



**TOWNSHIP  
OF  
LOWER MERION**  
MONTGOMERY COUNTY

**TOWNSHIP ENGINEER**

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LOWM 254.66

December 30, 2019

Christopher Leswing, Director of Building and Planning  
Township of Lower Merion  
75 East Lancaster Avenue  
Ardmore, PA 19003

**Re: Holy Child School at Rosemont  
Preliminary Plan Review**

Dear Mr. Leswing:

In accordance with your request for the above referenced submission, we have reviewed a set of Twenty (20) plans dated 11-11-19, latest revision dated 12-20-19, and associated stormwater management calculations dated 11-11-19, latest revision dated 12-20-19, prepared by Site Engineering Concepts, LLC. We have also reviewed a Traffic Impact Study, dated 11-11-19 prepared by Traffic Planning and Design, Inc. We offer the following comments for your consideration:

**A. MAJOR ENGINEERING ISSUES**

- ❖ **Stormwater** -- It has not been demonstrated in the calculations that the proposed stormwater management systems recharge the increased volume of runoff that is generated by the twenty-five (25) year storm. The basin(s) size need to be increased as required in order to provide this recharge volume. Also, the soil tests in the area of one basin were not performed at the necessary depth so as to demonstrate the functioning of the system. We cannot support the requested waiver from the empty time requirements until the testing has been conducted at the necessary depth and/or basin reconfiguration has been evaluated such that it is verified that compliance with the code requirement is not feasible.
- ❖ **Traffic** -- Some additional signage and pavement markings have been requested to be provided in order to improve the safe and efficient movement of traffic through the site. We have also requested that if at any time in the opinion of the Traffic Unit of the Lower Merion Police Department that the post-development operation of the school vehicle queue extends so as to create interference with Montgomery Avenue, that the location of the start of the queue and/or staggering the class start/dismissal times be made so as to eliminate the issue. Also, a post development traffic study of the intersection of Wendover Avenue and Airdale Road has been requested to be performed if/when requested by the township in order to determine if mitigation measures at that location are needed/desired due to any reduction in level of service.

With the resolution of the above major engineering issues and the remaining comments in this letter incorporated, we recommend that the Preliminary Plans be approved.

## **B. ORDINANCE REQUIREMENTS**

1. Section 101-4C(2a)—Areas of steep and sensitive slopes shall be fully delineated clearly on the Existing Conditions plan and the proposed grading plans with shading. Not all slopes meeting these criteria have been properly identified on the plans.
2. Section 101-5C(2b)—Grading and other improvements are proposed in slopes exceeding twenty-five (25%) percent. A waiver to this code section is required in order to approve the current submission.
3. Section 101-6A(1)—All woody vegetation to be retained that have driplines within twenty-five (25') feet of a building site or disturbed area shall be protected from equipment damage by fencing placed at the driplines. Since the tree protection fence has not been shown at the driplines of all trees to remain, the Township Arborist must approve the location of the tree protection fence shown on the plan.
4. Section 101-6A(5)—No impervious cover shall be permitted within the driplines of trees to remain without approval from the Township Arborist. The Township Arborist must approve the location and extent of any impervious surface if impacted trees are scheduled to remain.
5. Section 101-6A(6)—Grade changes around the driplines of trees to be retained shall be minimized. Impacted trees shall be clearly identified on the plan. Treatment of the impacted trees prior to construction to protect the root system shall be performed if/as directed by the Township Arborist. The Township Arborist must also approve the procedure.
6. Section 101-6A(8)—Should any trees not scheduled or permitted to be removed be irreparably damaged during construction and die within eighteen (18) months of the conclusion of construction activities, those trees will be required to be replaced in accordance with the provision of Section 101-9A(2). Escrow shall be posted to guarantee the survival of the impacted trees until the allotted time has expired.
7. Section 101-6B(2)—If trenches for utilities and storm facilities are proposed within the driplines of trees, all disturbed roots must be cut as cleanly as possible. The trench must be backfilled as quickly as possible, avoiding compaction. Tree limbs must be cut back in proportion to the root area loss. This shall be noted on the plan and made a condition of permit issuance.
8. Section 121-6D, Section 121-15—Time of concentration analysis worksheets analysis shall be provided for all analyzed, pre, during, and post-development drainage areas to ensure that proper development of each. A reduction of the Tc shall be used for the post development analysis in order to ensure conservatism of the design.

