

ARTICLE VI DESIGN STANDARDS AND SPECIFICATIONS

601 General Design Standards; Township Zoning Requirements

In addition to the standards in this Article VI, residential subdivisions and land developments shall be designed in accord with the applicable requirements of the Township Zoning Ordinance.

601.1 Application

The standards and requirements contained in this Article shall apply to all subdivisions and land developments and are intended as the minimum for the preservation of the environment and promotion of the public health, safety and general welfare and shall be applied as such by the Township in reviewing and evaluating plans for all proposed subdivisions and/or land developments. Compliance with all standards shall be documented by the Applicant at the time of Preliminary Plan application.

A. Planning

The development shall conform to the proposals and conditions shown in the Township Comprehensive Plan and any local or regional plans adopted by a municipality to which this ordinance applies. The streets, drainage, rights-of-way, school sites, public parks and playgrounds shown on the officially adopted Plan or Official Map shall be considered in the approval of all plans. In the case of major subdivisions and land developments the applicant shall submit a narrative detailing how the development conforms to any applicable plan.

B. Contiguous Lands

Where the owner of the site under consideration owns contiguous land suitable for development, the subdivision plan shall cover all such contiguous lands. This provision, however, may be waived in full, or in part, by the Township if it is not considered essential to the evaluation of the plans for the current development tract.

C. Improvements, Specifications

Additional improvements, or improvements of more stringent specifications, may be required in specific cases where, in the opinion of the Township, such specifications are necessary to create conditions essential to the health, safety, and general welfare of the citizens of the Township and/or to protect the environment of the Township.

D. Hazard Areas

Those areas which may present such hazards to life, health or property as may arise from fire, flood or noise, or are considered to be uninhabitable for other reasons, shall not be subdivided for building purposes unless the hazards have been eliminated or the plans show adequate safeguards against the hazards. Sources for determining and evaluating potential hazards may include historical records, soil evaluations, engineering studies, expert opinions, standards used by licensed insurance companies and adopted regional, county or local municipal policies.

E. Development Design, Neighboring Development

All portions of a tract being subdivided shall be taken up in lots, streets, open lands, or other proposed uses, so that remnants and landlocked areas shall not be created. The layout of a subdivision shall also be planned with consideration for existing nearby developments or neighborhoods so that they are coordinated in terms of interconnection of open space, traffic movement, drainage and other reasonable considerations.

F. Natural Features

Care shall be taken to preserve natural features such as agricultural land, woodland and specimen trees, wetlands, water courses, views, and historical features, such as buildings and stone walls, which will maintain the attractiveness and value of the land. Damming, filling, relocating or otherwise interfering with the natural flow of surface water along any surface water drainage channel or natural water course shall not be permitted except with the approval of the Township and, where appropriate, the Pennsylvania Department of Environmental Protection and the US Army

Corps of Engineers.

