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April 4, 2022

VIA EMAIL (COMMISSIONERSTEMPGROUP@CHELTENHAM-TOWNSHIP.ORG)

Cheltenham Township Board of Commissioners
8230 Old York Road
Elkins Park, PA 19027

Re: Objections to Proposed Development at 222 Church Road – First Letter

Dear Commissioners:

David C. Bernstein, the current owner of 216 Church Road in Elkins Park, has retained Post & Schell, P.C. (“Post & Schell”); Petrikin, Wellman, Damico, Brow & Petrosa (“Petrikin Wellman”); and Cedarville Engineering Group, LLC (“Cedarville”), to evaluate whether the proposed land development in Cheltenham Township (“Township”) known as the 222 Church Road Project (“Proposed Project”) complies with applicable Township requirements, including without limit the Township’s Subdivision and Land Development Ordinance (“SALDO”) and the Tookany/Tacony-Frankford Watershed Stormwater Management Ordinance (“SMO”). Together, Post & Schell, Petrikin Wellman, and Cedarville have significant legal and technical expertise related to land development, stormwater, environmental, and general real estate matters, and are well-qualified to provide an objective assessment of the Proposed Project.

As discussed herein, and in the Attachment to this letter, Mr. Bernstein’s team has identified numerous legal deficiencies and concerns (“Objections”) with the Preliminary Land Development Plans (“Plans”) that the Applicant for the Proposed Project has submitted to the Township’s Board of Commissioners (“Commissioners”). In light of these Objections, Mr. Bernstein urges the Commissioners to deny the Plans and associated application for the Proposed Project.

Mr. Bernstein also respectfully requests that the Commissioners’ Public Works Committee, which has a meeting scheduled for April 6, 2022, revise its agenda to include discussion of this letter. Alternatively, given the volume of Objections raised herein, Mr. Bernstein requests that the Public Works Committee hold a Special Meeting, which it is authorized to do under 65 Pa.C.S. § 7101.1(a), to discuss this letter prior to the next Commissioners meeting. Finally, Mr. Bernstein requests that Post & Schell, Petrikin Wellman, and Cedarville have an opportunity to speak on his

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behalf at the forthcoming Public Works Committee meeting, Commissioners' meeting, and any Special Meeting that may be scheduled.

The attached document is a Memorandum from Robert Flinchbaugh, P.E., to Mr. Bernstein, dated March 31, 2022, setting forth the results of Cedarville's technical review of the Plans. As noted, it identifies numerous Objections to the Proposed Project. Objections regarding the Proposed Project also were identified in the recent letter from Gannett Fleming, the Township's Engineer, to Henry Sekawungu, the Township's Director of Planning and Zoning, dated March 25, 2022, and in a document prepared independently by Mr. Bernstein and Mr. Kraus, dated April 3, 2022, which is being submitted to the Commissioners today under separate cover.

In addition to the Objections identified in the documents referenced above, we note/highlight the following Objections to the Proposed Project:

1. Serious deficiencies and concerns have been raised regarding the stormwater management plan for the Proposed Project. Significantly, the plan does not comply with the Pennsylvania's Stormwater Best Management Practices Manual ("BMP Manual") to the maximum extent practicable, which it is required to do under §§ 290-18.D, 290-18.H(3), and 290-18.M of the SMO. There are several reasons that the plan is not compliant with the BMP Manual, including:
 - a. The primary stormwater management facility ("Facility") proposed by the Applicant is identified interchangeably as a "Rain Garden" and a "Retention Basin," which are two different types of features with two different sets of criteria under the Manuals. The proposed Facility meets neither set of requirements, and the result is that the Facility will not adequately control stormwater runoff and thus will result in flooding. A much larger stormwater management facility would be required to satisfy the requirements of the Manuals and to control flooding. Given the number of houses included in the Proposed Project, and the wetlands present in Lot 10, there does not appear to be space for an adequate facility without either reducing the number of houses or disturbing the wetlands.
 - b. The Applicant's calculations assume that a 100-year frequency storm will be infiltrated into the Facility; however, this is unrealistic. The Facility's soil will quickly become saturated and not function for rate control for storms equal to or over 5-years in frequency.
 - c. There are concerns regarding the data used for the drainage area breakdowns and Hydrology Studio calculations. Additional information needs to be provided by the Applicant to allow the Commissioners to fully evaluate the data for reliability and accuracy.
 - d. The Applicant is assuming, without having performed any analysis, that the existing gutter system associated with Church Road is sufficient to prevent stormwater from flowing downhill across Church Road onto the land of the Proposed Project. This assumption is inconsistent with the decades of experience of the nearby residents, who report that stormwater regularly flows onto the land of

the Proposed Project in that manner. To comply with the Manuals, the Applicant must analyze the Church Road gutter system, and if it shows that off-site stormwater will be flowing onto the Proposed Project, as the residents report, the Applicant must update its calculations accordingly.

2. The Plans do not comply with several provisions of the SALDO related to tree clearing, vegetation disturbance, and tree replacement, including:
 - a. The Plans do not show all trees with calipers between 3 and 6 inches, making it impossible for the Applicant to demonstrate compliance with §§ 260-34.C and 260-34.D.
 - b. The Applicant failed to submit a written document or plan showing that no more desirable layouts are possible from a vegetation removal standpoint, which it is required to do under § 260-34.A(3).
 - c. Without the foregoing information, it is impossible for the Commissioners to determine that the Proposed Project will minimize vegetation removal, as required by §§ 260-34.A(1) and (3).
3. To construct the sewer lateral for the Proposed Project, the Applicant will need an easement across property owned by the Township. It is not clear that any such easement currently exists. To the extent any such easement does exist, it does not appear to be of the size and length that would be required to construct the sewer lateral.
4. The Applicant has requested a waiver of § 260.C, related to mapping features within 200 feet of the Proposed Project boundaries, but has failed to demonstrate that literal compliance with § 260.C would be unreasonable or cause due hardship, and that granting the requested waiver will not be contrary to the public interest or the purpose and intent of the SALDO. Moreover, granting the waiver is not in the public interest or consistent with the purpose and intent of the SALDO, because off-site areas within 200 feet of the Proposed Project contain valuable streams and wetlands which could be impacted by the Proposed Project. If these streams and wetlands are not fully documented in the Applicant's Development Plans, it is impossible for the Commissioners to determine whether they are being protected in accordance with applicable Township requirements and regulations.

