



January 14, 2011

Mr. Tom Dingleline
Bluff Point LLC
P.O. Box 8336
Charlottesville, VA 22906

**RE: Bluff Point, Development Comparison
Northumberland County, Virginia**

Dear Mr. Dingleline:

Thank you for the opportunity to both review the proposed By-Right subdivision plan for the Bluff Point property and provide preliminary observations as it relates to the associated environmental impacts. As you know, Williamsburg Environmental Group, Inc. (WEG) has been working on this property since 2002, and we appreciate the opportunity to reflect on that experience in light of the proposed design alternatives.

Land Planning

Whereas the Planned Unit Develop (PUD) option sought to integrate a comprehensive land plan into the natural landscape with a goal to provide the least environmentally damaging design approach, the By-Right plan seeks to avoid and minimize impacts through cluster development within available upland land bays. Cluster development has its merits and advocates, but in this case, the need to maximize buildable lots results in congested cluster nodes with limited area for stormwater management practices, limited pedestrian connectivity between nodes, traditional septic sewage disposal and/or tertiary treatment and more limited recreational opportunities. In addition, By-Right plan will likely include a larger percentage of full-time residents as compared to the PUD. This may translate into both short and long term increases in water consumption and wastewater output with limited reuse potential.

The PUD option includes a state-of-the-art low impact development stormwater management approach with centralized treatment ponds and distributed Integrated Management Practices (IPM's) that serve as pre-treatment for proposed retention/detention facilities, creating opportunities for treatment in series and increased pollutant removal efficiencies. In general, treatment in series provides a higher level of water quality treatment when compared to large structural Best Management Practices (BMPs) due to the combination of pollutant removal mechanisms and lengthening of sub watershed time of concentration.

In addition, the stormwater management strategies proposed in conjunction with the PUD integrate well with the general intentions of the forthcoming updates to the State Regulations for management of stormwater by allowing for opportunities for 'runoff reduction', increased retention on site and preservation of natural flow paths/existing vegetation. Strategies outlined in the PUD stormwater management plan include wet ponds located central to proposed

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neighborhoods and rainwater harvesting which could potentially decrease the demand on the potable water supply and affect sizing of stormwater infrastructure.

The By-Right plan appears to include maximum density and expansion into the full limits of disturbance as identified by jurisdiction resources, limiting the amount of usable area for installation of centralized BMPs and/or the incorporation of Environmental Site Design techniques that would be recommended for stormwater management.

As the proposed impervious area associated with the By-Right plan is dense and focused within nearly all available upland areas, storm sewer infrastructure and associated network of stormwater utilities will be necessary to convey post-development runoff to proposed structural BMPs. This conventional strategy leads to end of pipe treatment, limiting opportunities for vegetative uptake, filtration, rainwater harvesting and/or recharge and also increase the potential for downstream erosion.

Preliminary stormwater calculations were completed for the By-Right development option using a cumulative estimate for proposed development area and an assumed impervious cover. Required 10 year detention volume for the By-Right plan is approximately 50% more than the PUD, and required phosphorus removal is approximately 20-30% more than PUD (more detention volume and more required pollutant removal generally means more/larger BMPs and associated impacts).

Boating Access

The PUD option includes significant infrastructure improvements to support an inland basin marina which forms a focal point within the community. The elimination of this feature in the By-Right plan does eliminate a significant amount of upland excavation but does not entirely eliminate the need for dredging or permits to authorize the community pier and boat ramp proposed in the By-Right plan. Considering the boat ramp would only support trailerable boats, the maximum required depth one might expect is 4-5' mean low water. This would still require some dredging but with lesser dredge volume and disposal requirements.

Wetlands

There are 452 acres of wetlands within the project area. Under the PUD option, a total of 1.54 acres of nontidal and 0.41 acres of tidal wetlands would be impacted by development activities. The balance of wetland areas and upland margins were to be preserved in their natural state and managed through forestry BMPs to ensure their continued production of ecosystem services such as water quality treatment, wildlife habitat and biodiversity, aesthetics and carbon sequestration. Under the By-Right plan, it is my understanding that you will need to harvest standing timber throughout the community. We recognize that this is a perfectly viable approach to land management and is consistent with historic land use practices on these parcels; however it is worth noting that the difficulties encountered when conducting the wetland delineation were exacerbated in part by the hydrologic degradation caused by past logging practices. Silviculture Best Management Practices do not eliminate the effect such activity will have on the quality and character of these woodlands.

