

## ARTICLE III

### PLAN PROCESS AND CONTENT

#### SECTION 300 GENERAL

- A. It is the intention of the Board in enacting these procedures to provide the applicant with a timely and comprehensive review of plans submitted for subdivision and/or land development. To this end, the following classifications of plans are established as hereinafter provided:
1. Sketch Plans.
  2. Preliminary Plans.
  3. Final Plans.
- B. Where literal application of plan processing procedures established by this Ordinance would create undue hardship or be plainly unreasonable in their opinion, the Planning Commission may recommend in writing to the Supervisors such reasonable exceptions as will not be contrary to the public interest, subject to Section 704 of this Ordinance.

#### SECTION 301 PLAN CLASSIFICATION

All subdivision applications shall be classified for the purposes of procedure, as either minor or major. Applicants shall apply for and secure approval in accordance with the following procedures:

- A. Minor Subdivision Proposal
1. A subdivision plan may be classified as a minor subdivision where the following circumstances apply:
    - a. No street, either public or private, or any improvement intended to be dedicated to the Township is to be constructed.
    - b. No land disturbance activities will take place except those incidental to construction of a single-family dwelling on a single lot;
    - c. No more than two (2) lots are proposed: and
    - d. Further subdivision cannot occur within the resulting lots;

or

- e. Where the purpose of the plan is to provide a lot line adjustment and no development is proposed.
  2. The following sections of this Article III shall apply to the preparation and submission of minor subdivision plans: Section 302, 303, 305, 307, 308 and 311.
- B. Major Subdivision or Land Development Proposal
1. All subdivision plans not classified as minor subdivision plans, as defined above, and all land development proposals shall be processed under this category.
  2. The plan content, submission and approval procedures provided by this Article III shall apply to all major subdivision and land development proposals.
- C. In the case where subdivision or land development does not propose the development of the entire parcel, the Planning Commission may require the submission of a sketch plan indicating how the remainder of the tract will be used in the future.

## SECTION 302 REVIEW BY CHESTER COUNTY AND OTHER AGENCIES

- A. Chester County Planning Commission. The applicant shall supply one (1) copy of all sketch, preliminary and final plans to the Township Subdivision Officer for submission to the Chester County Planning Commission for their review and comment.
- B. Chester County Health Department. Copies of the preliminary plan and sewage module shall be supplied to the Township Subdivision Officer for submission to the Chester County Health Department for review of matters relating to requirements for public water and sewer systems and/or to the adequacy of the site to sustain on-site water and/or sewage disposal systems as required by Section 304.A.4.g.
- C. Chester County Conservation District. One (1) additional copy of the preliminary plan shall be provided for submission to the Chester County Conservation District for review of matters relating to drainage and abatement of soil erosion. This requirement may be waived by the Planning Commission on recommendation of the Township Engineer, where warranted.

- D. Other Agencies. The applicant shall submit additional copies of plans as may be required by the Board for review by County, state, federal, or other reviewing or regulatory agencies.
- E. Subdivisions and land developments of regional impact are subject to compliance with the goals and objectives of the Phoenixville Regional Comprehensive Plan.

SECTION 303 SKETCH PLAN SUBMISSION, REVIEW AND CONTENT

A. Sketch Plan Submission

- 1. Submission of a Sketch Plan application shall be voluntary. The sketch plan procedures are enacted to afford the applicant the opportunity to submit information for an informal review and discussion with the Township before engaging in the detailed engineering design required for the preparation of preliminary and final plans. Since the sketch plan is voluntary it is not subject to the ninety-day review period, as required by the Municipalities Planning Code, for subdivision and land development plans.
- 2. An applicant wishing for an informal review of a voluntary sketch plan should submit eleven (11) copies to the Township Subdivision Officer for distribution to the following:
  - a. One (1) copy each for the Subdivision Officer and the Township Manager.
  - b. One (1) copy each for the Township Engineer and Township Planner.
  - c. Seven (7) copies for the Township Planning Commission.

B. Sketch Plan Review

- 1. Township Engineer and Township Planner
  - a. The Township Engineer and Township Planner will review the plan with particular emphasis on site feasibility, including consideration of on-site sewage disposal, where indicated, slopes and drainage, access and conformance to Township planning documents.
- 2. Planning Commission
  - a. The Planning Commission shall consider the sketch plan at a regularly scheduled meeting and the applicant or designated representative must be present to provide

informal dialogue with the Planning Commission.

- b. The Planning Commission shall consider, but not be limited to, the suitability of the sketch plan for the development of land and its relationship to the extension of streets, access points, arrangement and density of proposed use, the compatibility of the proposal with the objectives and recommendations of the Township Comprehensive Plan and consistency with the Township Zoning Ordinance.
3. The Township shall not be obligated to make recommendations, identify areas of noncompliance, or suggest measures to comply with the Ordinances.
4. The applicant shall submit plans sufficiently detailed as to make the review meaningful.

SECTION 304 PRELIMINARY PLAN SUBMISSION, RESUBMISSION,  
REVIEW AND CONTENT

A. Complete Submission

1. All preliminary plans submitted pursuant to this Ordinance shall conform to the requirements of this section.
2. All preliminary plan applications, along with the criteria listed below, shall be submitted to the Township Subdivision Officer twenty (20) days prior to a regularly scheduled meeting of the Planning Commission. The Township Subdivision Officer shall determine whether the applicant presents a complete submission, however, the official submission date will not be established until the Planning Commission confirms a complete submittal at its next regularly scheduled meeting and acknowledges its completeness with correspondence to the applicant.
  - a. Ten (10) copies of the official Township application for preliminary review form, one (1) being notarized by an affidavit of ownership and intended use of the land;
  - b. A minimum of ten (10) prints of the conceptual preliminary plan;
  - c. A minimum of three (3) copies of all required supporting information and plans; and

- d. A minimum of ten (10) copies of a reduced plan at 11" x 17" in size.
  - e. Subdivisions and land developments of regional impact, as defined in Section 201, require submission of fifteen (15) additional copies of a reduced plan at 11'x17' in size.
  - f. Payment of required application fees and escrow deposits as determined by resolution of the Board.
3. The Township Subdivision Officer shall note the date of the receipt of the application, fees and any escrow deposits. The application shall not be deemed submitted until a complete application and required fees have been submitted.
  4. Upon receipt of all items comprising a complete and official submission, the Township Subdivision Officer shall accept the application and transmit such plans to the following:
    - a. One (1) copy of the preliminary plan and official Township application for the Subdivision Officer;
    - b. Two (2) copies of the preliminary plan and official Township application form to the Township Planning Commission;
    - c. Three (3) copies of the preliminary plan to the Township Board of Supervisors;
    - d. One (1) copy each of the preliminary plan, the official Township application form and all other submission data to the Township Engineer and the Township Planner;
    - e. One (1) copy of the preliminary plan to the Chester County Conservation District, along with applicable forms and fees;
    - f. One (1) copy of the preliminary plan, County referral form and accompanying fee to the Chester County Planning Commission;
    - g. One (1) copy of the preliminary plan, two (2) planning module forms, and appropriate fee to the Chester County Health Department;



- a. The Township shall have ninety (90) days in which to review and take action on the preliminary plan.
  - b. The ninety-day (90-day) period shall commence on the date of the next regularly scheduled Planning Commission meeting following the date a complete and official submission of a preliminary plan application was filed with the Township Subdivision Officer if the Planning Commission confirms that the application is complete. The applicant shall submit the application at least twenty (20) working days prior to a regularly scheduled meeting of the Planning Commission in order to be placed on the agenda.
  - c. Whenever the next regularly scheduled meeting of the Planning Commission occurs more than thirty (30) days following the filing of a complete and official submission, the said ninety (90) day period shall be measured from the thirtieth day following the day the application is filed.
  - d. An extension to the ninety-day (90-day) review period shall occur only when agreed to in writing by both the applicant and the Board.
  - e. The applicant, or designated representative, shall have the opportunity to be present when the plan is reviewed.
2. Township Engineer, Township Planner, Sewer Authority and Water Authority
    - a. The review by the Township Engineer and Township Planner shall include an examination of the content of the plans to be certain that all information required by this Ordinance is presented in the plans submitted, and investigation of the plan to be certain that all other Township ordinances are complied with, an examination of the engineering and design feasibility of the various alternatives presented for the location, alignment and grade of streets, stormwater drainage, sanitary sewers and water supply. The Township Engineer and Township Planner shall confer with the applicant to the extent necessary to obtain conformity of the plan with these regulations and to comment upon the matters subject to his review. They shall forward their written comments on the plan to the Planning Commission within twenty (20) days.

- b. The Sewer Authority shall review the design of sewer systems to determine compliance with standards established for acceptance of such systems and where not previously done, determine the feasibility of connection to existing or proposed sewer systems. The Sewer Authority shall submit its written comments to the Planning Commission within twenty (20) days.
  - c. The Water Authority shall review the design of the water supply systems to determine compliance with standards established for acceptance of such systems and, where not previously done, determine the feasibility of connection to existing and proposed water systems. The Water Authority shall submit its written comments to the Planning Commission within twenty (20) days.
3. Township Planning Commission.
- a. The Township Planning Commission shall review all plans referred to it and shall consider any recommendations made by a County agency, the Township Engineer, the Township Planner and any other persons or agencies who shall have submitted comments with respect to any such application.
  - b. The Township Planning Commission shall, at their next scheduled public meeting, examine the plan with particular emphasis on determining the suitability of the plan for the development of land and its relationship to the harmonious extension of streets and utilities, arrangement and density of housing or other uses, and compatibility of the plan with the Township Comprehensive Plan and Township Zoning Ordinance. In the review of land development and subdivision plans, the Planning Commission shall also be concerned with the adequacy of parking, surface and storm drainage, access and landscaping or other related design standards.
  - c. After such review, the Secretary of the Planning Commission shall send written notice of the action of the Planning Commission and the reasons therefore, citing specific sections of the Ordinance relied upon, along with the written comments of the Township Engineer, the Township Planner, the Chester County Planning

Commission and other agencies which have submitted comments to the Board within five (5) days of completion of the Planning Commission's review.

4. Board of Supervisors
  - a. When a preliminary plan has been officially submitted to the Board of Supervisors by the Planning Commission, such plan shall be placed on its agenda for its review at its next regularly scheduled meeting.
  - b. In acting on the preliminary subdivision or land development plan, the Board shall review the plan and the written comments of the Planning Commission, Township Engineer, the Township Planner, County Planning Commission, and all other reviewing agencies, to determine conformity of the application to the standards of this and any other applicable ordinance. The Board may specify conditions, changes, modifications, or additions to the application which the Board deems necessary and may make a decision to grant preliminary approval subject to such conditions, changes, modifications, or additions, citing appropriate ordinance provisions as described in Subsection 304.B.4.e. When an application is not approved in terms as filed, the decision of the Board shall specify the defects found in the application and describe the requirements which have not been met and shall, in each case, cite the provision of the ordinance relied upon in the decision. If the Board approves the preliminary subdivision or land development plan, the minutes of the meeting shall reflect such approval either with or without conditions.
  - c. The Board of Supervisors shall designate a copy of the preliminary plan as the official copy. This copy shall include all necessary corrections as required by the Board of Supervisors and shall be retained in the Township Files.
  - d. The decision of the Board shall be in writing and shall be communicated to the applicant personally or mailed to the applicant not later than fifteen (15) days following the decision or by the end of said ninety (90) day period, whichever shall first occur.
  - e. Whenever the approval of a preliminary plan is subject to

conditions, the written action of the Board as prescribed herein shall (a) specify each condition of approval, citing relevant ordinance provisions in each case, and (b) require the applicant's written agreement to the conditions. Where the applicant's written concurrence is not received within the time allotted, the Board shall be deemed to have denied approval.

C. Content

A preliminary plan shall consist of and be prepared in accordance with the following minimum standards:

1. Drafting Standards:
  - a. The plan shall be drawn on a scale of no greater than 1" = 50' unless the average size of the proposed lots is in excess of five (5) acres, in which case, a scale of 1" = 100' may be used.
  - b. Dimensions shall be set in feet, bearing in degrees, minutes, and seconds, with errors of closure not to exceed one part per 10,000.
  - c. Each sheet shall be numbered and shall show its relationship to the total number of sheets.
  - d. The plan shall bear an adequate legend to indicate clearly which features are existing and which are proposed.
  - e. The original drawing, and all submitted prints thereof, shall be made on sheets of no smaller than twenty-four (24) by thirty-six (36) inches or larger than thirty-four (34) inches by forty-four (44) inches.
  - f. If the preliminary plan requires more than one sheet, a master sheet at a scale not smaller than 1"= 400' showing the location of each section shall accompany the plan.
  - g. Re-submission of revised plans should be clearly numbered.
  - h. Boundaries should be indicated as a heavy solid line.

- i. Plan or survey must be prepared by a registered engineer, surveyor or landscape architect.

2. Basic Information

To facilitate the fullest possible response from the Planning Commission and Board, the applicant shall incorporate the following items within a preliminary plan submission.

- a. Name, address and phone number of the owner/applicant;
- b. Name of subdivision or land development and township in which it is located;
- c. Name, address and phone number of the applicant's engineer, surveyor, planner, architect, landscape architect or site designer responsible for preparing the plan;
- d. Written and graphic scale, (not greater than 1" = 200 ft.);
- e. The title: "Preliminary Plan";
- f. Exact tract acreage and tract boundaries;
- g. North arrow;
- h. Location map;
- i. Streets on and adjacent to the tract (both existing and proposed);
- j. Significant topographical and physical features, including contours (maximum 10' intervals), soil types, steep slopes (over 25%), locations of ponds, streams and flood plains (on and within 200 feet of the tract), wetlands, wooded areas, hedgerows and other significant vegetation, existing structures and existing rights of way and easements;
- k. If not submitted as part of a voluntary sketch plan application, a schematic layout indicating a general concept for land conservation and development (diagram format is acceptable for this delineation as part of the four-step design process described in Section 304.C.5 of this Ordinance);
- l. Zoning district and requirements and a statement as to the

degree to which the plan meets those requirements;

- m. Proposed open space and/or recreation areas, and proposed management and ownership of such;
- n. In the case of land development plans, proposed general layout, including building locations, parking lots, and open spaces;
- o. Any anticipated waivers and reasons for request;
- p. Date of preparation and any subsequent revision dates.

3. Existing Resources and Site Analysis Plan

For all subdivisions and land developments, an *Existing Resources and Site Analysis Plan* shall be prepared to provide the applicant and the Township with a comprehensive analysis of existing conditions, both on the proposed development site and within five hundred (500) feet of the site. Conditions beyond the site boundaries may be described on the basis of existing published data available from the Township, other governmental agencies and from aerial photographs.

The Planning Commission, at its discretion, may exempt an Applicant from all or parts of the requirement of providing an Existing Resources and Site Analysis Plan when a proposed subdivision is to provide for only lots of ten (10) acres or more.

The Map shall conform to the drafting standards of Section 304.C.1 of this Ordinance and shall provide the following information:

- a. Topography, the contour lines of which shall be generally two (2) foot intervals, determined by photogrammetry. Ten (10) foot contour intervals (from U.S.G.S maps) are permissible to show the topography beyond the site boundaries. Slopes between fifteen (15) percent and twenty-five (25) percent and those exceeding twenty-five (25) percent shall be clearly indicated, as defined in the Zoning Ordinance. Topography for a major subdivision and land development shall be prepared by a professional land surveyor or professional engineer from an actual field survey of the site or from stereoscopic aerial photography and shall be coordinated with official U.S.G.S. benchmarks.

- b. The location and delineation of ponds, streams and natural drainage courses, as well as the one hundred (100) year floodplains and wetlands as defined in the Zoning Ordinance. Additional areas of wetlands on the proposed development site shall also be indicated, as evident from testing, visual inspection or from the presence of wetland vegetation.
- c. Alluvial soils, as defined by the Soil Survey for Chester County by the USDA-NRCS. These soils are on floodplains where they receive additional sediments or are scoured from time to time.
- d. Drainage basins and sub-basins.
- e. Vegetative cover conditions on the site according to general cover type indicating cultivated land, permanent grassland, old field, hedgerow, woodland and specimen trees as defined in the Zoning Ordinance. Trees with a caliper of six (6) inches or greater, measured 4½ foot above the ground surface, their common name, and the outer-most dripline shall be shown. Vegetative types shall be described by plant community, relative age and condition.
- f. Woodlands over one-half (1/2) acre in area (from aerial photograph).
- g. Seasonally High Water Table Soils as identified in the Zoning Ordinance.
- h. Soils name symbol, and mapping boundary as mapped by the U.S. Department of Agriculture, Natural Resources Conservation Service in the most recent published soil surveys for Chester County. Soils classified as Class 1 and II by the NRCS shall be identified with a specific map symbol for the purpose of identifying Prime Farmland as defined in the Zoning Ordinance.
- i. Ridgelines and watershed boundaries shall be identified.
- j. A watershed analysis shall be prepared and delineated, showing the location and extent into the site from public roads and from public parks and other public land.

