



**TOWNSHIP
OF
LOWER MERION**
MONTGOMERY COUNTY

TOWNSHIP ENGINEER

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LOWM 254.51

January 2, 2019

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

**Re: The Haverford School
Crosmen Hall Middle School Development
Preliminary Plan Review**

Dear Mr. Leswing:

In accordance with your request for the above referenced submission, we have reviewed a set of fifteen (15) plans dated 12-03-18, latest revision dated 12-21-18, and associated stormwater calculations dated 12-03-18, latest revision dated 12-21-18, prepared by Site Engineering Concepts, LLC. In addition, we have also reviewed a Traffic Impact Study, dated 12-1-18, prepared by F. Tavani and Associates, Inc. We offer the following comments for your consideration:

A. MAJOR ENGINEERING ISSUES

- ❖ **Stormwater**—Clarification has been requested regarding the size, material, and outfall location/direction for existing stormwater conveyance lines/facilities within the project area. Also, documentation regarding the redirection of portions of the roof runoff must be submitted. Currently, areas of the roof drain to the north and east but will be revised in the proposed development to discharge toward the south. The calculations must provide sufficient support to quantify the changes and document that no increase of the peak rate of runoff will be created toward the southern discharge points.
- ❖ **Traffic** – The submitted traffic study does not document if the school enrollment at the time of the observations was at the full permitted capped capacity. A comparison of the actual enrollment with the maximum allowed is required to be provided in the study. Extrapolation of the resulting trip generation/operations must be made if/as required. Also, since short duration queueing has been noted in the current condition, a post development study of the resulting queues shall be made. Mitigation measures to reduce/eliminate any undesirable queue shall be required to be performed if/as directed by the Township.

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

B. ORDINANCE REQUIREMENTS

1. Section 101-4C(2a)—Some areas of steep slopes have not been properly delineated with the appropriate shading on the plan. This shall be corrected on the plan.
2. Section 101-5C(2b)—Some site grading work is shown to disturb slopes exceeding twenty-five (25%) percent. A waiver to this code provision is required for the current plan.
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. If the tree protection fence is not shown at the driplines of all trees to remain, the Township Arborist must approve the location of the tree protection fence.
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 the walkways if the impacted trees are scheduled to remain.
5. 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 approval.
6. Section 121-2c, Section 121-15—All roof drains from the proposed new roof area shall be clearly noted to be directly connected to the seepage bed. The note referring to collection pipes of 8" diameter shall be removed from the plan as the proposed qualified piping diameter is greater than this.
7. Section 121-4A(4)—The responsibility for the continued maintenance and operation of the proposed water quality facility and other stormwater facilities on the site shall be the obligation of the property owner. This note shall be clearly indicated on the plan.
8. Section 121-4A(8), Section 121-15—Areas of existing diffused drainage onto adjacent properties must be managed such that the peak rate of runoff does not increase in the general direction of discharge. The proposed development changes drainage directions of runoff from the existing improvements on the property. Areas of existing roof currently draining to the north and east are being proposed to be directed to the south through the requested BMP. Documentation must be provided which demonstrates that there will be no increase in the peak rate of runoff from the development for all design storm intensities toward the southern point of interest.

9. Section 121-4E(2f)—The rim and invert elevations of the proposed inlet structure, which is to act as a sediment trap, shall be provided. The notes indicating that the rim is to be set .2' above surrounding grade shall be removed as it is shown to be constructed in a paved area.
10. Section 121-4E(2d)—The seepage bed detail shall be clarified to note a minimum twelve (12) inches of cover. The bottom of stone elevations shown on the detail shall be revised to be consistent with the plan view elevations.
11. Section 121-4E(2j)—The size and number of perforations per linear foot of pipe shall be included in the seepage bed detail the 36" pipe diameter 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.
12. Section 121-6J—Additional detail is required in the sequence of construction activities. The demolition of the existing structure and other improvements shall be listed. New and relocated utility work shall be listed. Removal of the erosion control measures shall only be performed with concurrence of the Township Engineer. This shall be clearly stated in the sequence.
13. Section 121-12—An NPDES Permit must be obtained from the Montgomery County Soil Conservation District prior to issuance of any permit.
14. Section 135-17B(13)—The existing storm sewers, inlets and any other manhole or other stormwater structure shall be shown within 200' of the project area. The size and material of all storm sewers shall be provided. The flow direction of all pipes shall be indicated. The lines shall be shown with this detail to their outfall location or the requested distance beyond the project area.
15. Section 135-17C(5)—The size, material, and slope of the existing and proposed sanitary lateral shall be shown. A separate permit and approval from the Public Works Department will be required for the sanitary lateral work.
16. Section 135-17C(13)—The location of all existing utility service lines shall be clarified and shown from the structure to a point outside the project area. Proposed connection locations to the existing lines shall be clearly indicated.
17. 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 does not adversely impact the adjacent properties. Diversion berms, stoned construction staging areas, and inlets/piping shall be provided if required or as directed by the Township to ensure acceptable conditions during the construction phase. This shall be a condition of permit issuance.