1. Groundwater Resources - This section is intended to ensure that the Township's limited groundwater resources are protected for purposes of providing water supplies for its residents and businesses, and to protect the base flow of surface waters. These regulations shall be applied in conjunction with those provided for in other sections of this ordinance, dealing with groundwater conservation and replenishment. The proposed subdivision and land development of any tract shall be designed to cause the least practicable disturbance to natural infiltration and percolation of precipitation to the groundwater table, through careful planning of vegetation and land disturbance activities, the use of bio-retention areas and infiltration trenches, and the placement of streets, buildings and other impervious surfaces in locations other than those identified on the Existing Resources and Site Analysis Plan as having the greatest permeability where precipitation is most likely to infiltrate and recharge the groundwater.
2. Stream Valleys, Swales, Springs, and Other Lowland Areas - Stream valleys (which include stream channels and flood plains), swales, springs and other lowland areas are resources that warrant restrictive land use controls because of flooding hazards to human life and property, groundwater recharge functions, importance to water quality and the health of aquatic communities, and wildlife habitats. Such areas are generally poorly suited for on-site subsurface sewage disposal systems. The following activities shall be minimized:
 - a. Disturbance to streams and drainage swales.
 - b. Disturbance to year-round wetlands, areas with seasonally high water tables, and areas of surface water concentration.
 - c. Because of extreme limitations, stream valleys, swales and other lowland areas warrant designation as open lands. They may also require adjoining buffer lands to be included in the Lackawanna, to be determined by an analysis of the protection requirements of such areas on a case-by-case basis. In certain instances, seasonal high water table soils may be excluded from the Greenway where it can be demonstrated that they are suitable for low density residential uses and on-site sewage systems.
3. Woodlands - Woodlands occur extensively throughout the Township, often in association with stream valleys and wet areas, poor and erodible agricultural soils, and moderate to steep slopes.
 - a. Woodland conditions within the Township vary with respect to species composition, age, stocking, and health. They range from relatively recent post-agricultural young stands to mature mixed-age forests. Most woodlands in the Township represent one or more of the following resource values:
 - 1) As soil stabilizers, particularly on moderate to steep slopes, thereby controlling erosion into nearby streams, ponds, impoundments and roads. A closely related function is their enhancement of ground water recharge.
 - 2) As a means of ameliorating harsh micro-climatic conditions, in both summer and winter.
 - 3) As a source of wood products, i.e., poles, saw timber, veneer and firewood.
 - 4) As habitats for woodland birds, mammals and other wildlife.
 - 5) As recreation resources for walkers, equestrians, picnickers and other related outdoor activities.
 - 6) As visual buffers between areas of development and adjacent roads and properties.
 - b. Because of their resource values, all woodlands on any tract proposed for subdivision or land development shall be evaluated by the applicant to determine the extent to which such woodlands should be designated partly or entirely as open lands or development lands. Evaluation criteria shall include:
 - 1) Configuration and size.
 - 2) Present conditions, i.e., stocking, health and species composition.
 - 3) Site potential, i.e., the site's capabilities to support woodlands, based upon its topographic, soil and

- hydrologic characteristics.
- 4) Ecological functions: i.e., in protecting steep slopes, erodible soils, maintaining stream quality and providing for wildlife habitats.
 - 5) Relationship to woodlands on adjoining and nearby properties and the potential for maintaining continuous woodland areas.
4. Upland Rural-Agricultural Areas - These areas comprise fields, pastures, meadows, and former agricultural areas in early stages of woodlands succession, with fences, stone walls, tree copses and hedgerows, typically bordered by stream valleys and upland woodlands. These comprise the Township's historic working landscape, dotted with historic houses, barns and other structures. They give the Township much of its rural character. They also contain the greatest concentration of prime agricultural soils. Because of their openness and high visibility, development in these areas is likely to be most readily seen and disruptive to the historic landscape. Such areas sometimes provide habitat for wildlife, in conjunction with nearby woodlands and stream valleys. However, it is recognized that these areas also frequently offer the fewest constraints for development. Several elements of these working landscapes lend themselves to incorporation into the Township's open space network. These include prime agricultural soils and natural features which visually punctuate the landscape, such as hedgerows, tree copses, stone walls, and visually prominent places such as knolls and hilltops. These areas can also accommodate development, with preferred locations being the non-prime agricultural soils and lower topographic settings where development will be visually less obtrusive. Compact clustered residential designs, with coordinated architectural and landscape architectural themes, are encouraged in highly visible locations where future development cannot be avoided (such as at the far edge of open fields).
5. Slopes - Moderately sloping lands (15 to 25 percent) and steeply sloping lands (over 25 percent) are prone to severe erosion if disturbed. Erosion and the resulting overland flow of soil sediments into streams, ponds and public roads, are detrimental to water quality and aquatic life, and a potential hazard to public safety. Areas of steep slope shall be governed by §604.1 of the Zoning Ordinance and the following:
- a. All grading and earthmoving on slopes exceeding 15 percent shall be minimized.
 - b. No site disturbance shall be allowed on slopes exceeding 25 percent except grading for a portion of a driveway accessing a single family dwelling when it can be demonstrated that no other routing which avoids slopes exceeding 25 percent is feasible.
 - c. Roads and driveways shall follow the line of existing topography to minimize the required cut and fill. Finished slopes of all cuts and fills shall be as required to minimize disturbance of natural grades.
6. Significant Natural Areas and Features - Natural areas containing rare or endangered plants and animals, as well as other features of natural significance exist throughout the Township. Some of these have been carefully documented, e.g., by the Statewide Natural Diversity Inventory, whereas for others, only the general locations are known. Subdivision applicants shall take all reasonable measures to protect significant natural areas and features either identified by the Township's Map of Potential Conservation Lands or by the applicant's Existing Resources and Site Analysis Plan by incorporating them into proposed open areas or avoiding their disturbance in areas proposed for development.