- k. Geologic formations and fault zones on the site shall be identified based upon available published information or more detailed data obtained by the applicant.
  - l. The location and dimensions of all existing streets, roads, buildings, utilities, storm drains, sanitary sewer systems and other man-made improvements shall be delineated.
  - m. The location of all Township-mapped historically significant areas and structures on the site and on all adjoining tracts shall be identified.
  - n. The location of all trails that have been in public use (pedestrian, equestrian, bicycle, etc.) shall be delineated.
  - o. All easements and other encumbrances of the site that are or have been filed of record in with the Recorder of Deeds of Chester County shall be indicated.
  - p. French Creek Scenic River Corridor, as defined in the Zoning Ordinance.
  - q. Riparian Buffer Conservation Areas as defined in the Zoning Ordinance.
  - r. Wetlands Buffer Conservation Areas as defined in the Zoning Ordinance.
  - s. Site features or conditions such as hazardous waste, dumps, underground tanks, active or abandoned wells, quarries, landfills, sandmounds, artificial land conditions and any waste sites identified by State or Federal agencies.
4. Site Context Map
- A map showing the location of the proposed subdivision or land development within its neighborhood context shall be submitted. For sites under one hundred (100) acres in area, such maps shall be prepared at a scale of not less than 1" = 200 feet and shall show the relationship of the subject site to natural and manmade features existing within one thousand (1,000) feet of the site. For site of one hundred (100) acres or more in area, the scale shall be 1" = 400 feet and shall show the above relationships within two thousand (2,000) feet of the site.

## 5. Four-Step Design Process

All major subdivision preliminary plans in the R-1, Farm Residential, R-2, Community Residential, and AP, Agricultural Preservation Districts shall include documentation of the four-step design process in determining the layout of proposed Greenway lands, house sites, streets and lot lines as described below.

### a. Step 1: Delineation of Greenway Lands

Proposed Greenway lands shall be designated using the *Existing Resources and Site Analysis Plan* as a base map and complying with Section 1714 of the Zoning Ordinance, dealing with Park, Recreation, Open Space, Greenway and Trail Standards. The East Pikeland Township Open Space, Recreation and Environmental Resources Plan shall also be referenced and considered.

Primary Conservation Areas shall be delineated comprising floodplains, wetlands and slopes over twenty-five (25) percent, specimen trees and mature woodlands.

Secondary Conservation Areas shall be delineated comprising of greenways and trails, prime farmland, agriculturally-suited soils, riparian buffer conservation areas, wetland buffer, hedgerows, wildlife habitats, historic sites and structures, scenic viewsheds, seasonally high water table soils, and French Creek Scenic River Corridor. On the basis of those priorities and practical considerations given to the site's configuration, its context in relation to resource areas on adjoining and neighboring properties, and the applicant's subdivision objectives, Secondary Conservation Areas shall be delineated to meet at least the minimum area percentage requirements for Greenway lands. The boundaries as well as the types of resources included within the Secondary Conservation Areas shall be clearly indicated. Calculations shall be provided indicating the applicant's compliance with the acreage requirements for Greenway areas on the site.

b. Step 2: Location of House Sites

Potential house sites shall be tentatively located, using the proposed Greenway lands as a base map as well as other relevant data on the Existing Resources and Site Analysis Plan such as topography and soils. House sites should be generally located not closer than one hundred (100) feet from Primary Conservation Areas and fifty (50) feet from Secondary Conservation Areas, taking into consideration the potential negative impacts of residential development on such areas as well as the potential positive benefits of such locations to provide attractive views and visual settings for residences.

c. Step 3: Alignment of Streets and Trails

Upon designating the house sites, a street plan shall be designed to provide vehicular access to each house, complying with the standards in Article IV herein and bearing a logical relationship to topographic conditions. Impacts of the street plan on proposed Greenway lands shall be minimized, particularly with respect to crossing environmentally sensitive areas such as wetlands and traversing slopes in excess of fifteen (15) percent. Street connections shall be encouraged to generally minimize the number of new cul-de-sacs to be maintained by East Pikeland Township and to facilitate access to and from homes on different parts of the site (and adjoining parcels).

A trail plan shall be provided that delineates the location of existing and/or proposed trail corridors throughout the property, with consideration of those trails corridors that connect with trails on adjacent properties or provide potential trail links to the Comprehensive Trail System. Where no such trails exist, the Applicant shall, after consulting the Comprehensive Trail System delineation in the East Pikeland Township Open Space, Recreation and Environmental Resources Plan, propose a trail corridor that would link the Applicant's proposed subdivision or land development with the Comprehensive Trail System.

d. Step 4: Drawing in the Lot Lines

Upon completion of the preceding three steps, lot lines

are drawn as required to delineate the boundaries of individual residential lots.

- e. Applicants shall submit four (4) separate sketch maps or one (1) composite map, at the option of the Planning Commission, indicating the findings of each step of the design process.

6. Preliminary Resource Impact and Erosion and Sediment Control Plan

- a. A Preliminary Resource Impact and Erosion and Sediment Control Plan shall be prepared, and to categorize the impacts of the proposed subdivision and land development on those resources shown on the Existing Resources and Site Analysis Plan (as required under Section 304.C.3). All proposed improvements, including, but not necessarily limited to grading, fill, streets, buildings, utilities and stormwater detention facilities, as proposed in the other Preliminary Plan documents, shall be taken into account in preparing the *Preliminary Resource Impact and Erosion and Sediment Control Plan*.
- b. Using the Existing Resources and Site Analysis Plan as a base map, impact areas shall be mapped according to the following categories: (1) Primary Conservation Areas as defined by Section 304.C.5.(a), i.e., areas directly impacted by the proposed subdivision, (2) Secondary Conservation Areas as defined by Section 304.C.5.(a), i.e., areas in proximity to primary areas that may be impacted, and (3) designated protected areas, either to be included in a proposed Greenway or an equivalent designation such as dedication of a neighborhood park site.
- c. This requirement for a Preliminary Resource Impact and Erosion and Sediment Control Plan may be waived by the Planning Commission if, in its judgment, the proposed development areas, as laid out in the Sketch Plan would be likely to cause no more than an insignificant impact upon the site's resources.

7. Site Design and Layout Standards

- a. A location map and north arrow for the purpose of

locating the site to be subdivided or developed, at a scale of not less than two thousand (2,000) feet to the inch, showing the relation of the tract to adjoining property and to all streets and municipal boundaries existing within one thousand (1,000) feet of any part of the property proposed to be subdivided or developed.

- b. A series of maps, prepared in accordance with Section 304.C.1, with the accompanying narrative as needed, showing the following existing conditions:
- (1) Proposed subdivision or land development name or other identifying title;
  - (2) Name, address and telephone number of the applicant and the owner of record or of his authorized agent, if any;
  - (3) Name and address of the registered engineer or surveyor responsible for the plan. If a registered engineer, architect or landscape architect collaborated in the preparation of the plan, his name and address and seal shall also appear. All plans showing the subdivision of land must be accompanied by a boundary survey signed and sealed by a registered surveyor.  
  
The plan shall contain a note stating the date of the boundary survey and the responsible registered surveyor. Each existing boundary corner must be identified on the plan with a note advising it is "found and held" or "to be set". Property corners and property lines shall be temporarily marked in the field, prior to Preliminary Plan application, with stakes, ribbon or other visible markers to allow for review by Township representatives.
  - (4) Zoning information, including applicable district, lot size and yard requirements, proof of any variance or special exception which may have been granted, and any zoning boundaries that traverse or are within two hundred (200) feet of the tract;
  - (5) All waivers being requested by the applicant as

well as all waivers granted to the applicant by the Board, and reasons and data to substantiate the basis for such request shall be clearly stated on the first sheet of the preliminary plan submission.

- (6) Original date of preparation, revision dates, with concise descriptions of each revision, north point, and scale, both written and graphic;
- (7) Total tract boundaries showing bearings and distances and along all existing rights of way within and adjacent to the tract prepared by a registered professional land surveyor;
- (8) Total acreage of the tract to the nearest square foot, and the acreage of the tract for both total and net lot area;
- (9) The applicable front, side, and rear setbacks shall be shown on each lot, including the required setbacks from pipeline rights of way indicated in Section 421. The result is an indication of the building envelope, or that area where building is permitted.
- (10) The names of all owners of all adjacent lands, the names of all proposed and existing subdivisions adjacent, and the locations and dimensions of any streets or right of way easements;
- (11) The locations and dimensions of all existing streets, railroads, sewers and sewage systems, aqueducts, water mains and feeder lines, fire hydrants, gas, electric, and oil transmission lines, water courses, sources of water supply, easements, and other significant features within the property, or such driveways, intersections and utilities within one hundred (100) feet of any part of the property proposed to be developed or subdivided;
- (12) The locations and dimensions of all historic resources, trails, and significant natural features including topography and areas of steep slope (see Section 304.C.5.b.19), wetlands (see Section 304.C.5.b.13), 100-year floodplains, swales, rock

outcrops, vegetation, and significant trees of 6" d.b.h., as indicated on the Existing Resources and Site Analysis Plan.

- (13) The applicant shall obtain a wetlands survey performed by a firm competent to complete such surveys, prepared in accordance with Pennsylvania Department of Environmental Protection criteria and delineated according to the procedures contained in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands.

If wetlands exist, a wetland delineation report shall be prepared and submitted to the Township for review and approval by the Board of Supervisors based on the recommendation of the Township Engineer. The wetland delineation report shall consist of a narrative summary, mapping, data forms, photographs of the field points, and a survey plan of the boundary and other information typically required.

If no such lands exist on the tract for which the subdivision or land development is proposed, the plan must include a statement indicating so. Whenever the Township Planning Commission and/or the Township Engineer have reasonable evidence that wetlands may be present or may extend beyond the boundaries shown, the Township may engage an independent wetlands consultant who shall conduct a survey and resolve the location of wetlands boundaries. If the Township's consultant finds wetlands present, not indicated by the plan, the applicant shall reimburse the Township for the cost of the Township's consultant's fees in accordance with Section 601 .G of this Ordinance. If no wetlands are found or if the area is found to be equal to or smaller than that shown on the plan, the Township will pay the consultant's fee.

- (14) Any proposed improvements requiring a permit from the U.S. Army Corps of Engineers or the Pennsylvania Department of Environmental Protection shall be so indicated.

- (15) In the case where individual on-lot sewage disposal systems are proposed, percolation test pits shall be performed according to Section 419.J as prescribed herein, and the exact locations of the test pits, probes and percolation holes for primary and replacement fields shall be indicated on the plan.
  - (16) In the case where an individual or community well is proposed to serve the subdivision or land development, the proposed location of the well shall be indicated on the plan.
  - (17) The locations and widths of any streets or other public ways or places as shown upon an adopted local or County plan, if such plan exists for the area to be subdivided or developed;
  - (18) Locations of all existing structures on the tract, and distance thereof from lot lines;
  - (19) A contour line at vertical intervals of not more than two (2) feet for land with natural average slope of fifteen (15) percent or less, and in intervals of not more than five (5) feet for land with average natural slope exceeding fifteen (15) percent. Actual field surveying or aerial photo interpretation shall be required when public improvements are proposed; and
  - (20) Location and elevation of the datum to which contour elevations refer; datum used shall be a known established local benchmark.
  - (21) Certification as to the accuracy of the plan and details of such plans shall be prepared in accordance with Act 367, known as the Professional Engineers Registration Law.
  - (22) All notations on the plan must be readable with a minimum font size of eight (8). Illegible notations will be considered incomplete data on the plan.
- c. A full plan of the proposed subdivision or land development prepared in accordance with Section

304.C.1, including as a minimum:

- (1) Location and width of all streets and rights of way with a statement of any conditions governing their use, including distance to the nearest intersection;
- (2) Existing and proposed street and utility easement locations, with approximate dimensions;
- (3) All proposed lot lines with approximate dimensions and lot areas, both gross and net, indicating those limitations excluded in the lot area definition;
- (4) Building setback lines along each street, minimum side and rear yard limits;
- (5) A statement of the intended use of all non-residential lots and parcels; including draft documents for ownership and maintenance of such;
- (6) Lot numbers, and a statement of the total number of lots and parcels;
- (7) Sanitary and storm sewers, and other drainage facilities with the size and material of each indicated, and any proposed connections with existing facilities;
- (8) Location and dimensions of proposed parks, playgrounds, trails and other open space areas to be dedicated or reserved for public use, with any conditions governing such use, ownership and maintenance.
- (9) Limit of disturbance line
- (10) Typical street cross-sections for all proposed streets including details relating to thickness, crowning and construction materials.
- (11) If land is to be subdivided lies partially in or abuts another municipality, the applicant shall submit information concerning the location and conceptual design of streets, layout and size of

lots and provisions of public improvements on land subject to his control within the adjoining municipality(s). The design of public improvements shall provide for a smooth, practical transition where specifications vary between East Pikeland Township and the adjoining municipality(s). Evidence of approval of this information by appropriate officials of the adjoining municipality(s) shall also be submitted.

- (12) Where the applicant proposes to install the improvements in phases, he shall submit with the preliminary plan, pursuant to Section 508.4 of Act 247 as amended, a delineation of the proposed sections and a schedule of the deadlines within which applications for final approval of each section are intended to be filed.
- (13) The location of proposed shade trees, plus locations of existing vegetation to be retained.

d. The preliminary plan shall be accompanied by the following supplementary data:

- (1) A Preliminary Landscaping and Buffering/ Screening Plan prepared in accordance with Section 1709 East Pikeland Zoning Ordinance.
- (2) A Preliminary Erosion and Sediment Control Plan, in accordance with Chapter 22, Grading, Erosion and Sediment Control and Stormwater Management, of the Code of Ordinances of the Township of East Pikeland.
- (3) A Preliminary Stormwater Plan in accordance with Chapter 22, Grading, Erosion and Sediment Control and Stormwater Management, of the Code of Ordinances of the Township of East Pikeland.
- (4) A Preliminary Construction Improvements Plan in accordance with Section 306.C.
- (5) All impact studies as required by Section 306.D.

SECTION 305 FINAL PLAN SUBMISSION AND REVIEW

A. Submission

1. Within twelve (12) months after approval of the preliminary plan, a final plan and all necessary supplementary data shall be officially submitted to the Township Subdivision Officer after which the preliminary plan approval is withdrawn unless an extension of time may be granted by the Board where the applicant has successfully demonstrated every effort has been made to comply with this requirement.
2. The final plan shall conform to the terms of approval of the preliminary plan and to the most recent administrative regulations adopted by the Board for such purposes.
3. The Board of Supervisors may permit submission of the final plan in sections each covering a reasonable portion of the entire proposed subdivision as shown on the approved preliminary plan, but in no case shall include less than twenty (20) percent of the total lots or units as depicted on the approved preliminary plan.
4. All final plan applications, along with the criteria listed below, shall be submitted to the Township Subdivision Officer twenty (20) days prior to the next meeting of the Planning Commission. The Township Subdivision Officer shall determine whether the applicant presents a complete submission, however, the official submission date will not be established until the Planning Commission confirms a complete submittal at its next meeting and acknowledges its completeness with correspondence.
  - a. Three (3) copies of the official Township application for final review form; one (1) being notarized by an affidavit of ownership and intended use of the land;
  - b. A minimum of five (5) prints of the final plans, ten (10) copies of the reduced plans 11"x17" in size, and three (3) double-sided copies of all required supporting information and plans to be distributed as stipulated in Section 304.A.4, except that no final plans are required to be submitted to the Chester County Health Department, Chester County Conservation District, the Sewer Authority, or adjacent municipalities. Interim plans may be submitted to the Chester County Health Department, Chester County Conservation District, and the Sewer Authority in order to obtain their approval. Final plans

should be in conformity with the requirements of those agencies and be accompanied by approvals from the respective agencies.

- c. Payment of required application fees and escrow deposits as determined by resolution of the Board.
5. The Township Subdivision Officer shall note the date of the receipt of the application, fees and any escrow deposits. The application shall not be deemed to be submitted until a complete application and required fees have been submitted.
  6. Where the final plan is for minor subdivision, the Township Subdivision Officer shall forward copies of the plan to the Township Planning Commission and County Planning Commission, and the Township Engineer when deemed appropriate by the Board and the Planning Commission.
  7. Submittal Procedure – A plan shall be considered officially submitted only upon the receipt by the Township Subdivision Officer of the appropriate number of plan copies with supporting documents, a completed official application form, a completed Final Plan Information Checklist (Appendix H), and a correct application fee. Official application forms and checklists may be obtained at the office of the Township Manager.
    - a. The application shall not be considered complete until plan information, as required by Section 305.C and as outlined in the Final Plan Information Checklist (Appendix H), is included with the submission. The initial determination of the completeness of the application shall be made by the Township Subdivision Officer.
    - b. If the application is determined to not comply with the general submittal requirements of this Ordinance, the application shall be returned within five (5) working days of filing, with a letter indicating the specific provisions of the Ordinance that have not been complied with.
    - c. A decision by the Township Subdivision Officer to return an application as incomplete under the provisions of this section may be appealed to the Board of Supervisors within thirty (30) days of notice. In the absence of such appeal, the decision of the Township Subdivision Officer shall be deemed to be final. Subsequent applications shall be deemed to be new applications.

## B. Review

1. Official Review Period
  - a. The Township shall have ninety (90) days in which to review and take action on the final plan.
  - b. The ninety-day (90-day) period shall commence on the date of the next regularly scheduled Planning Commission meeting following the date a complete and official submission of a final plan application was filed.
  - c. Whenever the next regularly scheduled meeting of the Planning Commission occurs more than thirty (30) days following the filing of a complete and official submission, the said ninety (90) day period shall be measured from the thirtieth day following the day the application is filed.
  - d. An extension to the ninety-day (90-day) review period shall occur only when agreed to in writing by both the applicant and the Board.
2. Township Engineer, Township Planner, Sewer Authority and Water Authority
  - a. The review by the Township Engineer and Township Planner shall include an examination of the content of the plans to be certain that all information and changes required by this Ordinance and by the Board in its review of the preliminary plan are presented in the plans submitted; an investigation of the plan to be certain that all other Township ordinances are complied with, and an examination of the engineering feasibility of the final designs presented for the location, alignment and grade of streets, stormwater drainage, sanitary sewers, and water supply. The Township Engineer and Township Planner shall forward their written comments on the plan to the Planning Commission within twenty (20) working days.
  - b. The Sewer Authority shall review the final design of sewerage facilities to determine compliance with standards established for acceptance of such systems by the Board. They shall authorize the application for such permits as are required by federal, state or local authorities. Final approval of plans by the Valley Forge Sewer Authority shall be a condition precedent to the Board's final action on the application.