For the foregoing reasons, and others, the Proposed Project, even if numerous conditions were imposed, could not possibly be developed in "strict accordance" with the SALDO, as required by § 260-6. Further, the waiver of § 260.C requested by the Applicant does not meet the criteria of § 260-7. The Plans and associated application for the Proposed Project should be denied.

April 4, 2022

Respectfully submitted,



Aaron S. Mapes
Principal

Enclosure

cc: Mitchell Zygmund-Felt, Commissioner (mitchzf@msn.com)
Henry Sekawungu, Cheltenham Township (hsekawungu@cheltenham-township.org)
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Robert Flinchbaugh, P.E., Cedarville (BFlinchbaugh@CedarvilleEng.com)
Gerald E. Rath, III, Blumberg & Rath (grath@blumberg-rath.com)

ENCLOSURE



MEMORANDUM

To: David Bernstein
From: Robert Flinchbaugh, P.E.
Subject: 222 Church Street Review
Date: March 31, 2022

The below represents CEDARVILLE'S review of plan submission information as received on March 4, 2022. It shall be noted that this review is based upon the information received to date; upon the receipt of additional information or information deemed incomplete as part of our below review, additional comments may be warranted.

Chapter 260 Subdivision and Land Development (SALDO)

1. *Section 260-15.B.(2) - Name, address, and phone number of applicant and of the owner of record.*

The applicant's phone number should be added to Site Data Notes 2 on the Record Plan (1 of 3) sheet number 2 of 27.

2. *Section 260-15.B.(13) - Description of all deed restrictions, including conservation and environmental, easements, or other covenants affecting the property or development of the tract. The following information shall be included: the parties to the agreement, the beneficiary(ies) of the restrictions, easements and covenants, the title of the document or instrument creating the restrictions, easements and/or covenants, and a reference to their deed and page book recording location.*

Section 260-15.D.(1) - Tract boundary lines, existing and proposed easements, existing and proposed deed restrictions, and current owners of the subject tract.

Section 260-47.G - Maintenance of stormwater facilities. Prior to the granting of final approval of any subdivision or land development plan, the Township must be satisfied through contractual arrangements that all stormwater facilities will be properly maintained. If all, or a portion, of the facilities will be on property which will be conveyed to an individual homeowners' association or any other eventual owner, the guarantees must be in such a form that they will carry through to the new owners. The approved post-construction stormwater management plan shall be recorded with the Montgomery County Recorder of Deeds, along with all maintenance requirements for the same.

Section 260-47.H - Conveyance to two or more separate owners. If the land containing stormwater management BMPs will be conveyed to two or more separate owners, the applicant shall provide written assurance and deed restrictions to the Township that the stormwater management structures will be properly



maintained by the owners, or if acceptable to the Township, be dedicated to the Township, which shall then be responsible for maintenance.

Operation and Maintenance notes associated with the “emergency access road”, proposed “trail” through Lot 9, and the BMP on Lots 6-8 should be clearly defined on the Plans as follows:

- If the emergency access easement is to be utilized by emergency personnel, it will need to be graded to allow for vehicular access. Lot grading associated with Lots 4 and 5 encroach on this easement with slopes that adversely affect emergency personnel access. Proposed grading needs to be shown on the plan in accordance with criteria applicable to emergency accesses. This may require the installation of retaining walls and may affect overall drainage patterns.
- Access, maintenance, and use restrictions for the emergency access road as required by the Fire Marshal (currently shown through Lot 4 and 5) should be clearly defined to ensure the availability of use for Cheltenham Emergency Personnel.
- All maintenance and access restrictions and responsibilities for the proposed trail connection for Lot 9 should be clearly defined. This should include any regular maintenance for the trail proper and adjacent sensitive resources at the property line with Lot 10.
- Any requirements regarding the sanitary sewer beneath the trail should be shown on the plan or another easement provided to the Municipal Authority at the discretion of the Township/Authority Solicitor due to the placement below a public improvement.
- Clarity should be provided for the Operation and Maintenance responsibilities outlined on Record Plan (2 of 3) regarding the stormwater BMP. It is unclear how a property owner would follow these responsibilities if the structure in question within the BMP is on a different property as they have no legal recourse or access to these portions of the BMP (access gates are only provided on Lot 6 and 8, Lot 7 has no viable means of access to the facility). A site and property specific Operation and Maintenance procedure, notes, and requirements should be provided due to the unique nature of the facility configuration with the proposed parcels rather than a generic single-lot O&M provided for this application.
- Operation and Maintenance Notes: Maintenance on the Record Plan (2 of 2) needs to be revised to remove the reference to an HOA.

3. *Section 260-15.B.(15) - Legend which shall be sufficient to indicate clearly between existing and proposed conditions.*

The Plan Legends should be updated to include all existing features as well as all improvements shown on the respective Plan Sheets. This includes, but is not limited to, right-of-ways lines, alignment centerlines, building lines, fences, walls, soil boundary lines, etc., as well as a means of differentiating between similar and congruent line styles and thicknesses. Existing features and proposed improvements should be clearly differentiated.

4. *Section 260-15.B.(22) - Reserved space for signature blocks for Cheltenham Board of Commissioners President, Township Secretary, Cheltenham Township Planning Commission Chair, Township Engineer, Notary, and the Montgomery County Planning Commission at a size and in a location according to their latest requirements.*



The signature blocks shown on the Record Plan (1 of 3) need to be updated to include all entities listed in the above referenced section of the Ordinance. This includes, but is not limited to, the Township Planning Commission and removing the “Township Engineer” reference from the MontCo Planning Commission block.

5. *Section 260-15.C.(2).(j) - Location and type of all existing traffic control signs, line striping, signals, and devices*

The proposed configuration for the Lot 5 driveway will need to be evaluated by a qualified Traffic Engineer, due to the proximity of the driveway to the intersection of Church and Fairview Roads.

6. *Section 260-15.C.(3).(g) - Flood-prone or floodplain areas including, where applicable, the base flood elevation using data from FEMA studies, plus a note indicating the source of hydrologic and hydraulic data for 100-year flood limits, or Montgomery County Soil Survey when applicable, as determined appropriate by the Cheltenham Township Engineer for the watercourse(s) affecting the site.*

Section 260-15.D.(9).(a) - Any lots or lots proposed for development which lie in whole or in part within the Floodplain Conservation Overlay District, as defined in Chapter 295, Zoning, of the Township Code shall comply with all standards therein, in addition to the standards of this Subsection D(9).

