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July 31, 2019

Mr. Michael O'Brien
Kennett Township
801 Burrows Run Road
Chadds Ford, PA 19317

**Re: Smith Property - Mitchell Homes
Preliminary Land Development Plan**

Dear Mr. O'Brien:

As requested, we have reviewed the Preliminary Subdivision and Land Development Plan for the above-referenced project. We received the following documents electronically on July 16, 2019:

- Response letter to AECOM's June 5, 2019 review letter, prepared by D.L. Howell & Associates, Inc., dated July 12, 2019 (8 pages);
- Smith Property Preliminary Land Development Plan Set, prepared by D.L. Howell & Associates, Inc., dated April 30, 2019 and last revised July 15, 2019 (28 Sheets);
- Post Construction Stormwater Management Report for the Smith Property, prepared by D.L. Howell & Associates, Inc., dated April 30, 2019 and last revised July 12, 2019 (345 Sheets);
- Response letter to Fire Marshall's June 10, 2019 review letter, prepared by D.L. Howell & Associates, Inc., dated July 12, 2019 (1 page);
- Response letter to Township's May 30, 2019 internal review letter, prepared by D.L. Howell & Associates, Inc., dated July 12, 2019 (1 page); and
- Response letter to TCA's May 13, 2019 review letter, prepared by D.L. Howell & Associates, Inc., dated July 12, 2019;
- Draft Fiscal Impact Study Summary for The Smith Property Residential Development, dated June 25, 2019; and
- Wetland Delineation, prepared by RETTEW Associates, Inc., dated April 8, 2015 and last revised March 19, 2019 (36 pages).

Supplemental information was provided by the Applicant separately July 16 through July 24, 2019:

- Transportation Impact Study, prepared by Traffic Planning and Design, Inc., dated July 16, 2019 (171 pages);
- Township Landscape Plan, prepared by Orsatti & Stuart Associates, Inc., dated January 31, 2019 and last revised July 16, 2019 (1 sheet);
- Carbonate Assessment Summary Letter, prepared by Hillis-Carnes Engineering Associates, dated July 22, 2019; and
- Lighting Plan, prepared by Cree Lighting, dated April 30, 2019, last revised July 15, 2019 (1 sheet).

The following additional information was provided to AECOM by the Township:

- Fiscal Impact Analysis – 548 Rosedale Road, prepared by Glackin Thomas Panzak, Inc., dated July 3, 2019 (5 pages);
- Recreation Impact Study – 548 Rosedale Road, prepared by Glackin Thomas Panzak, Inc., dated July 9, 2019 (31 pages);

- Phase II Environmental Site Assessment – 548 Rosedale Road, prepared by Brickhouse Environmental, dated May 1, 2019 (88 pages); and
- Steep Slopes Zoning Review letter from Diane Hicks, Zoning Officer, Kennett Township, dated February 7, 2017.

The Plan proposes to develop existing UPI #s 62-4-216, 62-4-216.1 and 62-4-216.3, located in the R-4 Residential Zoning District and containing 21.14 acres. The Plan proposes to construct 72 single family dwellings. As stated on the Title Plan in the Zoning Data Tabulation section, the parcels are proposed to be developed in accordance with §240-701.A using the Area and Bulk Regulations in §240-702.F. Article VII of the Kennett Township Zoning Ordinance was amended through Ordinance No. 2018-282, dated December 19, 2018, to include the Alternate Flexible Development Option for single-family detached dwellings as set forth in new subsection §240-702.F. The development of the site follows these new regulations.

The proposed improvements are located on the south side of Rosedale Road (T-628) between the intersections with South Walnut Street and McFarlan Road. The proposed dwellings will be serviced through public water and sewer. Access to the site will be provided through two entrances located along Rosedale Road.

Currently, the site is used for residential and agricultural purposes, and contains several buildings, dwellings and a parking area with 4 driveways accessing Rosedale Road. The dwellings are currently serviced through existing on-lot wells and septic systems. The plan indicates that the existing on-lot wells and septic systems are proposed to be removed.

The current plan has been submitted for review for Preliminary Land Development Plan approval. AECOM has reviewed this submission in accordance with the Kennett Township Zoning, Subdivision and Land Development and Stormwater Management Ordinances. ***Comments from AECOM's June 5, 2019 letter are listed below with any new or revised comments noted in bold italic text.***

Subdivision and Land Development Waiver Request

The following waiver was requested from the Kennett Township Subdivision and Land Development Ordinance as stated on Sheet C02.1 – Site Design and Layout Plan. A waiver request letter should be provided to the Township for consideration.

1. ***§206-518.B.(12) requires all parking spaces to have precast concrete wheel stops that are anchored to prevent vehicle encroachment onto sidewalks and/or landscaped areas. The Applicant is requesting a waiver to allow the curbing to serve as wheel stops since there are no adjacent sidewalks.***

AECOM Comment – There are four parking areas that include the 30 additional parking spaces. The Applicant is requesting the use of curbing in lieu of concrete wheel stops. Their reasoning is that there are no adjacent sidewalks; however, a sidewalk is proposed around one of the parking areas (near Unit 60 where the mailbox pavilion is to be located. In addition, improvements within the “twitten” open space areas are proposed adjacent to two of the other parking areas (Twitten Area # 7 (swings) & Twitten Area #8 (Wooden Planter Box/Sitting Area). AECOM does not recommend approval of the waiver request for these areas.

Zoning Ordinance

The Plan proposes to develop the site in accordance with the Alternate Flexible Development requirements as outlined in §240-702.F as included in Ordinance No. 2018-282 (dated December 19, 2018). The Zoning Data Tabulation table on the Title Sheet indicates that area and bulk regulations are per §702.F.

1. §240-702.F provides the area and bulk regulations as well as other standards for the Alternate Flexible Development option. The following comments regarding §240-702.F should be addressed:
 - A. §240-702.F.7.(d) requires the provided sight distance to comply with §206-502.G. Per §206-502.G.(2), the sight distance dimensions must comply with the most currently recommended guidelines from PennDOT. A Sight Distance Analysis Table is provided on Sheet C02.1 – Title Plan. The table references the Northern and Southern Entrances. This should be revised to Western and Eastern Entrances to clarify the entrance locations. It is unclear why no sight distance has been provided “to the right” for the “southern entrance”. No signage has been proposed restricting turns at this entrance. In addition, the posted speed limit for this direction is different than the other speed limits listed. These items should be clarified. ***The sight distance table has been revised to address this comment. This item has been resolved.***
 - B. §240-702.F.13.(c) provides alternate open space design requirements for tracts that are relatively long and narrow with a lot depth to lot width ratio of 2.5:1 or greater.
 - (1) §240-102.F.13.(c).(8) requires the ownership and maintenance of common open space areas to be provided in accordance with §§ 240-1706, 240-1707 & 240-1708. The following comments regarding these sections should be addressed:
 - a. §240-1706 provides the standards for ownership of restricted open space. The Plan should provide information regarding the ownership of the proposed open space in accordance with these requirements. ***Sheet C02.2 – Open Space Area – Pedestrian Amenity Plan notes that the HOA will be responsible for maintenance and inspection of the open space areas. This item has been resolved.***
 - b. §240-1707.A requires an open space management plan. The requirements of this section should be addressed. ***The open space maintenance requirements are provided on Sheet C02.2 – Open Space Area – Pedestrian Amenity Plan. The following comments regarding the open space maintenance requirements should be addressed:***
 - i. ***See Stormwater Management Comment 13 regarding comments on the O&M notes for the stormwater management facilities.***
 - ii. ***The Chester County Planning Commission review letter, dated May 29, 2019, recommends in Comment 9 on page 4 that the inspection and repair of the retaining walls and potential erosion developing at the end corners should be addressed in the open space maintenance requirements. Comment 12 on page 5 further notes the steep slopes directly upslope of the retaining wall on the western side of the property should be considered as well to prevent future erosion, sediment loads to the stream and deterioration of the integrity of the retaining wall system. This should be noted on the plan.***

contingent upon a supporting jurisdictional determination as noted in comment 4 above. Legend and plan delineation of woodlands areas, minimum building area delineation, and correction of inconsistency between legend and plan delineation of riparian buffer areas remain outstanding. We also note that the Site Disturbance Calculations Table on Sheet C06.3 retains prior plan information regarding steep slopes, in conflict with plan depictions elsewhere and the Zoning Officer determination noted in comment 2 above. Additionally, the limit of disturbance boundary provided has not been labeled or indicated in the legend. The LOD should be revised per comment 2.E. of the stormwater management comments.

