



AECOM 302.781.5900 tel
Sabre Building, Suite 300 302.781.5901 fax
4051 Ogletown Road
Newark, DE 19713

January 24, 2019

Ms. Lisa Moore, Manager
Kennett Township
801 Burrows Run Road
Chadds Ford, PA 19317

**Re: Novak Property
Preliminary Subdivision and Land Development Plan**

Dear Ms. Moore:

We are in receipt of the following information for the above noted project:

- Novak Property Preliminary Subdivision Plan Set prepared by Edward B. Walsh & Associates, Inc. dated October 12, 2018, last revised December 26, 2018 (22 Sheets);
- Copy of AECOM's previous review letter, dated November 21, 2018 with notes from Edward B. Walsh & Associates, Inc. in red text, dated January 8, 2019, indicating responses to most AECOM comments;
- Stormwater Management Calculations Report prepared by Edward B. Walsh & Associates, Inc. dated October 17, 2018, last revised January 7, 2019 (401 Pages);
- Sewage Facilities Planning Module Package, prepared by Edward B. Walsh & Associates, Inc., dated October 11, 2018; and
- Soils Report for Stormwater Recharge Suitability for Novak Property 615 Norway Road, prepared by Edward B. Walsh & Associates, Inc., dated September 25, 2018 with no revision noted (14 pages).

The Plan proposes to subdivide existing UPI # 62-4-308.1, located in the R-1 – Residential Zoning District and containing 42.446 acres, into 4 lots (Lot 5 (4.148 acres), Lot 6 (4.586 acres), Lot 7 (4.816 acres) and Lot 8 (8.023 acres) along with an existing conservation easement (21.562 acres - per Deed Book 6290 Page 1931). The development of each lot will consist of a single-family dwelling as well as associated utilities and stormwater management. The lots will be serviced through on-lot wells and septic systems. Lot 6 contains an existing 2 ½ story dwelling that is proposed to remain. The existing septic system for this lot is located almost fully on Lot 5. A septic access easement is proposed for this existing facility.

The project parcel, UPI #62-4-308.1, is located at the end of Sunstone Lane. The driveway for Lot 8 will access the cul-de-sac of Sunstone Lane. Lots 5, 6 & 7 will access Norway Road (T-627) via a proposed private driveway right-of-way. The proposed private drive will access the west side of Norway Road at the intersection with Carlton Drive.

In addition, the plan proposes minor modifications to existing UPI #s 62-4-307.2 (Lot 2) and 62-4-307.3 (Lot 3). These lots are part of the previously approved Final Major Subdivision Plans for Mr. & Mrs. Craig Novak (for UPI # 62-4-307) prepared by Advanced Geoservices of West Chester, PA, dated August 3, 2011, last revised November 5, 2012. The approved Plan was recorded at the Chester County Recorder of Deeds as Plan #19420 on June 28, 2013. The proposed modifications include shifting the previously proposed dwelling, driveway and septic locations on Lots 2 & 3. Lot 2 is to change from 4.664 acres to 4.132 acres and Lot 3 is to change from 7.364 acres to 5.714 acres to provide a 50' wide proposed private driveway right-of-way to allow for Lots 5, 6 & 7 to access Norway Road (T-627).

AECOM has reviewed this submission as a Preliminary Subdivision and Land Development Plan in accordance with the Kennett Township Zoning, Subdivision and Land Development and Stormwater Management Ordinances. **All prior comments are listed below with new or modified comments indicated by bold italic text to clarify the status of each. Please note that soils testing and revised stormwater management design calculations have been provided with the current submission.**