Section 260-15.D.(9).(c) - Where the subdivision or land development lies partially or completely in a floodplain or where the subdivision or land development borders on a floodplain, the plan shall include detailed information giving the location and elevation of existing and proposed streets, water supply and sanitary facilities, building sites, structures, soil types and proposed floodproofing measures. Such plan shall also show contour lines as described in § 260-13G(3) of this chapter, and identify accurately the boundaries of the floodplain and the base flood elevation. When floodproofing measures are for a structure within a floodplain, a registered professional engineer or architect shall certify that the floodproofing measures are adequate to meet the requirements of this chapter and other Township ordinances

Survey Note 4 states that a portion of the site falls within Flood Zone AE. Construction within the flood zone should be in accordance with all applicable Township Regulations and cause no increase to the base flood elevation (BFE) when calculated via hydraulic modeling. Currently no calculations have been provided regarding the effects of the construction proposed withing the floodway. The following will need to be provided:

- Evidence of approval and permit acquisition from DEP associated with the proposed sanitary sewer installation though Tookany Creek.
- Erosion and sediment control facilities, details, and sequences associated with this crossing will need to be shown.
- Applicable hydrologic and hydraulic calculations will need to be provided for any adverse encroachment proposed within the flood plain.

7. *Section 260-15.C.(5) - Storm sewers, including:*

Section 260-15.C.(6) - Other existing stormwater and/or erosion control facilities, including:



Currently no existing stormwater improvements are shown on the provided Plan. The applicant will need to confirm that all existing stormwater conveyance facilities, located along Church Road and the existing portion of Harrison Avenue, have been accurately shown.

8. *Section 260-15.D.(3) - The quantity and layout of the areas of natural features conserved according to the criteria for conservation of natural resources in open space in § [260-31C](#) of this chapter.*

A Natural Resource Preservation Table is provided on Record Plan (3 of 3) however it should be updated to provide consistent percentages of disturbance with the Landscape Plan as they reference different quantities of protected and removed trees.

9. *Section 260-15.D.(4).(p).[3] - The minimum and average, and maximum maintained illumination levels for the areas being illuminated to demonstrate compliance with lighting requirements in Cheltenham Township including, but not limited to, those requirements of § 260-79 and Chapters 235 and 295 of the Township Code.*

A Lighting Plan should be provided by the applicant to demonstrate that proposed lighting meets with Cheltenham Township Ordinance requirements and does not create adverse impacts or glare onto adjacent properties.

10. *Section 260-15.D.(6).(d).[2] - Pipe sizes and materials.*

Section 260-15.D.(7).(b).[2] - Profiles for sanitary sewers, water mains, storm drains, including locations of manholes, inlets, and catch basins.

The following should be addressed:

- The pipe size and material for the proposed water line should be clearly labeled on the Utility Plan.
- The proposed stormwater and water lines should be clearly shown on the Sanitary Profile provided on the Utility Profile sheet.
- The proposed water service line should be clearly shown on the provided Storm Profile sheet.

11. *Section 260-15.D.(7).(b) - Cross section and center-line profile for each proposed or widened cartway, driveway, or parking area shown on the preliminary plan.*

The Profile View: Harrison Avenue Extension should be extended to the full length of the extension and include the existing section of Harrison Avenue to confirm that existing and proposed grades remain consistent with Township Ordinance requirements and to determine whether additional improvements to the existing section of Harrison Avenue are warranted.

12. *Section 260-17.F - Certifications.*

Section 260-17.G - Acknowledgements.

The following is for informational purposes only but should be noted/addressed prior to Plan recording:

- All certification blocks, signature lines, and other required documentation should be properly executed prior to plan recording.



- Should the applicant's team involve individuals on the Montgomery County Planning Commission, applicable signature blocks should not be complete by these individuals.

13. Section 260-31.B - Natural resource preservation. To the maximum extent possible, the following environmentally sensitive features shall be preserved based on the natural tolerances to encroachment and development as follows, and in accordance with the appropriate provisions of Chapter 295, Zoning, of the Township Code:

| Natural Feature | Minimum % to be Preserved |
|----------------------------------|---------------------------|
| Floodplains and watercourses | 100% |
| Wetlands | 100% |
| Ponds, both natural and man-made | 100% |
| Steep slopes of 15-25% | 70% |
| Steep slopes of over 25% | 80% |
| Woodlands | 50% |

Where features overlap, the greater percentage shall be conserved. The percentage of each feature is the extent that it shall not be altered, regraded, filled or built upon. The land required to be preserved by this subsection shall be permanently restricted by an easement and maintenance agreement in form and substance acceptable to the Board of Commissioners and the Township Solicitor preventing further development. The deed restrictions shall be included in the deed to the property and shall be in a form acceptable to the Board of Commissioners and the Township Solicitor.

This item remains outstanding, pending the applicants survey of all trees with 3" DBH on site.

14. Section 260-31.D - Open space designation. All land held for open space shall be so designated on the plans. The plans shall contain the following statement for lands in Subsection D(1) through (7) below: "Open space land may not be separately sold, nor shall such land be further developed or subdivided." All plans shall further designate the use of open space, the type of maintenance to be provided, and a planting plan or schedule

The applicant needs to provide a designation for the proposed open space. Proposed designations are listed as subsections below the referenced Ordinance section and each designation has specific requirements to be met. Natural area, what appears to be the proposed designation, requires a stand-alone Natural Areas Management Plan to be prepared and submitted with the application.

15. Section 260-31.F - Open space restrictions. Every property proposed for open space shall be restricted in the following manner:

The applicant will need to provide a copy of the proposed deed and applicable language and restrictions as outlined in Section 260-31.F.(1). It should also be noted that in accordance with Section 260-31.F.(3) the Township may require financial security to be posted for the long-term maintenance of the open space as the Township is not obligated to accept dedication of Lot 10 per Section 260.31.E.(1).



16. Section 260-34.B - Protection of existing vegetation. Existing vegetation designated "to remain," in accordance with § 260-34D, Tree replacement planting requirements, Subsection D(1), as part of the landscaping of a subdivision or land development shall be identified in the field prior to any clearing and shall be physically protected throughout the construction process. The following additional standards shall apply:

(1) A temporary, sturdy physical barrier, such as a snow fence or chain-link fence as determined by the Township, shall be erected a minimum of one foot outside the dripline or a minimum of 20 feet from the tree's trunk, whichever is greater, on all sides of freestanding trees, tree masses, or woodlands prior to major clearing or construction. A detail of said fence shall be provided by the applicant for review by the Township.

