



**TOWNSHIP
OF
LOWER MERION**
MONTGOMERY COUNTY

TOWNSHIP ENGINEER

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LOWM 254.97

November 25, 2019

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

**Re: Harriton High School Proposed Building Addition and Parking Revisions
Tentative Sketch Review**

Dear Mr. Leswing:

In accordance with your request for the above referenced submission, we have reviewed a set of four (4) plans dated 09-13-19, latest revision dated 11-15-19, prepared by Chester Valley Engineers, Inc. We offer the following comments for your consideration:

A. MAJOR ENGINEERING ISSUES

- ❖ **Stormwater**—The proposed drainage patterns have not been shown on the plan. Areas to be directed to the stormwater beds and those to be uncontrolled are not clearly shown. The stormwater facilities must also be demonstrated, if feasible, to recharge the increased volume of runoff from the twenty-five (25) year storm. They must be able to drain in the code required twenty-four (24) hours for all rate control volume. Infiltration tests must be performed and submitted for review in order to demonstrate that code requirements have been met. We have requested that if soil conditions do not permit the required recharge, additional rate control be provided.
- ❖ **Traffic**— A Pavement Marking and Signage Plan will be required to be submitted to clarify the location of the stop bars, stop signs, and centerline pavement markings necessary and requested to be shown in order to provide the required vehicular controls needed for orderly movement of traffic. Maneuverability diagrams shall be required to be submitted to demonstrate adequate dimension for proper operation. A traffic Study will be required to be submitted which will evaluate the increased traffic on the driveways and the adjacent signalized intersection. All of these traffic related items will be required to be provided with the Preliminary Plans.

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

B. ORDINANCE REQUIREMENTS

1. Section 101-4C(2a)—The limits of steep slope near the proposed west parking area shall be more clearly delineated on the proposed site plan in order to determine the magnitude of the disturbance.
2. Section 101-5C(2b)—The proposed west parking lot appears to be shown in areas of steep slope, i.e. slopes exceeding twenty-five (25%) percent. There also appears to be the need of a retaining wall structure in this area which would disturb a portion of these steep slopes. *Any disturbance to steep slopes will require a waiver to the code section.*
3. Section 101-6A(1)—All woody vegetation to be retained within twenty-five (25') feet of a building site or disturbed area shall be protected from equipment damage by fencing placed at the driplines. Accurate location of the driplines must be shown on the plans. If the tree protection fence is not shown at the driplines of all trees to remain, the Township Arborist must approve the location. This will be fully evaluated with the Preliminary Plans
4. Section 101-6A(5)—No impervious cover shall be permitted within the driplines of trees to remain without approval from the Township Arborist. It appears that there are areas of paving that would impact the driplines of trees. The Township Arborist must approve the location and extent of the impervious surfaces if the impacted trees are scheduled to remain. This will be fully evaluated with the Preliminary Plans.
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. This will be fully evaluated with the Preliminary Plans.
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).
7. Section 101-6B(2)—If trenches for 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 Preliminary Plans and made a condition of permit issuance.
8. Section 135-16B(14), 121-4E(1b), 121-15 —All proposed drainage patterns have not been clearly indicated on the tentative sketch plans. All areas to have runoff collected and conveyed to a storm facility and those to be left uncontrolled shall be clearly identified. Discharge from the stormwater basins shall be converted from a concentrated flow to a sheet flow. The overflow shall be piped to a level spreader, bubble-up spreader or if determined to be feasible, conveyed to an existing storm sewer system. Details must be fully evaluated with the Preliminary Plan.

9. Section 135-16B(15), Section 121-4A(2)—The roof drains from the addition have not been shown to be directly connected to the seepage bed. The location, material, size and slope of all lines must be indicated. The capacity of the design must be documented clearly in the calculations. This will be fully evaluated with the Preliminary Plans
10. Section 121-4B(2a)1, Section 121-15—The increased volume of stormwater generated by the proposed development for the twenty five (25) year storm shall be recharged. Calculations documenting this shall be submitted. However If percolation rates do not permit recharge, due to the history of stormwater and erosion issues downgrade of the site, we would request additional rate control be provided. In addition to the code required peak rate controls, the post development ten (10) year peak rate of runoff will be requested to be controlled to the pre-development two (2) year storm. This must be documented to be provided for all newly developed areas. This will be fully evaluated with the Preliminary Plans.
11. Section 121-4B(2d)3—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. Complete test reports must be submitted. The location of each test must be indicated on the plan. This will be fully evaluated with the Preliminary Plans.
12. Section 121-4E(1b)—Discharge from the stormwater basins shall be converted from a concentrated flow to a sheet flow. The overflows shall be piped to a level spreader, bubble-up spreader or if feasible, connected into a closed storm pipe system. A detail of any spreader or bubble-up system shall be added to the plans. Calculations shall be provided qualifying the design proposed. This will be fully evaluated with the Preliminary Plans.
13. Section 121-4E(2c)—Seepage beds shall be designed to empty the total design storm volume in twenty-four (24) hours or less. Calculations verifying this shall be included in the stormwater analysis. Percolation rates obtained in an acceptable area and at the required depth shall be used in the analysis. This will be fully evaluated with the Preliminary Plans.
14. Section 121-4E(2L)—Seepage beds shall not receive runoff until the entire contributory area to the BMP has been stabilized. This note shall be clearly indicated on the plan and in the construction sequence. A temporary basin must be designed and shown on the plan or waivers for during construction rate controls must be obtained. This will be fully evaluated with the Preliminary Plans.
15. Section 121-4E(4)—A description of how the permanent stormwater control facilities 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. This will be fully evaluated with the Preliminary Plans

