



**STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF STATE PLANNING COORDINATION**

April 20, 2010

Colmcille DeAscanis
CDA Engineering
6 Larch Avenue, Ste. 401
Wilmington, DE 19804

RE: PLUS 2010-03-03; Clayton Intermediate School

Thank you for meeting with State agency planners on to March 24, 2010 to discuss the proposed plans for the Clayton Intermediate School to be located at Underwoods Corner Road and Sorrento Drive in Clayton.

According to the information received, you are seeking site plan approval for a 83.500 sq. ft. intermediate school on 24 acres.

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. **The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that as the Town of Clayton is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.**

Strategies for State Policies and Spending

This parcel is within the Level 1 area according to the Strategies for State Policies and Spending document and within the Town of Clayton. The State has been working with the Smyrna School District on their future school needs and we support the building of this school.

The Department of Education supports this site plan for the Clayton Intermediate School within the Smyrna School District because they support locating school facilities on parcels with reasonable access to infrastructure and the community being served.

Code Requirements/Agency Permitting Requirements

- There is a known 19th century farmhouse/agricultural complex/outbuildings (K-1637) very close to this parcel, and another one (K-1647) existing to the west and south of this parcel as well. With this in mind, it is important that the developer be aware of the Delaware Unmarked Human Remains Act of 1987, outlined in Chapter 54 of Title 7 of the Delaware Code, which pertains to 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.

Prior to any demolition or ground-disturbing activities, the developer may want to consider hiring an archaeological consultant to examine the parcel for archaeological sites, including a cemetery or unmarked human remains.

- If there is any federal involvement with the project, in the form of licenses, permits, or funds, the federal agency, often through its client, is responsible for complying with Section 106 of the National Historic Preservation Act (36 CFR 800) and must consider their project's effects on or in reference to historic or cultural resources. If you have any questions or concerns in reference to these comments, please contact Mr. Terence Burns at (302) 736-7404.
- 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 :
 - 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.
 - Where a water distribution system is proposed for (business/educational/assembly/healthcare/multi-family) sites, 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. 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
- **Sediment and Stormwater Program.** Prior to developing this parcel a Sediment and Stormwater Management Plan must be reviewed and approved by the DNREC Sediment and Stormwater Program, according to Delaware Code Title 7, Section 7010. A pre-application meeting is required prior to submittal of the conceptual stormwater management plan. Contact Elaine Webb at (302) 739-9921 or elaine.webb@state.de.us for submittal requirements and to schedule a pre-application meeting.

Sediment/Stormwater and Drainage comments provided by James Sullivan - (302) 739-9921, James.Sullivan@state.de.us

- Water Supply.** The information provided indicates that the Town of Clayton will provide water to the proposed projects through a public water system. Our files reflect that the Town of Clayton does not currently hold a Certificate of Public Convenience and Necessity (CPCN) to provide public water in these areas. They will need to file an application for a CPCN with the Public Service Commission, if they have not done so already. Information on CPCN requirements and applications can be obtained by contacting the Public Service Commission at 302-736-7547. Should an on-site public well be needed, a minimum isolation distance of 150 feet is required between the well and any potential source of contamination, such as a septic tank and sewage disposal area, and 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. *Ricardo Rios - (302) 739-9944, Ricardo.Rios@state.de.us*

- Air emissions.** The applicant shall comply with all applicable Delaware air quality regulations. Please note that the following regulations in Table 2 – Potential Regulatory Requirements may apply to your project:

Table 2: Potential Regulatory Requirements	
Regulation	Requirements
7 DE Admin. Code 1106 - Particulate Emissions from Construction and Materials Handling	<ul style="list-style-type: none"> Using dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads. Using covers on trucks that transport material to and from site to prevent visible emissions.

7 DE Admin. Code 1113 – Open Burning	<ul style="list-style-type: none"> • Prohibiting open burns statewide during the Ozone Season from May 1-Sept. 30 each year. • Prohibiting the burning of land clearing debris. • Prohibiting the burning of trash or building materials/debris.
7 DE Admin. Code 1135 – Conformity of General Federal Actions to the State Implementation Plan	<ul style="list-style-type: none"> • Requiring, for any “federal action,” a conformity determination for each pollutant where the total of direct and indirect emissions would equal or exceed any of the de minimus levels (See Section 3.2.1)
7 DE Admin. Code 1141 – Limiting Emissions of Volatile Organic Compounds from Consumer and Commercial Products	<ul style="list-style-type: none"> • Using structural/ paint coatings that are low in Volatile Organic Compounds. • Using covers on paint containers when paint containers are not in use.
7 DE Admin. Code 1144 – Control of Stationary Generator Emissions	<ul style="list-style-type: none"> • Installing new emergency generators for use during emergencies, testing, and maintenance purposes. • Maintaining recordkeeping and reporting requirements.
7 DE Admin. Code 1145 – Excessive Idling of Heavy Duty Vehicles	<ul style="list-style-type: none"> • Restricting idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.