(2) The barrier shall be placed to prevent disturbance to or compaction of soil inside the barrier and shall remain until construction is complete. No grading shall occur within the protection area, nor shall the placement or storage of construction materials or machinery be permitted in the protection area.

(3) The barrier shall be shown on the erosion and sedimentation (E & S) control plan, grading plan and the landscape plan. Reference to the installation of tree protection should be included in the sequence of construction notes to ensure incorporation of tree protection before the earliest stages of site disturbance.

Tree protection in accordance with the above referenced sections of the Ordinance should be shown on applicable plan sheets. It appears that proposed grading and construction activities will conflict with the protection measures when shown. This will need to be re-evaluated once this information is adequately shown.

CEDARVILLE recommends that all proposed tree protection fencing and devices be shown on the plan around existing trees to remain with a minimum radius of 20 feet or the edge of dripline, whichever is greater, to demonstrate that no proposed improvements, grading, or other related work will occur within these zones over the course of construction of the project. Additionally, tree protection fencing should be shown on the legend as well.

17. Section 260-34.C - Credit for preserved trees. Tree plantings required by this chapter are permitted to be satisfied, whenever possible, by utilizing or preserving existing noninvasive, healthy trees. To receive credit, an applicant must demonstrate that the trees intended to be preserved are located in areas of the site suitable to otherwise satisfy the replacement landscape requirement; an applicant must stipulate exactly what replacement landscape requirement is proposed to be credited. Credit for existing trees which are "to remain," or "to be preserved," as determined in § [260-34A\(4\)](#) above, to offset the replacement tree requirement shall be calculated as follows:

| Preserved tree (dbh) | Number of Trees Credited (3 inches caliper) |
|-----------------------|---|
| 18 inches and greater | 4 trees* |
| 12 to 17 inches | 2 trees* |
| 8 to 11 inches | 1 tree* |

The applicant should revise the Total DBH Preserved column within the Tree Preservation Credits table shown on Sheet 11. Per the above referenced Ordinance, each credited "tree" only receives a 3" DBH while the applicant is calculating DBH values in excess of 7" and accounting for trees not accepted for credit (7" and



smaller DBH). By incorrectly calculating the total credited DBH future calculations that use this value will be incorrectly skewed to the developer's favor.

18. Section 260-34.D.(1) - Any subdivision or land development proposal which will result in the destruction of any trees (dead or alive) three inches dbh or greater that would result in the reduction of 10% or more of the total tree dbh in the limit of disturbance (LOD) area shall replace all of the tree dbh removed in excess of 10% as reduced by the appropriate credit for preserved trees in the LOD area. If the LOD area does not reasonably contain enough space for the required replacement trees, they may be planted elsewhere on the subdivision or land development tract. "Existing trees" shall also include all trees which existed on the site two years prior to the submission of the application for subdivision or land development approval. The total tree removal impact of woodland areas designated "to be removed" shall be measured by a forest density survey that calculates the approximate quantity of trees (three inches dbh or greater) per square foot area. Calculated woodland tree removals and individual mature tree removal shall be listed on the plan. Required tree replacements shall be calculated by the following formula:

Figure 4.1. Calculation of Required Replacement Trees

| | |
|---|--|
| Total DBH of Existing, Live Trees, 6" DBH or greater, TO BE REMOVED | _____ |
| MINUS CREDIT FOR PRESERVED TREES | |
| [No. of Live, Preserved Trees, 8" - 11" DBH | = _____] x [1] x [2.5] = (minus) - _____ |
| [No. of Live, Preserved Trees, 12" - 17" DBH | = _____] x [1] x [2.5] = (minus) - _____ |
| [No. of Live, Preserved Trees, 18" & up" DBH | = _____] x [1] x [2.5] = (minus) - _____ |
| [No. of Live, Preserved Street Trees | = _____] x [1] x [2.5] = (minus) - _____ |
| REQUIRED REPLACEMENT TOTAL DBH | (sum) _____ |
| <hr/> | |
| PROPOSED REPLACEMENT TOTAL DBH | _____ |
| | [Fig. 4.1 not underscored for clarity] |

It appears that the Replacement Total DBH (and corresponding calculations) are deficient as noted below:

- A forest density survey calculating the approximate quantity of trees per square foot should be included for review (shown in above). The applicant has responded to the Township stating this shall be provided.
- It appears that a calculation discrepancy exists between the Trees to be Removed table/Tree Disturbance table values for Tree DBH to be Removed (1,454") on Sheet 11 and manually summing the total tree DBH as provided on the Existing Tree Charts (1,487") on Sheet 5. This discrepancy should be verified and revised to provide an accurate value for use in replacement tree DBH calculations.

19. Section 260-34.D.(1).(a) - Each tree three inches dbh or greater that is destroyed shall be replaced with a sufficient number of trees whose total caliper measurement equals the dbh measurement of the tree which is destroyed or removed minus the credit for preserved trees pursuant to § 260-34C, credit for preserved trees. Each individual replacement tree intended to satisfy this requirement shall have a minimum two-and-one-half-inch caliper.

This item remains to be addressed by the applicant.



20. *Section 260-34.D.(2) - Replacement trees shall be planted on site to mitigate for existing trees removed. Such replacement trees shall be required to be planted are distinct from and in addition to all other landscaping requirements of this chapter. Proposed replacement tree plantings shall be identified and listed on the plan.*

The applicant should provide a tabulation or other means of distinguishing trees intended to meet the required tree replacement from street trees and stormwater area plantings to facilitate review and ensure that all plantings proposed for each use meet with all required spacing, setbacks, and other location-based requirements within the Ordinance. This distinguishing method should specify which trees specifically are intended to meet which requirement.

21. *Section 260-34.D.(3) - If the site does not reasonably contain enough room for the required replacement trees, the Board of Commissioners may allow the developer to locate some or all of the replacement trees on public lands or accept an equivalent fee in lieu of plantings, at their discretion.*

The applicant indicates the intent to provide 285 trees in lieu of in addition to providing 101 trees on site for tree replacement. It should be specified whether the intent is to provide trees elsewhere or pay a fee. Should the Board not deem either option acceptable, a reduction in lots and tree removal will likely be required. Additionally, the quantity of trees in lieu will likely be revised upon further revisions to the provided calculations.