Subdivision and Land Development Ordinance

1. §206-403.B.(1).(a).[3] requires the total acreage of the tract to be provided on the plan. The Applicant should add this area to the Subdivision Plan (Sheet 6). (11/21/18) **The required area has been added to Sheet 7. This item has been resolved.**
2. §206-403.B.(1).(b) states the requirements for the location map. All watercourses, Flood Hazard District, wetlands as shown on the National Wetland Inventory Maps, any rare, threatened or endangered (RTE) species known to exist based on information from the PNDI and any woodlands should be shown on the USGS quadrangle maps and/or available aerial photography should be shown on the location map. (11/21/18) **The required information has been added to the location map. This item has been resolved.**
3. §206-403.D requires a Natural and Cultural Resources Site Analysis Plan. The current submission includes this plan. The following comments regarding this plan should be addressed:
 - A. §206-403.D.(2) requires floodplains, watercourses, wetlands and any historic resources to be shown on the plan. Notes regarding the presence or source of these items should be included on the plan. In addition, any watercourses should be labeled. (11/21/18) **The required items have now been added to the plan. Notes regarding the sources for these items (floodplains, wetlands and historic resources) should be included on the plan sheet. This item remains unresolved.**
 - B. §206-403.D.(2).(j).[4] requires the locations of all specimen vegetation, including heritage trees, to be identified based upon field investigation, and within affected areas only. The location of all individual trees 12" diameter breast height shall be indicated. A survey of the individual trees has not been provided. (11/21/18) **A tree survey has been performed to determine the location of all trees on the project site. Note 9 on the Existing Conditions Plan (Sheet 3) indicates that the survey was performed by Edward B. Walsh & Associates. The date of the survey should be included in this note. This item remains unresolved.**
4. §206-403.G(2) requires submission of a Sewage Facilities Planning Module. The Applicant has provided a copy of a Planning Module package, but test pit and percolation test information as required by §206-403.G(2)(a) have not been provided. Please see additional Planning Module comments elsewhere in this letter. (11/21/18) **Test Pit and percolation test information has been inserted in the current Planning Module submission, although no revision date is noted. Please see additional Planning Module comments elsewhere in this letter.**
5. §206-403.I states the required elements of the Stormwater Management and Erosion and Sediment Control Plan. The current plan submission includes a Post Construction Stormwater

- Management Plan (Sheets 12 & 13) and an Erosion and Sedimentation Pollution Control Plan (Sheets 14 & 15). §206-403.I.(6) requires the general type of soils to be shown with hydrologic soil group noted, estimated permeabilities in inches per hour, and location and results of all soil tests and borings. A table with any soil data should be provided on the plans. (11/21/18) ***The required soils information has been added to the Post Construction Stormwater Management Plan (Sheet 14) and the Erosion and Sedimentation Pollution Control Plan (Sheet 16). This item has been resolved.***
6. §206-403.N requires a statement by the applicant, indicating the plans are or are not in conformity with engineering, zoning, building, sanitation and other applicable Township ordinances and regulations, and if they are not so conforming, the reasons for requesting an exception. This statement should be provided on the Cover Sheet (Sheet 1). (11/21/18) ***The required statement has been added to the Cover Sheet. This item has been resolved.***
 7. §206-505.D states the requirements for driveway surfaces. No details have been provided regarding the driveway pavement section. (11/21/18) ***A driveway pavement detail has been added to Sheet 17. This item has been resolved.***
 8. §206-508.E requires location of both primary and replacement sewage disposal areas for on-lot sewage systems, provision of soils testing in support of same, and a prohibition on any construction activities, construction equipment, earthmoving activity, earthmoving equipment, or paving within the designated primary and replacement disposal areas. The noted prohibition on disturbance is to be memorialized on the plan as a deed restriction. Required test pit and percolation test information should be provided, and both primary and replacement disposal areas delineated on each proposed lot and each lot with revised lot lines in accordance with the testing results and applicable DEP regulations. (11/21/18) ***The location of primary and replacement sewage disposal areas for the on-lot sewage systems have now been provided on the Site Layout, Grading and Construction Improvement Plan (Sheets 9 & 10), including the location of the soils testing performed. Much of the soils testing is over 7 years old; the Applicant should provide written acceptance of this aged testing by the Chester County Health Department. All percolation test reports should also indicate which area was tested (e.g. associated test pits). Additional comments regarding sewage disposal area layouts will be provided upon receipt of a submission that addresses these items. We also note that no information regarding a deed restriction for these areas has been included on the plan.***
 9. §206-510.A requires all utilities, including electric, gas, telephone, etc., to be placed underground. This should be noted on the plans. (11/21/18) ***A note stating this requirement has been provided on the Site Layout, Grading and Construction Improvement Plan (Sheets 9 & 10). This item has been resolved.***
 10. §206-514.C requires the placement of monuments or markers to be placed. A note should be provided on the plans stating this. (11/21/18) ***A note requiring the placement of monuments has been provided on the Site Layout, Grading and Construction Improvement Plan (Sheets 9 & 10). This item has been resolved.***
 11. §206-517.A provides the requirements regarding limitations to woodland disturbance. No specimen vegetation, including heritage trees, shall be removed from any lot except where the applicant demonstrates to the satisfaction of the Board of Supervisors that such removal is

essential to eliminate hazardous conditions or otherwise permit lawful use of the lot or tract. Specimen trees to be retained shall be credited toward any tree replacement required under §206-517.B. §240-201 defines specimen vegetation as:

- A. *Any individual plant or group of plants identified on the Visually Significant Resources Map (2002) of the Kennett Township Resources Analysis, or which are located in a rare, threatened, endangered (RTE) species site;*
- B. *A “heritage tree” as defined in [the Zoning Ordinance]; or*
- C. *Any tree or other vegetation determined to be of specimen quality as determined by a registered landscape architect or which generally falls within the parameters of those trees listed in Appendix B, Heritage Trees.*

Individual trees have not be surveyed or indicated on the plan. Note 9 on the Overall Existing Conditions Plan (Sheet 2) states that the woodlands illustrated are extracted from Pro-Maps Survey. Per the “Kennett Township Woodland Classification and Forest Interior Map” (2005) provided in Appendix E of the Zoning Ordinance, the site contains Class I, II and III woodlands as well as Interior Forest Habitat (within the Conservation Easement Area). The areas of woodlands outside of the riparian buffers should be indicated on the Protected Resource Table on the Overall Existing Conditions Plan (Sheet 2) with any applicable areas of disturbance.