- c. The Water Authority shall review the final design of the water supply facilities to determine compliance with standards established for acceptance of such systems by the Board. They shall authorize the application for such permits as are required by federal, state or local authorities. Final approval of plans by the Water Authority shall be a condition precedent to the Board's final action on the application.
  - d. After such review, the Secretary of the Planning Commission shall send written notice of the action of the Planning Commission and the reasons therefore, citing specific sections of statutes or ordinances relied upon, along with the written comments of the Township Engineer, the Township Planner, the Chester County Planning Commission and other agencies, the Sewer Authority and the Water Authority to the Board within five (5) working days of completion of the Planning Commission's review.
3. Township Planning Commission
- a. The Township Planning Commission shall review all plans referred to it and shall consider any recommendations made by a County agency, the Township Engineer, and any other persons or agencies who shall have submitted comments with respect to any such applications.
  - b. The Planning Commission shall, at their next scheduled public meeting, examine the plan with particular emphasis on determining the suitability of the plan for the development of land and its relationship to the harmonious extension of streets and utilities, arrangement and density of housing or other uses, and compatibility of the plan with the Township Comprehensive Plan and Township Zoning Ordinance. In the review of land development and subdivision plans, the Planning Commission shall also be concerned with the adequacy of parking, surface and storm drainage, access and landscaping or other related design standards.
  - c. After such review, the Secretary of the Planning Commission shall send written notice of the action of the

Planning Commission and reasons therefore, citing specific sections of the Ordinance relied upon, along with the written comments of the Township Engineer, the Chester County Planning Commission and other agencies which have submitted comments to the Board within five (5) days of completion of the Planning Commission's review.

4. Board of Supervisors
  - a. When a written report on a final plan has been officially returned to the Board of Supervisors by the Planning Commission, such plan shall be placed on the agenda of the regularly scheduled meeting of the Board for review.
  - b. Upon receipt of the Planning Commission's recommendation and other supporting information, the Board shall, at one or more regular or special public meetings, review the final plan and shall, within the time limitations set forth herein below, either approve or disapprove the plan. Notwithstanding the foregoing procedure, the Board shall render a decision on all final plans and communicate it to the applicant not later than ninety (90) days following the date of the next regular meeting of the Planning Commission following the date the application is filed, provided that should the said next regular meeting occur more than thirty (30) days following the filing of the application, the said ninety (90) day period shall be measured from the thirtieth day following the day the application has been filed.
  - c. Upon the Planning Commission's recommendation for approval of the final plan, the Board may request the Township Engineer to prepare an estimate of the cost of all public improvements to be dedicated to the Township and forward a copy of such cost estimate to the Board within ten (10) working days.
  - d. The Board of Supervisors shall designate one (1) print of the final plan as the official copy. This copy shall include all corrections required by the Board of Supervisors. It shall be retained in the Township files.
  - e. The decision of the Board of Supervisors shall be in writing and shall be communicated to the applicant personally or mailed to him at his last known address not

later than fifteen (15) days following the decision or by the end of the said ninety (90) day period, whichever shall first occur.

- f. When the application is not approved in terms as filed, the decision shall specify the defects found in the application and describe the requirements which have not been met and shall, in each case, cite the provisions of the ordinance relied upon.
  - g. Copies of the final plan as finally approved, with the appropriate endorsement of the Board of Supervisors and the Township Engineer shall be distributed as follows:
    - (1) A minimum of four (4) copies to the applicant, three (3) of which shall be utilized in recording in accordance with Section 307.
    - (2) One (1) copy to the County Planning Commission.
    - (3) Two (2) copies to be retained in the Township files, together with one (1) copy of all supporting materials.
    - (4) One (1) copy to the Township Engineer.
5. Every final plan approval, with the exception of minor subdivision proposals as defined under Section 301.A.1, shall be subject to the following conditions:
- a. The applicant shall execute a subdivision and land development agreement in accordance with Section 309, agreeing with the Township to install all the improvements as required by this Ordinance and all regulations adopted pursuant thereto.
  - b. The applicant shall provide a performance guarantee in accordance with Section 310.
  - c. The applicant agrees, if requested, to tender a deed of dedication to the Township for such streets, any and all easements for sanitary sewers, water lines, or storm sewers, and public improvements including street paving, sidewalks, shade trees, water mains, any fire hydrants, sanitary and storm sewers, as are required for the promotion of public welfare, after all said improvements

are completed and such completion is certified as satisfactory by the Township Engineer. The Board shall require that the applicant supply a title insurance certificate from a reputable company before any property is accepted for the Township.

- d. Whenever the applicant is providing open space as part of the development, an easement in perpetuity restricting such open space against further subdivision or development shall be executed between the applicant and the Township or an organization acceptable to the Township, and shall run to the benefit of the Township and lot purchasers in the subdivision or land development.
  - e. The applicant shall have applied for all required permits from agencies having jurisdiction over ancillary development, such as Pennsylvania Departments of Transportation and Environmental Protection, Public Utility Commission, and County Health Department.
- 6. Before acting upon any subdivision or land development plan, the Board of Supervisors may hold a public hearing thereon pursuant to public notice.
  - 7. No plan which will require access onto a road under the jurisdiction of PennDOT shall be finally approved unless the plan contains a notice that a highway access permit is required pursuant to Section 420 of Act 428, known as the "State Highway Law", before access to a State road is permitted.

C. Content

Final plans shall, under major proposals, conform in all important details, to preliminary plans, including any conditions specified by the Board. A final plan shall consist of and be prepared in accordance with the following:

- 1. Drafting Standards
  - a. Subdivision or land development plans submitted for review for final approval shall be clear and legible black or blue on white prints of the drawings. Upon completion of review, and for signature by the Board, clear and legible prints of all plans shall be submitted. Space shall be provided for signatures by the Board and Planning

Commission on the title sheet of the plans.

- b. Final plans shall be made on sheets no greater than thirty-four (34) inches by forty-four (44) inches or less than twenty-four (24) inches by thirty-six (36) inches. Where necessary to avoid sheets larger than the maximum size prescribed above, final plans shall be drawn in two (2) or more sections, accompanied by a key diagram showing relative location of the sections. The scale shall not be less than one hundred (100) feet to the inch. All dimensions shall be shown in feet and hundredths of a foot.

2. Site Design and Layout Standards

- a. All information required in Section 304.C.7, and the following minimum data:
  - (1) The total tract boundary lines of the area being subdivided with accurate distances to one hundredth (1/100th) of a foot and bearings in degrees, minutes and seconds. These boundaries shall be balanced and closed with an error of closure not to exceed one (1) foot in ten thousand (10,000) feet, provided, however, that the boundary(s) adjoining additional un-platted land of the Applicant are not required to be based upon field survey, and may be calculated. The monuments shall be indicated, along with a statement of the total area of the property being subdivided. In addition, the engineer or surveyor shall certify to the accuracy of the survey, the drawn plan, and the placement of the monuments;
  - (2) All straight lot lines and chords and radii of curved lot lines, defined in feet and hundredths of a foot by distances, and in degrees, minutes and seconds either by magnetic bearings or by angles of deflection from other lot and street lines;
  - (3) Lot numbers, lot areas both total and net area indicating that the portion of the lot containing limitations excluded by the lot area definition, and a statement of the local number of lots and parcels, together with post office address for each lot;

- (4) A statement of the intended use of all non-residential lots. A statement of restrictions of any type which exist as covenants in the deed(s) for all lots contained wholly or in part in the subdivision and, if covenants are recorded, including the deed book and page number;
- (5) All proposed building (setback) and yard line requirements for each lot, or the proposed placement of each building, and the proposed location of on-site water and sewer facilities;
- (6) The location of all existing and proposed monuments;
- (7) All easements or rights of way where provided for or owned by public services and any limitations on such easements or rights of way. Easements or rights of way shall be specifically described on the plans. Legal descriptions shall be submitted for all easements with final plans to the Township for the Township Engineer to review. Upon request of the Board of Supervisors such easements shall be recorded. Easements should be located in cooperation with the appropriate public utilities;
- (8) Location, size, material used, invert elevation, and percent of grade of all sanitary and storm sewers and location of all manholes, inlets and culverts. This data may be submitted as a separate plan;
- (9) If the subdivision proposes a new street intersection with a state legislative route, the intersection permit number(s) shall be indicated for all such intersections;
- (10) A certification of ownership, acknowledgement of plan and offer of dedication shall be affixed on the plan, and shall be duly acknowledged and signed by the owner(s) of the property and notarized;
- (11) All waivers being requested by the applicant, as well as all waivers granted to the applicant by the Board, shall be clearly stated on the first sheet of the final plan submission with reasons for such

waiver request.

- (12) Certificate for approval of the plan by the Township Supervisors and by the Township Planning Commission shall be presented;
  - (13) The name (or number) and cartway width and lines of all existing public streets and the name and location of all other roads within the property;
  - (14) Any fees, whether required or agreed to by the developer, shall be clearly noted on the plan.
  - (15) The following data for the centerline of the cartway and both right of way lines of all recorded, and proposed streets, within and adjacent to the property:
    - (a) Courses and distances with length in feet and hundredths of a foot of all straight lines and of the radius and the arc (or chord) of all curved lines with delta angles including curved lot lines, and bearings in degrees, minutes and seconds for all straight lines; and
    - (b) The width in feet of the cartway, right of way and of the ultimate right of way, and (in degrees, minutes and seconds) of the delta angle of all curved lines, including curved lot lines.
  - (16) Certification as to the accuracy of the plan and details of such plans shall be prepared in accordance with Act 367, known as the Professional Engineers Registration Law.
  - (17) All notations on the plan must be readable. Illegible notations will be considered incomplete data on the plan.
- b. The final plan shall be accompanied by the following supplementary data:
- (1) A Final Erosion and Sediment Control Plan, prepared in accordance with Chapter 22, Grading,

Erosion and Sediment Control and Stormwater Management, of the Code of Ordinances of the Township of East Pikeland.;

- (2) A Final Stormwater Management Plan, prepared in accordance with Chapter 22, Grading, Erosion and Sediment Control and Stormwater Management, of the Code of Ordinances of the Township of East Pikeland.;
- (3) A Final Construction Improvements Plan, in accordance with Section 306.C.
- (4) A Final Landscaping and Buffering Plan, prepared in accordance with Section 1709 of the East Pikeland Zoning Ordinance.
- (5) Homeowners Association and /or Easement Documentation acceptable to the Township Board of Supervisors after review and acceptance by the Township Solicitor.

## SECTION 306 ACCOMPANYING DATA

### A. Erosion and Sediment Control Plan

An Erosion and Sediment Control Plan is required to accompany the preliminary and the final subdivision or land development plan. Said Plan shall include maps and reports, as necessary, prepared in accordance with Chapter 22, Grading, Erosion and Sediment Control and Stormwater Management, of the Code of Ordinances of the Township of East Pikeland.

#### 1. Purpose.

The purpose of the Erosion and Sediment Control Plan is to identify plans and techniques to be incorporated into the development proposal that regulate the modification of natural terrain during the site development process to ensure that:

- a. The disturbance of the site does not result in damaging erosion and sedimentation control problems in order to protect the health, safety and welfare of the Township residents. These objectives will be pursued at the Township level in conjunction with state requirements for erosion and sedimentation control, as defined in the Department of Environmental Protection Chapter 102

regulations, as amended, and defined in the Erosion and Sediment Pollution Control Program Manual;

- b. The site design and preparation incorporates necessary steps to ensure the successful installation and long-term operation of erosion and sedimentation control and stormwater management facilities as defined in Section 306.B of this Ordinance;
- c. The goals and objectives for the implementation of the East Pikeland Park, Recreation and Open Space component of the Comprehensive Plan, as amended, and regulated in Section 424 of this Ordinance, are linked with other land development concerns;
- d. The disturbance and removal of topsoil is reduced and avoided as required by Section 423 of this Ordinance;
- e. The natural feature protection objectives of Section 425 are met.

2. General Provisions.

The following provisions shall be followed and incorporated into the development review and construction process.

- a. The applicant or applicant's agent shall prepare a soil erosion and sediment control plan in accordance with the provisions of this Section. The plan shall consist of a Phase 1 Plan and a Phase 2 Plan provided on separate sheets as described further under plan content. All land disturbance activities shall be conducted in such a way as to minimize erosion on adjoining and down-slope properties.

- 1) The applicant or applicant's agent undertaking land disturbance activity including, but not limited to grading, excavating, or disturbance of topsoil or vegetative cover, or introduction of fill material that may affect the existing flow of surface water within or down-slope from the subject parcel, shall be required to:

- Collect on-site run-off and manage its release to a point of discharge into a natural watercourse of the drainage area,
- Protect and clean the down-slope, and

adjoining properties of silt and debris washed from the subject property as a result of land disturbance activities on the subject property; and

- Install all drainage and erosion control improvements as required by the approved soil erosion and sediment control plan.
- 2) Measures to minimize soil erosion and sedimentation shall meet the standards and specifications contained in the Pennsylvania Department of Environmental Protection, *Soil Erosion and Sediment Pollution Control Manual*, as amended and the Pennsylvania Clean Streams Law, Chapter 102, Erosion and Sedimentation Control Rules and Regulations, as amended and the specifications contained herein. The Township Engineer or other duly authorized agent shall ensure compliance with the appropriate specifications.
  - 3) The Township may require measures to be incorporated into the plan for erosion and sediment control in addition to and/or more stringent than those required by the PA DEP Manual, or by the Chester County Conservation District.
- b. The disturbed area and the duration of exposure shall be kept to a practical minimum and the disturbed soils shall be stabilized immediately after earth disturbance ceases.
- 1) The erosion control and stormwater management structures and systems shall be installed in accordance with the approved sequence of construction and shall be completed as quickly as possible.
  - 2) If runoff from a project area discharges to a stream that is classified as Special Protection (High Quality of Exceptional Value) as designated by Pennsylvania Code 25, Chapter 93; Water Quality Standards, as amended, more stringent criteria shall be used to design best management practices for that site in accordance with the Erosion and Sediment Pollution Control Program

Manual. All graded surfaces shall be stabilized immediately upon completion of any earth disturbance activity, or any stage or phase of an activity, and shall be watered, tended, and maintained as necessary until growth is well established.

- c. Whenever feasible, natural vegetation shall be retained, protected and supplemented.
- d. Sediment laden water shall be trapped by the use of erosion and sediment control best management practices (BMP) such as inlet protection, sediment basins, sediment traps, or similar measures until the disturbed area is permanently stabilized and BMP removal is approved by the Chester County Conservation District. Accumulated sediment shall be removed to ensure continued adequate capacity in the BMPs in accordance with the PA DE Manual.
- e. A grading, excavation, erosion and sediment control plan shall be submitted with the preliminary and final plan applications. Such plan shall be submitted in accordance with the Pennsylvania Department of Environmental Protection, *Erosion and Sediment Pollution Control Manual*, as amended, and the *Special Protection Waters Implementation Handbook*, as amended and in compliance with the most current review requirements of the Chester County Conservation District.
  - 1) When required by the most recent regulations of the Pennsylvania Department of Environmental Protection, development plans will be filed by the Conservation District with the Department of Environmental Protection for issuance of a National Pollutant Discharge Elimination System (N.P.D.E.S.) permit.
  - 2) Soil erosion and sediment control plans shall incorporate facilities for stormwater management in accordance with the policies and regulations of the Chester County Conservation District and the stormwater management plan required by Section 306.B (stormwater management requirements).
  - 3) Upon recommendation from the Township Engineer, the Township may require the

submission of plans, regardless of their size or other outside review requirements, to the Chester County Conservation District for review and approval. In such a case, approval by the Chester County Conservation District shall be required before final approval of a subdivision or land development, or the issuance of a building permit in the case of a minor subdivision.