22. *Section 260-40.A.(1) - Sidewalks and verges shall be required on both sides of the street within the ultimate right-of-way.*

The applicant will need to extend proposed sidewalk through the entire frontage of Lot 9. Omitting a sidewalk in this area prevents ADA access to the trail network from the northern side of the street thereby requiring access through the vehicular travel area. It should be noted that an access through a snow depositing area/easement is not an acceptable route as it may regularly be blocked during winter conditions.

23. *Section 260-40.B.(3).(c) - Where a verge is proposed as a grass strip, in no case shall its width be less than three feet.*

The applicant will need to revise the proposed verge width between the curb and sidewalk to a minimum width of 3 feet.

24. *Section 260-42.B.(1) - Multi-use trails shall be 10 feet wide with a cleared area of five feet in width on either side.*

The applicant should revise the landscaping plan to provide a minimum of 5 feet of clear area adjacent to both sides of the proposed trail to ensure ease of maintenance and usage by residents of the Township.

25. *Section 260-47.N.(2).(b).[2] - The minimum top width of detention, retention, wet pond, or any other basin berm that stores stormwater volumes of 10,000 CF or greater at the 100-year water surface elevation shall be 10 feet. For basins with a storage volume less than 10,000 CF, the minimum berm width shall be five feet.*

The proposed basin should be revised to provide a minimum berm width of 10 feet to ensure that the berm can adequately function and manage the total proposed storage volume of 16,000 cubic feet of runoff. An



undersized berm will potentially result in failure of the berm and the BMP. This needs to be clearly identified on the “Retention Basin – BMP #1 detail and be accurately reflected on the Grading Plan.

26. *Section 260-47.N.(2).(b).[3] - Cut of trench. A cutoff trench will be excavated along the center-line dam on earthfill embankments. The minimum depth shall be two feet. The cutoff trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be eight feet wide but wide enough to permit operation of compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for the embankment. The trench shall be kept free from standing water during the backfilling operations.*

The proposed basin will need to provide a cutoff trench within the berm to prevent failure of the basin berm.

27. *Section 260-47.N.(2).(c) - Emergency spillways discharging over embankment fill shall be constructed of reinforced concrete checker blocks to protect the berm against erosion. Alternate lining materials may be utilized upon approval of the Township Engineer. The lining shall extend to the toe of the fill slope on the outside of the berm and shall extend to an elevation three feet below the spillway crest on the inside of the berm.*

The emergency spillway detail should be revised to include reinforced concrete checker blocks to resist erosion as required by the above referenced section of the Ordinance.

28. *Section 260-47.N.(3) - Infiltration rates. Infiltration BMPs may only be installed within areas in which the tested infiltration rate falls between 0.1 and 10 inches per hour. Any infiltration system shall be designed to fully drain all water within 72 hours following the peak storage volume of the design storm event. Testing of infiltration rates shall be completed in accordance with Appendix C of the Pennsylvania Stormwater Best Management Practices Manual.*

The applicant should provide dewatering calculations for the proposed basin demonstrating that the 100-year storm will dewater from the basin within 72 hours of the design storm ending. Should the basin not be able to dewater, the basin may become a breeding ground for mosquitoes and other undesirable conditions due to standing water.

29. *Section 260-47.N.(4) - Methodology. The Soil Complex Method shall be use for all projects in which the total earth-disturbance area exceeds 1.0 acres. Use of the Rational Formula for analysis of drainage areas shall be permitted only upon approval of the Township Engineer.*

The provided stormwater management calculations should be revised to utilize the Soil Complex Method (SCS) instead of the Rational Formula. Use of the Rational Formula is less conservative than the Soil Complex Method and can create a significant discrepancy in runoff rates and volumes when used for large site areas. This discrepancy can result in surcharging flows at inlets and BMPs causing failure of stormwater management ultimately resulting in stormwater BMP lacking sufficient capacity to adequate manage post-development runoff. Preliminary calculations when the currently proposed stormwater management facility is routed using the SCS method indicate the basin volume is insufficient to manage the 25-year storm and greater, based upon the calculations as currently presented. In order to properly manage the required release rates and stormwater runoff, a basin of significantly larger size is warranted.



30. *Section 260-48.D - The number of street trees required shall be at least one tree per 30 feet of public or private street frontage or fraction thereof. Trees shall be distributed along the entire frontage of the property, although they are permitted to be clustered together in tree pits or planting areas and need not be evenly spaced along the frontage, provided that such clustered trees are placed between 10 feet and 12 feet on center.*

The following should be addressed regarding street tree requirements:

- The number of trees calculated and provided for the lot fronting Church Road appears to be deficient by approximately 4 trees ($172.14 \text{ LF frontage} / 30 = 6 \text{ trees}$).
- The number of trees calculated and provided for the lot fronting Harrison Avenue appears to be deficient by approximately 2 trees ($780.97 \text{ LF frontage} / 30 = 27 \text{ trees}$).

The above calculations should be revised to provide the full required amount of street trees and allow for proper spacing between trees along street frontages.

31. *Section 260-51(6) - All new streets and additions to existing streets shall be designed to continue existing streets to equal or greater right-of-way and cartway width, as well as aligned with and connected to existing streets, where applicable, as recommended by the Township Engineer and Planning Commission.*

As shown the proposed extension of Harrison Avenue, designed in accordance with current Ordinance criteria, shall connect and gain access to a portion of Harrison Avenue which does is not currently in compliance with applicable roadway dimensional standards. Per the above Section, the Township has the ability to require the existing section of Harrison Avenue to be constructed in proper alignment with and to the width required by Ordinance. It is recommended that these improvements be required to maintain safe and efficient access for the existing and proposed residents of Harrison Avenue.

32. *Section 260-56.C.(9) - Shall be served by an appropriately located and constructed emergency access way when required by the Board of Commissioners using the following standards:*

(a) Minimum cartway width shall be 12 feet.

(b) Pavement method (whether through grass pavers or other method) shall satisfy the standards of the Township Engineer.

(c) Emergency access ways shall be maintained through properly recorded easements or deed restrictions which at a minimum prohibit the planting of any vegetation except grass within the access way.

(d) May be made available for pedestrian access.

Per the memorandum prepared by Scott P. Lynch dated December 8, 2021, it is acknowledged that the emergency access proposed through Lots 4 and 5 shall not be required to handle the weight of fire apparatus. That said, the applicant will still need to address the following:

- A 12-foot wide cartway width will need to be maintained. This area shall be graded to the full 12-foot width at a recommended maximum of grade of 10% to permit access in severe weather conditions. The proposed grading shown in this area associated with the Lot 4 and 5 dwellings will need to be reconfigured to meet this requirement.
- The grading associated with the above shall be configured to maintain all stormwater discharge within the limits of the proposed tract and away from any adjoining properties.