Recommendations/Additional Information

This section includes a list of site specific suggestions that are intended to enhance the project. These suggestions have been generated by the State Agencies based on their expertise and subject area knowledge. **These suggestions do not represent State code requirements.** They are offered here in order to provide proactive ideas to help the applicant enhance the site design, and it is hoped (**but in no way required**) that the applicant will open a dialogue with the relevant agencies to discuss how these suggestions can benefit the project.

State Historic Preservation Office

- There is a known 19th century farmhouse/agricultural complex/outbuildings (K-1637) very close to this parcel, and another one (K-1647) existing to the west and south of this parcel as well.

Another aspect of this parcel is that the agricultural and open space context of it contributes to the historic significance of these historic properties, and proposed development/construction project would affect the historic context of the area or other properties. You should provide landscaping along the borders of the parcel in order to lessen the visual effects on the surrounding properties. There is a high probability for historic archaeological sites on the subject property.

State Fire Marshal's Office

- Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for an appointment. Applications and brochures can be downloaded from the website at www.statefiremarshal.delaware.gov, technical services link, plan review, applications and brochures.

Department of Agriculture

- 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.
- Due to the high risk of mortality from insects and disease, the Delaware Forest Service does not recommend planting any of the following species:

Callery Pear
Leyland Cypress
Red Oak (except for Willow Oak)
Ash Trees

Department of Transportation

All proposed access to the school would be by means of Town streets. Therefore it is outside the jurisdiction of DelDOT. They offer the following suggestions and additional information.

- The developer of Old Country Farm is obligated by an agreement with the Department to provide 11-foot lanes and 5-foot shoulders on Underwoods Corner Road (Kent Road 94)

from Delaware Route 300 to the west limit of the development's frontage. However, the agreement requires these improvements be complete only by the issuance of the 125th building permit. Presently, only 20 houses have been built in the development and if sales do not improve, the school could be open for several years before the developer is ready for their 125th building permit.

DelDOT recommends that the District work with the developer and the Town to obtain improvements at the intersection of Sorrento Drive and Underwoods Corner Road before the school opens. An eastbound right turn lane and a westbound left turn lane will need to be constructed as part of the developer's ultimate improvements. A lesser improvement, e.g. a bypass lane instead of a left-turn lane, might be sufficient on an interim basis but may not be practical depending on the useful life of that improvement. The District's engineer may contact the DelDOT Subdivision Manager for northern Kent County, Mr. Julio Seneus, at 760-2145 to discuss road improvement options. Any work on Underwoods Corner Road will require Department approval and Mr. Seneus can serve as an initial contact in that regard.

- The developer of Old Country Farm is also obligated to provide a 10-foot wide multi-modal path along the development's frontage on Underwoods Corner Road. It is recommended that the District also work with the developer and the Town to get the segment of the path west of Sorrento Drive built before the school opens so that children in the Gunner's Run development will have a safe walking path to school.
- While DelDOT expects the Town to require it, even if they do not, DelDOT would urge the District to provide sidewalks along their frontage on Sorrento Drive.
- Davis, Bowen & Friedel completed a traffic impact study for Old Country Farm (then the Diemicke Property) in December 2004 and this office reviewed it in 2005. The study assumed a 600-student elementary school on the subject land. While the Institute of Transportation Engineers' Trip Generation report shows that middle schools generate slightly more traffic per student than do elementary schools, the difference is not significant. DelDOT recommends that the 2004 report be used for traffic volumes as necessary. DelDOT has a copy of that report on file and can provide a copy of either the report or our comments on it if they are needed.

Department of Natural Resources and Environmental Control

- **Wetlands** - According to the Statewide Wetland Mapping Project (SWMP) mapping, palustrine wetlands (Pf10) were mapped in the immediate vicinity of the proposed project (Figure 2). Since the wetlands are not tidal or connected to a surface water body, the State does not have jurisdiction.