- f. There shall be no increase in discharge of sediment or other solid material from the site as a result of runoff;
- g. Erosion and sedimentation control BMPs, whether temporary or permanent, such as vegetation and mulch, earthen berms, water bars, diversion terraces, rock filter berms, rock construction entrances, sediment basins, silt fences, and the like, appropriate to the scale of operations, shall be constructed, stabilized and functional before site disturbance (other than the minimal site disturbance necessary to install the BMPs) begins within the tributary areas of those BMPs, and whenever any situation is created which would contribute to increased soil erosion;
- h. Earthmoving operations shall be minimized where possible and practicable to preserve desirable natural features and the topography of the site;
- i. Stripping of vegetation, re-grading or other development shall be done in such a way that will minimize soil erosion;
- j. To the maximum extent practicable, mature, healthy trees of at least six (6) inches in caliper and other significant existing vegetation shall be retained and protected. Such trees shall not be removed, except as provided on the approved subdivision and/or land development plan. The filling of soil more than five (5) inches over the roots of trees to be preserved is prohibited (The roots are presumed to extend out from the tree as far as the tree's branches extend outward);
- k. Land disturbance shall be limited to the actual construction site and an access strip. The amount of disturbed area and the duration of exposure shall be kept to a practical minimum. Disturbed areas shall be stabilized immediately upon completion of an earth

disturbance activity or any stage or phase of an activity with an appropriate BMP;

- l. Provisions shall be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development. Water runoff shall be minimized and retained on-site wherever possible to facilitate groundwater recharge;
- m. Temporary vegetation and/or mulching shall be used to protect critical areas during development (Critical areas shall be construed to mean those portions of a site which are extremely vulnerable to soil erosion);
- n. The permanent final vegetation and structural soil erosion control and drainage measures shall be installed as soon as practical in the development in accordance with the approved plans;
- o. Sediment in the runoff water shall be trapped until the disturbed area is stabilized by the use of debris and sediment basins, silt fences or other approved measures. Sediment deposits in basins, silt fences, and the like, shall be removed at periodic intervals during the construction period, as required.
- p. Sediment removed from best management practices shall be disposed of in landscaped areas outside of steep slopes, wetlands, floodplains or drainage swales and immediately stabilized.
- q. Until the site is stabilized, all best management practices for erosion and sediment pollution control must be maintained properly. Maintenance must include inspections of all best management practices after each run-off event, and on a weekly basis. All preventive and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, re-mulching and re-netting must be performed immediately.
- r. If erosion and sediment pollution control best management practices fail to perform as expected, replacement best management practices or modifications of those installed will be required as determined by the Township Engineer.
- s. Should it be necessary, any pumping of sediment-laden

water shall be through a sediment control BMP, such as a sediment basin or a pumped water filter bag discharging over non-disturbed areas.

- t. All earth disturbance activities shall proceed in accordance with the approved sequence of construction or staging of earth moving activities as it may be called. Each stage shall be completed before any following stage is initiated. Clearing and grubbing shall be limited to only those areas described in each stage.
3. The following practices shall be required for all subdivisions and/or land developments, where applicable, as determined by the Township Engineer.
- a. Silt fence shall be installed on each subdivision lot down-slope of the disturbed area prior to any lot disturbance. Straw bale barriers shall not be used;
  - b. The appropriate E&S BMPs shall be placed at all inlets, headwalls, basin outlets and similar drainage structures during the construction period in order to prevent sediment from entering any watercourse, storm drainage system, or system that does not discharge to an E&S BMP, adjoining property, or other areas downstream;
  - c. Each individual lot within a subdivision, or each building within a land development shall incorporate temporary on-lot berms designed to act as sediment traps and to capture and reduce runoff. These shall be located to protect environmentally sensitive areas and downstream properties, shall be required during construction. The top width of the berms shall be a minimum of three (3) feet, with side slopes of a 3:1 maximum;
  - d. Rock construction entrances shall be placed at all entrances to construction areas. Rock construction entrances shall be of sufficient width and length to prevent transportation of sediment off of the construction site;
  - e. Temporary and permanent seeding and mulch specifications shall be noted on all plans. The specifications shall include lime and fertilizer rates of application, as well as other provisions regarding procedures and materials. All locations where earthmoving has ceased for more than one (1) day shall

be stabilized with temporary seeding or mulch;

- f. During roadway grading, water bars shall be installed on all roadway sub-grades to prevent erosion of the sub-grades. The water bars shall divert stormwater runoff to an appropriate best management practice;
- g. The crushed stone base course for driveways, roadways and parking areas shall be applied immediately after grading procedures, in order to prevent soil erosion of the sub-grade. All construction and trade vehicles must access a site by the crushed stone driveway and not across the unstabilized earth area. Construction vehicles shall not track mud onto paved drives or roads;
- h. Drainage swales and ditches, and all slopes greater than three (3) to one (1) shall be protected against erosive velocities with E&S BMPs, such as erosion control blanket or other material, as determined by the Township Engineer.

4. Plan Content.

The Erosion and Sediment Control Plan shall be prepared to consist of two phases on the base plan for preliminary and final plans as follows:

- a. The Phase 1 Erosion and Sediment Control Plan shall be prepared on a separate sheet showing all existing features on the site, including the perimeter boundaries. The Phase 1 Plan shall show only the minimum earthmoving necessary to install the Erosion and Sediment Control measures. Wholesale topsoil stripping or complete earthmoving necessary to build the project shall not be shown. That is, this plan must show the erosion and sediment control items that are required to be in place prior to the start of any large scale earth disturbance
- b. The Phase 2 Erosion and Sediment Control Plan shall be prepared on a separate sheet. It shall show the complete and final earth disturbance elements of a preliminary or final plan relating to grading, storm drainage, impervious coverage and the like which may affect the design of erosion control and stormwater management facilities. Phase 2 plans shall show the complete and final E & S BMPs proposed to control erosion and stormwater runoff

related to construction of these elements. Depending on the complexity of the proposal and the time expected to complete all improvements, more than just a phase two plan may be required, at the discretion of the Township Engineer, in order to demonstrate and assure the control of erosion, sediment and stormwater based on intermediate/partially completed stages of construction. If a preliminary or final plan is itself proposed in phases, a separate Erosion and Sediment Control Plan shall be prepared for each phase.

- c. Locations of all soil types per the Chester County Soil Survey along with a tabulation including special notation of seasonally high water table soils, hydric soils, shallow depth to bedrock or other limiting factors. The tabulation of the soils present on site shall include their hydrologic soil group.
  - d. Location and results of all soil percolation tests and deep probes whenever on-site disposal of sewage is planned.
  - e. Location and results of all soil infiltration testing where stormwater best management practices incorporate groundwater recharge.
  - f. Notations including: all trees or portions of tree masses proposed to be cleared as part of the proposed subdivision or land development plan, together with reasons for such clearing; all proposed alterations of the natural grade, whether by cut or by fill, exceeding two (2) feet, together with reasons for such alteration; compliance with all applicable erosion and sedimentation control standards.
  - g. Limit of disturbance lines and any protective fencing which may be proposed, such as, but not limited to, that area around on-lot sewage disposal areas, stormwater infiltration areas, and individual trees or tree masses.
5. A required element of any Erosion and Sediment Control Plan shall be a plan for the control of erosion and sedimentation and for stormwater management. Any preliminary and final Erosion and Sediment Control Plan for subdivision or land development must be accompanied by a stormwater management plan as provided in Section 306.B. Contents of the submitted plan shall reflect discussion by the applicant with the Township Engineer. The minimum components of the Erosion and Sediment Control

Plan are as follows:

- a. A narrative summary of the project, including:
  - (1) General description of the project.
  - (2) General description of accelerated erosion control.
  - (3) General description of sedimentation control.
  - (4) General description of stormwater management, both during and after construction.
  - (5) Date project is to begin and expected date final stabilization will be completed.
- b. Proposed alterations to the project area, including:
  - (1) Structures, roads, paved areas and buildings.
  - (2) Proposed stormwater control facilities.
  - (3) Finished contours including areas of cuts and fills.
  - (4) Changes to vegetative cover.
- c. Calculations and description of the amount of runoff from the project area to swales, pipe discharge points, temporary and permanent basins, sediment traps, etc. Calculations shall be performed for both during and after development. Such calculations shall demonstrate that the capacity of the system to control erosion and to prevent sediment discharges is sufficient to control velocity and quantity of discharge to acceptable limits;
- d. The staging of earthmoving activities, described in the narrative, including:
  - (1) Cover removal, including all cuts and fills.
  - (2) Installation of erosion and sediment control facilities and practices.
  - (3) Installation of improvements, including streets, storm sewers, underground utilities, sewer and water lines, buildings, driveways, parking areas,

recreational facilities and other structures.

- (4) Program of operations to convert erosion and sedimentation controls to permanent stormwater management facilities, including a chart of the relative time sequence of activities.
- e. Temporary control measures and facilities for use during earthmoving, in both map and narrative form, including
- (1) Purpose.
  - (2) Temporary facilities or other soil stabilization measures to protect existing trees and shrubs from earthmoving activities.
  - (3) Types, locations and dimensioned details of erosion and sedimentation control measures and facilities. Details shall be standard construction details, per the PA DEP Manual. Details of any BMP not contained in the Manual shall be provided per manufacturer specifications.
  - (4) Design considerations and calculations of measures and facilities to control excess stormwater created by runoff from graded areas.
  - (5) Facilities to prevent tracking of mud by construction vehicles onto existing roadways.
- f. A narrative description of the maintenance procedures for both temporary and permanent control facilities, and of ownership arrangements, including:
- (1) The methods and frequency for removal of, and ultimate disposal for, sediment and other materials removed from control facilities, both during and upon completion of the project.
  - (2) The proposed ownership and financial responsibility for the maintenance of the permanent control facilities.

6. Standards for Grading: Excavation and Fill Requirements

- a. No excavation or fill shall be made with an exposed face steeper in slope than three (3) horizontal to one (1)

vertical, except under one or more of the following conditions:

- (1) The material in which the excavation or fill is to be made is sufficiently stable to sustain a slope of steeper than three (3) horizontal to one (1) vertical, and a written statement to that effect by a licensed professional engineer experienced in erosion control is submitted and approved by the Township Engineer. The statement shall certify that the site has been inspected and that the deviation from the slope specified will not result in injury to persons or damage to property of increased erosion and resulting sedimentation.
- (2) All retaining walls shall be designed and approved in accordance with the following:
  - (a) Retaining walls to support the face of excavation shall not exceed a maximum height of five (5) feet or a stepped level or terraced retaining wall system with a combined maximum height of ten feet.
  - (b) Retaining walls greater than 3.5 feet in height shall have a protective pedestrian guard fence meeting the specification of the Township Building Code.
  - (c) All retaining walls shall be designed by a Pennsylvania registered Professional Engineer whose signature and seal shall appear on the Final Plan. In-lieu-of a seal on the final plan, final plans may contain a note deferring the professional design to a later Shop Drawing submittal to be reviewed by the Township Engineer.
  - (d) Developers or Applicants shall be required to retain the services of a professional geotechnical engineer to inspect construction of all retaining walls for compliance with the Township approved design drawings. This geotechnical engineer shall provide a written certification to the Township that all retaining walls were constructed in

accordance with the design plans prior to final Township approval of the improvements.

- b. The Township Engineer may require a flatter slope when it is found that the material in which the excavation is to be made is unusually subject to erosion or if other conditions exist which make such a shallower slope necessary for stability and safety.
- c. The top or bottom edge of slopes shall be located at least five (5) feet from property lines, in order to permit a gradual rounding of the edge without encroaching onto the abutting property.
- d. Excavation shall not exceed below the angle of repose or natural slope of the soil under the nearest point of any footing or foundation or any existing building or structure unless such footing or foundation is firstly properly underpinned or protected against settlement.
- e. Grading shall not redirect or concentrate surface water onto an adjacent property.
- f. During grading operations, necessary measures for dust control to prevent particulate matter from becoming airborne shall be followed. These measures shall include, but not be limited to the following:
  - (1) A tire cleaning area shall be provided at each point of egress from the development areas;
  - (2) Use, where possible, of water or other method approved by the Township Engineer for control of dust during any land disturbance activity; and
  - (3) Prompt removal of earth or other material from paved streets.
- g. Grading equipment shall not be allowed to cross permanent or intermittent streams without first obtaining appropriate permits from the Pennsylvania Department of Environmental Protection.
- h. No applicant shall engage in land disturbance activities that endanger any adjoining property, public street, sidewalk, alley or other property from settling, cracking or

other damage which might result from such land disturbance. If in the opinion of the Township Engineer, the land disturbance would create a hazard to life or property unless adequately safe-guarded, the applicant shall construct walls, fences, guardrails, or other structures to safeguard the adjoining property, public street, sidewalk, alley, or other property and persons.

- i. Excavation or fills shall not encroach on natural watercourses, flood plain areas, constructed channels, or wetlands without the necessary state and federal permits. Excavations or fills located adjacent to natural watercourses or constructed channels shall have suitable protection against erosion.
- j. All fill shall be compacted to provide stability of material and to prevent undesirable settlements. The fill shall be spread in a series of layers, not exceeding twelve (12) inches in thickness, and be compacted by a sheepsfoot roller or other approved method after each layer is spread. The Township Engineer may require compaction tests and reports.
- k. Adequate provisions shall be made to prevent surface waters from damaging the cut face of an excavation or the sloping surface or a fill within the area of a proposed subdivision or land development. Slopes of more than ten (10) feet in vertical height shall be separated by level berms of at least four (4) feet in width within which ditches shall be constructed where necessary to prevent erosion and as a safe place to deposit and receive such water. The Township Engineer may require such drainage structures or pipes to be constructed or installed which are perceived necessary to prevent erosion damage and to satisfactorily carry off surface waters.

## 7. Grading for Drainage

- a. All lots, tracts or parcels shall be graded to provide property drainage away from buildings with a minimum slope of two 2% percent, and to dispose of water without ponding. All land within a development shall be graded to drain and dispose of surface water without ponding, except where ponding as in the case of detention basins, is part of the stormwater management system for the proposed subdivision or land development

- b. All drainage provisions shall be of such design to adequately handle the surface runoff and carry it to the nearest suitable outlet. Where drainage swales are used to direct surface waters away from buildings, they shall be sodded or planted as required.

#### 8. Vegetative Cover

- a. Removal of trees, tree clusters and associated vegetation layers as a result of earth movement shall be kept to the absolute minimum as defined in Section 425. Wherever possible, existing vegetation shall be retained and protected.
- b. The appropriate measures, as defined in Section 425 shall be taken to protect existing trees, tree clusters, and associated vegetation.
- c. Removal of any portion of existing vegetation shall be done in such a manner as to minimize erosion and sedimentation.

#### 9. Responsibility

- a. Whenever sedimentation is caused by the removal of vegetation, re-grading or other development, it shall be the responsibility of the applicant or applicant's agent causing such sedimentation to remove it from all adjoining surfaces, drainage systems and watercourses and to repair any damage at his or her expense within a time period acceptable to the Township.
- b. No applicant shall block, impede the flow of, alter, construct any structure, or deposit any material or thing, or commit any act that will affect normal flood flow in any stream of watercourse without having obtained prior approval from the Pennsylvania Department of Environmental Protection, and the Township.
- c. Where a subdivision or land development is traversed by a watercourse, a drainage easement or right-of-way shall be established along the line of such watercourse, and of adequate width to preserve natural drainage.
- d. All required drainage and erosion control improvements, whether temporary or permanent, shall be installed by the applicant or applicant's agent, at their expense, and in accordance with applicable requirements.

## 10. Compliance with Regulations and Procedures

- a. The Township, in considering preliminary subdivision and land development plans shall condition its approval upon the execution of soil erosion and sediment control measures as required by this Ordinance.
- b. Each application shall contain a commitment to submit for approval, a modified soil erosion and sediment control plan should the proposed plan prove to be inadequate prior to final release of escrow and dedication of improvements.

### B. Stormwater Management Plan

A Stormwater Management Plan is required to accompany the preliminary and the final subdivision or land development plan. Said Plan shall include maps and reports, as necessary, prepared in accordance with Chapter 22, Grading, Erosion and Sediment Control and Stormwater Management, of the Code of Ordinances of the Township of East Pikeland.

#### 1. Purpose.

The purpose of the Stormwater Management Plan is to identify practices and techniques that shall be incorporated into all subdivision and land development proposals that will ensure that stormwater management plans of the proposed development address the following concerns:

- a. The disturbance of the site does not result in damaging stormwater runoff problems in order to protect the health, safety and welfare of the Township residents. These objectives will be pursued at the Township level in conjunction with state requirements for stormwater management, as defined in the Pennsylvania Stormwater Management Act (Act 167), as amended;
- b. Protect water quality, enhance groundwater availability and reduce flooding potential through effective stormwater management, as detailed in the Pennsylvania Stormwater Best Management Practices Manual, December 2006 (BMP Manual), as amended.
- c. The site design and preparation incorporates necessary

steps to ensure the successful installation and long-term operation of stormwater management facilities;

- d. The goals and objectives for the implementation of the East Pikeland Park, Recreation and Open Space component of the Comprehensive Plan, as amended, and regulated in Section 424 of this Ordinance, are linked with other land development concerns;
- e. The natural feature protection objectives of Section 425 of this Ordinance are maintained;
- f. Potential flooding hazards and damage as a result of increased rates and volumes of stormwater runoff from the proposed development site both during and after the construction phase are identified and adequately addressed;
- g. The project, as proposed, will neither increase the present size of the flood plain or the frequency of floods that occur within the floodplain;
- h. Stream banks and beds will not be adversely affected by increase flow rates or volumes, leading to the erosion or realignment of existing channels;
- i. Increases in stormwater runoff shall, where feasible, be recharged to groundwater that will reduce stream flows through reduction of recharge of local groundwater since ground water reserves provide the base flow in streams;
- j. Prevent the pollution of surface water resources from non-point sources resulting from increased development and runoff. Such pollution results from the introduction of increased impervious cover, loss of natural vegetation cover which acts to purify stormwater runoff, and collection of pollutants linked to development;
- k. Protect local water resources through groundwater recharge. Local aquifers depend upon rainfall to maintain existing groundwater table levels, as well as existing groundwater quality;
- l. Prevent increased stormwater flows that will result in increasing erosion and sedimentation problems, both on and off the site, loss of valuable topsoil and damage of property, natural and man-made drainage facilities and natural resources.

- m. Traditional stormwater management techniques have resulted in space-consuming, unsightly, difficult to maintain basins and facilities which often do not function as intended, become safety hazards, and conflict with environmental preservation goals of the community.
- n. The provisions of the Stormwater Management Plan shall be held to be minimum requirements to meet the above-stated purposes. Where the provisions of this Chapter impose greater restrictions than those of any other statute, ordinance or regulation, including, but not limited to the BMP Manual, the provisions of this Chapter shall prevail. Where the provisions of any other statute, ordinance or regulation (including BMP manual) impose greater restrictions than those of this Chapter, the provisions of such statute, ordinance or regulation shall prevail.