18. Section 135-19B(8)—The traffic study does not document the enrollment that existed at the time of the observations. A comparison of the actual enrollment to the maximum enrollment cap must be made. The resulting observations shall be extrapolated if/as required to account for projections at the full enrollment level.
19. Section 135-19B(8)—Since short duration traffic queues were observed on Lancaster Ave and Railroad Ave, it is recommended that a post development observation of the driveway operations be conducted. Approved mitigation measures shall be implemented if/as directed by the Township.
20. Section 135-19B(8)—The traffic study provided only one mitigation measure to reduce vehicle queues, i.e. prohibition of certain left turn movements. However, it did not evaluate the full impact of this measure or quantify the improvement of the measure. This shall be evaluated in the study. Also, it is recommended that the study provide other mitigation measure recommendations such as staggered start and dismissal times and increased assistance staff during the drop-off/pick-up times.

C. ENGINEERING COMMENTS

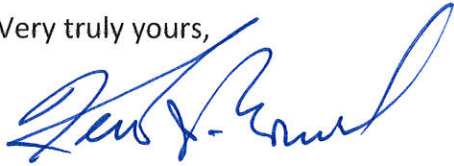
1. The size, material, and slope of the proposed sanitary lateral is unclear. The location and flow direction for the new building connection to the main shall be clarified.
2. The mean grade of the addition shall be calculated and clearly shown on the plan. The architectural plans must be coordinated with and must comply with the grading proposed with this application.
3. The Zoning Officer must agree with the number of parking spaces that will be provided following the development.
4. A certification by a civil engineer of the condition of the existing retaining walls to remain within the project area shall be provided. Any recommended improvements/repairs shall be made a condition of the permit issue.
5. A Lighting Plan must be submitted and approved by the Director of Building and Planning prior to recording the Final Plan.
6. The Planting Plan must be approved by the Planning Department and the Township Arborist prior to issuance of the permit/recording the Final Plan.
7. Existing inlets and manholes within the project area shall be numbered for reference.

8. Inlet sediment protection shall be clearly shown on the plan for all inlets in the disturbed area or would receive runoff from the disturbed area. A detail consistent with Township standards shall be provided.
9. All stair tread and riser dimensions and railing designs must fully comply with the building codes. This shall be noted on the plan and shall be a condition of permit issuance.
10. An accurate representation of the outflow locations of the perimeter drains shall be provided. The locations shown must be verified in the field. Additional treatment of the discharge point shall be noted to be provided as required or as directed by the Township.
11. A detail of the 24" solid cover noted to be placed over the PaDOT 2'x4' inlet boxes at the proposed seepage bed shall be provided. The frame shall be designed for vehicular loading and have sufficient detail for review/approval. The cover shall clearly indicate a storm drainage designation.
12. The distance from the piping to the seepage bed sides and the distance between the pipe sections shall also be clearly dimensioned on the detail. The 2'x4' inlet boxes shall be clearly shown in the detail plan view and be labeled.
13. AASHTO No. 1 stone shall be specified as the recharge stone in the basin detail. Only the void volume of the AASHTO No. 1 stone shall be considered in the recharge volume calculations. The void volume of the AASHTO NO. 57 stone used for pipe bedding shall be neglected in the calculations of the provided recharge volume.
14. The porous paving section detail shall indicate geotextile fabric on any side in direct contact with soil. The ½" stone choker course thickness dimension shall be clarified and the grade of stone to be used shall be specified. The specifications of the porous paving material shall be submitted and must be approved by the Township Engineer.
15. The roof runoff conveyance piping is in conflict with a lighting pole on the south side near the walkway. This shall be corrected on the plans.
16. The roof runoff conveyance piping shown on the northern side of the proposed building requires clarification. It is not clear what existing piping is being retained and what piping lengths are proposed. The size, material and slope of these pipes shall be provided. The capacity of all piping that is subject to modified drainage conditions by this development shall be clearly documented in the calculations.
17. The limits of the existing stormwater management basins on the southern side of the project area shall be more clearly indicated. The existing basins shall be numbered on the plan for reference.

18. 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
The Haverford School