6. §240-2013 states the lighting requirements and design standards. A lighting plan should be provided to address the requirements of this section. ***A lighting plan has been provided as a supplement to the submission. The following comments regarding the lighting plan should be addressed:***
 - A. ***§240-2013.C.(1) states the required illumination levels. The intensities and uniformity ratios should be provided in accordance with the section. Local residential streets shall have an average maintained foot-candle of 0.4 and a minimum uniformity average of 6:1. Sidewalks/walkways shall have an average maintained foot-candle of 0.5 and a minimum uniformity average of 4:1. This should be demonstrated on the plan.***
 - B. ***Per §240-2013.C.(5), a note should be added to the plan stating that lighting fixtures and ancillary equipment shall be maintained so as to continuously meet the requirements of the Ordinance.***
7. ***§240-2011 states the Township may, at its discretion, require screening and buffering due to potential negative impact on an adjoining use. Internal Drive B and the associated retaining wall are proposed immediately adjacent to a portion of the property line for UPI No. 62-4-216.2, which appears to contain a residential use. We recommend re-alignment of Internal Drive B to allow for at least a 10' buffer with screening to mitigate negative impact to the neighboring property.***

Subdivision and Land Development Ordinance

1. §206-403.B.(1)(a)[7] requires the name and signature of the person who prepared the plan. This information should be included on the Cover Sheet. ***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. ***The location map has been updated. This item has been resolved.***
3. §206-403.B.(2)(a) requires all property boundaries, including the names of the owners of all adjacent tracts/developments to be indicated. The following comments regarding the property boundaries should be addressed on Sheet C02.1 – Title Plan:
 - A. The owner of the three properties along the southern boundary of the tract should be indicated on the Title Plan. ***The owners of the three adjacent parcels are now shown on Sheet C02.1 – Site Design and Layout Plan. This item has been resolved.***

- B. The Title Plan lists three tax parcels (UPI's 62-4-216, 62-4-216.1 & 62-4-216.3) included in the project. The Title Plan should include the boundaries for the three tax parcels. **Sheet C02.1 – Site Design and Layout Plan has been updated to include the boundaries for the three parcels. This item has been resolved.**
- C. The project boundary where abutting UPI #62-4-215.1 appears to be in error. This parcel is owned by Kennett Township, and per Township records is comprised of lands addressed in two deeds recorded in Deed Book W54, Page 411 and Deed Book W54, Page 408. The plan indicates only the portion of UPI 62-4-215.1 as described by the latter to be the entirety of this parcel. **The property boundary has been revised to reflect the two deeds noted above. Sheet C02.1 – Site Design and Layout Plan indicates a 12' wide driveway to be used in common by properties abutting thereon and references Deed Book 1390 Page 405. The Applicant should clarify if this easement is to be extinguished since it appears that the dwelling that is served by this driveway is to be demolished.**
4. §206-403.B.(2) provides a list of the base plan information required to be shown for the tract as well as all adjacent areas within 100 feet of the tract boundary. This information should be provided on all plan sheets, where applicable. The following information should be provided:
- A. The plan should be updated to include topography contours within 100 feet of the entire tract boundary per §206-403.B.(2)(b). **Additional topography has been provided. This item has been resolved.**
- B. §206-403.B.(2)(e) requires the limits of all flood hazard districts. Note 7 on Sheet C02.1 – Title Plan references floodplain mapping, dated September 29, 2006. The note and plan information should be updated to reflect the latest floodplain mapping, dated September 29, 2017 for any floodplain information within 100 feet of the project boundary. **This information has been provided. This item has been resolved.**
- C. Per §206-403.B.(2)(f), all existing principal and accessory structures and facilities within 100 feet of the tract boundary, including but not limited to buildings, wells, septic fields, underground tanks, fences, walls, sheds, etc. should be shown on the Plan. **This information has been provided. This item has been resolved.**
5. §206-403.C provides the requirements for the Engineering Site Analysis Plan. All base plan information, including those noted above, should be shown for the tract boundary as well as within 100 feet of the tract boundary. The following comments regarding the provided Engineering Site Analysis Plan should be addressed:
- A. §206-403.C.(1)(c) requires dimensions of all easements and rights-of-way. The Sidewalk Easement for the existing sidewalk constructed along Rosedale Road as shown on the Kennett Township Drawings Authorizing Acquisition of Right-of-Way, prepared by Remington, Vernick & Beach Engineers, recorded November 17, 2016, should be shown on the Plan. **This information has been provided on Sheet C02.1 – Site Design and Layout Plan. This item has been resolved.**
- B. §206-403.C.(2)(a) requires steep slopes to be indicated on the plan. The plan includes a legend for the steep slopes but no shading is indicated within the plan view. **The Applicant indicates that no steep slopes exist, consistent with the Zoning Officer determination noted in Zoning Ordinance comment 2. We consequently have no objection to omission of man-made steep slope indications on the plan and this item is resolved.**

- C. §206-403.C.(2)(c) requires any wetlands within 100 feet of the tract boundary to be approximated from field survey; however, they do not need to be delineated or surveyed. The plan should be revised to incorporate the required information. ***This information has been provided. This item has been resolved.***
- D. §206-403.C.(2)(d) requires all geologic formations to be indicated. A table of the geologic formations is included but it is unclear where the mapped areas are located. Per Chapter 4 of the Kennett Township Comprehensive Plan, a portion of the site is classified as containing Cockeysville marble. The limits of the geologic classification should be shown on the plan and the linetype added to the legend. ***This information has been provided. This item has been resolved.***
6. §206-403.D provides the requirements for the Natural and Cultural Resources Site Analysis Plan. All base plan information, including those noted above, should be shown for the tract boundary and within 100 feet of the tract boundary. The following comments regarding the Natural and Cultural Resources Site Analysis Plan should be addressed:
- A. §206-403.D.(2)(g) requires wetland margins to be delineated. There are several small areas of wetlands that do not include a wetland margin, including the two small areas on site and the off-site area just to the west of the tract boundary. ***No wetland margin is indicated around the small wetland areas noted in the wetland delineation as artificial impoundments. We have no objection to this approach and this item is resolved, contingent upon a supporting jurisdictional determination as noted in comment 4 above.***
- B. §206-403.D.(2)(i) requires the woodland and riparian corridors, as identified on the Kennett Township Woodland and Riparian Corridors Plan Map, shall be shown. The Kennett Township Woodland and Riparian Corridors Plan, dated July 2005) indicates the riparian buffer along the front of the site is classified as a Local Corridor and the riparian buffer for the East Branch Red Clay Creek is classified as a Regional Corridor. Additionally, the Kennett Township Woodland Classification and Forest Interior Map, dated July 2005, indicates Class III woodlands are present on the site. This information should be included on the plan. ***The required information has been added to the plan. This item has been resolved.***
7. §206-403.E provides the requirements for the Visual Resources Site Analysis Plan. All base plan information, including those noted above, should be shown for the tract boundary and within 100 feet of the tract boundary. Per the Kennett Township Visually Significant Resources Map (dated 2002), the western side of the site contains visually significant landscapes. This area should be included on the Visual Resources Site Analysis Plan. ***Per Sheet C03.4 – Visual Resources Site Analysis Plan, the southwestern corner of the site includes “Visually Significant Landscape”. The Township Landscape Architect should review this area to determine if any additional landscaping is required for the removal of this existing landscaping.***
8. §206-403.F requires a Site Design and Layout Plan. Sheet C02.1 – Title Plan provides many of the requirements for this plan. The Title should be updated to include “Site Design and Layout Plan” and the outstanding requirements of this section should be included on the plan. ***The title of the plan has been updated to Site Design and Layout Plan. The following requirements of §206-403.F still need to be addressed:***

- A. ***§206-403.F.3 requires the clear sight triangles to be shown on the plan. The clear sight triangles have been provided but are shown within private property for both entrances to the site. Easements would be required for these areas.***
 - B. ***§206-403.F.7.(c) requires areas that are proposed to remain open, including the intended use of the open land to be provided on the Site Design and Layout Plan.***
 - C. ***§206-403.F.9 requires locations of easements for any purpose, including but not limited to utilities, drainage and grading. No easements have been provided for the proposed sewer and water or access to the proposed stormwater management facilities. These areas should be located on the Site Design and Layout Plan.***
9. §206-403.G requires an Improvement Construction Plan. This plan shall provide the information for the construction of the proposed streets, curbs, sidewalks, stormwater facilities, and the means of water supply and sewage disposal facilities. Some of the required information has been provided on Sheet C04.1 – Grading & Utilities Plan. The plan title should be updated to include the title “Improvement Construction Plan” or a separate plan with the required information should be added to the plan set. The following comments regarding the requirements of this section should be addressed:
- A. §206-403.G.(1) requires a statement describing the proposed public improvements, including streets, curbs, sidewalks, stormwater facilities, and the means of water supply and sewage disposal facilities to be provided. ***A statement with the required information has been provided. This item has been resolved.***
 - B. §206-403.G.(2) requires submission of a Sewage Facilities Planning Module. No planning module has been submitted. As discussed at a June 11, 2018 meeting with the Applicant and representatives of Kennett Township and Kennett Square Borough, the Township’s Rosedale Road pump station would need to be replaced and substantial improvements to the Borough’s South Street pump station are required in order to provide sewage conveyance capacity to serve the proposed project. Additionally, the Township has recently televised the existing gravity sewer along Rosedale Road which indicates the segment proposed for connection to be severely deteriorated and in need of replacement. All such off-site sewage system improvements must be addressed within a planning module for this project. ***The Applicant met with Township and Borough representatives on July 11, 2019 to discuss this item. It is our understanding that this comment will be addressed by a future submission. Comment remains.***
 - C. §206-403.G.(3) requires the water design to include the location and size of all proposed water service facilities as well as the location of any valves and hydrants. It is assumed that Chester Water Authority (CWA) will supply public water. Additional information regarding the proposed water service design should be provided, including the water main extension along Rosedale Road to serve this project (the plan indicates that there is an existing water supply line fronting the project parcel, which we believe to be in error). CWA approvals for the development water supply should be provided prior to or as a condition of final plan approval. ***The waterline location and connection has been added to the plan. CWA approvals for the main extension and development water supply should be provide prior to or as a condition of final plan approval. The Preliminary Plan should be revised to address disturbance and restoration of the existing sidewalk along Rosedale Road associated with the water main extension. Comment remains.***
 - D. §206-403.G.(4) requires a horizontal plan for the streets. This information should be provided, including:

- (1) centerline with bearings, distances, curve data and stations corresponding to the profile (in accordance with §206-502.C). ***This information is now provided on Sheet C02.1 – Site Design and Layout Plan. This item has been resolved.***
 - (2) curblines with radii at intersections, ***Curb radii have been provided on Sheet C02.3 – Geometry Plan. Several of the intersections do not include labels for the curb radii. This should be corrected.***
 - (3) tie-ins by courses and distances to intersection of all public roads, with their names and widths. ***This information has been provided on Sheet C02.3 – Geometry Plan. This item has been resolved.***
 - (4) location and size of all drainage facilities, sidewalks, public utilities, fire hydrants, lighting standards and street name signs. ***The location of the drainage facilities, sidewalks and fire hydrants are provided on Sheet C02.1 – Site Design and Layout Plan. No information on the proposed street name signs have been provided. Comment remains.***
10. §206-403.H requires a Natural Resource Protection Plan. A Natural Resource Plan has been provided in the plan set. The plan title should be updated to include “Natural Resources Protection Plan”. ***The plan title has been revised. This comment has been resolved.***
11. §206-403.M requires impact studies as listed in §206-405 to be provided prior to preliminary plan approval. §206-405 states that impact studies for land developments of 24 or more dwelling units may be required by the Township Planning Commission. The Applicant should discuss impact study requirements with the Planning Commission. These studies include:
- A. Regional Traffic Impact Study (per §206-405.B, which requires a Regional Traffic Impact Study for 48 or more detached single-family detached dwellings); ***A Traffic Impact Study meeting the requirements of this Section has not been provided; however, the Local Traffic Impact Study (see below) indicates no significant impacts. The Planning Commission may wish to verify the need for a regional study in light of this condition.***
 - B. Local Traffic Impact Study (per §206-405.C); ***A Traffic Impact Study has been provided as part of this submission which indicates no significant impacts. We take no exception to the findings, but note that traffic from the Flats at Kennett (175 unit apartment complex) has not been considered in future projections. The Study should be revised to incorporate these impacts.***
 - C. Water, Sewage and Stormwater System Analysis (per §206-405.D); ***The Applicant states that a water, sewage and stormwater system analysis has been completed and included with the latest submission. A copy of this study has not been provided, and it is our understanding that this study was not required by the Planning Commission. The Applicant should clarify.***
 - D. Public Services and Facilities Impact Study (per §206-405.F); ***The Applicant states that a public services and facilities impact study has been completed and included with the latest submission. A copy of this study has not been provided, and it is our understanding that this study was not required by the Planning Commission. The Applicant should clarify.***
 - E. Police and Fire and Rescue Impact Study (per §206-405.G); ***The Applicant states that a police and fire and rescue impact study has been completed and included in the latest submission. A copy of this study has not been provided. Comment remains.***
 - F. Recreation Impact Study (per §206-405.H); ***A Recreation Impact Study has been provided to the Township. The Kennett Township Land Conservation Advisory Committee (LCAC) has reviewed this study and provided comments and***

- recommendations in a memo dated July 19, 2019. The Applicant should address these items with the Township.*
- G. Cost-Revenue Analysis (per §206-405.I). *A Fiscal Impact Analysis has been provided to the Township. Kennett Consolidated School District reviewed the study and provided a letter, dated July 19, 2019, stating their concurrence with the study. The Fiscal Impact Summary (on the last page of the study) provides an estimate of the total Township revenues and expenditures. The Township should review the analysis for acceptability.*
12. §206-502.A.(6) states that the Board of Supervisors may require dedication of additional right of way for existing streets. Sheet C02.1 – Title Plan shows an Ultimate Right of Way Line for Rosedale Road. No notes have been provided offering this area for dedication to Kennett Township. Additional information, including bearings and distances, regarding the proposed right-of-way offered for dedication should be provided on the Plan. ***Bearings and distances have been provided for the ultimate right of way to be dedicated for Rosedale Road. A note of dedication with signature lines for the owner is provided on Sheet C01.1 – Cover Sheet. This item is resolved for the Preliminary Plan.***
13. §206-502.A.(10) states that the Board of Supervisors may require the developer to make improvements to existing streets or roads abutting the property being developed as may be needed to provide safe and convenient access to the proposed development and to accommodate the increased traffic resulting from the development. The Township should review this to determine if any improvements are needed for this area. ***This comment remains for Township review.***
14. §206-505.D requires driveways to be paved. No details have been provided for the proposed driveways. ***A detail has been provided for the proposed driveways. This item has been resolved.***
15. §206-512 states the requirements for street traffic control devices. No stop signs or other traffic control signs have been proposed throughout the site. In addition, no street sign locations have been indicated. These requirements should be addressed on the plan. ***Stop signs and other traffic control signs have been added to Sheet C02.1 – Site Design and Layout Plan. No street sign locations have been indicated. This comment remains.***
16. §206-513 provides standards for community facilities and utility easements. The Applicant should address the easement requirements of this section, including an open space management plan for the long-term management and maintenance of these areas. ***No easements have been provided for the proposed utilities and stormwater management facilities. This comment remains.***
17. §206-518.B.(12) requires all parking spaces to have precast concrete wheel stops that are anchored to prevent vehicle encroachment onto sidewalks and/or landscaped areas. No wheel stops are currently proposed. ***A waiver is now requested for this requirement. See comments above provided in the waiver request section of this letter.***
18. ***Appendix A of Chapter 206 provides details for the transition for rolled curbs to proposed inlets. These details should be provided on the plan.***

Stormwater Management Ordinance

The Applicant is proposing the use of three underground infiltration beds and two above ground infiltration basins 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. The following requirements regarding the proposed stormwater management design should be addressed:

1. §199-302 requires any permit or regulatory requirements by other governmental entities to be met prior to Final approval. A note has been provided on Sheet C01.1 – Cover Sheet indicating that an Erosion and Sediment Control Permit and NPDES Permit are required for this project. The list of required approvals should be updated to state any permit requirements for the disturbance of the on-site wetlands and unnamed tributary to the East Branch of the Red Clay Creek in accordance with Chapter 105. ***The Applicant states that a General Permit is required for the disturbance to the wetlands. This should be added to the list of required permits on the cover sheet. The required permits/approvals will be required prior to or as a condition of Final Plan approval. This comment remains.***
2. §199-303 requires an Erosion and Sediment Control Plan. The following comments regarding the Erosion and Sediment Control Plan should be addressed:
 - A. The E&S Plan should ensure that the protected natural resources to remain are not disturbed during construction. These areas should be marked with orange construction fencing or through the use of tree protection. ***Per Note 5 of the Sequence of Construction on Sheet C05.2 TPF/OCF is to be provided along the limit of disturbance. Additionally, silt fencing should be provided between Internal Drives A & B. This comment remains.***
 - B. Sheet C05.5 – Erosion Control Details includes a Typical Stream Crossing Construction Sequence, an East Stream Crossing Detail and a West Stream Crossing Detail. The following comments regarding these notes and details should be addressed:
 - (1) Note 7 of the Sequence refers to a 48” culvert while the storm profiles propose a 42” culvert. This should be clarified. ***The culvert sizes have been clarified in the profiles on Sheets C07.1 & C07.2 and the details for culverts on Sheet C05.5. This item has been resolved.***
 - (2) Additional information should be provided for each culvert. The details should include the location of E&S controls or a typical detail. Additionally, inverts, pipe sizes and pipe materials should be noted. ***Additional E&S measures has been provided for the proposed culverts on Sheet C05.5. This item has been resolved.***
 - C. The E&S Plan should address how the stream and wetlands area will be protected from sediment laden runoff during the construction of the entrance drives and associated entrance drives. No silt fence or other erosion and sediment control measures have been provided for these areas. ***Erosion and sediment control has been proposed for the culvert construction. This item has been resolved.***
 - D. The following items from the Sequence of Construction on Sheet C05.2 – Erosion Control Notes should be addressed:

- (1) Note 12 states soil stockpile slopes must be 2:1 or flatter, in conflict with the detail on drawing C05.4 which specifies a maximum 3:1 slope. **Note 12 has been revised. This item has been resolved.**
 - (2) Note 19 refers to individual lot controls. No details or information have been provided for this. This should be clarified. **Details have been provided for individual lot controls on Sheet C05.4. This item has been resolved.**
 - (3) Note 20 references Phase 1 building construction. No phasing plan is provided. **The reference to Phase 1 has been removed. This item has been resolved.**
 - (4) **Note 9 references “adjacent landscape walls”. This should be clarified.**
 - (5) **Note 16 states that portions of the nature trail should be constructed as applicable to each phase. No phases are proposed. This should be clarified.**
 - (6) **Notes 13 & 14 reference the installation of stormwater and sanitary structures and the proposed internal drives. Note 17 proposes the installation of underground utilities. Note 18 references the installation of the roadways as well. The sequence of construction for proposed streets and utilities should be clarified.**
- E. **The limit of disturbance should be revised in the northwestern corner of the property where the property line has been revised.**
- F. **The E&S Plan indicates that erosion and sediment control are to be provided through a sediment trap and two sediment basins. The locations of the outlet structures, emergency spillways and baffles as detailed on Sheet C05.5 – Erosion Control Details should be indicated on the plan.**
3. §199-306.E requires a detailed soils evaluation of the site. Appendix H of the Stormwater Report (Page 253) provides a Soil Infiltration Report, prepared by D.L. Howell & Associates, dated August 2016 and last revised February 2017. This report does not include a location map of the soils testing and no locations have been indicated on the Plans. The locations of the testing should be provided to ensure that the requirements of this section as well as §199-306.F have been addressed. It should be noted that complete review of the proposed infiltration facilities cannot be completed without this information. We also note that the Appendix H narrative does not describe proposed infiltration BMP’s consistent with those represented in the rest of the Stormwater Report or on the Plans. **Additional test results, prepared by D.L. Howell & Associates, Inc., dated July 2019, have been provided in Appendix H. The testing locations have now been provided on the plans; however, the locations are labeled TP-A, TP-B, etc. The reports label the testing numerically. While the narrative of the July 2019 report indicates that the new testing is located within Basins 1 & 2, no information has been provided regarding the location of testing provided in the February 2017 report. The plans should clarify the location of the testing with labels corresponding to the reports.**

Regarding the testing for Basins 1 & 2 provided in the July 2019 report, the following comments should be addressed. The test results for the remaining underground infiltration facilities could not be reviewed since it is unclear which locations correspond to which testing logs.