§206.517.A.(4) states that any woodland disturbance exceeding any of the standards listed in this section shall require woodland replacement. The Applicant should demonstrate compliance with this Section with regard to any tree replacement requirements. (11/21/18) ***A tree survey has now been performed. There are several trees ranging in diameter from 12” to 24” proposed to be removed as indicated on the Existing Conditions Plan (Sheets 2 & 3). The Applicant should demonstrate how the woodland replacement requirements will be met. The Township’s Landscape Architect, Thomas Comitta & Associates should review the proposed tree removal and woodland replacement for acceptability.***

Zoning Ordinance

1. The proposed improvements are located in the R-1 Residential Zoning District. Per §240-401.A.(1), single family detached dwellings are permitted by right. §240-402 provides the Area and bulk regulations for this District. The Zoning information has been provided on the Subdivision Plan (Sheet 6). This table should be provided on the Cover Sheet (Sheet 1) along with the proposed conditions for each lot. (11/21/18) ***A table with the Zoning Information has been added to the Cover Sheet. This item has been resolved.***
2. §240-1802.C states the wetlands standards. There are multiple areas of wetlands in the proposed project area. §240-1802.C.(1).(a) requires any project that proposed any regrading or placement of fill in wetlands shall provide proof to the Township that the PA DEP (Bureau of Dams and Waterway Safety and Bureau of Water Quality Management) and the United States Army Corps of Engineers have been contacted to determine the applicability of state and federal wetland regulations. A copy of any correspondence or required permits should be provided to the Township. (11/21/18) ***No response has been provided with this submission. This comment remains unresolved.***

3. §240-1802.C.(2) requires a full wetland delineation report. A copy of the wetland delineation report should be provided to the Township. (11/21/18) ***The Applicant states that this will be provided. This comment remains unresolved.***
4. §240-1802.D provides the wetland margin standards. Per §240-200, the wetland margin is defined as a 50 foot buffer around any wetlands. The 50' wetland margin buffer has been indicated on the plan. Some areas of wetlands shown on the plan are not within the riparian buffer zones. However, the Protected Resources Table provided on the Engineering Site Analysis Plan (Sheet 3) does not include any wetland or wetland buffer areas in Column A. This should be clarified. (11/21/18) ***The wetland margins have now been delineated on the plans and included in the Protected Resources Table. This item has been resolved.***
5. §240-1802.E provides the watercourse and riparian buffer standards. Per §240-200, the Zone One: Inner Riparian Buffer shall consist of a minimum width of 35 feet from the edge of bank, and must be increased to include any steep slopes up to a maximum of 100 feet on either side of the watercourse. The Zone Two: Outer Riparian Buffer includes the remainder of the 100 foot buffer along either side of the watercourse. The width of the buffer zones should be indicated on the plan either through a label or a note. In addition, no disturbance within the Zone One Riparian Buffer is permitted unless it is permitted by the Commonwealth. Any applicable permits should be provided to the Township for the proposed disturbances. (11/21/18) ***The riparian buffer zones have been labeled on the plans. Disturbance within the Zone One Riparian Buffer is proposed. The Applicant indicates that a GP-7 permit will be obtained. This approval requirement should be noted on the Cover Sheet. In addition, a copy of the required permit should be provided prior to Final Plan approval. This item remains unresolved.***
6. §240-2019.B provides information regarding the identification of historic structures. Per the "Kennett Township Cultural, Historic and Scenic Resources Plan" (2005), a historic structure is located on the property parcel. In addition, there is one located within the previously approved subdivision plan parcel. Note 12 on the Overall Existing Conditions Plan (Sheet 2) states that there are no historic resources on the site. The Applicant should clarify these apparent discrepancies. (11/21/18) ***The historic structures have now been labeled on the plan. This item has been resolved.***
7. §240-2021 provides the standards for interior lots. §240-2021.B allows up to three interior lots to share a common driveway. Three lots are proposed to use the proposed common driveway. §240-2021.F requires cross-easements and maintenance agreements for use and maintenance of the common driveway to be submitted to the Township for review and approval. Such easements and maintenance agreements are to be recorded with the approved final subdivision plan and each interior lot deed. All such documents should be reviewed and approved by the Township Solicitor prior to Final Plan approval. (11/21/18) ***Copies of the proposed easements should be provided prior to Final Plan approval. This item remains unresolved.***