G. Historic Structures and Sites

The Township's documented historical resources begin with the Native Americans in the early 18th century and extend through its colonial agricultural, residential and industrial development in the late 18th and 19th centuries. Plans requiring subdivision and land development approval shall be designed to protect existing historic resources. The protection of an existing historic resource shall include the conservation of the landscape immediately associated with and significant to that resource, to preserve its historic context. Where, in the opinion of the Township, a plan will have an impact upon an historic resource, the developer shall mitigate that impact to the satisfaction of the Township by modifying the design, relocating proposed lot lines, providing landscape buffers, or other approved

means. Township participation, review and approval of the applicant's interaction with the State Historical and Museum Commission with regard to the preservation of historic resources, as required for DEP approval of proposed sewage disposal systems, shall be required prior to Preliminary Plan approval.

H. Trails

When a subdivision or land development proposal is traversed by or abuts an existing trail customarily used by pedestrians and/or equestrians, the Township may require the applicant to make provisions for continued recreational use of the trail.

1. The applicant may alter the course of the trail within the tract for which development is proposed under the following conditions:
 - a. The points at which the trail enters and exits the tract remain unchanged.
 - b. The proposed alteration exhibits quality trail design according to generally accepted principles of landscape architecture (For example: Bureau of State Parks publication Non-Motorized Trails).
 - c. The proposed alteration does not coincide with a paved road intended for use by motorized vehicles.
2. When trails are intended for public or private use, they shall be protected by a permanent conservation easement on the properties on which they are located. The width of the protected area in which the trail is located should be a minimum of ten feet. The language of the conservation easement shall be to the satisfaction of the Township upon recommendation of the Township Solicitor.
3. The land area permanently designated for trails for public use may be credited toward the open land requirement of the Zoning Ordinance.
4. An applicant may propose and develop a new trail. If said trail is available for use by the general public and connects with an existing trail, the land area protected for said trail may be credited toward the open space requirement of the Zoning Ordinance.
5. Trail improvements shall demonstrate adherence to principles of quality trail design in accord with specifications approved by the Township..
6. Trails shall have a vertical clearance of no less than ten (10) feet.
7. Width of the trail surface may vary depending upon type of use to be accommodated, but in no case shall be less than three (3) feet or greater than six (6) feet.
8. No trail shall be designed with the intent to accommodate motorized vehicles.

I. Boundary Lines and Reserve Strips

Lot lines should follow municipal and county boundary lines, rather than cross them. Reserve strips controlling access to lots, public rights-of-way, public lands or adjacent private lands are prohibited.

J. Water Frontage and Surface Drainage

The damming, filling, relocating, or otherwise interfering with the natural flow of surface water along any surface water drainage channel or natural watercourse shall not be permitted except with approval of the Township, and, where required by state statute, the Pennsylvania Department of Environmental Protection, or other applicable state agencies.