- A. **Basin 1 consists of an infiltration basin with an underground Stormtank System. The bottom stone elevation for the combined facility is proposed at elevation 292.0. According to the narrative, the infiltration testing was performed at elevation 294. The test pit was terminated at approximately 7' (at approximate elevation 290), at which elevation groundwater was encountered. It appears that only one test was performed within the footprint of the proposed facility and it was performed 2' above the bottom bed elevation. Per §199-306.E.(2).(a), additional infiltration tests are required for the proposed design. The proposed facility is 14,416 square feet (212' x 68'). Per this section, a minimum of 5 infiltration tests are required for this facility. Five infiltration tests should be performed at the bottom elevation of the proposed facility with corresponding test pit evaluations.**
- B. **Basin 2 also consists of an infiltration basin with an underground Stormtank System. The bottom stone elevation for the combined facility is proposed at elevation 290.0. According to the narrative, two infiltration tests were performed at elevations 291 & 292. Groundwater was encountered in both test pits between elevations 289 – 289.5. The provided infiltration testing was performed above the proposed bottom elevation of the facility. The proposed facility is 8,140 square feet. Per §199-306.E.(2).(a), a minimum of 3 infiltration tests are required for the proposed facility. Additionally, a minimum of two feet of separation is required between the bottom bed elevation and any limiting zone (i.e., encountered groundwater). Three infiltration tests should be performed at the bottom elevation of the proposed facility, with corresponding test pit evaluations demonstrating that a minimum of two feet of separation will be provided between the bottom bed elevation and any limiting zone.**

The testing results provided in the February 2017 report were not reviewed since the location of this testing could not be determined. Additional comments may be provided once the locations have been clarified. Infiltration tests/test pits results in accordance with §199-306 should be provided.

4. §199-306.G.(2) requires all infiltration practices to be set back at least 15 feet from all buildings with subgrade elements. Subsurface Infiltration Beds 1 & 3 are less than 15 feet from some of the proposed dwellings. This should be corrected. In addition, the minimum dimensions should be noted on the plan. **The Applicant states the footprint of the infiltration beds have been reduced and the minimum dimensions have been noted on Sheet C04.1 – Improvement Construction Plan; however, the minimum dimensions have still not been provided on this sheet (including for the subsurface facilities proposed under the infiltration basins) and Subsurface Infiltration Bed 1 is still less than 15' away from Units 54 & 57. This comment remains.**
5. §199-306.G.(4) requires infiltration practices to be set back at least 15 feet from any property line. Infiltration Basin 2 is located very close to the western property line. The minimum dimension should be dimensioned on the plan to the elevation of the emergency spillway. **The location of the emergency spillway is not show on the plan. Additionally, the required dimension has not been provided on Sheet C04.1 – Improvements Construction Plan. This comment remains.**
6. The Plan indicates that a portion of the site is located within the Cockeysville Marble geologic formation. The geologic boundaries have not been shown on the Plan. Per Map 4-1 Land Resources (dated May 5, 2019) from the Kennett Township Comprehensive Plan Update (adopted December 2, 2015), the northern portion of the site along Rosedale Road is within the Cockeysville Marble classification. Per Chapter 4 of the Township Comprehensive Plan, "Cockeysville Marble is metamorphosed limestone and as such is subject to a chemical reaction

- with air and water leading to the formation of a weak carbonic acid solution that slowly dissolves the rock, forming underground solution channels and potentially sinkholes. This characteristic has implications for building foundation stability and groundwater quality”. Per §199-306.J & §199-306.K, consideration of infiltration BMPs for areas underlain by karst or carbonate geology is encouraged, but only where design and results of soils or other site investigations or other documentation is provided to the Township demonstrating that the potential or likelihood of subsidence or sinkholes is minimal. Evaluation of site conditions and infiltration design shall rely on guidance in the PA BMP Manual. Storm sewers in areas of karst or carbonate geology shall utilize watertight joints. The Applicant should address all such requirements as applicable for stormwater facilities located within the Cockeysville Marble formation. **A Carbonate Assessment was prepared by Hillis-Carnes Engineering Associates, dated July 22, 2019. The assessment report states that a subsurface exploration was performed within the footprint of the basins and it was determined that the facilities are not likely underlain by carbonate residuum/rock such as Cockeysville Marble formation. The report states that it is Hillis-Carnes Engineering Associates opinion that the test borings indicate a limited potential for sinkhole development and no specialized construction methods are required. We take no exception to the Hillis-Carnes findings and this item is resolved.**
7. 199-306.M requires roof drains that are designed to discharge directly to infiltration practices to have appropriate measures to prevent clogging from debris and leaves, such as leaf traps, gutter guards, cleanouts or filter systems. This should be addressed on the plans. **The Splash Block Detail on Sheet C08.2 indicates leaf guards are to be used. This item has been resolved.**
 8. §199-311.A.(1)(b) states that basins located in carbonate area (such as areas underlain by Cockeysville marble) shall include a detailed geologic evaluation of the project site. The evaluation shall be performed by a qualified geologist and/or geotechnical engineer to determine the suitability for recharge, including both the potential for groundwater contamination and potential for sinkhole formation. At a minimum, the evaluation shall address soil permeability, depth to bedrock, susceptibility to sinkhole formation, and subgrade stability. **As noted above in Comment 6. A Carbonate Assessment has been provided. This item has been resolved.**
 9. §199-311.B.(7) provides the design requirements for culverts. Both entrances to the site cross the unnamed tributary to the East Branch of the Red Clay Creek. The PCSM Plan indicates an existing culvert crossing under Internal Drive B and a proposed culvert crossing under Internal Drive A. The profiles indicate the size and invert elevation at the centerline of the road. No additional information, including inverts and pipe material for the existing or proposed culverts have been provided. Calculations and additional information should be provided for these culverts to ensure that the requirements of this section have been met. **Additional information has been provided for the proposed culverts on Sheet C05.5. Comment 6 on page 3 of the Chester County Planning Commission review letter, dated May 29, 2019 notes that the culverts are located in the tributary to the East Branch Red Clay Creek and is designated as protected uses for Trout Stocking (TSF) and Migratory Fishes (MF). This comment notes specific recommendations for the proposed culverts. These comments should be addressed. Additionally, §199-311.B.(7).b requires culverts to be provided with wing walls and constructed the full width of the right-of-way. This comment remains.**
 10. The stormwater management design proposes the use of two above-ground Infiltration Basins. The details are located on Sheet CV06.5 – PCSM Details. §199-402.E requires the stormwater runoff design computations and design to be consistent with the guidelines and criteria presented in the PA BMP Manual. BMP 6.4.2: Infiltration Basin in Chapter 6 of the PA DEP

BMP Manual provides guidelines for the design and construction of infiltration basins. The following comments regarding the infiltration basins should be addressed:

- A. Design Consideration 2 on Page 29 of Chapter 6 states that the guidelines for infiltration systems should be met (i.e., depth to water table, setback, loading rates, etc.). Design Consideration 2(e) on Page 15 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. Loading ratio calculations have been provided in Appendix J (Page 297) of the stormwater management report. A Total Loading Ratio of 30.85:1 and an Impervious Loading Ratio of 17.02:1 is proposed for Infiltration Basin 1. The infiltration bed size for Infiltration Basin 1 does not meet the maximum loading ratio guidelines provided in the PA DEP BMP manual.

Page 8 of the Stormwater Report provides a narrative stating the Applicant's justification for the increased loading ratios, including that the geologic mapping does not indicate any presences of carbonate geology within the project site. However, the plans indicate the presence of Cockeysville Marble on the site. According to the Township mapping, it appears that Infiltration Basins 1 & 2 are located near or within this mapped area. A waiver is required for the increase of any loading ratios. A white paper, entitled "A Risk-Based Approach for Sizing Stormwater Infiltration BMPs" by Domenic Rocco, PE of the PA DEP provides guidance for any increase in loading ratios. Additional justification should be provided in accordance with this white paper for the consideration of a waiver. ***The Applicant states in their response letter that the infiltration bed size for Infiltration Basin 1 has been changed to meet the maximum loading ratio guidelines; however, the calculated loading ratios provided in Appendix J of the Stormwater Management Report do not reflect this. The Overall Loading Ratio remains at 30.85:1 and the Impervious Loading Ratio remains at 17.02. This item remains.***