- The proposed emergency access easement locations will need to be reconfigured to maintain the vegetative buffer indicated on the Landscape Plan, while keeping the easement free of any vegetation.

33. Section 260-62.A.(1) - Trees and shrubs shall be planted in and around stormwater basins if they do not interfere in the proper function of the basin and no trees are planted within 30 feet of an outlet/drain structure, emergency spillway, or dam. A minimum of two trees and 10 shrubs per 100 linear feet of basin perimeter, measured at the top of the basin berm, shall be planted in and around the basin.

The number of shrubs provided in/around the basin appears to be deficient by approximately 4 shrubs.

34. Section 260-63.C.(4) - Minimum species diversity. A minimum variety of species per plant type (canopy tree, understory tree, shrub, perennial, etc.) is required as follows:

| Number of Plants Per Plant Type | Minimum Number of Species Per Plant Type Required | Maximum % of Any One Species Per Plant Type |
|--|--|--|
| 0 to 5 | 1 | 100% |
| 6 to 15 | 2 | 50% |
| 16 to 30 | 3 | 40% |
| 31 to 50 | 4 | 30% |
| 51+ | 6 | 20% |

Based on the provided quantity of Evergreen Trees (52) in the “Plant List” table, the variety of species per plant type is deficient as only four (4) species are provided of the six (6) noted above. Landscape diversity is essential to the longevity and overall health of the plant material in a given area.

35. Section 260-72.D – Figure 6.1, Minimum Street Construction Standards

| | Local Road | Arterial or Collector Road |
|--|-------------------|-----------------------------------|
| <i>Superpave surface course</i> | 1 1/2 inches | 1 1/2 inches |
| <i>Superpave binder course</i> | 2 inches | 2 inches |
| <i>Bituminous concrete base course</i> | 3 inches | 5 inches |
| <i>PennDOT No. 2A coarse aggregate subbase</i> | 6 inches | 6 inches |
| <i>Minimum design structural number</i> | 3.0 | 3.7 |

The “On-Site Asphalt Paving Detail” should be revised to specify that it is for use as driveway pavement only as it does not meet the requirements of pavement thickness for a roadway as described above.



36. *Section 260-75.A.(1) - Pathways shall be six feet to eight feet wide and consist of two inches of Superpave wearing course over a six-inch layer of AASHTO No. 57 stone.*

The 10' Wide Asphalt Paving Detail should be revised to provide a minimum depth of 2" of wearing courses as described by the above referenced section of the Ordinance.

37. *Section 260-77.B.(2) - Driveway apron: a minimum of six inches thick with six-inch-by-six-inch welded wire mesh reinforcing.*

The following should be addressed:

- The Driveway Composition Detail should be revised to include a driveway apron to provide clarity and consistency with the Plan Set.
- The 6" Concrete Sidewalk at Driveways Detail should be revised to provide a tie-in to the roadway. The current detail does not match the rest of the Plan Set and shows driveways starting and ending with grass outside of the concrete area.

38. *Section 260-77.B.(4) - The portion of the sidewalk which crosses the driveway apron must meet with thickness requirements above and have a maximum cross slope of 2%.*

Based on the provided spot elevations at the driveway aprons shown on the Grading Plan, it appears that some driveway aprons have a cross slope that exceeds 2%. The applicant will need to verify and revise all driveway aprons and provide labels for cross slope measurements to demonstrate compliance with the above referenced section of the Ordinance and an adherence to ADA use and access requirements. Regrading of these areas has the potential to affect disturbance limits and the trees requiring removal.

39. *Section 260-77.F - All driveways shall be provided with a stopping area within which the grade shall not exceed 4%. The stopping area shall be measured as follows:*

Section 260-77.F.(1) - The length of stopping area shall be a minimum of 20 feet or the length of the longest vehicles anticipated to use the driveway, whichever is greater

Section 260-77.F.(2) - Stopping areas shall be measured from the ultimate right-of-way line for all streets

Driveway grading should be revised to provide the 20-foot stopping area (area graded at a maximum slope of 4% for 20 feet from the ultimate right-of-way line). Based on the current grading, this area is not provided at 7 of the 9 proposed lots. Regrading of these driveway may have an effect on disturbance limits and required tree removal.

40. *Section 260-92 - Financial Security*

Financial security must be posted to the Township prior to approval of final plans to ensure all public improvements are properly and fully installed.



Chapter 280 Trees

1. Section 280-10.A.(1) - All woody vegetation to be retained within 25 feet of a building site, parking area or other proposed improvement shall be protected from equipment damage by snow fencing or other effective barriers; fencing or barriers around trees shall be placed at the dripline, unless determined to be appropriate at another location by the Director.

Tree protection fencing and barriers should be being shown on all plan views. See SALDO Comment #16.

2. Section 280-113 - Trees for new and/or replacement shade trees shall be selected from Table A and shall be balled and burlapped with a minimum dbh of 3 to 31/2.

Table A

| Common Name | Scientific Name |
|----------------------------|--|
| Bloodgood London Planetree | <i>Platanus acerfolia</i> "bloodgood" |
| Dawn redwood | <i>Metasequoia glyptostroboides</i> |
| Littleleaf lindens | <i>Tilia cordata</i> |
| Pin oak | <i>Quercus palustris</i> |
| Red oak | <i>Quercus rubra</i> |
| River birch | <i>Betula nigra</i> |
| Scarlet oak | <i>Quercus coccinea</i> |
| Sugar maple | <i>Acer saccharum</i> |
| Swamp red maple | <i>Acer rubrum</i> |
| Thornless honey locust | <i>Gleditsia triacanthos</i> "inermis" |
| White oak | <i>Quercus alba</i> |
| Willow oak | <i>Quercus phellos</i> |
| Zelkova | <i>Zelkova serrata</i> |

The following proposed deciduous trees do not conform to the required plant list "Table A" above:

- Serviceberry
- Sweetgum
- Swamp White Oak



Chapter 290 Watershed Stormwater Management

1. *Section 290-13 - The SWM site plan shall consist of a general description of the project, including calculations, maps, and plans. A note on the maps shall refer to the associated computations and erosion and sediment (E&S) control plan by title and date. The cover sheet of the computations and E&S control plan shall refer to the associated maps by title and date. All SWM site plan materials shall be submitted to the municipality in a format that is clear, concise, legible, neat, and well organized; otherwise, the SWM site plan shall not be accepted for review and shall be returned to the applicant.*

The Plans, Stormwater Report, and E&S Report should all reference one another by title and most recent revision date. Proper documentation and references are critical to preventing outdated or otherwise incorrect documents from being used by construction or inspection personnel.