K. Community Facilities and Comprehensive Plan Requirements

Where a proposed park, playground, school, or other public use is shown in the Township comprehensive plan and

is located in whole or in part in a proposed development, the Township may require the reservation of such area provided that such reservation is acceptable to the Township and the developer.

L. Walkways

Pedestrian interior walks may be required where necessary to assist circulation or provide access to community facilities (such as a school).

M. Storm Drainage

Lots and/or parcels shall be laid out and graded to provide positive drainage away from buildings and to prevent damage to neighboring lots, tracts, or parcels. Where applicable, detention basins or other water retention methods may be required by the Township.

601.2 Planned Improvements

Physical improvements to the property being subdivided and/or developed shall be provided, constructed and installed as shown on the record plan.

601.3 Improvements Specifications

All improvements installed by the Developer shall be constructed in accordance with the design specifications and construction standards of the Township and advice of the Township Engineer.

- A. Where there are no applicable Township specifications, improvements shall be constructed in accordance with specifications furnished by the Township Engineer, Lackawanna County, PA Department of Transportation, Pennsylvania Department of Environmental Protection, Bureau of Forestry or such other County, State or Federal agency as may be applicable.
- B. If there are no applicable Township or State regulations, the Township may authorize that such specifications be prepared by the Township Engineer or an Engineering Consultant.

601.4 Other Ordinances

Whenever other Township ordinances and/or regulations impose more restrictive standards and requirements than those contained herein, such other ordinances and/or regulations shall be observed, otherwise, the standards and requirements of this Ordinance shall apply.

602 Four-Step Design Process for Conservation Design Subdivisions and Developments

All Preliminary Plans in the conservation design development shall include documentation of a four-step design process in determining the layout of proposed open lands, house and development sites, streets and lot lines, as described below.

602.1 Resource Inventory and Analysis

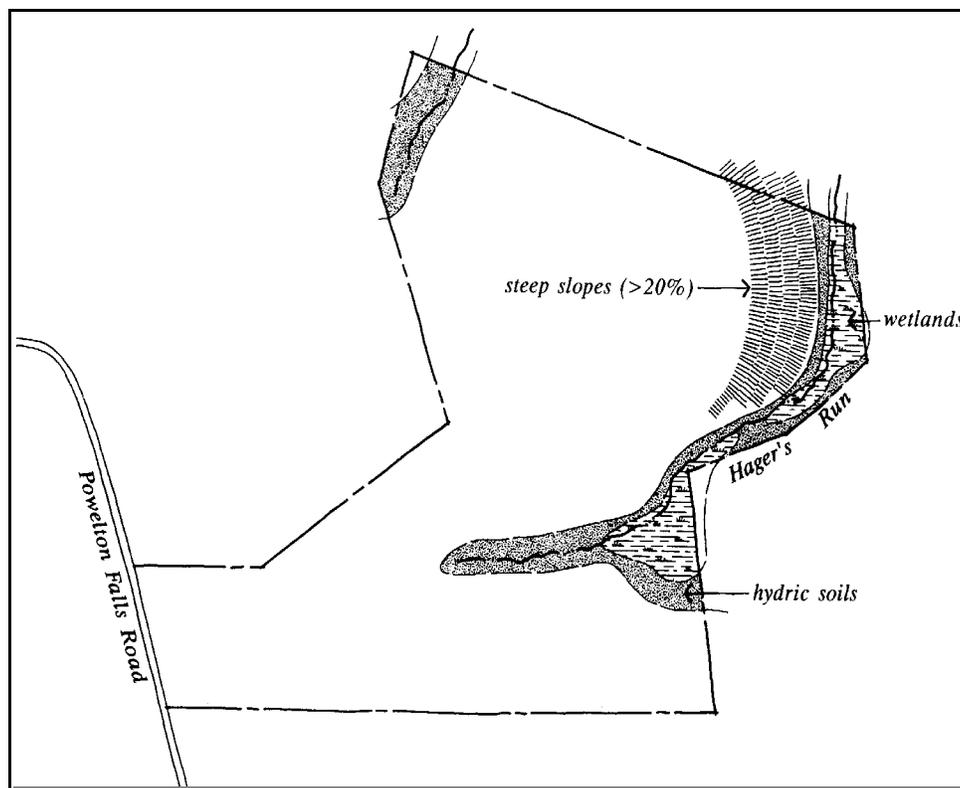
The tract's resources shall be delineated on an Existing Resources and Site Analysis Plan, as required in §402.3.