- B. Design Consideration 2(f) on Page 16 of Appendix C states that the hydraulic head or depth of water should be limited to no greater than 2 feet to avoid excessive pressure and potential sealing of the bed bottom. The proposed basin depths exceed this requirement. ***The proposed depth of basin is 4 feet. The Applicant states in their response letter that a waiver has been requested to expand the basin and remove units. The Applicant should clarify what this references. A waiver has not been listed on the plans for this requirement. This comment remains.***
- C. Construction Requirement 3(b) on Page 16 requires the infiltration area to be protected from sediment until the surrounding site is completely stabilized. The two infiltration basins are proposed to be used as sediment basins during construction. This section states that if infiltration areas are to be used as sediment basins, excavation should be limited to within 1 foot of the final bottom invert of the infiltration BMP to prevent clogging and compacting of the soil horizon. Final grades should be constructed once the contributing drainage area has been stabilized. This requirement should be reflected on the plan. ***The bottom bed elevation of the sediment basins are proposed a minimum of 1 foot above the bottom bed of the permanent infiltration facilities. This portion of the comment has been resolved. The Applicant states in their response letter that the construction sequence has been revised to indicate that the underground Stormtanks under the infiltration basins are to be installed and sealed until conversion of sediment basins or traps. This is not reflected in the sequence of construction. In addition, the proposed elevations of the sediment basins would not allow for the construction of the Stormtanks prior to conversion of the sediment basin to the infiltration basins. This should be addressed.***

- D. The Landscape Plan proposes plantings in the area of Infiltration Basin 2 over the proposed StormTank system. The provided detail does not state the minimum soil cover over the StormTank system. It is unclear if adequate soil depth will be available to support the plantings. **The Applicant states that the detail on Sheet C06.5 has been revised to include 18" of cover; however, only 12" of cover is proposed. This should be clarified.**
- E. **The Infiltration Basin details and calculations note an emergency spillway elevation for each basin. The location of the emergency spillways should be indicated on the plan.**
11. The stormwater management design proposes the use of three subsurface infiltration beds. The details are located on Sheet CV06.6 – PCSM Details. §199-402.E requires the stormwater runoff design computations and design to be consistent with the guidelines and criteria presented in the PA BMP Manual. BMP 6.4.3: Subsurface Infiltration Bed in Chapter 6 of the PA DEP BMP Manual provides guidelines for the design and construction of infiltration beds. The following comments regarding the infiltration beds should be addressed:
- A. Design Consideration 2 on Page 35 of Chapter 6 states that the guidelines for infiltration systems should be met (i.e., depth to water table, setback, loading rates, etc.). Design Consideration 2(e) on Page 15 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. Loading ratio calculations have been provided in Appendix J (Page 297) of the stormwater management report. Total Loading Ratios ranging from 11.3:1 to 14.36:1 and Impervious Loading Ratios ranging from 4.96:1 to 5.37:1 are proposed for subsurface Infiltration Beds 1 through 3. The bed areas for the subsurface infiltration beds do not meet the maximum loading ratio guidelines provided in the PA DEP BMP manual.

Page 8 of the Stormwater Report provides a narrative stating the Applicant's justification for the increased loading ratios. A waiver is required for the increase of any loading ratios. A white paper, entitled "A Risk-Based Approach for Sizing Stormwater Infiltration BMPs" by Domenic Rocco, PE of the PA DEP provides guidance for any increase in loading ratios. Additional justification should be provided in accordance with this white paper for the consideration of a waiver. **The Applicant states that a waiver is requested for the increase of the loading ratios; however the waiver request is not listed on Sheet C02.1 – Site Design and Layout Plan. Page 4 of the Stormwater Management Report Narrative provides justification for the allowance of increased loading ratios. The narrative states that additional water quality measures are provided within the StormTank systems. A waiver cannot be considered until adequate infiltration testing has been performed within the subsurface infiltration bed areas as noted in Stormwater Management Ordinance Comment 3.**

- B. The Landscape Plan proposes plantings in the area of the three subsurface infiltration beds. The provided detail requires a minimum of 1' of soil cover. It is unclear if adequate soil depth will be available for the proposed plantings. **The Applicant states that adequate depth is provided for the proposed plantings; however, the details on the Landscape Plan do not provide dimensions for the proposed planting depths. Additionally, the Landscape Plan does not show the footprint of the subsurface infiltration areas. This comment remains.**
12. §199-402 states the SWM site plan content requirements. The following items should be included on the PCSM Plan. 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.

- A. §199-402.B.(2) requires the tax parcel numbers and the name, address and phone number of the owner and the applicant to be provided on the SWM Plan. ***The Applicant states that this information has been noted on the PCSM Plan; however, the information is not shown on Sheet C06.1. Comment remains.***
- B. §199-402.B.(7) requires the property boundary bearings and distances to be provided. ***This information has been provided. This item has been resolved.***
- C. §199-402.B.(8).(d) requires the names of watercourses to be provided on the Plan. The unnamed tributary to the East Branch of the Red Clay Creek should be labeled on the Plan. ***The Applicant indicates that this information has been provided on Sheets C03.1-C03.4; however, this information is also required on Sheet C06.1-PCSM Plan. This Plan will be recorded and used as the Operations and Maintenance Plan for the proposed stormwater management facilities. This comment remains.***
- D. §199-402.B.(8).(j) requires steep slope areas to be shown on the SWM Plan. ***The Applicant indicates that no steep slopes exist, consistent with the Zoning Officer determination noted in Zoning Ordinance comment 2. We consequently have no objection to omission of man-made steep slope indications on the plan and this item is resolved.***
- E. §199-402.B.(8).(l) requires areas with underlying carbonate geologic units or other karst features to be shown on the SWM Plan. ***The underlying geologic units have been indicated on the plan. This item has been resolved.***
- F. §199-402.B.(18) requires the plan to list the person responsible for ongoing inspections, operations, repair and maintenance as well as an easement per the requirements of Article VII, including notes or other documentation to grant the municipality the right of access to all BMPs and conveyances for the purposes of inspection and enforcement of the Ordinance and any O&M plans and agreements. ***The Applicant has indicated that this information has been provided on Sheet C02.2 – Open Space Area – Pedestrian Amenity Plan. Sheet C02.2 does not include all relevant information; however, Sheet C06.2 appears to contain most information required by this Section. We recommend that Sheet C02.2 notes be modified to reference all maintenance and inspection requirements from Sheet C06.2. Correction of the Sinclair Springs reference is also needed in Stormwater Management Note 7 on Sheet C06.2 and note 6 should be modified to expressly state a blanket easement is granted to Kennett Township, if that is the intent. Comment remains.***
- G. §199-402.B.(18).(b). requires the delineation of the areas draining to each BMP. Drainage areas should be provided for each BMP. ***The following comments regarding the drainage areas should be addressed:***
 - (1) ***Drainage area boundaries are provided on Sheet C06.4 – Drainage Areas to BMPs Plan. It appears that off-site runoff on the east side of the project site is directed towards the rear of Units 1-26. The off-site drainage area should be reviewed. Additional BMPs may be required to address this area to prevent runoff from being directed towards the proposed walls. The Chester County Planning Commission review letter notes in Comment 12 that the planting of***

shrubs at the toe of this slope should be considered to stabilize soils and increase sediment trapping. The calculations for the proposed facilities should be revised for any additional runoff directed towards to site. Comment remains.

- (2) ***The drainage area for Basin 1 should be revised to run along the berm of the basin.***

13. §199-402.F states the inspections, operations and maintenance requirements. An Operation and Maintenance plan and agreement (see Appendix D for a sample), as well as assurances and easements, must be provided per §199-702 through §199-704. Some of the operations and maintenance requirements are included on Sheet C06.2 – PCSM Notes & Specifications. All of the O&M notes should be provided on one page for ease of future maintenance. Some of the maintenance notes are spread out over several sheets with the details. In addition, no operation and maintenance notes have been provided for the StormTank facilities proposed under the infiltration basins. ***The O&M notes/requirements for the site are provided on Sheet C02.2 – Open Space Area – Pedestrian Amenity Plan as well as Sheet C06.2 – PCSM Notes & Specifications. The following comments regarding the O&M notes/requirements for the proposed stormwater management facilities noted on Sheet C06.2 – PCSM Notes & Specifications should be addressed:***

- A. ***Section 3 of the Long Term Operation and Maintenance Schedule: Post Construction Stormwater Facilities Operation and Maintenance Procedures notes the O&M requirements for headwalls and endwalls. The last sentence of the maintenance notes states that the owner is to contact the Township NPDES Administrator immediately if dry weather flows are observed. The endwalls/headwalls notes should clarify that these requirements are for the storm sewer conveyance headwalls/endwalls and not for the proposed culverts. In addition, a call out should be provided on Sheet C06.1 – PCSM Plan noting the location of the proposed endwall for future maintenance purposes.***
- B. ***O&M requirements should be provided for the proposed culverts under Internal Drives A & B. The location of the proposed culverts should be labeled on Sheet C06.1 – PCSM Plan for future maintenance purposes.***
- C. ***Section 4 of the Long Term Operation and Maintenance Schedule notes the O&M requirements for vegetated swales. The location of the proposed swales to be maintained should be labeled on Sheet C06.1 – PCSM Plan for future maintenance purposes.***
- D. ***The Long Term Operation and Maintenance Schedule notes should be updated to include the inspection and maintenance requirements for the following items:***
- (1) ***Above ground infiltration basins, including outlet structures;***
 - (2) ***Subsurface infiltration facilities (i.e., StormTank facilities); and***
 - (3) ***Meadow areas.***
- E. ***The following comments regarding Sheet C06.1 – PCSM Plan should be addressed:***
- (1) ***The labels for Infiltration Basin #s 1 & 2 should be updated to note that subsurface infiltration beds are located under the infiltration basins.***