Stormwater Management Ordinance

The Applicant is proposing the use of a detention/infiltration basin for each proposed lot and an additional detention/infiltration basin for the shared private driveway to meet the water quality, runoff volume and runoff rate requirements of the Kennett Township Stormwater Management Ordinance

and the PA DEP Stormwater BMP Manual. Note 1 of the General Notes on the Site Layout, Grading and Construction Improvement Plan (Sheets 8 & 9) states that the residences are illustrative and are not final at this time. Actual residential plans and configurations will be submitted at building permit. On-lot septic systems are approximate and subject to changes from testing. It should be noted that additional comments may be generated regarding the stormwater management design if the proposed improvements or grading changes significantly. The following requirements regarding the proposed stormwater management design should be addressed: (11/21/18)

Please note, the stormwater management design has been redesigned and the proposed stormwater management facilities are now labeled as rain gardens. In addition, the soil test pit and infiltration testing results have now been provided. The following requirements regarding the proposed stormwater management design still need to be addressed:

1. §199-303.A.(1)(a) requires a letter of adequacy or other approval from PADEP in compliance with Title 25, Chapter 102, of the Pennsylvania Code of an erosion and sediment control plan for construction activities. The Erosion and Sediment Control Plan should be kept on-site throughout the duration of the regulated activity. This should be noted on the Plan. In addition, §199-303.A.(1)(b) requires a PADEP NPDES construction activities permit. This permit should be provided prior to final approval. (11/21/18) ***The required note has been provided on the Erosion and Sedimentation Pollution Control Plan. A letter of adequacy and the PADEP NPDES construction activities permit should be provided prior to final approval. This item remains unresolved.***

1A. New Comment: The Post Construction Stormwater Management (PCSM) Plan (Sheets 13 & 14) now proposes the use of 8 rain gardens to provide water quality and runoff volume control. A detail titled Detention/Infiltration Basin Cross Section has been provided on the PCSM Detail Sheet (Sheet 17). The proposed rain garden design must follow the requirements outlined in Chapter 6 of the PA DEP BMP Stormwater Manual (BMP 6.4.5: Rain Garden/Bioretenention). The following comments regarding the proposed rain gardens should be addressed:

A. The Detention/Infiltration Basin Cross Section detail name on the PCSM Detail Sheet should be updated to match the labels on the PCSM Plan (i.e., Rain Garden).

B. The Design Considerations for rain gardens are provided on Page 57 of Chapter 6 of the PA DEP Stormwater BMP Manual. The following items should be addressed:

- i. Sizing Criteria 1c states that the surface ponding depth should not exceed 6 inches. The detail indicates a top of riser elevation but no detail or information has been provided for a riser. In addition, proposed ponding depths for the rain gardens range from 0.67' to 1.25' in depth. The detail should provide information on the proposed riser and the ponding depths should be updated to meet the requirements of the PA DEP BMP Manual.***
- ii. Sizing Criteria 1e states that the planting soil depth should generally be at least 18" where only herbaceous plant species will be utilized. The detail does not indicate the planting soil depth. The cross section view indicates that the depth "varies". The proposed inverts of the 6" perforated underdrains for the rain gardens range from 0.67' to 2' below the proposed***

bottom of ponding area elevation. The detail/design should be updated to include a minimum of at least 18" of planting soil.

2. §199-305.A requires the post-construction total runoff volume to not exceed the predevelopment total runoff volume for all storms equal to or less than the 5-year 24 hour precipitation. The post development grass cover should be modeled as Type C soil (instead of Type B) in accordance with the requirements of §199-309.D.(3).(e) which requires all disturbed areas returned to pervious area to be reduced by one hydrologic soil group level for post-development runoff calculations. Runoff volume calculations have been provided in Appendix A of the Stormwater Calculations Report on page 25 (Access drive), page 65 (Lot 2), page 105 (Lot 3), page 145 (Lot 5), page 185 (Lot 7), page 226 (Lot 8, POI #1) and page 252 (Lot 8, POI #2). The calculations should be updated to reflect the above requirements. The provided runoff volume calculations provided only include the 2 year storm event runoff volume and do not model the disturbed pervious area as being reduced by one hydrologic soil group. Additionally, a calculation/summary table should be provided indicating how the post development total runoff volume will be reduced to the pre development volumes. (11/21/18) ***The runoff volume calculations have been revised to model disturbed grass cover as Type C soils in accordance with the requirements of §199-309.D.(3).(e); however, the volume calculations only include the 2-year 24 hour precipitation volumes. The calculations should be updated to include the 5-year 24 hour precipitation volumes. Additionally, a summary table indicating the required volume reduction needed and the proposed storage volume calculations has not been provided. This should be included in the calculation narrative.***

Additionally, although the runoff volume calculations have been revised to model the post development grass cover as Type C soil (instead of Type B) in accordance with the requirements of §199-309.D.(3).(e), the peak flow calculations have not been updated to reflect this requirement. These items remain unresolved.