2. General Provisions.

The following provisions shall be followed and incorporated into the development review and construction process:

- a. The landowner or developer shall construct and/or install drainage facilities as are required by this Ordinance or any other Township, County or State requirements, to prevent soil erosion, damage, siltation, and to satisfactorily manage stormwater to prevent the impairment of public safety or physical damage due to the concentration of stormwater runoff onto adjacent properties. All land areas shall be graded to secure proper drainage away from buildings, on-site sewage disposal systems, and to prevent the uncontrolled collection of stormwater in pools. The system shall be designed to, as much as possible, collect and recharge water.
- b. The rate of stormwater runoff from any proposed subdivision or land development shall not exceed the rate of runoff prior to development. Subparagraph 5 of this subsection outlines requirements for design of stormwater management systems that incorporate ground water recharge as an essential element in order to control quantity of discharge. The distribution of drainage discharge from the developed properties shall replicate that of before development conditions to the

maximum extent possible. The methodology and facilities used shall be based on the anticipated flows and conditions of each particular site.

- c. The stormwater management plan for each subdivision or land development proposal shall take into account and provide for the peak rate and volume flows of other areas in the watershed to ensure that cumulative problems are not increased as a result of flows from the proposed project. This analysis shall also explore possibilities to share stormwater management facilities with other areas in the watershed, in which case consultation with the Township shall be required prior to design.
- d. Recharge facilities, detention facilities, storm sewers, culverts, bridges and related drainage installations shall be provided:
  - (1) To permit unimpeded flow of natural watercourses. Such flow may be redirected as required, subject to the approval of the Pennsylvania Department of Environmental Protection;
  - (2) To insure adequate drainage of all low points as may be related to streets;
  - (3) To intercept stormwater runoff along streets at intervals reasonably related to the extent and grade of the area drained to prevent flow of stormwater across intersections, and to prevent the flooding of intersections during the design storm;
  - (4) To insure adequate and unimpeded flow of stormwater under driveways in, near, or across natural watercourses or drainage swales. Properly sized pipes or other conduits shall be provided, as necessary;
  - (5) To prevent excessive flow on or across streets, sidewalks, drives, parking areas, and any other paved surface or access-way;
  - (6) To lead stormwater away from springs.

To this end, the storm drainage system serving

the street shall be designed to collect water at any point where three (3) to five (5) cubic feet per second is accumulated, and the bottom of all vertical grades, and immediately upgrade of all street intersections. The system shall discharge any collected water which is not recharged, into the nearest practical natural drainage channel or storm system;

- e. All natural streams, channels, swales, drainage systems, and/or areas of concentration of surface water shall be maintained in their existing condition unless alteration is approved by the Township. In any event, all encroachment activities shall comply with Chapter 105 of the Commonwealth of Pennsylvania's Department of Environmental Protection, Dam Safety and Waterway Management Rules and Regulations.
- f. Man-made structures shall be kept to a minimum and bridges, culverts, or rip-rap shall be constructed to maintain natural characteristics of the stream and shall meet the approval of the Township.
- g. For the purpose of this subsection, streams and intermittent streams are defined as those watercourses depicted on the East Pikeland Township Zoning Map, the USGS Quadrangle maps of the area, and/or determined as such pursuant to an on-site survey by the Township or their representatives.
- h. Retention/detention basins shall be designed to utilize the natural contours of the land. When such design is impracticable, the construction of the basin shall utilize slopes as shallow as possible to blend the structures into the existing terrain. The use of multiple retention/detention facilities, which are smaller and less intrusive on the site, is encouraged to meet the requirements of this Section.
- i. All areas containing lakes, ponds, wetlands and watercourses shall be considered to be reserved for permanent open space. Any alteration, development, filling, piping or diverting of such water resources shall be in strict compliance with the provisions of the Zoning Ordinance, especially those pertaining to the Flood Plain District, and all prevailing rules and regulations of State and Federal agencies. The Township recognizes the use

of wetlands as potential components of stormwater management facilities and encourages such innovative use if assurances are met that conservation measures are adequate and that all Federal and State requirements are satisfied.

- j. The Board of Supervisors may require that a landowner or developer provide reasonable corrective measures to alleviate an existing off-site drainage problem that may be affected by the proposed subdivision and/or land development or could be mitigated by providing stormwater management facilities on the property proposed for subdivision and/or land development. It shall be the responsibility of the landowner or developer to obtain all drainage easements on, over, or through other properties, and the Township, its agents, workmen, servants and employees shall be indemnified and held harmless from any liability.
- k. Any water originating from non-natural sources, such as swimming pools, air conditioning units, sump pumps, roof drains, or other similar flow, shall be properly discharged into a recharge facility or natural watercourses on the property or connected to an existing or proposed storm drainage system as approved by the Township. Polluting matter from such sources may not be deposited into natural watercourses or storm drains.
- l. Any water originating from non-natural sources, as referenced above shall not be discharged onto any street or other public right of way used for pedestrian or vehicular access.
- m. All building foundations, grade slabs, and cellar floors located in soils that have a community development limitation degree of moderate to severe seasonal high water table (as defined in the Chester County Soil Survey) shall be provided with an under-drain system. This system shall provide for drainage of the enclosed volume above the slab, and relief of subsurface water to a depth of not less than eighteen (18) inches below the slab or foundation bottom. The system shall consist of a perforated pipe field of the herringbone or gridiron configuration in course, gravel-filled trenches that are in direct contact with the slab or foundation sub-base. The excavation shall provide a minimum of five one-hundredths (0.05) foot/foot slope to the gravel-filled

trenches.

3. Preliminary Stormwater Management Plan Contents.

The Preliminary Stormwater Management Plan shall include the following information:

- a. A narrative summary of the project, including but not limited to the following:
  - (1) General description of the project;
  - (2) A suitable map of the total watershed (a USGS Quadrangle map is sufficient);
  - (3) Plan requirements of Federal, State and County agencies with regard to stormwater management shall be listed and described in terms of proposed plan compliance;
  - (4) When control facilities, such as detention/retention basins are proposed for major subdivisions or land development projects, soil structures shall be investigated and analyzed. Plans and data shall be prepared and submitted by a licensed professional engineer with experience and education in soil mechanics. These reports should consider recharge capability and recharge system applicability and offer design suggestions for frost heave potential, shrink-swell potential, soil bearing strength, water infiltration, soil settling characteristics, suitability of existing soils for placement of fill, fill and backfilling procedures and soil treatment required to protect the improvements or structure.
- b. Mapping of the Stormwater Management Plan shall be incorporated into and shown on the same plan sheets as the Erosion and Sediment Control Plan except as may be necessary to show additional details of construction. Details may be shown on separate sheets but shall be carefully cross-referenced.
- c. Additional information required shall include:
  - (1) An analysis of existing on and off-site drainage problems;

- (2) An analysis of all pre-development and post-development stormwater flows to and from the project area, including flows to all inlets, head walls, swales, channels, recharge components, basins, and other system facilities, and all supporting material;
- (3) Approximate locations and descriptions of stormwater management system components with a description of proposed system design and operation;
- (4) Preliminary runoff calculations and impacts; Calculations shall be submitted as a formal report. The formal report shall include a cover, the signature and seal of the responsible design professional, a table of contents, and a page number on each page.
- (5) Preliminary ownership and maintenance provisions for all stormwater related facilities.

4. Final Stormwater Management Plan Contents.

The Final Stormwater Management Plan shall include the following information:

- a. All requirements as set for the preliminary plan;
- b. Final location and layout of existing and proposed streets, buildings, actual building dimensions, parking areas and other impervious areas;
- c. Exact location, layout and description of stormwater management system;
- d. Detailed runoff calculations as set forth in this Section;
- e. Final ownership and maintenance provisions for all stormwater related facilities;
- f. Where the maintenance of stormwater management facilities and systems is the responsibility of an individual lot owner, the terms of that maintenance agreement and a description of the facilities and systems on the lot shall be set forth in perpetual covenants or deed restrictions

binding on the landowner's successors in interest and shall be noted on the final plan to be recorded

- g. All drainage easements shall be shown on the plan, defined by metes and bounds and have legal descriptions submitted to the Township Engineer for review and approval.

5. Stormwater Management System Design and Application.

To achieve the objectives outlined in Section 306.B.1 of this Ordinance, the Township encourages all proposed subdivision and land development projects to utilize stormwater management techniques that do not create any stormwater runoff from the site area. In some instances, this goal cannot be achieved due to site constraints. All proposed subdivision and land development projects in East Pikeland Township shall be required, however, to meet the following minimum stormwater management criteria:

a. Stormwater Runoff Control.

- (1) Peak Discharge - The peak rate of stormwater runoff discharge from any proposed subdivision or land development, assuming full development, shall not exceed the peak rate of discharge from the site prior to development based on the following criteria:

<u>Post Development Design Storm</u>	<u>Site Discharge Criteria vs. Pre-Development Storms</u>
1 year – 24 hour storm (99.9% annual chance)	75% (.75) of the 1 year – 24 hour storm
10 year – 24 hour storm (10% annual chance)	2 year – 24 hour storm
25 year (4% annual chance)	25 year
50 year (2% annual chance)	50 year

The reduction criteria for the 1 year and 10 year design storms will apply only to areas disturbed by the land development. The above design criteria are in addition to all required groundwater recharge requirements. Infiltration system volume shall not be used as part of the

storage volume necessary to achieve the above listed peak rate attenuation requirements.

- (2) Recharge Volume – In addition to the control of the rate of stormwater runoff, the volume of runoff from any proposed subdivision or land development, assuming full development, shall not exceed the volume of discharge from the site prior to development based on the following criteria. To the extent that a site is made impervious as a result of proposed development, recharge requirements are set at a specified volume equal to the runoff of a two (2) year, twenty-four (24) hour storm (3.3 inches of rainfall) per unit area of new impervious surface.

In addition, to the extent that a site is made less pervious by development (re-grading, re-compaction, loss of vegetation, or any land disturbance), but not made totally impervious, a recharge volume requirement of one (1) inch per unit area is required as well. Runoff volumes shall be calculated using the Soil Cover Complex Method of the NRCS. The applicant is required to include these calculations in the volume requirements to be accommodated by the stormwater management system. Infiltration systems shall always be designed such that failure of the infiltration component does not eliminate compliance with the required peak rate attenuation capability of the BMP.

- (3) Stormwater Distribution - The distribution of runoff from the developed property onto adjacent properties shall, to the maximum extent possible, be in the same direction as that which existed before development. No new concentrations of stormwater discharge will be permitted.
- (4) Runoff Control Devices – The increased runoff that may result from subdivisions or land developments shall be controlled by permanent runoff control measures that will provide the required runoff control specified above. All runoff control devices will be evaluated for the effectiveness to maintain the above mentioned standard for all storms within a return period of up

to one hundred (100) years and may be required to control storms of one (1), two (2), five (5), ten (10), twenty-five (25), fifty (50) and one hundred (100) year frequency.

- b. Stormwater Systems Application Hierarchy – Stormwater management methods shall be utilized to develop a stormwater management plan which will lead to the maximum retention of the quantity of stormwater in the site with groundwater recharge. The stormwater management practices to be utilized in developing a stormwater management plan shall be designed and provided according to the following order of preference:

- (1) Infiltration of runoff on-site;
- (2) Stormwater retention structures;
- (3) Flow attenuation by use of open vegetated swales and natural depressions; and
- (4) Stormwater detention structures.

A combination of successive practices may be used to achieve the applicable minimum control standards. Justification shall be provided by the applicant for rejecting higher preference choices in favor of other alternatives.

Methods of stormwater control may include one or more of the following Best Management Practices:

- (1) Utilization of minimum disturbance/minimum maintenance practices;
- (2) Decreased impervious area coverage;
- (3) Porous pavement with underground recharge beds;
- (4) Seepage pits, seepage trenches, or other infiltration structures;
- (5) Cisterns and underground reservoirs;
- (6) Routed flow over grass;
- (7) Grassed channels and vegetated strips;
- (8) Roof-top storage; and
- (9) Detention basins.

The use of other control methods that meet the criteria of this Ordinance in this Section will be permitted when approved by the Township Engineer. Various combinations of methods should be tailored to suit the

particular requirements for the type of development and the local site conditions.

6. Stormwater Recharge Systems Requirements

- a. Determination of the requirements for recharge shall be based on the portions of the site that are pervious prior to development and the degree to which the development will reduce the permeability of the site. A recharge volume as required by Section 306.B.5.a.(2) is to be provided.

Permeability of the site shall be based on Hydrologic Soil Classifications derived from the Engineering Field Manual from the Natural Resource Conservation Service of the U.S. Department of Agriculture.

The site should be evaluated early in the design process so that the best soils for stormwater recharge system locations can be identified prior to finalizing the site design layout. The proposed layout and grading plan shall not preclude potential BMP locations. Site evaluation and soil infiltration testing shall follow the guidelines of the BMP Manual, Appendix C, Protocol 1 as amended. Where applicable, the infiltration rate shall be adjusted by the reduction factor defined in Protocol 1 and the safety factor defined in Protocol 2 of the BMP Manual. In addition to the BMP Manual guidelines for infiltration testing, the applicant shall provide the following:

- (1) All tests shall include the 24-hour presoak procedure before testing. Presoaking is not required when infiltrometer testing is conducted.
- (2) Tests shall be conducted at the proposed bottom elevation of an infiltration BMP. At a minimum, 2 tests per infiltration BMP or 1 test per 1,000 square feet of infiltration area, whichever is greater, shall be provided.
- (3) Soil analysis and infiltration test methods and test locations shall be submitted to the Township Engineer for review and approval prior to testing. The Township Engineer shall observe all testing and will require that specific test pits and percolation data be obtained in order to approve

test result data and ensure that the proposed infiltration systems will function as designed.

- b. Design and Construction of Infiltration Systems shall follow the guidelines of the BMP Manual Appendix C Protocol 2, as amended, including, but not limited to, the following:

(1) Site Conditions and Constraints

- a) The lowest level of the infiltration area should generally be at least two (2) feet above limiting zones such as the Seasonal High Water Table and bedrock. If less than two (2) feet exists, filter media may be employed to remove pollutants.
- b) Infiltration BMPs should be sited so that any risk to groundwater quality is minimized, at least 50 feet from individual water supply wells, and 100 feet from community or municipal water supply wells. Horizontal separation distances or buffers may also be appropriate from Special Geologic Features, such as fractures, traces and faults, depending on water supply sources.
- c) Infiltration BMPs should be sited so that they present no threat to sub-surface structures, at least 10 feet down gradient or 100 feet up gradient from building basement foundations, and 50 feet from septic system drain fields unless specific circumstances allow for reduced separation distances.

(2) Design Considerations

- a) Do not infiltrate in compacted fill.
- b) Provide a level infiltration area (1% slope or less).
- c) Adhere to the following maximum Loading Ratios.
  - a. Maximum Impervious Loading

Ratio of 5:1 relating impervious drainage area to infiltration area.

- b. Maximum Total Loading Ratio of 8:1 relating total drainage area to infiltration area.
  - d) Infiltration BMPs shall be designed so that the drawdown time to completely empty the BMPs should be between 1 and 3 days. No allowance for infiltration occurring during the storm shall be considered.
  - e) All infiltration systems shall be designed with a positive overflow that discharges excess volume in a non-erosive manner and allows for controlled discharge during extreme rainfall events or frozen bed conditions. Infiltration BMPs should never be closed systems dependent entirely upon infiltration.
  - f) Water quality inlets, sumps, or other sediment removal facilities shall be provided to intercept sediments in stormwater flowing over paved areas.
  - g) A minimum soil cover of 12 inches is to be provided over subsurface infiltration beds which do not underlay paving.
- (3) Construction Requirements
- a) During construction, protect infiltration beds from compaction and prevent sediment from washing into infiltration BMPs.
  - b) Areas proposed for post-construction BMPs may be utilized as a sediment trap at an elevation 1.0 foot above the final bottom of the bed.

## 7. Stormwater Control System Design Requirements.

- a. Runoff Calculation. Runoff determination for detention basin design purposes shall be computed using the Soil Cover Complex Method and the procedures developed by the U.S. Department of Agriculture, Natural Resource Conservation Service, as outlined in the *Technical Release No. 55, Urban Hydrology for Small Watersheds* with specific attention given to antecedent soil moisture conditions, infiltration rate, flood routing, land use, topography, presence of streams or other forms of water conveyance and peak discharge, and *Hydrology National Engineering Handbook Section 4*. Other methods of runoff calculation such as the Rational Method may be used when approved by the Township Engineer. Computer modeling of hydrology and hydraulic performance is required.

In establishing the antecedent conditions for calculating runoff prior to land disturbance, the following assumptions shall apply:

- (1) Average antecedent moisture conditions;
  - (2) A type II distribution storm;
  - (3) Woodland shall be used as the prior condition for those portions of the site having trees of greater than six (6) inches caliper at 4.5 feet above the average grade at the base of the tree or where such trees existed within three (3) years of application.
  - (4) Meadow, good condition, shall be used for all other areas including areas of existing cultivation or impervious surface;
  - (5) In performing the TR-55 calculations, all those areas to be disturbed during construction shall be assumed to be reduced one Hydrologic Soil Group category level during post-development runoff calculations (i.e., HSG B is reduced to HSG C and so forth).
- b. Design of Retention/Detention Systems. All stormwater control systems must meet the minimum design requirements specified in this Section. The specific design of stormwater control systems should be prepared by the applicant based on the particular characteristics of

the site. The design of the system must incorporate the following:

- (1) The stormwater system application hierarchy from Subparagraph 5.e of this Section;
- (2) All Federal, State, County and Township stormwater control requirements;
- (3) PA SW BMP Manual December 2006 as amended;
- (4) Natural feature protection considerations, as specified in Section 425; and
- (5) Coordination with recreation and open space plans specified in Section 424.