- (2) *The “Inlet with Snout” label should be updated to note “Water Quality Inlet” to clarify O&M notes on Sheet C06.2.*
 - (3) *The Stormwater BMP Legend notes that BMP 6.7.2 – Landscape Restoration is proposed as a structural stormwater BMP. No landscape restoration areas have been colored in green as noted in the legend. Additionally, the legend references the landscape plan for planting locations. No information has been provided on the landscape plan. This should be clarified.*
 - (4) *The Stormwater BMP Legend indicates that the following non-structural stormwater BMPs have been proposed: BMP 5.4.1 – Protect Sensitive/Special Value Features, BMP 5.4.3 – Protect/Utilize Natural Drainage Features & NOI WS 3 – Area of Minimum Disturbance/Reduced Grading. The legend indicates that these areas are shaded in red, blue and yellow. No areas have been indicated on the plan. This should be clarified.*
 - (5) *A Natural Sensitive Resource Legend has been provided. The following comments regarding this legend should be addressed:*
 - a. *The line colors for the riparian buffer, streams and wetlands should be updated in the plan view to match the legend.*
 - b. *The legend indicates a WL and WD with circles around the letters for the wetlands and woodlands, respectively. These areas have not been indicated on the plans.*
 - c. *The legend indicates 1.90 acres of moderately steep slopes (15-25%). It appears that the proposed slopes are shaded on the plan view and not existing steep slopes to be protected. This should be clarified.*
 - (6) *The 100 year floodplain should be labeled on the plan view.*
14. *§199-311.B.(8) states that the discharge of stormwater from streets, pipes and swales shall, to the maximum extent possible, be directed onto level areas in the rear of lots, where stormwater will be dispersed and the concentration of stormwater minimized at property lines. Where stormwater must be discharged directly into stream ways, energy dissipaters shall be constructed to limit the velocity of discharge to prevent erosion of stream banks and channels. One pipe outlet is proposed to direct flow directly to the on-site stream from the proposed stormwater management facilities. The Applicant should provide energy dissipation to prevent erosion to the existing stream banks. In addition, multiple discharge points might be considered to mimic the natural flow pattern of the site.*

Sewage Facilities

1. It appears that the internal streets are proposed to be private. Sanitary sewer easements should be provided to allow for Township ownership of the sewer mains and laterals. The sanitary sewer easements should be curb-to curb plus 2 feet where laterals are required, with cleanouts located accordingly 2 feet beyond the curb. Easements should be shown extended to the public road right of way for Township access. Metes and bounds of the proposed sanitary sewer easements should be provided and an easement agreement submitted for review and approval by the Township Solicitor prior to Final Plan approval. ***The Applicant states that an easement plan has been created which will include all existing and proposed easements along with the associated metes and bounds. This plan should be submitted to AECOM for review. This comment remains.***
2. As previously noted, this project necessitates the replacement of the Rosedale Road Pump Station, the replacement of sanitary sewer in Rosedale Road as well as upgrades to the Kennett Square Borough South Street pump station. The design of all upgraded off site

sewage facilities must be incorporated in the Plans and associated DEP planning and permitting requirements addressed. We recommend that the Applicant meet with the Township and Borough to further discuss the scope of needed off-site improvements. ***The Applicant met with the Borough and Township on July 11, 2019 to discuss these concerns. It is our understanding that associated plan revisions will be addressed in a future submission. This comment remains.***

3. The following revisions to drawing C04.1, Grading & Utilities Plan, should be addressed:
 - A. Add stationing of the proposed sewer to the plan. ***The stationing of the proposed sewer has not been added to Sheet C04.1. Comment remains.***
 - B. Show the proposed sewer and water laterals with the required DEP 10' separation from water mains. ***The following laterals do not appear to have the 10' separation: 1, 2, 7, 8, 9, 10, 40, 41, 44, and 45. Comment remains.***
 - C. Provide cleanouts at the easement line on the sewer laterals. ***Cleanouts have been added to the plan. This item has been resolved.***
 - D. Show the location of the proposed fire hydrants, to be reviewed and approved by the Fire Marshal. ***The locations of the fire hydrants have now been provided on the plan. The Fire Marshal should approve the provided locations. This comment remains.***
 - E. Shift the sewer between manholes S14 – S15 east to the center of the travel lane. Shift manhole S15 twenty-five feet to the south. Shift MH S13 to avoid conflict with the proposed inlet. ***The sewer line has been revised. This comment has been resolved.***
 - F. Shift MH S3 to provide the required 10' separation between water and sewer. ***MH S3 has been shifted but appears to only have 5' of separation between the water and sewer. Please provide 10' of separation. This comment remains.***
 - G. Shift the sewer between MH S6 and MH S9 to provide the required 10' separation between water and sewer. ***The sewer line has been shifted. This item has been resolved.***
 - H. Add a new manhole in front of Lot 13 and eliminate the gravity sewer between this new manhole and MHS18. ***A manhole has been added. This item has been resolved.***
 - I. Label MHS18 as a drop manhole. ***The label has been provided. This item has been resolved.***
 - J. Delete notes 3, 4 and 6 from the Inspection Notes section. ***The notes have been deleted. This item has been resolved.***
4. The following revisions to drawing C07.2, Profile Sheet, should be addressed:
 - A. Lower the inverts at manholes MHS7 and MHS13 to eliminate the drop manholes. ***The inverts for MHS7 and MHS13 have not been lowered and are still drop manholes. Please lower the invert in elevations and eliminate the drop manholes. This comment remains.***
5. The following revisions to drawing C08.2, Construction Details, should be addressed:

- A. Delete the Sanitary Lateral Connection Detail and replace with the attached Lateral Connection at Main Detail. ***The lateral connection detail was not replaced. Please add the attached detail. Comment remains.***
 - B. Delete the Lateral Layout Detail and replaced with the attached updated version. ***The Lateral Layout Detail was not replaced. Please add the attached detail. Comment remains.***
 - C. Delete the Sewer Pipe Bedding and Trench Restoration details. ***The detail has been deleted. This item has been resolved.***
 - D. Add the attached Standard Manhole Detail and Standard Drop Manhole Detail. ***The Standard Manhole Detail has been added to the plan; however, the Standard Drop Manhole Detail was not added. Please add the attached detail. Comment remains.***
6. ***The following comments regarding Sheet C04.1 – Improvement Construction Plan should be addressed:***
- A. ***Provide 10’ of separation between all proposed water main and gravity sewer main. Much of the site does not maintain the 10’ separation.***
 - B. ***Provide the 10’ separation between sewer lateral serving dwelling 72 and the proposed fire hydrant main.***
 - C. ***Extend water lateral for dwelling 41 so it ties into the water main.***
 - D. ***The sewer laterals for dwellings 21 and 57 connect to the water main. Please revise so they connect to the gravity sewer.***
 - E. ***The sewer laterals for dwellings 14, 12 and 26 appear to tie into manholes. Revise the location of the laterals to connect to the gravity sewer.***
 - F. ***The sewer laterals for dwellings 54 and 53 do not appear to connect to gravity sewer. Please revise.***
 - G. ***Laterals for dwellings 10, 11, 12 and 13 are shown connecting to the main in the wrong direction. This should be corrected.***
7. ***The following comments regarding Sheet C07.2 – Profile Sheet should be addressed:***
- A. ***The labels for the proposed gravity sewer between manholes MHS17 and MHS18 should be provided***
 - B. ***It does not appear that the required 18” of clearance is provided near the storm and sewer crossing located near STA 5 + 10. Please provide 18” of separation.***
 - C. ***The labels for Manholes 13 and 15 should be revised on the profile.***
 - D. ***The existing grade is labeled as proposed grade throughout. This should be corrected.***

- E. **Consider eliminating MHS19, connecting MHS20 directly to MHS18 (at the invert, no drop), eliminating approximately 80 feet of gravity sewer along Drive 3, and adding a manhole in Drive 3 just prior to sewer lateral from dwelling 66.**

General

1. The Cover Sheet includes a note section on the left side of the Sheet entitled Offer of Dedication but no signature lines have been included. This note should be clarified. **Signature lines have been provided for the Offer of Dedication note, which references Rosedale Road right-of-way and easement areas. Dedication notes are provided on the right side of the Cover Sheet noting the continuing offer of dedication of the sanitary sewer and storm sewer facilities within this site. The Applicant should clarify the offer of storm sewer facility dedication; HOA ownership is specified elsewhere in the plan set. All offers of dedication should also be consolidated within the signature block.**
2. A bus stop is proposed at the entrance to the site along Internal Drive A. No sidewalk is provided to the bus stop. A crosswalk is recommended to access the proposed sidewalk across the street and a sidewalk is recommended to provide access to the existing sidewalk along Rosedale Road. **A sidewalk and crosswalk have been provided to the proposed bus stop. This item has been resolved.**
3. Sheet C08.2 – Construction Details includes a detail for an asphalt trail. The plan does not include any asphalt trails. Additionally, no details have been provided for the proposed brick paver and natural wood chip trails. These details should be provided. **The details on Sheet C08.2 have been revised. This item has been resolved.**
4. The Plan includes a rectangular dwelling footprint and a driveway for each dwelling. The Plan should clarify if any front steps/walkways will be provided in the front yards or if any decks/patios will be constructed in the rear yards. The additional impervious coverage should be included in the stormwater management calculations. Additionally, the majority of the rear yards are proposed to be restricted open space. These items should be addressed on the Plan. **The Applicant states that all steps and decks are inset into the footprint of each dwelling. However, the plan now includes front steps/walkways. It is unclear if the additional impervious coverage is represented in the stormwater management calculations. This item remains. Additionally, Sheet C02.1 – Site Design and Layout Plan should state that the dwelling footprint is to include all decks, patios, additional storage structures, etc. to memorialize this statement.**
5. Over 3,800 LF of retaining walls are proposed throughout the site, ranging up to 14 feet in height. The detail on Sheet C08.1 – Construction Details states that the retaining walls are subject to Township Engineer review and approval. Detailed shop drawings, signed and sealed by a registered professional engineer shall be submitted to the Township for approval prior to construction. The following comments regarding the proposed retaining walls should be addressed:
 - A. The retaining wall along the eastern side of Internal Drive B is located at the corner of UPI 62-4-216.2. Construction of this portion of the retaining wall will encroach on the adjacent property. This should be corrected or an easement should be obtained. **The retaining wall located along Internal Drive B (between the entrance and Lot 1) is still very close to the property line. The retaining wall location should be revised or an easement should be obtained. This item remains.**