602.2 Four-Step Design Process

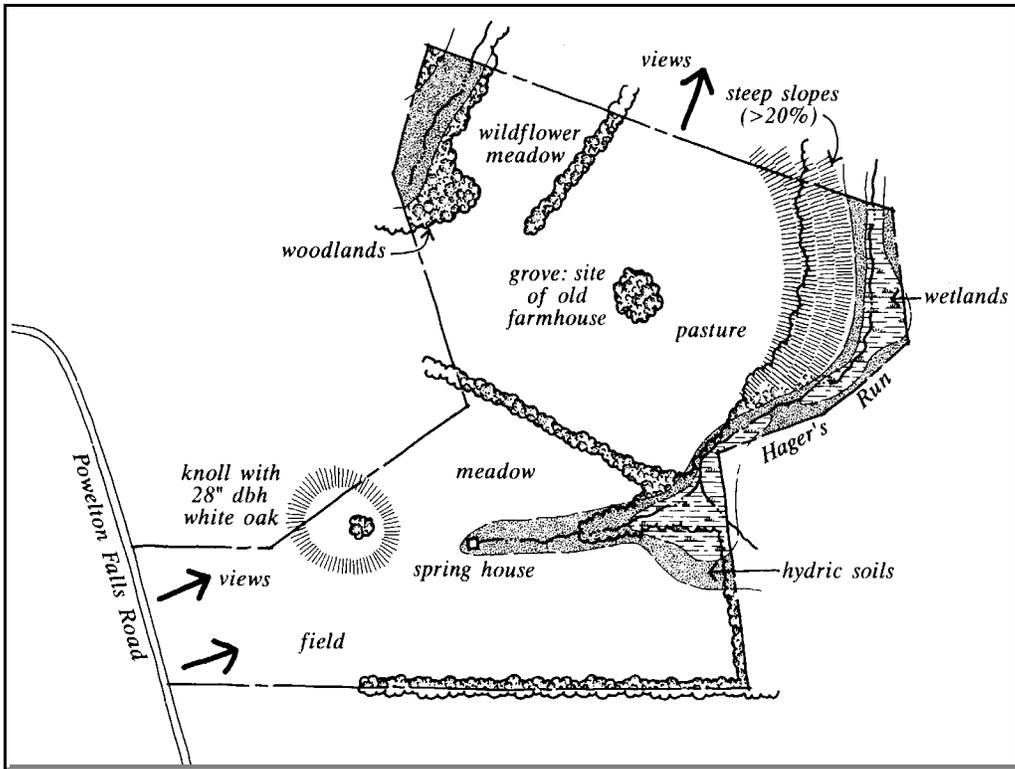
A. Step 1: Delineation of Conservation Open Space

- 1. The minimum percentage and acreage of required conservation open space shall be calculated by the applicant and submitted as part of the Sketch Plan or Preliminary Plan in accord with the provisions of this Ordinance and §801 of the Zoning Ordinance. Conservation open space shall include all Primary Conservation Areas and those parts of the remaining buildable lands with the highest resource significance, as described below and in §603.1 and §603.2.