However, the applicant should also be reminded that they must avoid construction/filling activities in those areas containing wetlands or wetland associated hydric soils as they are

subject to regulatory jurisdiction under Federal 404 provisions of the Clean Water Act. A site-specific field wetlands delineation using the methodology described in the 1987 United States Army Corps of Engineers (USACE or “the Corps”) manual is the acceptable basis for making a jurisdictional wetland determination for nontidal wetlands in Delaware. The final jurisdictional authority for making isolated wetlands determinations rests with the Corps; they can be reached by phone at 736-9763.



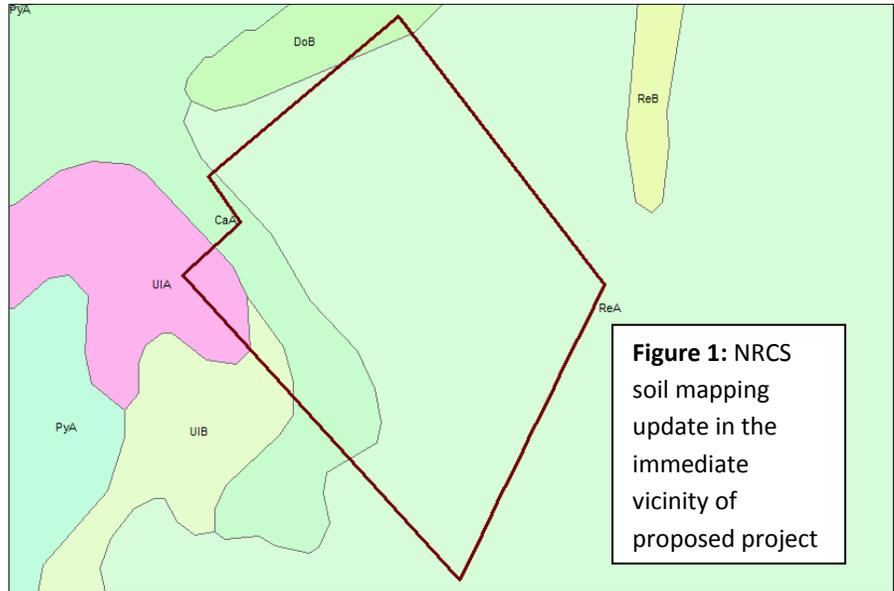
- Based on a review of existing buffer research by Castelle et al. (Castelle, A. J., A. W. Johnson and C. Conolly. 1994. *Wetland and Stream Buffer Requirements – A Review*. J. Environ. Qual. 23: 878-882.), an adequately-sized buffer that effectively protects wetlands and streams, in most circumstances, is about 100 feet in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from all water bodies (including ditches) and wetlands.
- **Flood Management.** The parcel is located in Zone X (unshaded) which is outside of the 0.2% annual chance floodplain. The parcel is located at the top of the watershed for Wheatley Pond. *Gregory Williams* - (302) 739-9921, Gregory.Williams@state.de.us
- **Soils Assessment.** The following soil map units were identified and mapped in the immediate vicinity of the proposed project by the NRCS soil survey update (See figure 1):

ReA– Reybold silt loam, 0-2% slope

The ReA map unit is a phase of the Reybold soil series. The gently-sloping Reybold soil map unit is well-drained with a depth to a seasonal high water table greater than 72 inches. Limitations for development are generally considered slight.

UIA – Unicorn loam, 0-2% slope & UIB – Unicorn loam, 2-5% slope

The UIA and UIB map units are phases of the Unicorn soil series. The nearly-level to gently sloping Unicorn soil map units are somewhat well-drained with depth to a seasonal high water table ranging from 40-72 inches. Limitations for development are generally considered slight.



CaA –

Carmichael loam, 0-2 percent slope

The CaA map unit is a phase of the Carmichael soil series. The nearly-level Carmichael soil map unit is poorly-drained with depth to a seasonal high water table less than 10 inches. Carmichael is a wetland associated (hydric) soil that has severe limitations for development and should be avoided.