- B. The proposed retaining wall is as high as 14 feet in height along the eastern boundary line. The Applicant should review the plan to ensure that adequate distance is provided along the property line to construct retaining walls of this height without encroaching on the adjacent property (UPI 62-4-218). ***The retaining wall along the eastern side of the property has been shifted further from the property line. This item has been resolved.***
- C. The retaining wall along Internal Drive A in the area of the Unnamed Tributary to the East Branch of the Red Clay Creek is as much as 11 feet in height. The retaining wall detail includes a 48" high post and rail fence with wire mesh along the top of the wall. The Applicant should review this to determine if any additional safety measures are needed in this area. ***The Applicant states the safety concerns for this have been reviewed. This item has been resolved.***
6. The Township's emergency service providers should review the proposed plan for acceptability. The location of all proposed fire hydrants should be indicated on the plan as approved by the Fire Marshal. Copies of such correspondence should be included in subsequent land development plan submissions to the Township. ***The Township Fire Marshall reviewed the plans and provided comments in a memo dated June 10, 2019. The Applicant has updated the plans and responded to the comments in a letter dated July 12, 2019. The revisions to the plans include the location of the proposed fire hydrants, update of standard curbing to rolled curbing and signage to prevent parking on all streets. The Township's emergency services providers should verify adequacy of these changes and enforceability of no street parking on a private internal drive. Copies of future correspondence should be included in subsequent land development plan submissions to the Township.***
7. There are stray lines on Sheet C04.1 – Grading & Utilities Plan, including several lines shown along the rear of dwellings 1-16 and through dwellings 29 through 36. These lines are shown on all plans that include grading. These lines should be clarified. ***The stray lines have been removed from the plan. This item has been resolved.***
8. PNDI information included on Drawing C03.2 – Engineering Site Analysis Plan is expired. A current PNDI review should be provided. ***An updated PNDI Search has been provided on Sheet C03.2 – Engineering Site Analysis Plan. This item has been resolved.***
9. ***Plan labels and/or legend information should be provided to clarify proposed retaining walls, existing sidewalk and proposed sidewalk.***
10. ***Plan depiction of proposed curbing over existing Rosedale Road sidewalks should be corrected.***
11. ***A Phase II – Environmental Site Assessment was performed for 548 Rosedale Road by Brickhouse Environmental, dated May 1, 2019. The Phase 1 ESA Report identified four "RECs", including one associated with the SMS processing and stockpile areas, one associated with the former diesel, gasoline and heating oil underground storage tanks, one associated with the three older fluid-cooled, pad mounted transformers and one associated with the property being the subject of the deposition and storage of a significant volume of miscellaneous debris, trailers, junk vehicles, scrap metal, tires and other equipment. The field screening, soil analytical results and groundwater analytical results did not identify evidence of releases of petroleum products or hazardous substances resulting in conditions that would be considered a threat to human health or the environment. Brickhouse states that no further investigation is recommended with respect to these issues. They further state that the site contains a significant amount of***

scrapped equipment and other general debris. The stockpiled SMS substrate may be suitable for general grading and landscaping.

These comments should be addressed by the Applicant and a revised Plan and accompanying documents should be submitted for review. Due to the amount of comments generated and the complexity of the plan, additional comments may be generated in review of future plan submissions. Please contact our office should you have any questions.

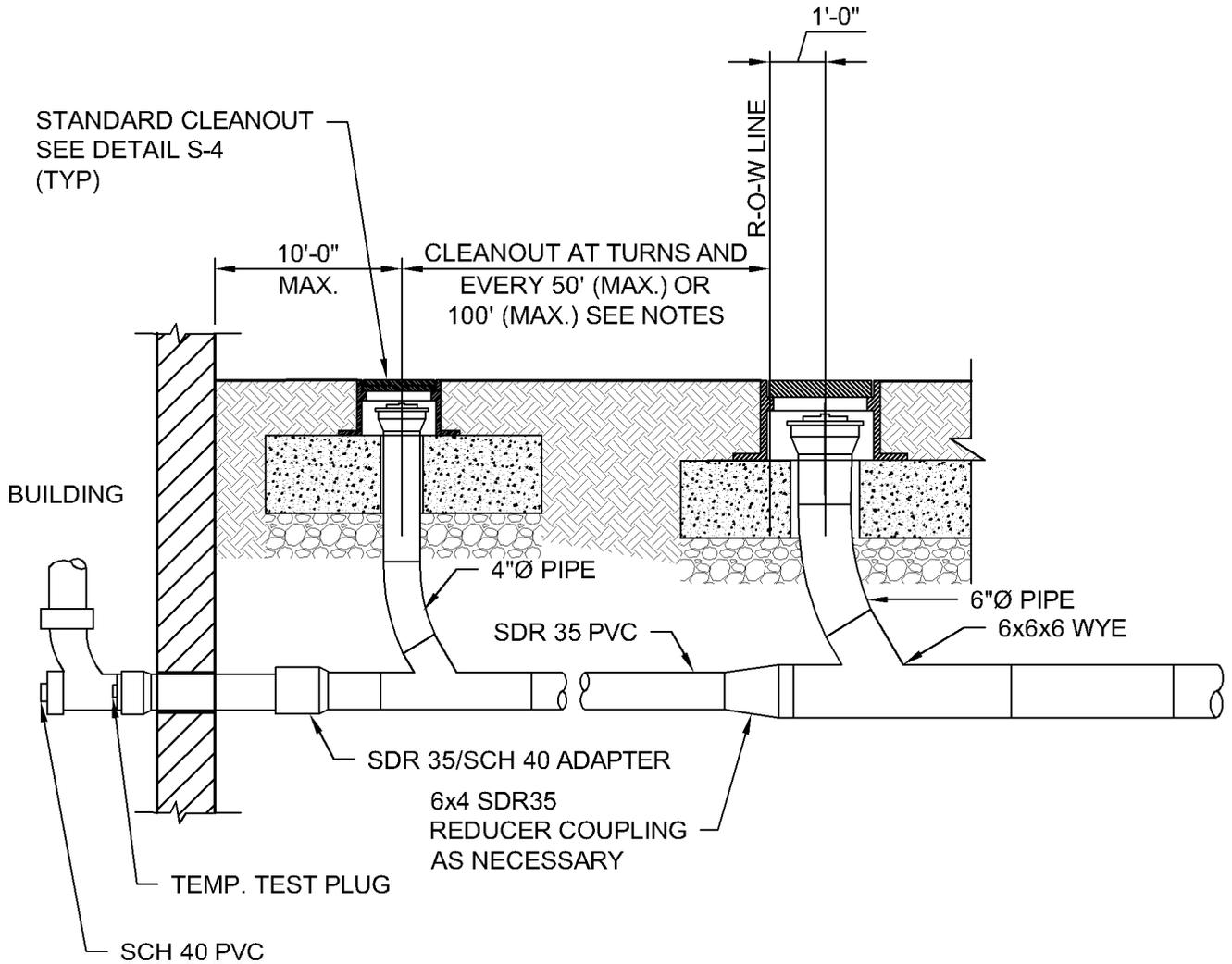
Sincerely,

AECOM



Stan Corbett
Project Manager

V:\PROJECTS\155\1PA_KENNETT_COMMON_INFO\STANDARD DETAILS\REV CADIS-3 - LATERAL LAYOUT DETAIL.DWG



NOTES:

1. THESE DETAILS SUPPLEMENT INFORMATION CONTAINED IN THE TECHNICAL SPECIFICATIONS AND OTHER DETAILS.
2. INSTALL PER TYPICAL TRENCH DETAIL S-1.
3. SDR 35 SHALL BE 4" OR 6" DIA. UNLESS OTHERWISE APPROVED BY TOWNSHIP.
4. MAXIMUM CLEANOUT SPACING SHALL BE 50' ON 4" DIA. OR 100' ON 6" DIA. LATERALS.