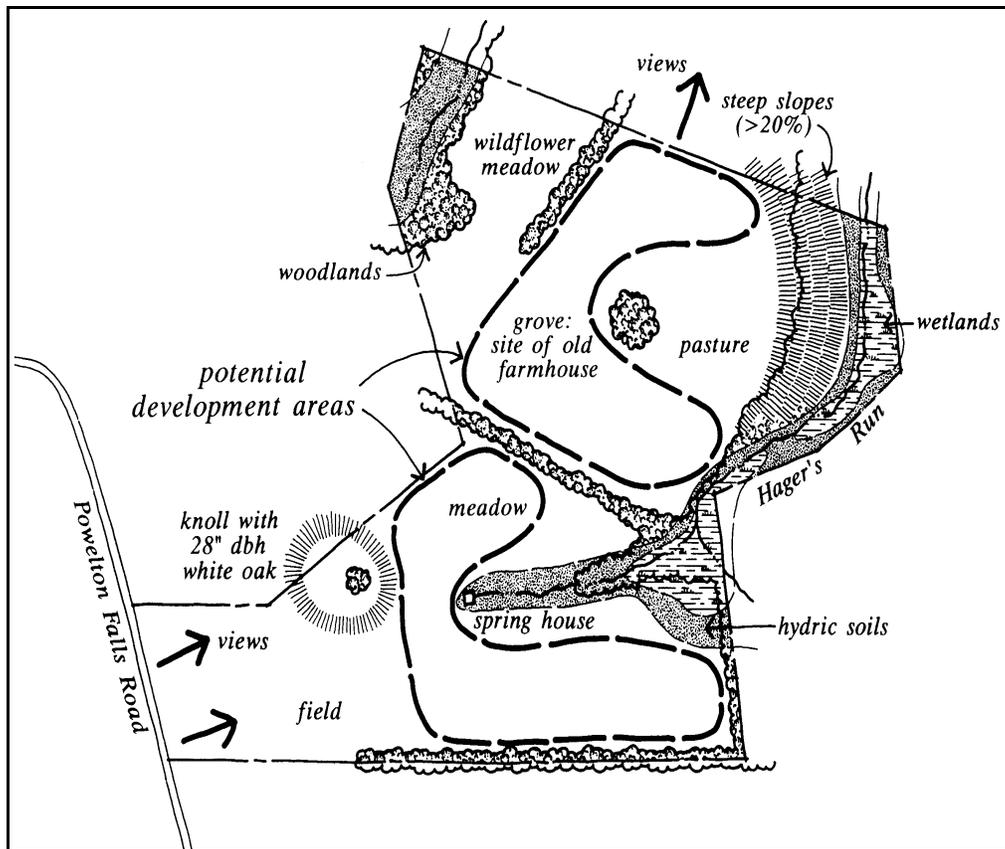
2. Proposed conservation open space shall be designated using the Existing Resources and Site Analysis Plan as a base map and complying with §801 of the Zoning Ordinance and this §602 and §603, dealing with resource conservation and conservation open space delineation standards. The Township's Map of Potential Conservation Lands shall also be referenced and considered. Primary Conservation Areas shall be delineated comprising floodplains, wetlands and slopes over 25 percent.
3. In delineating Secondary Conservation Areas, the applicant shall prioritize natural and cultural resources on the tract in terms of their highest to least suitability for inclusion in the proposed conservation open space, in consultation with the Planning Commission and in accordance with §603.1 and §603.2.
4. On the basis of those priorities and practical considerations given to the tract's configuration, its context in relation to resources 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 conservation open space and in a manner clearly indicating their boundaries as well as the types of resources included within them.
5. Development areas constitute the remaining lands of the tract outside of the designated open space areas.