3. §199-306.A states that where possible, infiltration should be designed to accommodate the entire water quality and runoff volume required in §199-305. The Applicant is proposing the use of ***rain gardens (previously labeled*** detention/infiltration basins) with 6-8" perforated underdrains. Design Consideration 15 on Page 30 of Chapter 6 of the PA BMP Manual allows for the use of a backup underdrain to be considered in the event that the water in the basin does not drain within the required time period. The proposed underdrains should either be removed from the design or a valve should be provided. If an underdrain valve should be provided, it should remain in the shut position unless the basin does not drain. (11/21/18) ***The Soils Report for Stormwater Recharge Suitability states that the soils are generally not suitable for infiltration and that 4 of the 5 test pits encountered limiting zones (i.e. redoximorphic features and groundwater). Per §199-305.A, the post-construction total runoff volume shall not exceed the predevelopment total runoff volume for all storms equal to or less than the 5-year, 24-hour duration precipitation. This volume shall be captured and permanently retained or infiltrated on the site. Permanent retention options may include, but are not limited to, reuse, evaporation, transpiration and infiltration. Infiltration shall be the preferred method of volume control, and evaporation and transpiration may only be used to achieve volume control if the applicant demonstrates with calculations and data to the satisfaction of the Township Engineer that infiltration on the site is not physically possible. The proposed rain gardens with underdrains do not provide the required volume reduction. The Applicant should***

demonstrate how the requirements of this section will be met. This item remains unresolved.

4. §199-306.E requires soils evaluations for the proposed infiltration BMP. No test pit or infiltration testing data has been provided. Infiltration testing and test pits should be provided in accordance with the Kennett Township Stormwater Management Ordinance as well as the PA DEP Stormwater BMP Manual. The location of the infiltration testing/test pit should be provided on the Plan once they are performed. §199-306.E.(2).(a) requires one infiltration test for each facility with a surface area of less than 1,000 square feet. Two infiltration tests are required for surface areas between 1,000 and 2,000 square feet. If the facility area exceeds, 2,000 square feet in surface area additional testing is required as noted in this section. Additionally, §199-306.F.(1) requires a minimum depth of 24 inches between the bottom of the BMP and the top of the limiting zone. The test pits should extend a minimum of 24 inches below the depth of the deepest cut area for each facility. (11/21/18) **Test pit and infiltration testing results have now been provided for the rain gardens proposed on Lots 5 through 8 only. No testing results were included for the rain gardens proposed within the lots contained in the previously approved set (i.e., Rain Garden #2 on Lot 2 and Rain Garden #3 on Lot 3). Per §199-306.E.(2).(a), two (2) infiltration tests are required for each of the proposed facilities (since they range in size from 1,076 square feet to 5,860 square feet).**

One test pit was performed for each of the proposed rain gardens on Lots 5 through 8. The Soils Report for Stormwater Recharge Suitability states that the soils are generally not suitable for infiltration and that 4 of the 5 test pits encountered limiting zones (i.e. redoximorphic features and groundwater). Therefore, only one test pit was performed for each facility and infiltration testing was only performed at TP# 5 on Lot 8. According to the testing, the required separation distance has not been provided for Rain Garden #s 1, 5, 7 & 8, with the proposed underdrain elevations located completely below the elevation where redoximorphic features were encountered (i.e., within the seasonal high water level). Only Rain Garden #6 includes the required separation distance.

No testing was provided for Rain Garden #2 on Lot 3 and Rain Garden #3 on Lot 3. The design of these facilities has changed since the previously approved plan. A minimum of two infiltration tests and a test pit are required for each of these facilities.

It appears the soils within Lots 5 through 8 are not suitable for infiltration. No further infiltration testing is needed within these areas. See Comment 3 above for additional information on the design of the rain gardens. No testing has been provided for the rain gardens proposed on Lots 2 and 3. This information should be provided. This comment remains unresolved.