STANDARD SEWER DETAILS

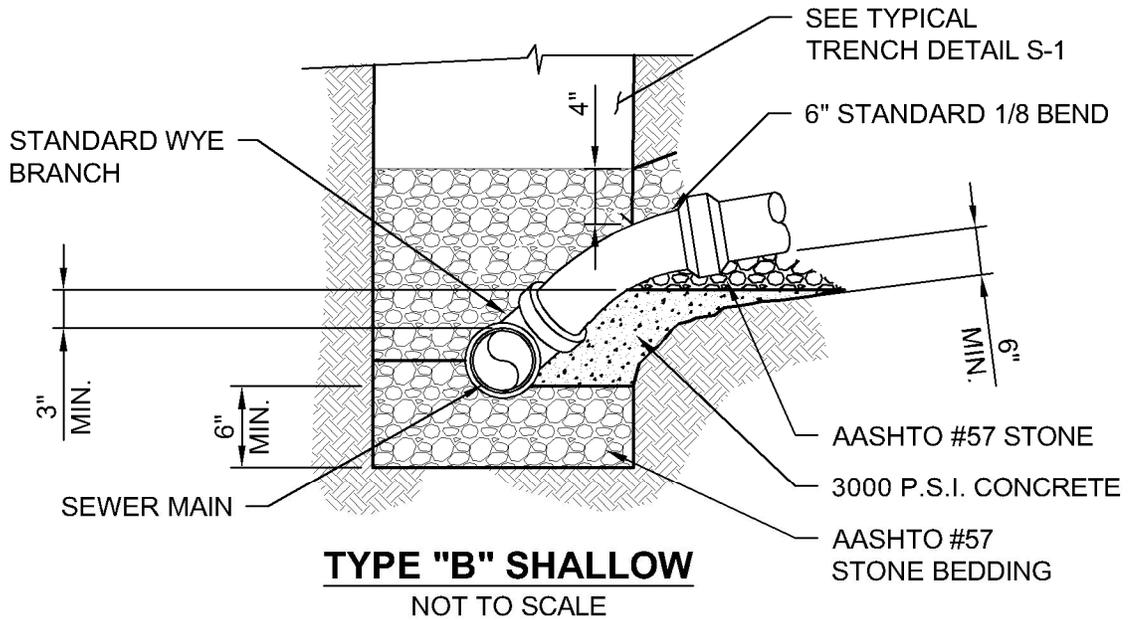
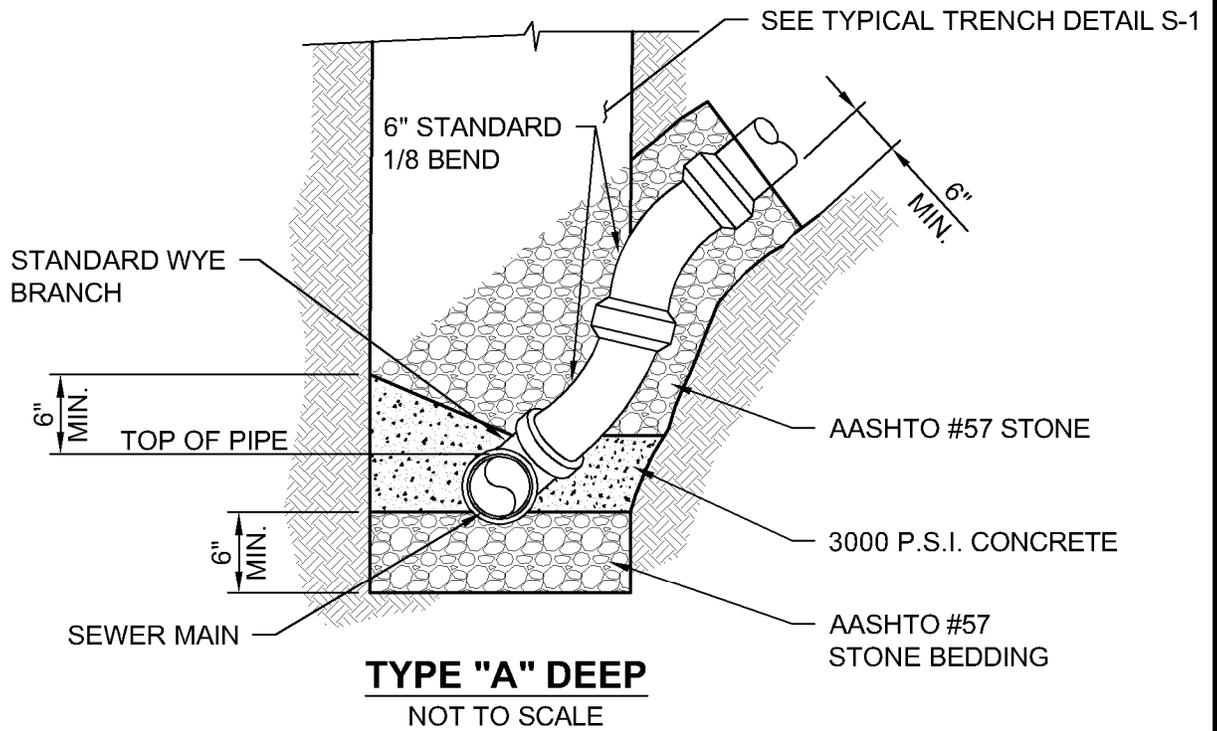
LATERAL LAYOUT DETAIL

REVISED

12/2017	JED
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S-3

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NOTES:

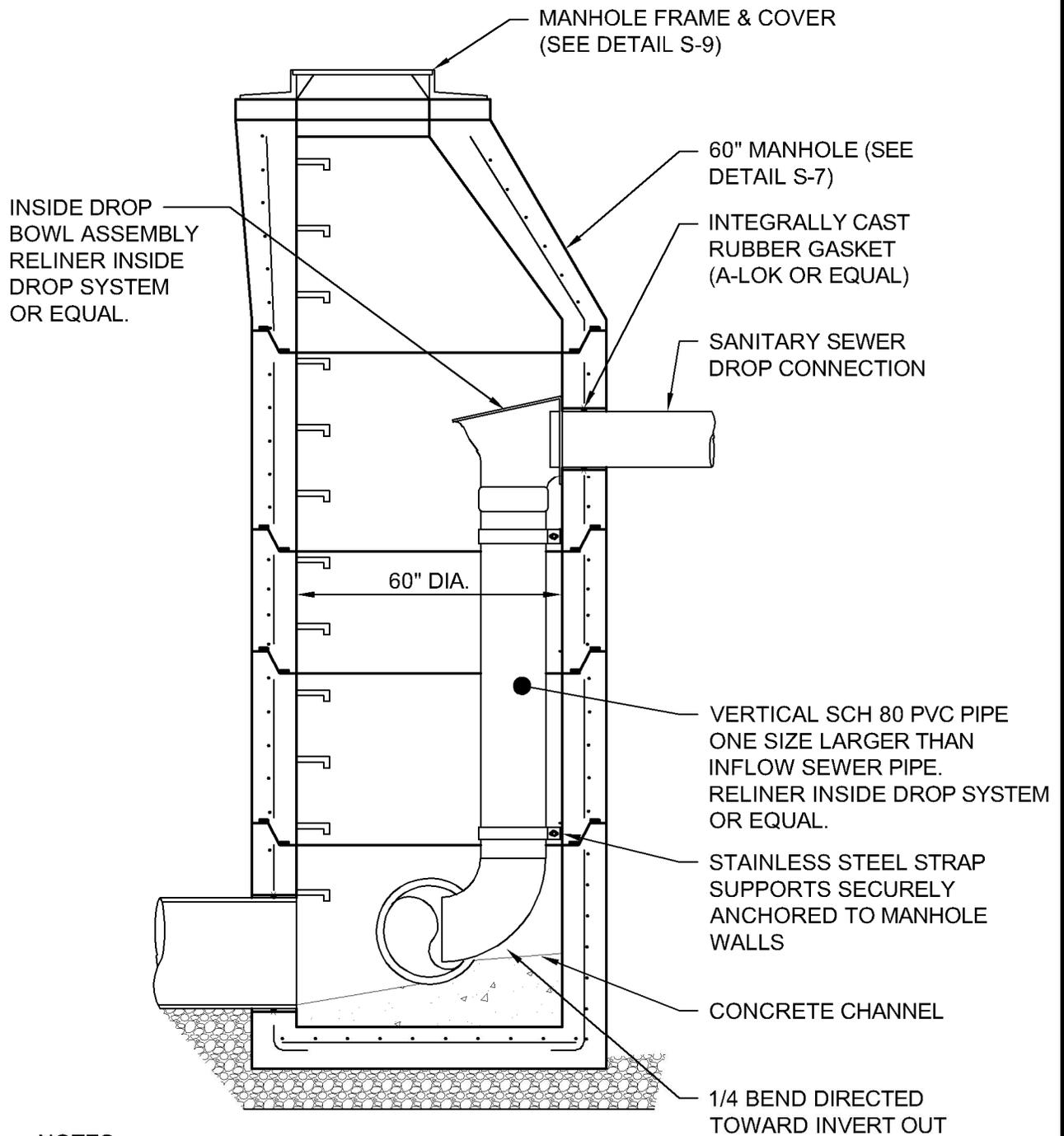
1. TYPE "A" LATERAL CONNECTION SHALL BE USED FOR LATERALS WITH GREATER THAN 10% SLOPE
2. THESE DETAILS SUPPLEMENT INFORMATION CONTAINED IN THE TECHNICAL SPECIFICATIONS AND OTHER DETAILS.
3. LATERAL CONNECTION TO EXISTING MAIN SHALL BE MADE USING STANDARD WYE BRANCH WITH PVC SEWER REPAIR COUPLINGS. SEWER SADDLES ARE NOT ACCEPTABLE.



STANDARD SEWER DETAILS
**LATERAL CONNECTION
AT MAIN**

REVISED	
12/2017	JED
S-5	

V:\PROJECTS\155\1PA_KENNETT_COMMON_INFO\STANDARD DETAILS\REV CAD\S-10 - DROP MANHOLE.DWG



NOTES:

1. THESE DETAILS SUPPLEMENT INFORMATION CONTAINED IN THE TECHNICAL SPECIFICATIONS AND OTHER DETAILS.
2. MANHOLE FLOW CHANNELS SHALL BE 5000 PSI CONCRETE.
3. ROTATE MANHOLE SUCH THAT STEPS ARE OPPOSITE DROP INLET.
4. SEE DETAIL S-7 FOR MANHOLE CONSTRUCTION.
5. OUTSIDE DROP MANHOLES NOT PERMITTED.
6. DROP CONNECTIONS TO EXISTING MANHOLES WILL BE REVIEWED ON A PROJECT SPECIFIC BASIS.



STANDARD SEWER DETAILS

DROP MANHOLE DETAIL

REVISED

12/2017	JED
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S-10