2. *Section 290-13.A.(4) - An erosion and sediment control plan, including all reviews and letters of adequacy from the Conservation District.*

All applicable correspondence and plan/report revisions regarding review of the proposed project should be provided to the Township during each submission.

3. *Section 290-13.B.(19) - A fifteen-foot-wide access easement around all stormwater management facilities to provide ingress to and egress from a public right-of-way.*

A blanket easement has been offered by the Applicant for Lots 6-9 for stormwater management inspections and maintenance, however, because the stormwater management BMP and conveyance facilities are located on multiple lots, a defined easement need to be provided, clearly delineating how access will be obtained for each lot. It should be noted that, should other Ordinance requirements require easement areas be removed from lot area calculations, an easement fully surrounding the BMP that extends 15 feet from the toe of the basin berm, or a similarly encompassing area, will be required to produce final lot area calculations.

4. *Section 290-13.C.(2) - An E&S control plan.*

Section 290-18.D - For all regulated earth disturbance activities, E&S control best management practices (BMPs) shall be design, implemented, operated and maintained during the regulated earth disturbance activities (e.g. during construction) to meet the purposes and requirements of this chapter and to meet all requirements under Title 25 of the Pennsylvania Code and Clean Streams Law. Various BMPs and their design standards are listed in the Erosion and Sediment Pollution Control Program Manual (E&S), No. 363-2134-008 (April 15, 2000), as amended and updated.

Section 290-18.H(3) - To the maximum extent practicable, incorporate the techniques for low-impact development practices described in the Pennsylvania Stormwater Best Management Practices Manual (BMP Manual) or the Philadelphia Stormwater Management Guidance Manual.

The applicant deficiencies exist as it pertains to erosion sedimentation control facilities and will need to be addressed by the applicant:



- Supporting calculations for the proposed compost filter socks shall be revised to be consistent between the calculations shown on the Plan and contained within the Erosion and Sedimentation Pollution Control Report.
- Supporting calculations for the proposed compost filter socks provided in reports should be revised to utilize the full slope lengths for each compost filter sock. An example is C7 which is labeled as a 15-foot slope length while the actual length exceeds 200 feet. Compost filter sock that is not sized properly will not be sufficient to control upslope disturbed area, resulting in the potential for pollution to receiving waterways.
- The rock construction entrance should be relocated to connect to the existing edge of pavement of Harrison Avenue to prevent tracking dirt and sediment onto the public street. Currently there is a separation between the current end of the Harrison Avenue cul-de-sac bulb the start of the rock construction entrance.
- The topsoil stockpile should be relocated to an area isolated from proposed construction and not in an area where roof drain discharge is being proposed. The resultant limit of disturbance line will need to be modified accordingly, with the applicable calculations revised to accommodate the change in disturbance limits. Discharging multiple roof drains to underneath the topsoil stockpile will cause washout of the topsoil.
- If the applicant's intent is to utilize the stormwater BMP as a temporary sediment trap during construction, site specific details and calculations demonstrating that it will function adequately and detailing its conversion to a stormwater BMP following other site improvements should be added to the Plans. If the stormwater management facility is not to be used as a sediment trap, the construction sequence should be revised to construct the BMP after all other work is complete. Constructing the stormwater facility prior to stabilization of all upslope areas will cause sedimentation within the soil medium proposed in the bottom of the stormwater facility, choking the voids within the filter media and adversely affecting the ability of the facility to dewater.
- Compost filter socks 2 and 3 will need to be revised to run parallel to the existing contours to allow for proper function during site construction. As shown, concentrated flow of sediment laden runoff will occur, resulting in undermining of the filter sock and pollution of the receiving stream.

5. *Section 290-18.G – Stormwater flows onto adjacent property shall not be created, increased, decrease, relocated, or otherwise altered without written notification of the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this chapter.*

Concentrated flows will be discharge onto the adjoining properties to the east of Lots 4 and 5 (Conway and Bernstein properties). Written notification from these property owners shall be provided indicating their acceptance of these flows.

6. *Section 290-18.M – For all regulated activities, SWM BMPs shall be designed, implemented, operated and maintained to meet the purpose and requirements of the chapter and to meet all requirements under Title 25 of Pennsylvania code, the Clean Streams Law, and the stormwater Management Act.*

Section 290-18.M – Various BMPs and their design standard are listed in the BMP Manual’.

The following needs to be addressed and revised as required by the applicant:



- The plans indicated that a “Rain Garden” is being proposed as the primary stormwater management facility, designed to manage stormwater in accordance with the Township’s criteria as it applies to groundwater recharge, water quality, and stormwater peak rate control. Per the Rain Garden detail shown on Sheet 21 of the plans, the facility has been designed with a maximum of 3.5 feet. In accordance with the Pennsylvania BMP Manual, BMP 6.4.5, water depths are limited to 12 inches or less. This facility does not qualify as a Rain Garden and needs to be revised to a BMP in which the proposed depth of flow is acceptable
- The detail of this facility shows reference to both a “Rain Garden” and a “Retention Basin”. These are two specifically different BMPs and need to be designed in accordance with the criteria in the BMP manual specific to the BMP proposed.
- BMPs are designed to infiltrate the difference between the 2-year post development and 2-year pre development stormwater volumes. Infiltration is not an acceptable means of stormwater management, as BMPs are to be designed to manage flow up until the 100-year frequency storm. This facility will need to be designed to incorporate an outlet structure to manage post development runoff, at a time when the volume control component (filter media) becomes saturated. This will result in an increase in the size of the stormwater management facility.