5. §199-306.F.(3) requires infiltration facilities to completely drain the infiltration volume within two days (48 hours) from the end of the design storm. Calculations should be provided to ensure that the proposed facilities drain within the required time period. (11/21/18) **The current stormwater design meets the requirements of this section; however, any revisions to the stormwater management design per the comments of this section should continue to meet the requirements of §199-306.F.(3). This item is presently resolved.**
6. §199-306.G.(3) requires infiltration practices to be at least 50 feet from any septic system. The proposed minimum separation distance should be labeled on the Post Construction Stormwater

- Management Plan (Sheets 12 & 13). (11/21/18) ***The distances between the proposed rain gardens and septic systems have now been labeled on the PCSM Plan. This item has been resolved.***
7. §199-306.I requires all infiltration practice components to be protected from compaction due to heavy equipment operation or storage of fill or construction material during construction. Infiltration areas shall also be protected from sedimentation and stormwater runoff during construction by diversion berms or other features necessary to protect the facility. Areas of infiltration practices that are accidentally compacted or graded shall be remediated to restore soil composition and porosity, and the Township may require the size of the infiltration facility to be expanded to compensate for the unintended compaction. Adequate documentation of the remediation effort shall be submitted to the Township Engineer for review and comment. These requirements should be reflected in the Sequence of Construction as well as in the Plan view. Silt fencing and orange construction fence (OCF) should be shown on the Plan around the proposed infiltration facilities. A diversion berm may be needed to avoid directing potential sedimentation from the construction area. In addition, the topsoil stockpile location should be provided to ensure that runoff from the stockpile area is not directed towards the proposed infiltration facility. (11/21/18) ***The remediation requirements noted in this comment should be included in the Sequence of Construction on the E&S Detail Sheet (Sheet 18). In addition, the Erosion and Sedimentation Pollution Control Plan (Sheets 15 & 16) only indicate orange construction fence (OCF) around the proposed infiltration facilities. The facilities should be protected from sedimentation during construction through silt fencing or compost socks. This item remains unresolved.***
8. §199-309.A provides a list of the allowable calculation methodologies. §199-309.C allows the use of the Rational Method consistent with the PennDOT Drainage Manual (Publication 584). Section 7.3.I (page 7-17) states that the Rational Method is not appropriate if storage is an important factor. An appropriate methodology (e.g. TR-20 and TR-55 methodologies) should be used to model the volumes instead of the methodology presently utilized. (11/21/18) ***The calculations have been updated to utilize the SCS Method. This item has been resolved.***
9. §199-309.B requires the rainfall depths obtained from NOAA Atlas 14 to be used. The rainfall depth used for the 50 year storm event should be updated to 6.69 instead of 5.64. (11/21/18) ***The rainfall depth has been corrected. This item has been resolved.***
10. §199-309.H requires hydraulic computations to determine the capacity of pipes and storm sewers. Calculations should be provided to ensure that the roof drains are adequately sized. (11/21/18) ***Calculations have been provided for the roof drain pipes. This item has been resolved.***
11. §199-402 states the SWM site plan content requirements. The following items should be included on the Post Construction Stormwater Management Plan (Sheets 12 & 13) (***now Sheets 13 & 14***). In addition, the approved Stormwater Site Plan should be kept on-site throughout the duration of the regulated activity in accordance with §199-301.A. This should be noted on the Plan. (11/21/18) ***A note requiring the approved Stormwater Site Plan to be kept on-site has not been provided on the plan. This item remains unresolved.***
- A. §199-402.A.(2) requires a listing of all regulatory approvals required for the proposed project. Final approval letters must be submitted to the municipality prior to or as a

condition of final approval of the SWM plan. (11/21/18) ***A list of the required approvals has not been provided on the PCSM Plan (Sheets 13 & 14). This item remains unresolved.***