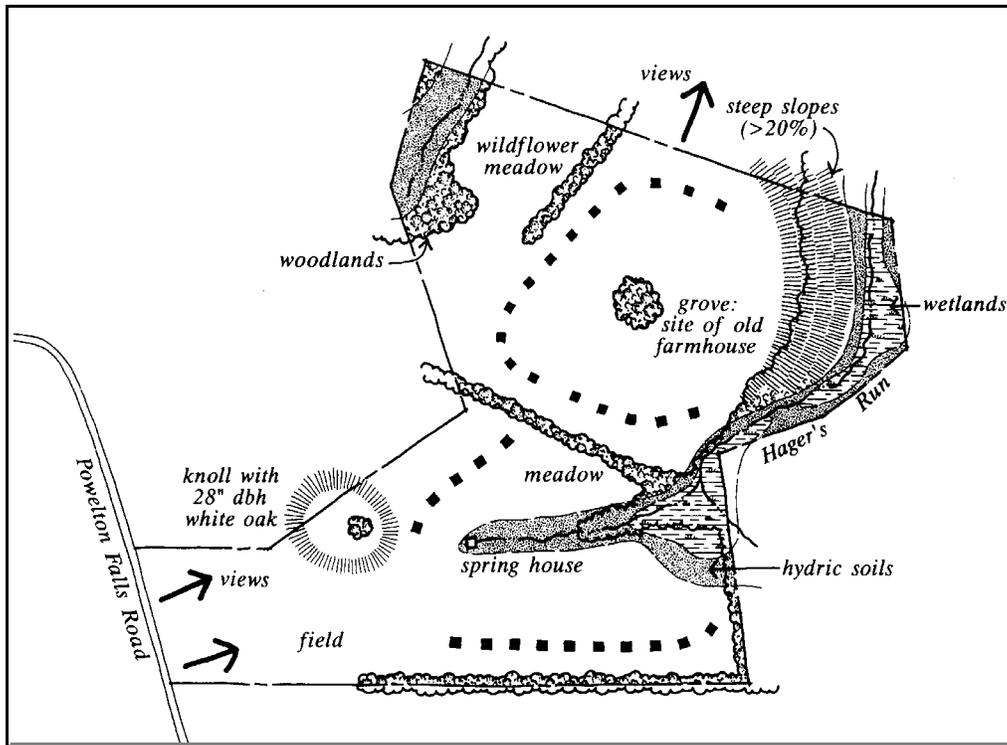
Step 1, Part 1 – Identifying Primary Conservation Areas