Final design of all systems shall be based on review by the Township Engineer and the Chester County Conservation District. The Township urges the applicant to contact the Conservation District for design references to assist in the design of systems.

Where ground water recharge systems are proposed to serve more than one single family lot, the Township Engineer may require that specific test pits and percolation data be obtained to demonstrate that the proposed system will function as designed.

- c. **Setbacks.** Above or below ground stormwater detention or retention basins when designed for more than one lot or for a non-residential use shall be located no closer than fifty (50) feet from a structure whether existing or proposed.
- d. **Landscaping.** All stormwater control systems, whether existing or proposed, shall be planted to effectively naturalize areas so as to become an integral and harmonious element in the local landscape. No trees shall be planted in dams more than fifteen (15) feet high.
- e. **Stormwater Piping and Drainage System Design Requirements.**
  - (1) **Design Flow Rate.** The storm drain system shall be designed to carry a twenty-five (25) year peak

flow rate, and a fifty (50) year peak flow rate at the sump area. The design twenty-five (25) year peak flow rate into each inlet shall be indicated on the stormwater drainage plan. The twenty-five (25) year flow rate shall be determined by the rational formula,  $Q=CIA$ . Where:

Q = Peak runoff rate, cubic feet per second (CFS):

C = Runoff coefficient equal to the ratio of the runoff rate to the average rate of rainfall over a time period equal to the time of concentration;

I = Average rainfall intensity to inches per hour for a time equivalent to the time of concentration;

A - Drainage area in acres.

Approximate values for the runoff coefficient and rainfall intensity can be found in the following source:

Commonwealth of Pennsylvania  
Department of Transportation  
Design Manual, Part 2  
Highway Design  
Chapter 12

- (2) Overflow System. An overflow system shall be provided to carry flow to the detention basin when the capacity of the storm drainpipe system is exceeded. The overflow system shall be of sufficient capacity to carry the difference between the hundred (100) year and the twenty-five (25) year peak flow rates.
- (3) Inlet Capacity. All inlets must be designed to accommodate the twenty-five (25) year peak flow rate. The capacity of all C, M or S type inlets shall be determined from the following source:

Commonwealth of Pennsylvania  
Department of Transportation  
Design Manual, Part 2  
Highway Design

Capture and Bypass calculations must be submitted for all inlets.

Straight Pipe Sections. Wherever possible, all storm drainpipes shall be designed to follow straight courses. No angular deflections of storm sewer pipe sections in excess of five (5) degrees shall be permitted. No vertical curves shall be permitted in the storm drainpipe system.

- (4) Minimum Grade and Size. All storm drainpipes shall be designed to maintain a minimum grade of one-half (1/2) percent. All storm pipes shall have a minimum inside diameter of fifteen (15) inches, except that pipes under a twenty-five (25) feet or greater fill shall not be less than twenty-four (24) inches, or a cross-sectional area of four hundred fifty-three (453) square inches.
- (5) Pipe Material and Thickness. All storm sewers shall meet PennDot standards for service life and proper class and thickness to support the above fill material. Pipe type and joint specifications shall be noted on the plans and shall be in accordance with PennDOT standards.
- (6) Pipe Capacity. The capacity of all pipe culverts shall, as a minimum, provide the required carrying capacity as determined by the following sources:

United States Department of Transportation  
Federal Highway Administration  
Hydraulic Design Series No. 5  
Hydraulic Charts for the Selection of Highway  
Culverts

United States Department of Transportation  
Federal High Administration  
Hydraulic Engineering Circular No. 10  
Capacity Charts for the Hydraulic Design of  
Highway Culverts

- (7) Pipe Arches. Where headroom is restricted, equivalent pipe arches may be used in lieu of circular pipes.
- (8) Allowable Headwater Depth. At all inlets or

manholes, the maximum allowable headwater depth shall be one (1) foot below the top of the inlet grate of the manhole cover.

- (9) Horizontal Pipe Deflections. A manhole or inlet shall be provided at all horizontal deflections in the storm pipe system exceeding five (5) degrees.
- (10) Minimum and Maximum Cover. A minimum of eighteen (18) inches of cover shall be maintained over all storm drainpipes. The top of storm drainpipes shall be at least one-half (1/2) foot below sub-grade elevation.
- (11) Diversion or Runoff. All storm drainpipes shall be designed to carry the runoff into a detention basin or similar facility utilized to control the rate of runoff. No discharge at the top or side of basins embankments will be permitted.
- (12) Culverts and Drainage Channels.
  - (a) Design Flow Standard. All culverts and drainage channels shall be designed to carry a flow rate equal to a fifty (50) year, twenty-four (24) hour storm (Natural Resource Conservation Service, Technical Release No. 55).
  - (b) Erosion Prevention. All drainage channels shall be designed to prevent the erosion of the bed and bank areas. The flow velocity in all vegetated drainage channels shall not exceed three (3) feet per second to prevent erosion unless special provisions are made to protect banks and channel bottoms against erosion. Suitable bank stabilization shall be provided where required to prevent erosion of the drainage channels. Where storm sewers discharge into existing drainage channels at an angle greater than thirty (30) degrees from parallel with the downstream channel flow, the far side bank shall be stabilized by the use of rip-rap or masonry, and/or concrete walls. The stabilization shall be designed to prevent erosion and frost heave under and behind the stabilizing media.

- (c) Residential Subdivisions. Drainage channels shall be provided to intercept stormwater along property lines at locations where runoff from a single lot would drain onto a second lot. These channels shall convey water to a suitable discharge point or the storm pipe system.
  - (d) Maximum Side Slope. Any vegetated drainage channel requiring mowing of the vegetation shall have a maximum grade of three (3) horizontal to one (1) vertical on those areas to be mowed.
  - (e) Design Standard. Because of the critical nature of the vegetated drainage channels, the design of all vegetated channels shall, as a minimum, conform to the design procedures outlined in the PADEP – Erosion and Sediment Pollution Control Manual, latest edition. Several acceptable sources outline procedures for non-vegetated drainage channels, including the following:
    - Bureau of Public Roads
    - Hydraulic Engineering Circular No. 5
    - Hydraulic Charts for the Selection of Highway Culverts
  
    - Federal Highway Administration
    - Hydraulic Engineering Circular No. 13
    - Hydraulic Design of Improved Inlets for Culverts
  - (f) Reference to publications and source documents in this Section shall be deemed to include any amendments and revisions thereof.
- (13) Summary Table – A table shall be provided on the plan summarizing storm sewer information including; inlet numbers, inlet pipes, elevation of all grates, and all pipe inverts, pipe diameters and lengths, pipe material, etc. A similar table shall be provided summarizing the design information for all drainage channels.

- f. Stormwater Recharge Facilities Design Requirements
- (1) Additional Setbacks. Recharge facilities serving only one dwelling unit shall be sited at least ten (10) feet from any property line or basement wall, fifty (50) feet from any water supply well, and twenty-five (25) feet from any wastewater treatment or wastewater treatment system replacement area. All other recharge facilities, including, but no limited to, those serving non-residential uses or more than one residential dwelling unit shall be sited at least 50' from a property line, 50' down gradient or 100' up gradient from a basement wall, 50' from septic system drainfields, 50' from individual water supply wells and 100' from community or municipal water supply wells.
  - (2) Construction Phase Precautions. During site construction all recharge system components shall be protected from compaction due to heavy equipment operation or storage of fill or construction material. Recharge areas shall also be protected from sedimentation. All areas designated for recharge shall not receive runoff until the contributory drainage area has achieved final stabilization.
  - (3) System Overflow Design. All recharge facility designs shall incorporate measures to provide for the flow of runoff that exceeds the capacity of the system without increasing erosion or creating damage to any other retention/detention system components. All infiltration BMPs shall be designed with a conveyance method through, and exiting from, the system capable of handling the 100-year storm flow into the system.
  - (4) Construction Requirements. The following procedures and materials shall be required for all subsurface facilities:
    - (a) Excavation for the infiltration facility shall be performed with equipment that will not compact the bottom of the seepage bed/trench, or like facility.

- (b) The bottom of the bed and/or trench shall be scarified prior to the placement of aggregate.
  - (c) Only clean washed aggregate, with a 40% void ratio, free of fines, shall be allowed.
  - (d) The top and sides of all seepage beds, trenches, or like facilities shall be covered with drainage filtration fabric.
  - (e) Perforated distribution pipes connected to centralized catch basins and/or manholes with provisions for the collection of debris shall be provided in all facilities. The perforated pipes shall distribute stormwater throughout the entire seepage bed/trench, or like facility.
  - (f) Recharge facilities shall be designed in accordance with infiltration system guidelines of the BMP Manual Appendix C Protocol 2, as amended.
  - (g) The Township engineer is required to inspect construction methods. Shop drawings shall be submitted for all materials utilized in recharge facilities.
- g. Stormwater Detention/Retention Basin Facilities Design Requirements.
- (1) All detention/retention basins shall be designed to detain the peak rate of water resulting from the site for all design storms up to and including the fifty-year (50-year) frequency rainfall. Design storms shall be routed through the basin facilities excluding the volume of the basin required for stormwater infiltration/recharge
  - (2) Riser. A riser or other acceptable out-fall shall be provided at the outlet of all detention basins. The riser shall be constructed of pre-cast or poured in place concrete with controlled orifices. The concrete riser shall have a brick or stone masonry exterior extending from the concrete base to the

top of the concrete riser. The riser shall extend to an elevation one (1) foot below the crest elevation of the emergency spillway. The riser shall be designed so that the rate of outflow is controlled by the pipe barrel through the basin berm when the depth of water within the basin exceeds the height of the riser. A trash rack or similar appurtenance shall be provided to prevent debris from entering the riser. All risers shall have a concrete base attached with a watertight connection. The base shall be of sufficient weight to prevent flotation of the riser.

- (3) Maximum Depth of Detention Basins. The maximum depth of water in a detention basin shall be three (3) feet unless a greater depth is approved by the Township Engineer.
- (4) Emergency Spillway. Whenever possible, the emergency spillway for detention basins shall be constructed on undisturbed ground. Emergency spillways shall be designed according to the Natural Resource Conservation Service Engineering Field Manual. All emergency spillways shall be constructed so that the detention basin berm is protected against erosion. The minimum capacity of all emergency spillways shall accommodate the peak flow rate from the one hundred (100) year design storm.

Emergency spillways shall extend along the upstream and downstream berm embankment slopes. The upstream edge of the emergency spillway lining shall be a minimum of two (2) feet below the spillway crest. The downstream of the spillway lining shall, as a minimum, extend to the toe of the berm embankment and 10' beyond. The emergency spillway shall not discharge over earthen fill and/or easily erodible material, without a lining approved by the Township Engineer.

- (5) Anti-Seep Collars. Anti-seep collars shall be installed around the principal pipe barrel within the normal saturation zone of the detention basin berms. The anti-seep collars and their connections to the pipe barrel shall be watertight. The anti-seep collars shall extend a minimum of

two (2) feet beyond the outside of the principal pipe barrel. The maximum spacing between collars shall be fourteen (14) times the minimum projection of the collar measured perpendicular to the pipe.

- (6) Freeboard. Freeboard is the difference between the design flow elevations in the emergency spillway and the top of the settled detention basin embankment. The minimum freeboard shall be one (1) foot.
- (7) Slope of Detention Basin Embankment. The maximum slope of earthen detention basin embankments shall meet the requirements of Subsection (12) below. Straight side slopes and rectangular basins shall be avoided whenever possible.
- (8) Width of Berm. For dams less than 10' high a minimum top width of 6' is required. For dams 10' to 15' in height, a top width of 10' is required. For dams greater than 15' in height, the top width shall be designed by a professional engineer.
- (9) Slope of Basin Bottom. In order to insure proper drainage of the detention basin, a minimum grade of two (2) percent shall be maintained for all sheet flow. A minimum grade of one (1) percent shall be maintained for all channel flow. Retention or wet basins do not need a bottom slope.
- (10) Energy Dissipators. Energy dissipating devices (rip-rap, end sills, etc.) shall be placed at all basin outlets. Any pipe or other component which discharges directly into the basin shall be equipped with energy dissipating devices and shall outlet into the bottom of the basin.
- (11) Design Information. As part of the stormwater management plan and report, all design information shall be submitted, including, but not limited to, the following:
  - (a) A profile of the berm embankment and outlet structure indicating the embankment top elevation, embankment side slopes,

- top width embankment emergency spillway elevation, riser dimensions, pipe barrel dimensions, and dimensions and spacing of anti-seep collars.
- (b) Hydraulic computer model design computations for the pipe barrel and riser.
  - (c) A plot of the stage-storage (acre-feet vs. elevation) and all supporting computer modeling computations.
  - (d) Flood routing computations using a computer model approved by the Township Engineer.
  - (e) A detailed plan of the trash rack with a metal structure and rust inhibiting coating.
  - (f) A plan, to scale, showing the grading, landscaping, and fencing around the detention basin, if so required by the Board of Supervisors.
- (12) Landscaping and Grading of Detention Basin. All landscaping and grading standards shall be as follows:
- (a) Cuts. No excavation shall be made with a cut face steeper than three (3) horizontal to one (1) vertical, except under the condition that the material in which the excavation is made is sufficiently stable to sustain a slope of steeper than three (3) horizontal to one (1) vertical. A written statement to that effect is required from a civil engineer, licensed by the Commonwealth of Pennsylvania, having experience in soils engineering and must be submitted to the Township Engineer and approved by him.

The statement shall affirm that the site has been inspected and that the deviation from the slope should not result in injury to persons or damage to property. Retaining walls will be required if a stable slope

cannot be maintained. Any retaining wall must be designed by a Professional Engineer, inspected by the Developer's professional geotechnical engineer with a written certification that the retaining wall was installed in accordance with the design. The toe of the slope or headwall of any cut must be located a minimum of five (5) feet from property lines.

- (b) Fills. No fills shall be made which creates any exposed surfaces steeper in slope than three (3) horizontal to one (1) vertical, except where the fill is located so that settlement, sliding, or erosion will not result in property damage or be a hazard to adjoining property, streets, or buildings. A written statement is required from a civil engineer licensed by the Commonwealth of Pennsylvania having experience in soils engineering certifying that he has inspected the site and that any proposed deviation from the slope specified above should not endanger any property or result in property damage, and must be submitted to and approved by the Township Engineer.

A concrete or stone masonry wall designed and constructed in accordance with these specifications and standards may be required to support the face of the fill where the above-specified slopes are exceeded.

The top of any fill or toe of the slope of any fill shall be located twenty-five (25) feet from any property line with the exception of a downstream property line where the toe of the embankment shall be placed a sufficient distance to allow for energy dissipating devices, but in no case less than forty (40) feet unless approved otherwise by the Township.

- (13) Open Space, Storm Drainage, and Retention Areas.

- (a) Planting Requirements. All areas proposed for recreational use, whether active or passive, shall be planted to effectively naturalize the areas to become an integral and harmonious element in the natural landscape.
- (b) Drainage Channels and Retention Areas. All storm drainage channels and retention areas, whether existing or proposed, shall be graded and planted to effectively naturalize areas so as to become an integral and harmonious part of the landscape by contour and type of plant material employed. Retention areas shall be designed by an experienced wetlands biologist to have a mixture of plants (lawn is not acceptable) that thrive in wet areas.
- (c) All earthen basins shall be hydro-seeded with temporary and permanent grasses or other approved ground covers within seven (7) days after final grading.
- (d) Fence or Screening. A fence or suitable vegetation screen shall be provided around all detention basins as required by the Township Engineer. All fencing shall be at least three and one-half (3-1/2) feet in height and shall be composed of suitable material to prevent access by children. The vegetative screening requirement shall be waived only with the expressed consent of the Board of Supervisors.

8. Maintenance Responsibilities

a. General Responsibilities

- 1) The owner of stormwater management facilities shall be responsible for their property maintenance during and after development. A maintenance plan shall be prepared for review and approval by the Township Engineer. Where appropriate, maintenance responsibilities must be

included as deed restrictions on individual lots. During all subsequent real estate transactions, maintenance responsibilities shall be pointed out to new owners. All deeds shall incorporate these specified maintenance responsibilities, making explicit individual owners responsible for stormwater management measures and for the common property.

- 2) Upon or before completion of subdivision or land development improvements, the permanent stormwater management system for a tract shall be fully installed and functional in accordance with the approved stormwater management plan. Temporary sediment trapping facilities in detention basins, upon inspection and approval by the Township Engineer, shall be converted into permanent stormwater management basins; additional facilities designed to serve more than an individual lot shall begin operation. All such work shall be specified in the approved Plan.

b. Homeowners Association Ownership (Other than On-Lot Stormwater Facilities)

A single entity taking the form of a private corporation, partnership firm, estate or other legal entity empowered to own real estate exclusive of individual lot owners (i.e. Homeowners Association) shall be set up to manage stormwater management facilities. The entity shall be suitable for such management and shall be able to perform other functions defined in this Ordinance. Responsibilities for ownership and management of facilities shall be defined in the stormwater management plan.

c. Individual Lot Stormwater Facilities

- 1) Stormwater management facilities and systems that are located on an individual lot are the responsibility of that landowner to maintain. As with non-individual lot situations, a stormwater management plan must be prepared, including a maintenance plan which shall include:
  - a) Any obligations concerning perpetuation of natural drainage or infiltration facilities,

and/or the maintenance of facilities constructed by the individual lot owner under terms of the building permit (e.g., berms, cisterns, downspout connections, seepage pits, etc.)