7. *Section 290-18.K - Storage facilities should completely drain both the volume control and rate control capacities over a period of time not less than 24 hours and not more than 72 hours from the end of the design storm.*

Section 290-20.A.(1).(c) - All open-air infiltration facilities shall be designed to completely infiltrate the recharge (infiltration) volume (Re_v) within three days (72 hours) from the start of the design storm

The following should be addressed:

- The applicant should provide dewatering calculations for the proposed basin demonstrating that the 100-year storm will dewater from the basin within 72 hours of the design storm ending. Should the basin not be able to dewater, the basin may become a breeding ground for mosquitoes and other undesirable conditions due to standing water.
- Based on the provided infiltration testing as provided in the Post Construction Stormwater Management Report, one testing location infiltration rate and the noted rate seems high. CEDARVILLE notes that a test 10 times higher than the adjacent test was found (4.11 inches per hour and 0.4 inches per hour). The following shall be noted as it applies to the testing:
 - The 100-year flood elevation occurs at an elevation of 128-130 in the vicinity of the stormwater management facility.
 - The testing elevation (131) occurs within 1-3 feet of the 100-year floodplain elevation, in an area where soil limiting zone commonly is found. The Infiltration testing elevation shall be a minimum of 2 feet above limiting zone.
 - The bottom of the facility (130.50) occurs within 0.5-2.5 feet of the 100-year floodplain elevation, in an area where soil limiting zone is commonly found. The Infiltration testing elevation shall be a minimum of 2 feet above limiting zone.
- The size of the basin will likely need to be increased to meet Stormwater Peak Rate requirements as specified in Ordinance Section 290-23. Additional infiltration testing will be required to demonstrate that the bottom of the entire facility has the ability to adequately infiltrate and dewater the basin as specified by Ordinance and the Pennsylvania BMP Manual.



8. *Section 290-23.E - Off-site areas. Off-site areas that drain through a proposed development site are not subject to release rate criteria when determining allowable peak runoff rates. However, on-site drainage facilities shall be designed to safely convey off-site flows through the development site.*

The following should be addressed:

- The Drainage Area Plan (Sheet 16) does not show existing contours in area located outside of the subject tract. The applicant should provide contour data for the full area shown on the drainage area plans to confirm that the drainage areas shown on the plan are accurate. Increases in drainage areas located may have an effect on the sizing of the stormwater management BMP. This is especially true if the unmanaged (bypass) post development drainage areas need to increase.
 - Per our meeting at the site on March 16, 2022, it was noted that overland flow on the upslope (north side) of Church Road bypasses the roadway swales along Church Road, indicating that these swales do not have sufficient capacity to safely convey the higher frequency storm away from the subject tract. The applicant's calculations indicate that no flow north of Church Road was accounted for as part of the design. The increase in flow from this area will have an effect on the proposed stormwater management BMP, requiring that the size of the BMO be increased.
9. *Section 290-24.E - Runoff curve numbers (CN) for both existing and proposed conditions to be used in the soil cover complex method shall be obtained from Table E-1 in Appendix E of this chapter.*

It should be noted that due to the necessary appendix documentation being available only on file at the Township, the CN values used for existing and proposed conditions cannot be verified. The applicant should, however, provide a breakdown of how existing conditions runoff curve numbers (CN) were determined and all rational equation calculations revised to TR-55 as required by the Cheltenham SALDO (see SALDO comment 36 referencing Section 260-47.N.(4) above).

10. *Section 290-24.H - Outlet structures for stormwater management facilities shall be designed to meet the performance standards of this chapter using the generally accepted hydraulic analysis technique or method of the municipality.*

Section 290-24.I - The design of any stormwater detention facilities intended to meet the performance standards of this chapter shall be verified by routing the design storm hydrograph through these facilities using the Storage-Indication Method. For drainage areas greater than 200 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. The municipality may approve the use of any generally accepted full hydrograph approximation technique that shall use a total runoff volume that is consistent with the volume from a method that produces a full hydrograph.

Section 290-25 - All wet basin designs shall incorporate biologic controls consistent with the West Nile Guidance found in Appendix G.

The proposed basin should be revised to include an outlet structure for the discharge of captured stormwater. Due to the size and volume of impounded water and shall be designed for rate control assuming saturation of soil medium in all storm events.



The spillway as shown shall be used for emergency purposes only and shall not be used as a primary means of controlling the rate of storm water discharge. In accordance with the Pennsylvania BMP manual, this spillway shall have a crest elevation at or above the 100-year water surface elevation within the basin, shall be sized to adequately convey the 100-year frequency post development discharge entering the basin, and shall maintain a minimum of one foot of freeboard between the flow elevation in the spillway and the top of the berm.

11. *Section 290-31.A - The owner of any land upon which stormwater facilities and BMPs will be placed, constructed, or implemented, as described in the stormwater facility and BMP O&M plan, shall record the following documents in the office of the Recorder of Deeds for Montgomery County, within 90 days of approval of the stormwater facility and BMP O&M plan by the municipality:*
- (1) *The O&M plan, or a summary thereof;*
 - (2) *O&M agreements under § 290-33; and*
 - (3) *Easements under § 290-34.*

Documentation should be added to the Plan requiring the future owners of Lots 6, 7, 8, and 9 to update and execute Operation and Maintenance Agreements for the stormwater BMPs on their respective lots. While the current application allows for the placement of BMPs on multiple lots, the agreement is only to be executed by the developer. Once multiple parties are involved, multiple documents and agreements will be necessary.

Comments based on Township Letters and Review / General Comments

1. It appears that five (5) proposed evergreen trees and multiple existing trees are located within the limits of the proposed emergency access easement through Lot 4 and 5. The Fire Marshall should review and comment on whether this configuration meets the needs of the department. It should be noted that the original memo provided by Scott Lynch stated that an “emergency access roadway” will be necessary, not an easement.
2. General Note 10 on Sheet 11 states that all trees shall be planted a minimum distance of six feet from underground utilities and 15 feet from overhead utilities. While it is unclear whether electric lines are placed overhead or underground based on the provided Landscaping Plan (Sheet 11), there are multiple instances where utility lines (primarily electric) run directly under a proposed tree. These planting locations or the layout of utility lines should be revised to provide the minimum separation from one another to allow for maintenance and access in the event of an emergency or issue with the utility service to the residence.

General Comments

1. It should be noted that the applicant’s grading of the proposed basin erroneously skips the 137 contour for the top of berm.
2. The following should be revised regarding the provided stormwater rate control calculations:
 - a. The drainage area breakdowns and Hydrology Studio calculations are inconsistent with one another and do not reflect the proposed conditions or breakdowns necessary for determining coefficient values to accurately calculate the rate control required by the Ordinance. These values should be revised to provide relevant and consistent data.
 - b. TC calculations should be provided. TC calculations determine the time of peak and how hydrographs combine. This alters final runoff by a significant margin.



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- c. Manual is not an acceptable method of input. All data inputs should provide supporting calculations so that final results may be verified by the reviewing agency. The currently provided calculations do not clearly distinguish what areas within the post developed drainage area are used for each Hydrology Studio input.