9. Section 121-4A(1)— It must be clearly documented that the worst cover condition has been analyzed in the calculations for the temporary During Construction stormwater controls. Additional phasing of the construction may be required depending upon the evaluation.
10. Section 121-4A(2)—All roof drains have not been shown to be directly connected to the seepage bed. The material, size and slope of all roof drain lines must be clearly indicated on the plans. The capacity of the conveyance piping design must be documented clearly in the calculations.
11. Section 121-4A(4)—The responsibility for the continued maintenance and operation of the detention basin and other facilities shall be the obligation of the property owner. This note shall be clearly indicated on the plan.
12. Section 121-4B(2a)1, Section 121-15—At a minimum, the increased volume of stormwater generated by the proposed development for the twenty five (25) year storm must be recharged. Calculations documenting this shall be submitted. Pre-development conditions of meadow ground cover in agreement with township code must be used for the determination.
13. Section 121-4E(2i), Section 121-15—Field tests such as double ring infiltrometer or hydraulic conductivity tests shall be performed at the level of the soil infiltration in order to demonstrate adequate design parameters. Additional testing must be performed in the area of proposed seepage basin C2 at sufficient depth in order to determine the ability of the soil to infiltrate the required recharge volume within twenty-four hours
14. Section 121-4E(2c)—Seepage beds shall be designed to empty the total design storm volume in twenty-four (24) hours or less. A waiver from this code section has been requested. We have requested that percolation tests be conducted in the area of the basin at the proper depth in order to determine if percolation rates at that elevation are evident and that the required empty time is feasible. Basin re-configuration must also be evaluated in order to determine if it is feasible to meet the code provision. We request that these investigations be performed and clearly documented prior to any waiver being granted.
15. Section 121-4E(2f)—All seepage beds must contain a sediment trap accessible for maintenance. The present submission does not clearly include sediment traps for stormwater directed to the basins.
16. Section 121-4E(2j)—The size and number of perforations per linear foot of pipe shall be included in the seepage bed detail for each and all pipe diameters used. Perforations shall not be less than five-sixteenths (5/16") inch in diameter and provide an opening area not less than three and thirty-one hundredth (3.31) square inches per square foot of pipe surface.
17. Section 121-4E(4)—A description of how the permanent stormwater control facility will be operated and maintained shall be submitted by the design engineer. The frequency of

inspection shall be listed on the plan. The contact information for the party responsible for the operation and maintenance of the facility shall be listed.

18. Section 121-5A(1)—The maximum bare areas shall not exceed twenty-five (25%) percent of the total area at any one time. The phasing plan and disturbance areas sequence/limits shall be adjusted if/as required in order to maintain code compliance
19. Section 121-5A(2)—The maximum time of exposure for bare soil areas shall be twenty (20) days before stabilization measures are implemented. This shall be clearly noted on the plan.
20. Section 121-5A(6)—Newly graded slopes of over twenty-five (25%) percent must be stabilized with sod or jute netting and seed. This shall be noted on the Grading Plan and those areas meeting this criterion clearly delineated with shading on the plan.
21. Section 121-6B—Certification attesting to the completeness of the design and compliance with Chapter 121 of the Lower Merion Code shall be included and signed on the plans.
22. Section 121-6C, Section 121-15—The limits of disturbance shall be clearly delineated on the plan and the subareas in square feet along with the total amount of square feet of earth disturbance shall be clearly listed.
23. Section 121-6F—Existing topography for a peripheral strip of forty (40') feet shall be provided on the adjacent property on the east side in order to clearly define existing drainage patterns.
24. Section 121-6H, Section 135-17C(13)—The size, species and location of trees on the property to remain that have driplines within twenty-five (25') feet of disturbance shall be included on the Erosion and Sediment Control/grading Plan and also the Post Construction Stormwater Management Plan.
25. Section 121-6J—Additional detail is required in the sequence of construction activities. Installation of the temporary basin shall be shown prior to the demolition of structures that are out of the limits of the temporary facility. Only the demolition of existing structures and other improvements necessary to install the temporary basin shall be performed prior to the temporary facilities being operational. This shall be made clear in the construction sequence. Notification of the Township Engineer for inspection shall be listed prior to installation of the permanent seepage beds and any stormwater piping. Approval from the Township Engineer shall be listed as being required to convert the temporary basin to the permanent basin C2. A notice of forty-eight (48) hours is required by the Township Engineer prior to all required inspections.
26. Section 121-10—No grading changes shall be shown within three (3') feet of the property line in order to ensure transition to the grading on the adjoining property. This shall be clearly noted on the plan.