- b) Assurances that no action will be taken by the occupant to disrupt or in any way impair the effectiveness of any stormwater management system.
- c) A description of the facilities and systems on the lot, as called for above, setting forth in deed restrictions binding on the landowner's successors in interest.

d. Municipal Ownership

Where the Township has accepted an offer of dedication of the permanent stormwater management facilities, the Township shall be responsible for the maintenance. Municipal ownership notwithstanding, the applicant is required to prepare a stormwater management plan including a maintenance plan component, as defined above. Upon approval of the stormwater management facilities by the Township, the applicant shall provide for maintenance guarantees as follows:

- 1) Long – Term Maintenance Bond – The long-term maintenance bond shall be in any amount equal to the present worth of maintenance of the facilities for a ten (10) year period. The estimated annual maintenance costs for the facilities shall be based on a reasonable fee schedule provided by the Township Engineer and adopted by the Board of Supervisors.
- 2) Documentation – The terms of the maintenance guarantees shall be documented as part of the stormwater management plan and the maintenance plan.

e. Failure of any person, individual lot owner or private entity to properly maintain any stormwater management facility shall be construed to be a violation of this Ordinance and is declared to be a public nuisance.

C. Construction Improvements Plan

The Construction Improvements Plan shall contain sufficient information to provide working plans for the layout and construction of proposed streets, utilities, stormwater retention structures, and other improvements. Information shall include, but not be limited to the following:

1. A statement describing proposed public improvements, including streets, curbs, sidewalks, and the means of water supply and sewage disposal to be provided.
2. Water Supply and Sewage Facilities

All plans shall be accompanied by planning Modules for Land Development provided by the Pennsylvania Department of Environmental Protection (DEP), including information with regard to the means of sewage disposal and provision of water supply.

a. Water Supply

- (1) Where off-site or central water service is proposed, the preliminary design of water distribution facilities including the size and location of water mains, fire hydrants, storage tanks and where appropriate, wells or other water sources.
- (2) Where individual on-site water service is proposed, approximate location of well sites.

b. Sewage Facilities

Sufficient information shall be provided to determine if the proposed subdivision or land development meets the recommendation and intent of the Township Wastewater Facilities Plan.

- (1) Where public sewer service is determined to be feasible and consistent with the sewage service area of the Act 537 Wastewater Facilities Plan, the preliminary design of sewage systems, including but not limited to the location of sewers, pumping stations, sewer mains, and where applicable, sewage treatment plants, showing the size, capacity, and location of treatment facilities.
- (2) Where a community sewage system is proposed,

plan information shall include the evaluation of alternative technologies in order of preference as outlined in Township Act 537 Wastewater Facilities Plan and the most preferred feasible alternative as agreed to by the township, the Department of Environmental Protection (DEP), and the applicant. The preliminary design of the proposed system shall also be included, showing the size, capacity, and location of treatment facilities, and where applicable, wastewater reclamation/land application sites.

- (3) Where individual on-site sewage facilities are proposed, the applicant shall submit a statement with regard to the suitability of the soil to absorb sewage wastes. Test pit and percolation test information shall be provided and the approximate location of the system shall be indicated. Horizontal isolation distances for treatment tanks and sewage absorption areas shall be provided as required by PADEP Chapter 73.

3. Horizontal Plan for Streets showing details of the horizontal layout including:
  - a. Centerline with bearings, distances, curve data, and stations corresponding to the profile.
  - b. Right-of-way and curb lines with radii at intersections.
  - c. Tie-ins by courses and distances to intersections of all public roads, with their names and widths.
  - d. Location of all monuments and other boundary markers by bearing and distances.
  - e. Location and size of all drainage facilities, sidewalks, public utilities, fire hydrants, lighting standards, and street name signs.
4. Horizontal Plan for Storm Water Management and Sanitary Sewer Facilities
  - a. Location and size of line with stations corresponding to the profile.
  - b. Location of manholes or inlets with grade between and elevation of flow line and top of each manhole or inlet.

- c. Location of laterals.
  - d. Location of other drainage facilities and public utilities in the vicinity of storm and/or sanitary sewer lines.
  - e. Hydraulic design data and calculations for storm sewers, inlets, culverts, and bridge structures.
5. A profile plan indicating final grades of streets, sanitary sewers, water supply pipes, stormwater management facilities, other underground utilities, the location of crossing pipes, and the extent of cut and fill operations.
- a. The profile plan shall show the vertical section of the existing grade and proposed grade along the centerline of the proposed street. Where storm drainage, sanitary sewer lines, water supply lines or other utilities are to be installed, they shall also be indicated on the profile plan. Locations where utilities cross one-another shall be noted with a separate distance.
  - b. The horizontal scale on the profile plan shall not be less than one (1) inch equals one hundred (100) feet and the vertical scale shall not be less than one (1) inch equals ten (10) feet or in cases where larger scales are used, the ratio shall be 1:10 vertical to horizontal.
  - c. A typical cross-section of street construction shall be shown on the profile plan and shall indicate the following:
    - 1) Right-of-way width and the location and width of paving within the right-of-way.
    - 2) Type, thickness and crown of paving.
    - 3) The location, width, type, and thickness of curbs and sidewalks to be installed if any.
    - 4) Grading of sidewalk area.
    - 5) Typical location, size, and depth of any underground utilities that are to be installed in the right-of-way where such information is available.
  - d. Profile plans shall be provided for any utility, whether located within the street right-of-way or outside of the

street right-of-way.

6. Detail sheet(s) providing sufficient details and notes to define the construction methods and materials of proposed improvements. Details shall include but not be limited to :
  - a. Details of all public sewer improvements as required and approved by the Valley Forge Sewer Authority.
  - b. Details of all public water improvements as required and approved by the Citizens Utilities Water Company or other municipal or private water companies.
  - c. A cross-section of each utility trench, showing proposed bedding and backfill material as well as the required compaction methods.
  - d. Erosion and sediment control methods and materials.
  - e. Stormwater management facilities.
  - f. Details of all improvements required by PennDot.
7. Landscaping plan. When applicable, a Landscaping Plan consistent with the requirements of Section 1709 of the Zoning Ordinance shall be provided.
8. Lighting Plan. When applicable, a Lighting Plan, consistent with the requirements of Section 1711 of the Zoning Ordinance shall be provided.

D. Impact Statements

1. Applicability. The impact statement detailed in Subsection 306.D.4.a shall be required for all preliminary applications for development when any of the following are proposed for a property:
  - a. Residential development with a trip generation rate of 300 AADT (annual average daily trips) as established by the Trip Generation Manual prepared in the Institute of Transportation Engineers, as amended.
  - b. Institution or retirement facility with a trip generation rate of 300 AADT, as established in the Trip Generation Manual prepared by the Institute of Transportation Engineers, as amended.

- c. Industrial, commercial and/or office development having a trip generation rate of 300 AADT or more, as established in the Trip Generation Manual prepared by the Institute of Transportation Engineers, as amended.
  - d. Any project that will affect roads with a level of service at "D", "E", or "F", as determined by the Township at the time of submission.
  - e. Any project that will affect roads as determined by the Township to have safety or design deficiency.
  - f. Any project that will be developed in phases with a cumulative effect of falling within the required categories outlined above.
2. Applicability. The impact statements detailed in Subsection 306.D.4.b, c, d, e, and f shall be required for all preliminary applications for development when any of the following are proposed for a property:
- a. Residential development of thirty (30) or more dwelling units.
  - b. Institution or retirement facility of seventy-five (75) or more bedrooms or residential units.
  - c. Industrial, commercial and/or office development in excess of twenty thousand (20,000) square feet of building area.
  - d. The Environmental Impact Study detailed in Subsection 306.D.4.e will also be required if the proposed development has within its boundaries more than twenty-five percent (25%) of its area protected by the Natural Features Protection Standards enumerated and described in Part 4, Chapter 27, of the East Pikeland Township Zoning Ordinance. The natural features to be protected include flood plains, steep slopes as defined by the Zoning Ordinance, and soils with seasonally high water tables. The twenty-five percent (25%) area limitation, requiring the filing of the Environmental Impact Study impact statements, refers to any specific natural feature or the sum of all natural features to be protected collectively.

3. The historic resources impact study shall only be required as provided in Subsection 306.D.4.e.
4. The Board shall consider the impact of the proposed use on the Township and on the facilities and systems as listed hereafter. When required by the Board, the applicant shall provide all of the information data and studies needed to allow the Board to reach conclusive evaluation of the areas set forth hereafter, which are applicable to the use proposed. The impact statement should be one written document. Necessary maps, charts, etc., should be labeled as consecutively numbered exhibits and properly referenced throughout the text of the written document. The statement should be written in a manner and style that clearly focuses on the information, data and analysis on the issues and objectives requested by the Board. The source of all data should be appropriately documented.
  - a. Traffic Impact Study
    - (1) Purpose. A traffic impact study shall be required for any development proposed pursuant to this section. Such study shall enable the Board of Supervisors to assess the likely impact of a proposed development in the various components of the transportation system in the Township.
    - (2) Professional Input. The applicant shall retain a qualified professional traffic engineer to prepare the traffic impact study. For purposes of this provision, a qualified traffic engineer shall be deemed any individual holding a degree from an accredited university in traffic engineering specialty, or any individual holding a university degree who also possesses membership in the Institute of Transportation Engineers, or any individual who conforms to the definition for a Municipal Traffic Engineer preferred in 67 PA Code Chapter 612, as amended, entitled "Municipal Traffic Engineering Certification.
    - (3) Study Area. A study area, that represents the area that is likely to be affected (from a traffic impact standpoint) by the development shall be defined by the traffic engineer. Prior to identifying the study area, the traffic engineer shall discuss possible study area boundaries with the applicant and the Township. Specific intersections to be included in the study shall be mutually agreed

upon prior to initiating work.

- (4) Contents of Impact Study. A traffic impact study shall contain the following information:
  - (a) General Site Description. The site description shall include the size, location, proposed land uses, construction staging and completion date of the proposed development. A brief description of other major existing uses and approved recorded development plans shall be included as source data where agreed by the Township and the traffic engineer, that they may have a bearing on the development's likely traffic impact. The Township may, in addition, require consideration of development proposals not yet approved and recorded, but with sufficient status and probable impact to warrant inclusion.
  - (b) Transportation Facilities Description. This description shall contain a full documentation of the proposed internal and external circulation system within the proposed study area. The description shall include: circulation; all proposed ingress and egress locations; all internal roadway widths and rights of way; existing and proposed parking conditions; traffic channelizations; any traffic signals or other intersection control devices at all intersections on the site boundaries.

The description shall include all major elements of the existing roadway system within the study area. All major existing and proposed public transportation services and facilities within the study area shall also be documented. Future highway improvements, including proposed construction and traffic signalization, shall be noted.
  - (c) Existing Traffic Conditions. Existing traffic conditions shall be documented for all

major roadways and intersections established as part of the study area under Section 306.D.4.a (3). Existing traffic volumes for average daily traffic, peak hour(s) traffic shall be recorded.

Mechanical or manual traffic counts at major intersections in the study area shall be conducted encompassing the peak highway and development generated hour(s), and documentation regarding said traffic counts shall be included in the traffic engineer's report. A volume capacity analysis based on existing volumes shall be performed during the peak highway hour(s) for all roadways and major intersections within the study area.

The capacity analysis shall be conducted according to methods of analysis accepted by the Pennsylvania Department of Transportation. The existing level of service associated with each major roadway and intersection evaluated shall be recorded. Data about the most recent available accident levels within the study area shall be included.

- (d) Impact of Development on Area Circulation. Estimates of vehicle trips to result from the proposed development shall be completed for the design-day peak highway hour(s) and peak development generated hour(s). In order to obtain vehicle trip generation base data, the traffic engineer shall consult either his firm's data bank or the most current edition of the Institute of Transportation Engineers Trip Generation Report, or local data from the Township or, if available, more current or comprehensive sources. All turning movements associated with the proposed improvement generated hour(s) shall be computed and contained in the study. Traffic volumes generated by the proposed use shall be distributed and assigned to existing roadways and intersections throughout the study area for

which existing conditions were recorded. Documentation of all assumptions used in the distribution and assignment of traffic shall be provided. Any characteristics of the site that are likely to cause particular traffic management problems shall be noted.

- (e) Analysis of Traffic Impact. The traffic engineer shall identify the relationship of the site-generated traffic associated with the proposed development and overall demand. This demand shall consist of a combination of the existing traffic expanded to the completion year (using the annual traffic rate available from the Delaware Valley Regional Planning Commission), the development generated traffic, and the traffic generated by other proposed developments in the study area. When considering the proposed development, all future phases must be included to evaluate the total traffic impact of the development.

He shall further identify the development's proportional relationship to the traffic system improvements that are likely to be required, in part, due to the development. The volume/capacity analysis performed in accordance with Section 306.D.4.a.(4)(c), above, shall be updated to include a volume/capacity analysis using the total future demand and future roadway capacity. The analysis shall be conducted on a design day during the peak highway hours(s) and on major intersections in the study area which are projected to be affected by the proposed development.

All access points and pedestrian crossings shall be examined as to the need for and feasibility of installing traffic signals or other traffic control devices. To do this, the traffic engineer shall evaluate access points and pedestrian crossings pursuant to the Pennsylvania Department of

Transportation specifications for traffic signal warrants.

- (f) Conclusions and Recommended Improvements. All roadways and/or intersections showing a level of service which is deemed deficient by the traffic engineer during peak hours of the day (peak hour defined to include peak hour of the day on the particular roadway and peak hour of traffic of development generated traffic) shall be identified. Specific recommendations for the elimination of traffic problems associated with the proposed development shall be identified. (Levels of service are defined in the 1985 Highway Capacity Manual, Highway Research Board, National Academy of Sciences, Special Report 209, as updated.) A listing of recommended improvements shall include the following elements: internal circulation design; site access locations and design; improvements and widenings; traffic signal installation and operation, including signal timing; transit design improvements; and reduced intensities of uses. All physical roadway improvements shall be shown as a part of the report.

The listing recommending improvements for vehicular, pedestrian/non-vehicular, and transit modes shall include, for each improvement, the party proposed to be responsible for the improvement, the cost and funding of the improvement (to the extent possible) and the completion date for the improvement (to the extent possible).

In considering improvements related to phased development, the improvements related to each phase of development shall be at a minimum those required to eliminate traffic problems associated with that phase and no improvements shall be deferred which would have the effect of

not eliminating identified traffic problems if the development were not completed.

The Township, with the assistance of its own traffic engineer, shall review the methodology, assumptions, findings, and recommendations of the applicant's traffic engineer. The Board may impose upon the applicant additional improvements deemed necessary to accommodate impacts of the development.

- b. **Utilities Impact Study.** A study shall be prepared by a registered professional engineer indicating the likely impact of the proposed development on the existing sewer, water, groundwater, solid waste and drainage systems serving East Pikeland Township. Said impact analysis shall identify the existing capacity of facilities which would serve the development, the prospects of those facilities being able to provide service to it, and any improvements that might be required as a direct result of the proposed development.

Additionally, the study should identify the likely ability of sewer, water, solid waste, and drainage systems to continue to provide efficient and economic service to existing residents and businesses within the Township considering added service requirements of the proposed development. The study shall indicate what alternatives have been considered for sewage treatment and disposal, as well as measures to be initiated toward waste recycling and water conservation.

- c. **Fiscal Impact Studies.** In addition to the applicable development thresholds of Subsections 306.D.2, a fiscal impact analysis shall be prepared for all conditional use, special exceptions and proposed zoning changes identifying the likely impact of the development on the Township's tax structure and expenditure patterns. Included shall be a determination of the revenues to accrue to the Township as a result of the proposed development, as well as an identification of the costs associated with delivering service to the proposed development. The fiscal impact analysis shall deal with the impact of the proposed development on the ability of the Township to deliver fire, police, administrative, public works and utility services to the development of the

Township's economy. In order to prepare the analysis, the applicant shall utilize a methodology offered in The Fiscal Impact Handbook (Rutgers Center for Urban Policy Research, 1978, as modified from time to time), adapted as appropriate and to the Board's satisfaction. The "case study method" shall be utilized in reviewing methodologies with the applicant however the Board may authorize a different methodology if the applicant can demonstrate to the Board's satisfaction substantial advantages in results achieved and/or efficiencies realized.

Particular aspects of the Township's service delivery capability to be analyzed shall include:

- (1) Public Works. This includes potential effects on the maintenance, repair and upkeep of roads, signal systems, sewer, water and drainage systems, open space and recreation areas or any other applicable function of this department. This study shall address projected cost increases for the above-mentioned items in terms of administration, personnel, equipment and materials.
- (2) Administration. This includes time that would be required by the Board, Manager, Administrative Assistant, and clerical personnel to process the application and handle the project during construction, as well as long-term administrative demands. This should include, but not be limited to, the handling of plans, contracts, various legal instruments or agreements, permits, special problems, and escrow. Added demands on the code administration staff also shall be projected.
- (3) Fire and Emergency Services. The analysis shall incorporate the development's impact on fire company capabilities, including but not limited to municipal water supply, pumping capacity, specialized equipment and training requirements.
- (1) Police. The study shall project the overall effects of the proposed development on existing Township police personnel numbers, equipment, vehicles and working space. The plan should include whatever facilities or assistance the

development will provide to handle emergencies, criminal investigations, armed robbery, or other security related problems.

d. Well Withdrawal Impact Study. The study, as defined by the applicant, shall be subject to the approval of the Board of Supervisors.