- B. §199-402.A.(3) requires a statement, signed by the Applicant, acknowledging that any revision to the approved SWM Plan shall be submitted to and approved by the municipality and that a revised erosion and sediment control plan shall be submitted to and approved by the Conservation District for a determination of adequacy prior to construction of the revised features. This statement should be provided on the Cover Sheet (Sheet 1). (11/21/18) ***The required statement has been provided on the Cover Sheet. This item has been resolved.***
- C. §199-402.A.(4) requires a signature block signed and sealed by the qualified licensed professional certifying that the stormwater management design is in accordance with all design standards and criteria of Kennett Township. This signature block should be provided on the Cover Sheet. (11/21/18) ***The required signature block has been provided on the Cover Sheet. This item has been resolved.***
- D. §199-402.B requires the address and phone number of the owner/applicant to be provided on the Stormwater Management Plan. (11/21/18) ***The required information has not been added to the PCSM Plan. This item remains unresolved.***
- E. §199-402.B.(8).(d) requires named waters to be labeled on the plan. Any tributaries or stream names should be labeled on the plan. (11/21/18) ***This information has now been provided on the plan. This item has been resolved.***
- F. §199-402.B.(8).(k) requires the soil names, hydrologic soil groups and estimated permeabilities in inches per hour, including any soil testing to be shown on the Stormwater Management Plan. (11/21/18) ***This item has now been provided on the plan. This item has been resolved.***
- G. §199-402.B.(18) requires the following information to be provided for each proposed BMP included on the Stormwater Management Plan:
- i. Identification of the person responsible for ongoing inspections, operation and repair and maintenance of the BMP. (11/21/18) ***This information has now been provided. This item has been resolved.***
 - ii. Delineation of the drainage area to each BMP. (11/21/18) ***This information has not been provided on the PCSM Plan. This item remains unresolved.***
 - iii. Easements, per the requirements of Article VII, to grant the Township the right of access to all BMPs and conveyances for the purposes of inspection and enforcement of the requirements of the Ordinance and any applicable O&M plans and agreements. The easements should be shown/noted on the Post Construction Stormwater Management Plan. (11/21/18) ***A blanket easement has been noted on the plan. This item has been resolved.***
 - iv. Any Pennsylvania Natural Diversity Inventory (PNDI) information is to be indicated on the plan and a list of potential impacts and clearances received. If the PNDI search is clear, a note should be provided on the plan stating this. (11/21/18) ***A note regarding***

this information has not been included on the PCSM Plan. This item remains unresolved.

- v. A note should be provided stating the FEMA map number and date indicating that no floodplains exist on site. (11/21/18) ***A note regarding this information has not been included on the PCSM Plan. This item remains unresolved.***
12. §199-402.E requires runoff design computations and documentation, such as BMP loading ratios, consistent with the guidelines and criteria presented in the PA BMP Manual. The stormwater management design proposes the use of 7 detention/infiltration basins with amended soil bottoms (***now labeled as rain gardens***). The infiltration facilities should be designed in accordance with the PA DEP Stormwater BMP Manual. The following comments should be addressed:
- A. Note 1d of the Site Conditions and Constraints Notes on Page 14 of Appendix C requires a minimum separation of 50 feet between infiltration BMPs and individual water supply wells. The minimum separation distance should be labeled on the plans. (11/21/18) ***This information has now been provided on the Site Layout, Grading and Construction Improvement Plan (Sheets 9 & 10). This item has been resolved.***
 - B. Note 2e on page 16 of Appendix C allows a maximum impervious loading ratio of 5:1 relating impervious drainage area to infiltration area and a maximum total loading ratio of 8:1 relating total drainage area to infiltration area. Calculations should be provided for the infiltration basins to demonstrate compliance with the noted loading ratios. (11/21/18) ***Loading ratio calculations have now been included in the Stormwater Management Calculations Report on page 392. The proposed footprints of the rain gardens meet the maximum loading ratio of 5:1; however, the footprints do not meet the overall maximum loading ratio requirement of 8:1 relating the total drainage area to infiltration area. The proposed overall loading ratios range from 8.5:1 to 13.73:1. This should be corrected. This item remains unresolved.***
 - C. Note 2f on Page 16 of Appendix C requires the total effective depth of the water to be not greater than two feet to avoid excessive pressure and potential sealing of the bottom bed. Several of the basins exceed the two foot depth. (11/21/18) ***The proposed ponding depths have been revised. This item has been resolved.***
14. §199-402.F states the inspections, operations and maintenance (O&M) requirements. The applicant shall provide an Operation and Maintenance agreement, as well as assurances and easements per §199-702 through §199-704. We have no objection to deferring an O&M Agreement until Final Plan submission but recommend that the noted easement provisions be addressed prior to Preliminary Plan approval. (11/21/18) ***The plans now include a blanket easement. Operations and Maintenance Notes for the rain gardens should be provided on the PCSM Plan in accordance with Chapter 6 of the PA DEP BMP Stormwater Manual (BMP 6.4.5: Rain Garden/Bioretenion). An O&M Agreement will be required prior to final plan approval. This item remains unresolved.***

Sewage Planning Module

Test Pit and percolation test information has been inserted in the current Planning Module submission, although no other revisions have been made. The Applicant states that Planning Module comments will be addressed in another submission.