27. Section 121-12—An NPDES Permit must be obtained from the Montgomery County Soil Conservation District prior to issuance of any permit.
28. Section 121-15—The runoff crossing to the adjacent properties during the construction phase of the project shall be managed so that the water quality/quantity impact is minimized to the adjacent properties. Diversion berms, stoned construction staging areas, and inlets/piping shall be noted to be provided as required or as directed by the township so as to ensure acceptable conditions during the construction phase.
29. Section 121-15—The use of a one (1") inch orifice for the outlet control in the temporary basin design is not recommended as it will clog very easily. A larger diameter orifice or revised design configuration shall be investigated to be used in the analysis.
30. Section 135-17B(1), 135-17B(13)—The existing structures and driveways on adjoining properties within two hundred (200') feet of the property shall be clearly provided on the development plans. The present plan does not clearly show these on the development sheets.
31. Section 135-17B(1)—All existing utility service locations shall be fully shown from the structures to the mains. The location of some electric services and sanitary laterals have not been shown for all existing structures associated with the development. Those lines to be removed and those to be abandoned shall be clearly indicated.
32. Section 135-17B(6)—The error of closure shall be provided for each lot and shall not be greater than 1:5,000.
33. Section 135-17B(13)—The location of the existing storm sewer piping on the properties to be developed shall be shown to the discharge point. This size and material of all storm sewers shall be provided.
34. Section 135-18(B2)—The existing lot lines to be revised shall be shown as dotted.
35. Section 135-19B(8)—The actual sight distance triangles shall be shown for each driveway. It shall be demonstrated that the sight distance for the new driveway location meets the desirable sight distance as specified by PaDOT. The Traffic Safety Unit of the Lower Merion Police Department must approve the final drive location/condition.
36. Section 135-19B(8)—Double yellow centerline pavement marking shall be shown on the Signage and Pavement Marking Plan at the stop sign/bar locations of the two-way parking aisle.
37. Section 135-19B(8)—Additional "Do-Not-Enter" signs shall be shown for the one-way drive locations at the aisle intersection near the Wendover Avenue cartway. The pavement marking arrow for the two-way aisle shall indicate a "left-arrow" marking for the exit since this is the only movement available at this location from that aisle.

38. Section 135-19B(8)- The Traffic Study indicates that the Wendover Road approach to Airdale Road would degrade from the existing Level of Service 'C' to a Level of Service 'E' if the student enrollment reaches the 400-student permitted capacity. We request that a post development study of this intersection be performed if/when requested by the Township in order to determine if any mitigation measure is necessary to be performed.
39. Section 135-19B(8)--If the queuing operation of the school at any time causes an undesirable backup of vehicles onto Montgomery Ave, adjustments to the starting location of the queue and/or staggering of the arrival/dismissal times must be performed. This shall be determined by the Traffic Safety Unit and is recommended to be made a condition of approval.
40. Section 135-32—Concrete road control monuments shall be shown to be installed at the right-of-way at the intersection of each property line and at all changes in direction. Iron pins or other survey monumentation shall be permitted if concrete monuments cannot be installed. Approval from the Township Engineer is required for the substitution.
41. Section 135-40—A Planning Module or Exemption must be approved by the City of Philadelphia and the DEP prior to recording the Final Plan if/as required by the DEP.
42. Section 155-167.7(B)—Wooded lot calculations shall be provided on the plans. The total number of trees removed for the proposed construction shall be indicated.