- Impervious Surfaces and Best Management Practices.** Based on information provided by the applicant in the PLUS application, this projects post-development surface imperviousness is estimated to reach about 26%. Based on a review of the conceptual lot layout, however, this estimate appears to be a significant underestimate given the density of development proposed for this project. When calculating surface imperviousness it is important to include all forms of constructed surface imperviousness (e.g., rooftops, driveways, parking lots, sidewalks, open-water stormwater management structures, artificial turf, and roads) in the calculation for surface imperviousness; this will ensure a realistic assessment of this project’s likely post-construction environmental impacts. We suggest that surface imperviousness be recalculated with all of the aforementioned forms of surface imperviousness included in the revised calculation.

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 establishment

of additional forest cover acreage) are some examples of practical BMPs that could easily be implemented to help reduce surface imperviousness.

- The applicant should also realize that heavily trafficked natural turf (e.g., football fields, hockey fields, etc.), as currently proposed in this project, become relatively impermeable to water over time, and will likely contribute to increased water runoff from this site. This increases the importance for implementing some or all the above-mentioned BMPs to help reduce nutrient runoff.
- **Air Quality information.** Schools may emit, or cause to be emitted, air contaminants into Delaware’s air, which will negatively impact public health, safety and welfare. These negative impacts are attributable to:
 1. Emissions that form ozone and fine particulate matter; two pollutants relative to which Delaware currently violates federal health-based air quality standards,
 2. The emission of greenhouse gases which are associated with climate change, and
 3. The emission of air toxics.
- Air emissions generated from a new school include emissions from the following activities:
 1. Area sources such as painting, maintenance equipment and the use of consumer products like roof coatings and roof primers.
 2. The generation of electricity needed to support the office spaces and classrooms in your school, and
 3. Car and school bus activity associated with the new school.

The three air emissions components (i.e., area, electric power generation, and mobile sources) could not be quantified because the current PLUS application does not include sufficient data to project the emissions from the proposal. However, based on the assumed daily trip value of 1,151 trips provided by the applicant, a portion of the mobile emissions were estimated.

- The emissions in Table 1 represent the projected impact the new Smyrna Middle School may have.

Table 1: Projected Air Emissions					
Emissions Attributable to the new Smyrna Middle School (Tons per Year)	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NOx)	Sulfur Dioxide (SO ₂)	Fine Particulate Matter (PM _{2.5})	Carbon Dioxide (CO ₂)
Direct Area	*	*	*	*	*

Source					
Electrical Power Generation	*	*	*	*	*
Mobile	1.9	2.5	*	*	*
Total	1.9	2.5	*	*	*

(*) Indicates data is not available.

- Note that emissions associated with the actual construction of the middle school, including automobile and truck traffic from working in, or delivering products to the site, as well as site preparation, earth moving activities, road paving and other miscellaneous air emissions, are not reflected in the table above.
- Additional measures may be taken to substantially reduce the air emissions identified above. These measures include:
 - **Constructing with only energy efficient products.** Energy Star qualified products are up to 30% more energy efficient. Savings come from building envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems and upgraded water-heating equipment. Every percentage of increased energy efficiency translates into a percent reduction in pollution. The Energy Star Program is excellent way to save on energy costs and reduce air pollution.
 - **Offering geothermal and/or photo voltaic energy options.** These systems can significantly reduce emissions from electrical generation, and from the use of oil or gas heating equipment.
 - **Providing tie-ins to the nearest bike paths and links to any nearby mass transport system.** These measures can significantly reduce mobile source emissions.
- Additionally, the following mitigation measures will reduce emissions associated with the actual construction phase of the project:
 - **Using retrofitted diesel engines during construction.** This includes equipment that are on-site as well as equipment used to transport materials to and from site.
 - **Using pre-painted/pre-coated flooring, cabinets, fencing, etc.** These measures can significantly reduce the emission of VOCs from typical architectural coating operations.
 - **Planting trees at residential units and in vegetative buffer areas.** Trees reduce emissions by trapping dust particles and by replenishing oxygen. Trees also reduce energy emissions by cooling during the summer and by providing wind breaks in the winter, whereby reducing air conditioning needs by up to 30 percent and saving 20 to 50 percent on fuel costs.

This is a partial list, and there are additional things that can be done to reduce the impact of the development on air quality. The applicant should submit a plan to the DNREC Air Quality Management Section which address the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into the Smyrna School District. *Deanna Morozowich - (302) 739-9402,*
Deanna.Morozowich@state.de.us

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".

Constance C. Holland, AICP
Director

CC: Smyrna School District
Town of Clayton