1. In accordance with 25 Pa Code §71.53, the Board of Supervisors has sixty (60) days to act on a complete planning module, or additional time as the applicant and Township may agree to in writing. The planning module is presently incomplete with respect to the following:
 - A. Section G.3.a of the Component 2 form requires inclusion of Site Investigation and Percolation Test Report forms to document suitability for sewage disposal. Said testing forms, signed by the Chester County Health Department Sewage Enforcement Officer, must be provided. (11/21/18) **Site Investigation and Percolation Test Forms have been provided but are not signed by the Chester County Health Department Sewage Enforcement Officer. Please see additional soils testing concerns noted in Subdivision and Land Development ordinance Comment 8. This item remains.**
 - B. Section G.6 of the Component 2 form requires inclusion of documentation to demonstrate consistency with DEP guidance regarding the PA State History Code. Required correspondence from the Pennsylvania State Historic Preservation Office is outstanding. (11/21/18) **Comment remains.**
 - C. Section H of the Component 2 form must be completed by the Chester County Health Department (CCHD) Sewage Enforcement Officer. (11/21/18) **Comment remains.**
 - D. Section L of the Component 2 form requires a preliminary hydrogeologic study to address concerns with water supplies within ¼ mile of the project which CCHD records document to exceed 5 parts per million (ppm) nitrate-nitrogen. No such study has been provided. (11/21/18) **Comment remains.**
 - E. Section O of the component 3 form addresses public notice requirements. Among the conditions which would require a public notice are proposed wetland disturbance and the above noted nitrate concerns with nearby water supplies. Section O should be corrected to indicate the need for a public notice and proof of publication documenting expiration of a thirty (30) day public comment period must be provided. (11/21/18) **Comment remains.**
 - F. Section P of the component 3 form must be completed and signed. (11/21/18) **Comment remains.**
 - G. The Component 4A form must be completed by the Kennett Township Planning Commission. (11/21/18) **Comment remains.**
 - H. The Component 4B form must be completed by the Chester County Planning Commission. The Applicant should coordinate with the Township regarding submission to the County, if outstanding. (11/21/18) **It is our understanding that the Planning Module has been submitted to the County Planning Commission for review. This item otherwise remains unresolved.**
 - I. The Component 4C form must be completed by the Chester County Health Department. The Applicant should coordinate with the Township regarding submission to the County, if outstanding. (11/21/18) **It is our understanding that the Planning Module has been**

submitted to the County Planning Commission for review. This item otherwise remains unresolved.

2. Section G.1 of the component 2 form specifies planning module plot plan requirements. No separate planning module plot plan has been provided, and it is assumed that the Preliminary Subdivision and Land Development Plan is intended to serve this purpose. The Applicant should verify. (11/21/18) **Comment remains.**
3. Section G.2 of the component 2 form has been completed to request a waiver of planning requirements for the residual tract. The planning module narrative and alternative analyses do not specify what constitutes the residual tract. It is assumed that the adjacent lots for which no lot line changes are proposed are collectively the residual tract. The planning module narrative and alternative analyses should be revised to clarify. (11/21/18) **Comment remains.**
4. Primary and replacement sewage disposal areas should be delineated on each lot per Subdivision and Land Development Ordinance Comment 8 above to demonstrate technical feasibility of proposed sewage facilities for this project. (11/21/18) **See Subdivision and Land Development Ordinance Comment 8.**

General

1. The Township Fire Marshal should review the Plan to verify adequacy for fire protection needs. (11/21/18) **The Applicant states that they will obtain approval from the Township Fire Marshal. This item remains unresolved.**
2. A list of the required agency approvals should be provided on the Cover Sheet. (11/21/18) **The Cover Sheet has been updated to include approval blocks for the required agencies. A list of the required approvals/permits should be included on the Cover Sheet as well. This item remains unresolved.**
3. The proposed septic areas should be protected during construction from compaction due to heavy equipment operation or storage of fill or construction material during construction. In addition, the area should be protected from sedimentation and stormwater runoff during construction by diversion berms or other features necessary to protect the facility. At a minimum, the areas should be surrounded by orange construction fence. (11/21/18) **The Erosion and Sedimentation Pollution Control Plan (Sheets 15 & 16) now propose orange construction fence (OCF) around the primary septic areas. At a minimum, OCF should also be proposed around the replacement septic areas. This item remains unresolved.**
4. Note 1 of the General Notes on the Site Layout, Grading and Construction Improvement Plan (Sheets 8 & 9) states that the “Residences are illustrative and are not final at this time. Actual residential plans and configurations will be submitted at building permit. On-lot septic systems are approximate and subject to changes from testing”. As detailed in myriad comments above, this apparent intent would not comply with the Township’s ordinance requirements. In the absence of compliance with land development and related requirements, it is not feasible to clearly determine whether each lot is buildable. (11/21/18) **The note has been removed from the Site Layout, Grading and Construction Improvement Plans (now Sheets 9 & 10). This item has been resolved.**

These comments should be addressed by the Applicant and a revised Plan and accompanying documents should be submitted for review. Since substantial ordinance conflicts and deficiencies have been identified, it should be noted that additional comments may be generated upon receipt of a revised submission.

Please contact our office should you have any questions.

Sincerely,

AECOM



Stan Corbett
Project Manager

cc: Michael O'Brien, Kennett Township