16. 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 Preliminary plans.
17. 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. This will be fully evaluated with the Preliminary Plans.
18. Section 121-6C—The limits of disturbance shall be clearly delineated on the plan. The amount of square feet of earth disturbance shall be listed. This will be fully evaluated with the Preliminary Plans.
19. Section 121-6H—The size and species of trees on the property within twenty-five (25') feet of disturbance shall be included on the plan. This will be fully evaluated with the Preliminary Plans.
20. Section 121-6J—A sequence of construction activities shall be submitted. Installation of tree protection fence, a temporary basin(s), seepage beds, roof collection system, and level spreader system or outflow connections shall be listed. Notification of the Township Engineer shall be listed in the sequence following installation of protective barriers and prior to earth disturbance. The removal of trees and clearing in the area of activity shall be listed. The construction of the addition, parking areas and hardscape improvements shall be listed. Notification of the Township Engineer for inspection shall be listed prior to installation of the seepage bed and piping. A notice of forty-eight (48) hours is required by the Township Engineer prior to earthmoving or other required inspection.
21. Section 121-12—An NPDES Permit must be obtained from the Montgomery County Soil Conservation District prior to issuance of any permit if the total disturbed area is greater than one acre.
22. 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.
23. Section 135-16B(14), 121-4E(1b), 121-15 —All proposed drainage patterns have not been clearly indicated on the tentative sketch plans. All areas to have runoff collected and conveyed to a storm facility and those to be left uncontrolled shall be clearly identified. Discharge from the stormwater basins shall be converted from a concentrated flow to a sheet flow. The overflow shall be piped to a level spreader, bubble-up spreader or if determined to be feasible, conveyed to an existing storm sewer system. Details must be fully evaluated with the Preliminary Plan.

24. Section 135-16B(15), 121-4A(2)—All new roof drains must be noted to be connected to a stormwater facility. The location of the proposed collection system shall be fully shown. Details regarding the size, slope, and material shall be evaluated with the Preliminary Plan.
25. 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. In lieu of this, a letter from DEP indicating that sewer planning is not required must be submitted.

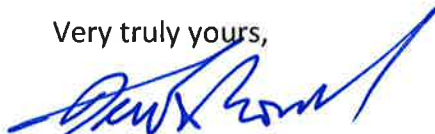
C. ENGINEERING COMMENTS

1. Erosion control measures shall be provided on the plan. Details that conform to township standards shall be shown. This will be fully evaluated with the Preliminary Plans.
2. A detail of any retaining wall shall be provided. Top and bottom of wall elevations shall be provided and the limits of the wall location shall be clearly shown. Calculations must be provided for wall heights exceeding four (4') feet. This will be fully evaluated with the Preliminary Plans
3. A fill material and topsoil stockpile location shall be provided. Notes shall be added regarding stabilization of the stockpiles. This will be fully evaluated with the Preliminary Plans.
4. A revised Lighting Plan must be submitted and approved by the Director of Building and Planning prior to recording the Final Plan.
5. A revised Planting Plan must be approved by the Planning Department and the Township Arborist prior to recording the Final Plan. It shall provide for the planting/trees removed for the proposed improvements.
6. A more clear and detailed breakdown of the impervious surfaces to be added shall be tabulated on the plans. The areas of parking lot to be installed, parking areas to be left in reserve, individual hardscape areas (uniquely identified by label on the plan), and the building addition shall be itemized on the plan.
7. Dimensions shall be added to the parking areas indicating the minimum aisle widths. Dimensions of all proposed impervious shall be provide as necessary to clearly define the limits. This will be fully evaluated with the Preliminary Plans.
8. There are seven (7) stormwater areas shown on the plans. These shall be labeled with a number on the Tentative Sketch plans for reference.
9. The mean grade of the structure considering the addition shall be calculated and shown on the plan. The height of the structure shall be verified with the revised grading.

10. A pavement marking and signage plan shall be submitted with the Preliminary Plans. Stop bars, stop signs, and centerline markings shall be shown at the ends of drive aisles and where necessary or as directed by the Township Engineer in order to provide adequate traffic control and assist in an orderly movement of traffic.
11. Adequate maneuverability shall be demonstrated for the reconfigured parking and drive aisles for all vehicles intended for access to them. The gate locations shall be adjusted if/as required.
12. A traffic study shall be submitted with the Preliminary Plans. The added traffic generated by the increased enrollment and faculty increase from the previous approved development shall be evaluated. The driveways and adjacent signalized intersection shall be re-evaluated. The traffic engineer shall contact the Township Engineer's office to discuss the full required scope of the traffic study and the assumptions to be used.
13. 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
Chester Valley Engineers, Inc.
Lower Merion School District