa Morris at 410-573-4550.

Sincerely,

A handwritten signature in cursive script that reads "Mary Ratnaswamy". The signature is written in black ink and is positioned above the printed name and title.

Mary J. Ratnaswamy, Ph.D.  
Program Leader, Endangered Species

cc: John Brundage, COE, Dover, DE