### **C. ENGINEERING COMMENTS**

1. Top and bottom of wall elevations shall be provided for all retaining walls. The type of retaining wall in each location shall be clearly labeled. Calculations must be provided for any wall heights exceeding four (4') feet.
2. A fill material stockpile location shall be provided.
3. The Lighting Plan must be approved by the Director of Building and Planning prior to recording the Final Plan.
4. The Planting Plan must be approved by the Planning Department and the Township Arborist prior to issuance of the permit/recording the Final Plan.
5. Additional dimensions shall be added to the plan for the impervious areas proposed. The dimensions shall clarify the areas and shall clearly define the limits of each.
6. Clarification regarding which trees and which structures are to be removed for each stage/phase of the project shall be clearly provided on the demolition plan.
7. Specifications shall be provided on the plan for the "resin bond surface crushed stones" that is shown with a thickness of one (1") inch. It shall document that the permeability of

the design meets the requirements necessary to be considered porous and not be counted toward the impervious totals on the site.

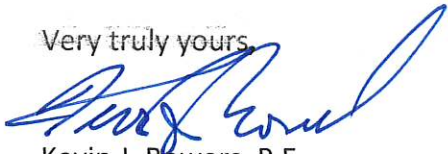
8. A plan view detail shall be provided on the plans for basins C2, C3 and C4. Dimensions shall be provided on the detail sufficient for construction and inspection. The dimensions of the detail must be consistent with those used for qualification in the stormwater calculations.
9. The storm sewer profiles shall note the material for the storm sewer extension in Wendover Avenue as RCP in order to be consistent with notes on the Construction Detail sheets of the plan.
10. The horizontal scale shall be clearly noted on each sewer profile in the plan set.
11. All inlets in non-paved areas shall be shown to be graded in a twelve (12") inch sump condition in order to increase the efficiency of runoff collection. Spot elevations shall be added to the plan to clarify grading.
12. Existing Inlets and other existing stormwater structures shall be uniquely numbered on the plan for reference.
13. A full reveal and depressed granite curb detail shall be provided.
14. Depressed granite curb and concrete apron shall be clearly indicated and labeled at the driveway access locations on all applicable plan sheets including the Signage and Pavement Marking Plan. The location of existing depressed curb to be raised to full reveal shall be clearly labeled. The length of curb to be raised shall be dimensioned on the plan. The length of depressed curb shall be dimensioned on the plan for all drives.
15. Notes shall be added to the requested full reveal and depressed granite curb detail that include the following:
  - The depressed curb height for the driveway shall be  $\frac{1}{4}$  inch for each inch of existing curb reveal
  - Any curb replacement must meet existing curb reveal height.
  - One foot cut back is needed in the street area where any curb is adjusted and/or replaced. All joints must be sealed.
  - An additional concrete support is needed mid-span of each section of depressed curb in the driveway area
16. The mean grade of the structure shall be calculated and shown on the plan. The architectural plans must be coordinated with and must comply with the grading proposed with this application.
17. The sidewalks shall be clearly shown to be carried across the drives at grade on the Signage and Pavement Marking Plan and other appropriate plan sheets.
18. The Public Works Department has requested that the storm sewer extension in Wendover Avenue remain private and that an agreement be established for maintenance. The

Township Solicitor must approve the language in the agreement prior to recording the Final Plan. It is recommended that the agreement incorporate language that would permit the Township the option to accept the dedication of the line in the future in needed to add inlets or further extend the public storm sewers in the area.

19. The Zoning Officer must approve the number of parking spaces that will be provided with this development.
20. A certification from a geotechnical engineer must be provided for the installation of the stabilized access drive to the new field for emergency vehicles. This must be submitted prior to the use of the fields and finalization of the permits.
21. A copy of the revised plan shall be submitted with any changes highlighted. A letter shall also be provided with the revised plan indicating how each requested revision has been addressed in the re-submission.

Please advise if we may be of further assistance in this matter.

Very truly yours,



Kevin J. Bowers, P.E.

**PENNONI ASSOCIATES**

Township Engineer

Cc: Robert E. Duncan, Assistant Township Manager  
Site Engineering Concepts, LLC  
Traffic Planning and Design, Inc.  
School of the Holy Child