(1) Objective. The objective of a well withdrawal impact statement is to provide the Planning Commission and the Board of Supervisors with information and data to properly evaluate the impact that the proposed land development will have on the groundwater resources in the Township. It is also intended to evaluate whether adequate potable water will be available to service a proposed subdivision or land development without negatively impacting adjacent uses dependent on the same water resources. The impact statement shall be prepared by a professional hydrogeologist/geologist. In addition to the minimum contents listed below, the Township may require the inclusion of other information.

(2) Minimum content. At a minimum, the well withdrawal impact statement shall contain the following information:

Study Area. A study area, that represents the area that is likely to be affected by the development, shall be defined by the hydrogeologist. Prior to identifying the study area, the hydrogeologist shall discuss possible study area boundaries with the Township and Township Engineer.

(a) Description and purpose of the project including a U.S.G.S. topographic map indicating the location of the project, perennial streams, other surface water and existing wells located within the radius specified in this sub-section. Reference shall be made to two studies prepared by the Federation of Northern Chester County Municipalities; *Surface Water Runoff Study* (9/91), and *Water Resources*

- Management Study (10/88)*. Hydro-geological Data contained in these studies shall be included in the site description.
- (b) Proposed thirty (30) day average rate and maximum day rate of withdrawal in total and from each source, as applicable.
  - (c) A geologic map indicating the project site, the location of the proposed withdrawal point(s), and the specified radius provided in this subsection.
  - (d) A hydrogeologic study focusing on well withdrawals prepared by a professional hydrogeologist/geologist that includes but is not limited to the following. For water withdrawal projects involving multiple wells proposed for concurrent use, the well tests at all wells shall be conducted concurrently.
    - 1) A constant rate well test conducted for a minimum of forty-eight (48) hours taken during a period of no recharge using the proposed maximum day withdrawal rate for each well. A peak-rate demand pump test may also be required. Water level versus elapsed time shall be recorded throughout the forty-eight (48) hour well test and plotted appropriately. Additional information shall include:
      - a) Static, pumping and recovery water level measurements from all observed wells and perennial streams, with a sufficient number of measurements taken to adequately characterize drawdown, recovery and stream flow.
      - b) Date and time of all water level measurements.

- c) Record of pumping rate measured throughout the well test.
- 2) Observation of water levels from any monitoring wells located on the project property.
- 3) Observations of water levels and pumping rate available from existing wells within the specified radius. The monitoring wells shall be representative of the entire area within the required radius. The radius from the location of the proposed water withdrawal to be considered shall be as follows:

<u>Proposed 30 Day Average</u>	<u>Radius (miles)</u>
	<u>Withdrawal Rate (gallons per day)</u>
	10,000 – 50,000                      0.50
	50,001 – 100,000                      0.75

For water withdrawal projects involving multiple wells, the appropriate radius surrounding each well shall be used. The radius to be used for multiple well projects with individual well withdrawals under ten thousand (10,000) gallons per day on average shall be 0.5 miles.

- 4) Well log data for monitoring wells, if available, to identify significant water bearing zones. A significant water-bearing zone is one capable of providing at least ten (10) percent of the pump capacity rate.
- 5) Observations of perennial stream levels at points expected to be impacted by the withdrawal.
- 6) An analysis of expected impacts on intended water source uses caused by continual withdrawals on existing wells, flows of perennial streams, and long term lowering of groundwater levels.
- 7) Documentation based on historical water table measurements, of drought condition water table elevation approximating a fifty- (50) year drought, if available.
- 8) All field notes and observations. This shall include weather conditions throughout the pump test.

- 9) All methods or sources utilized to obtain data and draw conclusions.
  - (e) The Township, with the assistance of its own Township Engineer or designated consultant, shall review the methodology, assumptions, findings, and recommendations of the applicant's professional hydrogeologist. The Board may impose upon the applicant additional improvements deemed necessary to accommodate impacts of the developments.
- e. Historic Resources Impact Study
- (1) Applicability. When, in the judgment of the Board of Supervisors, a designated historic resource will be adversely impacted by a proposed subdivision or land development, appropriate measures shall be undertaken by the applicant which shall have the effect, in the judgment of the Board of Supervisors, of mitigating such adverse impacts. In general, mitigation measures shall be consistent with Section 1608 of the Zoning Ordinance. Existing conditions, proposed changes, and proposed mitigation measures, if necessary, shall be described in a Historic Resource Impact Study. A Historic Resources Impact Study, or any applicable portions thereof, shall be required, unless waived or modified by the Board of Supervisors when any of the following are proposed:
    - (a) On-Site: Subdivision or land development plans for tracts which include an on-site Historic Resource identified on the Historic Resources List (Appendix G) in the East Pikeland Zoning Ordinance.
    - (b) Off-Site: Subdivision or land development of tracts within 300 feet of the exterior walls of an off-site Historic Resource identified on the Historic Resources List (Appendix G) in the East Pikeland Zoning Ordinance. .

- (c) Off-Site: Any construction or improvements, including sub-surface and grading work, to be undertaken in conjunction with a subdivision or land development within 300 feet of the exterior walls of an off-site Historic Resource identified on the Historic Resources List (Appendix G) in the East Pikeland Zoning Ordinance.
- (2) The Board may require the applicant to submit the historic resource impact study as a subsection of an impact study required in this section, or as a separate document.
  - (3) The historic resource impact statement shall be prepared by a qualified professional in historic preservation, historical architecture, planning, or related disciplines, and presented by the applicant or his agent for discussion at a meeting of the East Pikeland Historical Commission.
  - (4) Contents. The study shall contain the following information, as required by the Board:
    - (a) Background Information:
      - i. If not otherwise provided by the applicant, a general site description, including topography, watercourses, vegetation, landscaping, existing drives, etc.;
      - ii. General description and classification of all historic resources located on the subject tract, on tracts immediately adjacent to the subject tract or road, or within one hundred (100) feet of the subject tract or road;
      - iii. Physical description of all resources identified in Subparagraph (4)(a) ii, above;
      - iv. Statement of the significance of each historic resource, both

relative to the Township and region  
in general;

- v. Sufficient number of black and white 8" x 10" photographs to show every historic resource identified in Subparagraph (4)(a) ii, above, in its setting;
- vi. Narrative description of the historical development of the subject tract or road.

(b) Proposed Change

- i. General description of project, including timetable of phases;
- ii. Description of impact on each historic resource identified in Subparagraph (4)(a) ii, above, with regard to architectural integrity, historic setting, and future use;
- iii. General description of effect of noise and traffic and any other impacts generated by the proposed change on each historic resource.

(c) Mitigation Measures

Recommendations for mitigating the project's impacts on historic resources, including design alternatives, landscaping and screening in accordance with Section 1709 of the Zoning Ordinance and any other appropriate measures permitted under the terms of this and other Township ordinances.

- (5) East Pikeland Historical Commission. The historic resource impact study will be reviewed by the East Pikeland Historical Commission. The Commission shall set forth its evaluation and recommendations in a written report.

f. Environmental Impact Study

An Environmental Impact Assessment (EIA) Report is required for any application for preliminary and final subdivision and/or land development plan and conditional use application in all districts in accordance with Section 1826 of the Zoning Ordinance, as amended.

- (1) The EIA report must be submitted to the Township with the subdivision, land development or conditional use application. Six (6) copies of the report shall be submitted to the Township.
- (2) The Environmental Advisory Council (EAC) shall review the report and submit their findings, based on Section 1826 of the Zoning Ordinance, in a memorandum to the Board of Supervisors, Planning Commission and Township Engineer. A copy of the memorandum shall be forwarded to the applicant.
- (3) Board of Supervisors Approval Required
  - (a) Where compliance with this section is required as part of an application for subdivision or land development or conditional use approval, the EAC's findings, based on Section 1826 of the Zoning Ordinance, shall be made part of the Board of Supervisors decision on the application.
  - (b) Where the application is part of a request for a zoning permit, the Zoning Officer shall issue no such permit until the terms of this section, and any conditions imposed upon the use of the property at the time of subdivision, land development or conditional use approval, are satisfied.

SECTION 307 RECORDING OF FINAL PLAN

- A. Upon completion of the procedures outlined under this article, all endorsements shall be indicated on the record plan and on as many other copies of the final plan as may be desired.

- B. Upon endorsement by the Township, the applicant shall file the record plan with the County Recorder of Deeds within ninety (90) days of the date of the final approval by the Township. The County Recorder of Deeds shall not accept any plan for recording unless such plan officially notes the approval of the Board of Supervisors and review by the County Planning Commission. If the applicant fails to record the final plan within such period, the action of the Township shall be null and void, unless an extension of time is granted in writing by the Township prior to the expiration of the ninety (90) day period upon written request by the applicant.
- C. Where a major proposal, as defined by this Ordinance, is involved, the documentation outlined under Section 309.D. shall also be recorded with the plan.

#### SECTION 308 RESUBDIVISION PROCEDURE

- A. All applications for resubdivision shall be classified as minor subdivision proposals, and shall follow the final plan review procedures outlined under Section 305.B.
- B. All resubdivision plan applications shall be submitted to the Township Subdivision Officer. The Township Secretary shall determine whether the application represents a complete and official submission using the following criteria:
  - 1. Three (3) copies of the official Township application for resubdivision review form; one (1) being notarized by an affidavit of ownership and intended use of the land;
  - 2. Five (5) prints of the resubdivision plan; and
  - 3. Payment of required application fees as determined by resolution of the Board.
- C. In making any alterations, the following shall be observed:
  - 1. Small parcels of land may be divided so long as they are made a part of adjoining land and no lot or tract of land results that is smaller than the minimum dimensions required by the Township Zoning Ordinance;
  - 2. Easements reserved for drainage shall not be changed;
  - 3. No lot shall be created which does not abut a street; and

4. The character of the area shall be maintained.

SECTION 309 SUBDIVISION AND LAND DEVELOPMENT IMPROVEMENTS  
AGREEMENT

The applicant shall execute an agreement, to be approved by the Township, pending the review of the Township Solicitor, before the final plan is released by the Board of Supervisors and filed on record. Said agreement shall, as a minimum, specify the following, where applicable:

- A. The applicant agreed that he will lay out and construct all streets and other public improvements, including grading, paving, sidewalks, fire hydrants, water mains, street signs, shade trees, storm and sanitary sewers, landscaping, traffic control devices, open space areas, and erosion and sediment control measures in accordance with the final plan as approved, where any or all of these improvements are required as conditions of approval.
- B. The applicant guarantees completion and maintenance of all improvements by means of a type of financial security acceptable to the Township, as specified in Section 310.C. of this Ordinance.
- C. The applicant agrees to have prepared a deed(s) of such dedication to the Township for such streets and for such easements for sanitary and storm sewers, sidewalks, and other public improvements, provided that the Township shall not accept dedication of such improvements until their completion is certified as satisfactory to the Township Engineer.
- D. Whenever an applicant proposes to establish or continue a street which is not offered for dedication to public use, the Board of Supervisors shall require the applicant to submit, and also to record with the plan, a copy of an agreement made with the Board on behalf of himself and his heirs and assigns, and signed by him, and which shall establish the conditions under which the street may later be offered for dedication, and shall stipulate among other things:
  1. That an offer to dedicate the street shall be made only for the street as a whole;
  2. That the Township shall not be responsible for repairing or maintaining any undedicated streets;
  3. That the method of assessing repair and maintenance costs of the undedicated streets be stipulated and be set forth in recorded deed restrictions so as to be binding on all successors

or assigns; and

4. That, if dedication is to be sought, the street shall conform to Township specifications or that the owners of the abutting lots shall, at their own expense, restore the streets to conformance with Township specifications.

## SECTION 310 PERFORMANCE GUARANTEES

- A. The applicant shall deposit with the Township, financial security in an amount sufficient to cover the cost of all improvements, both public and private, and common amenities, including but not limited to streets, walkways, shade trees, stormwater management facilities, recreational facilities, open space improvements, buffer or screen plantings, or other water supply facilities, fire hydrants, sanitary sewage disposal facilities. Financial security related to public sewers shall be provided to the Valley Forge Sewer Authority.
- B. When requested by the developer, in order to facilitate financing, the Board of Supervisors shall furnish the developer with a signed copy of a resolution indicating approval of the final plan contingent upon the developer obtaining a satisfactory financial security. The final plan or record plan shall not be signed nor recorded until the financial improvements agreement is executed. The resolution or letter of contingent approval shall expire and be deemed to be revoked if the financial security agreement is not executed within ninety (90) days, unless a written extension is granted by the Board; such extension shall not be unreasonably withheld and shall be placed in writing at the request of the developer.
- C. Financial security required herein shall be in the form of a Federal or Commonwealth chartered lending institution irrevocable letter of credit, a restrictive or escrow account in such institution, or with a financially responsible bonding company, or such other type of financial security which the Township may, in its reasonable discretion, approve. The bonding company may be chosen by the party posting the financial security, provided that the said bonding company or lending institution is authorized to conduct business within the Commonwealth and stipulates that it will submit to Pennsylvania jurisdiction and Chester County venue in the event of legal action.
- D. The said financial security shall provide for, and secure to the public, the completion of any improvements which such security is being posted on or before the date fixed in the approved subdivision plan and subdivision agreement for completion of such improvements.
- E. The amount of financial security to be posted for the completion of the

required improvements shall be equal to one hundred ten (110) percent of the cost of completion estimated as of ninety (90) days following the date scheduled for completion by the developer. Annually, the Township may adjust the amount of the financial security by comparing the actual cost of the improvements which have been completed and the estimated cost for the completion of the remaining improvements as of the expiration of the ninetieth (90th) day after either the original date scheduled for completion or a rescheduled date of completion. Subsequent to said adjustment the Township may require the developer to post additional security in order to assure that the financial security equals the said one hundred ten (110) percent. Any additional security shall be posted by the developer in accordance with this section.

- F. The amount of financial security required shall be based upon an estimate of the cost of completion of the required improvements, submitted by an applicant or developer and prepared by a professional engineer licensed as such in this Commonwealth and certified by such engineer to be a fair and reasonable estimate of such cost. The Township, upon the recommendation of the Township Engineer, may refuse to accept such estimate for good cause shown. If the applicant or developer and the Township are unable to agree upon an estimate, then the estimate shall be recalculated and re-certified by another professional engineer licensed as such in this Commonwealth and chosen mutually by the Township and the applicant or developer. The estimate certified by the third engineer shall be presumed fair and reasonable, and shall be the final estimate. In the event that a third engineer is so chosen, fees for the services of such engineer shall be paid equally by the Township and the applicant or developer.
- G. If the party posting the financial security requires more than one (1) year from the date of posting the financial security to complete the required improvements, the amount of financial security shall be increased by an additional ten (10) percent for each one (1) year period beyond the first anniversary date from posting of financial security or to an amount not exceeding one hundred ten (110) percent of the cost of completing the required improvements as reestablished on or about the expiration of the preceding one (1) year period by using the above bidding procedure.
- H. In the case where development is projected over a period of years, the Board of Supervisors may authorize submission of final plans by section or stage of development, subject to such requirements or guarantees as to improvements in the future sections or stages of development as it finds essential for the protection of any finally approved section of the development.
- I. As the work of installing the required improvements proceeds, the party posting the financial security may request the Board of Supervisors to

release or authorize to be released, from time to time, such portions of the financial security necessary for payment to the contractor or contractors performing the work. Any such requests shall be in writing addressed to the Board of Supervisors, and the Board shall have forty-five (45) days from receipt of such request within which to allow the Township Engineer to certify, in writing, that such portion of the work upon the improvements has been completed in accordance with the approved plans. Upon such certification, the Board shall authorize release by the bonding company or lending institution of an amount as estimated by the Township Engineer fairly representing the value of the improvements completed. The Township Engineer, in certifying the completion of work for a partial release, shall not be bound to the amount requested by the applicant, but shall certify to the Board his independent evaluation of the proper amount of partial releases. The Board may, prior to final release at the time of completion and certification by the Township Engineer, require retention of ten (10) percent of the estimated cost of the aforesaid improvements.

#### SECTION 311 COMMENCEMENT OF DEVELOPMENT

- A. No construction or land disturbance activities, with the exception of soil or percolation testing, well drillings, or similar engineering or surveying activities, shall be commenced until the applicant submits to the Township Zoning Officer/Building Inspector, a copy of the Recorder of Deeds' receipt for recording of the final plan.
- B. No application for a building permit under the Township Zoning Ordinance shall be submitted and no building permit under the Township Zoning Ordinance shall be issued for any building in any subdivision or land development until the final plans for the said subdivision or land development has been approved and recorded as provided for and until the terms of Section 311.A. have been satisfied. Further, where final subdivision or land development approval has been conditioned upon the submission and approval of individual lot grading plans for some or all of the lots, no building permit shall be issued for construction or any such lot until this condition has been complied with.
- C. No water system or sewer system, including extensions to existing or proposed Township systems or new systems employing sewage treatment plants, shall be constructed prior to the issuance of appropriate permits from the Pennsylvania Department of Environmental Protection or from Federal or local agencies, as required.

SECTION 312      PLAN AMENDMENTS

Major modification of the approved plan, as determined by the Township, shall be resubmitted and reprocessed in the same manner as the original plan. All site disturbance activities shall cease pending approval of modified plans.