Shoreline

The PUD plan incorporates shoreline stabilization for approximately 3,500 linear feet of actively eroding shoreline fronting the Chesapeake Bay. A hybrid living shoreline approach including expanded Resource Protection Area (RPA) buffers, the construction of a series of offshore breakwaters/sills, beach nourishment, dune creation and planting of vegetation is proposed to aid in restoration of the shoreline system to a state of equilibrium. A total of ten offshore breakwaters are to be placed approximately 165 feet from shore. Beach nourishment will be placed behind the breakwaters creating tombolos and providing wave run-up areas for energy dissipation. Sand placed in the backshore areas will to be graded and planted to create a dune system which has currently been lost from the property. In addition, three gapped low-water sills will be placed adjacent to the tidal marsh system at the southern end of the shoreline and nourished with sand and native plantings to provide additional shoreline stabilization and enhanced tidal marsh habitat.

The breakwater system, in combination with the beach nourishment and plantings, provides additional protection to the tidal marsh area by slowing the net transport of sandy material through the shoreline system. This shoreline restoration protects upland property, preserves water quality, and in this case restores unique habitat for the federally threatened and listed tiger beetle (*Cicindela dorsalis*). The tiger beetle has been eradicated from this area due to the erosion and loss of suitable habitat.

The By-Right plan fails to address shoreline erosion in any manner. With an erosion rate up to as much as ten feet per year, the inability to address this issue represents a significant impairment to local water quality through the constant re-suspension of fine sediments and greatly increased turbidity. The continued loss of tidal marsh is of particular concern as these areas provide well documented habitat and nursery areas for a wide variety of marine organisms.

Wastewater

The proposed By-Right and PUD plans both incorporated a central waste treatment option with drip irrigation; however, given the shift in project design, it is worth noting that standard septage disposal may be an option for portions of the site. Previously, Environmental Soil Consultants (ESC) soil scientists visited the site to confirm the soils as mapped by the Natural Resources Conservation Service (NRCS). They determined that the soils mapped as Sassafras sandy loams should be rated as fair to well-suited for use with drainfields. A preliminary estimate indicates that approximately 40 acres of this soil type occur on the project site. Areas of Dragston fine sandy loam soils were also evaluated. They determined that these soils were marginally to poorly-suited for drainfield use. Preliminary estimates indicate that approximately 70 acres of this soil type occur on the site.

The remaining soil types indicated on the NRCS soil map are poorly suited for use with any type of septage disposal under the current health department regulations. However, these soils may have inclusions of better drained soils. A detailed study of these soil areas may determine that additional locations meet the criteria for use with drainfields. Additionally, areas along the large drainage ditches that occur across the property may have sufficient drainage within 150 feet to allow use as septic disposal areas. As such, ESC has identified over 100 acres of soil area that could be usable for septage disposal.

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Forestry

As mentioned previously, timber harvesting activities proposed under the By-Right plan can have a significant impact on both the natural and human environment. All timber harvesting activities affect the forest health in some way, but may vary in degree depending on the extent of the action. The most obvious impact associated with timber harvesting is the loss of wildlife habitat. Forested areas provide habitat for a number of species including a variety of common wildlife. If the forested land is not replanted or allowed to regenerate, these habitat areas are lost. A second obvious impact of timber harvesting is that it is, by nature, a land disturbing activity. Alteration of the landscape and the harvesting activities themselves can significantly affect sedimentation, nutrient loading and the amount, duration and timing of runoff from the land. Implementation of BMPs can reduce the overall scale and duration of these effects, but will not eliminate them entirely. The potential for these types of effects is site specific and largely dependent on the history of the region and overall size of the area to be cut.

There are also visual impacts associated with timber harvesting. Development of access roads may be required within natural areas which may increase the level of human contact with wildlife. These roads may also provide increased recreational opportunities through the creation of these pathways. Visual planning tools, such as road location and design, the use of buffers, size and shape of the cut and slash and debris disposal practices, are typically employed in an attempt to minimize visual impacts to surrounding properties. However, even with the inclusion of buffers and visual planning, significant alterations to the landscape and visual aesthetics of the area are largely unavoidable.

We appreciate the opportunity to comment on the proposed plan. If you have any questions regarding these comments, please do not hesitate to contact me.

Sincerely,



Chuck Roadley

Program Manager – Regulatory