Step 1, Part 2 – Identifying Secondary Conservation Areas



Step 1, Part 3 – Identifying Potential Development Areas



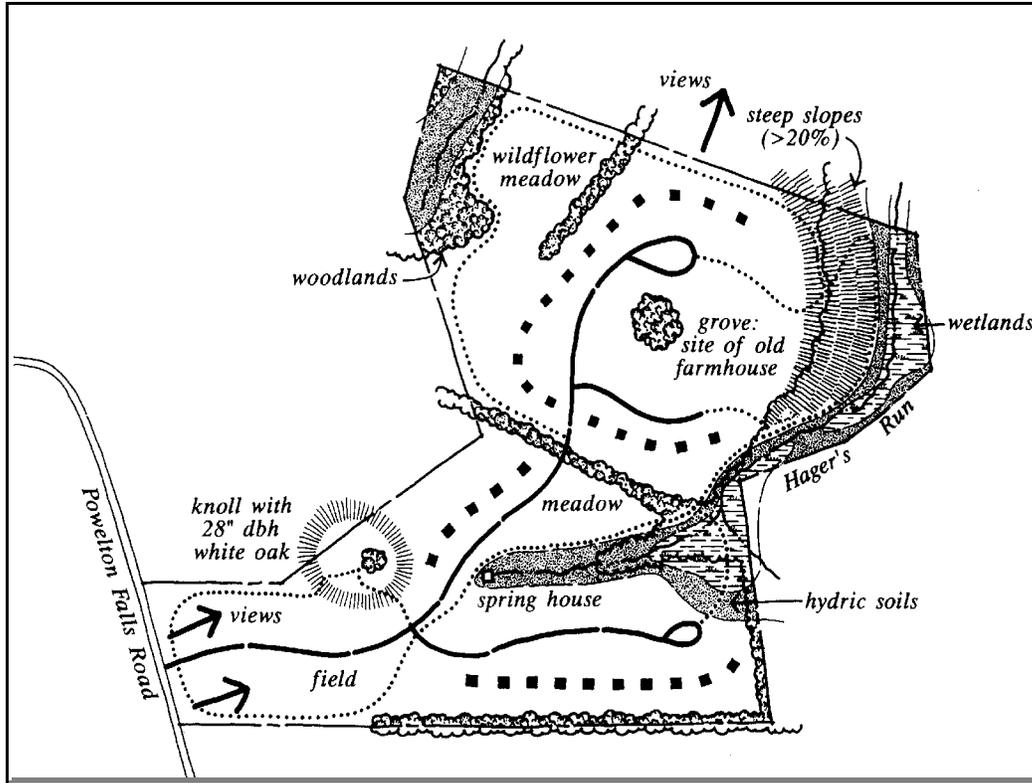
Step 2 – Locating Potential House Sites

B. Step 2: Location of House Sites

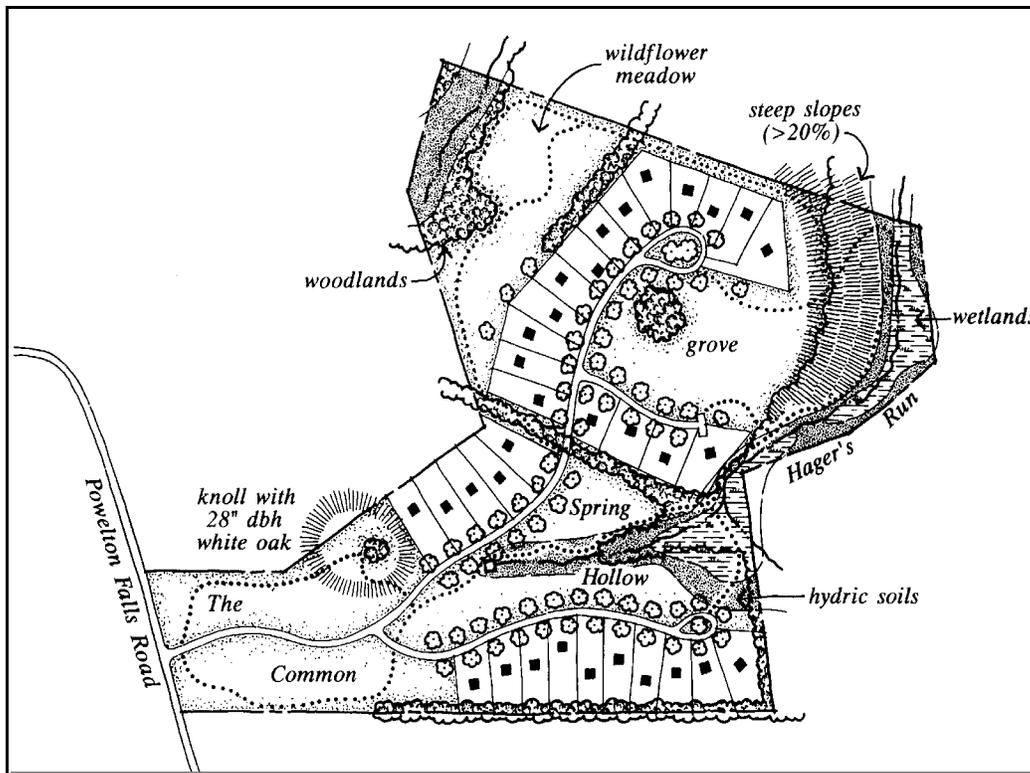
Potential house sites shall be located, using the proposed conservation open space as a base map as well as other relevant data on the Existing Resources and Site Analysis Plan such as topography and soils. House sites should generally be located not closer than 100 feet to Primary Conservation Areas and 50 feet to 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

1. With house site locations identified, applicants shall delineate a street system to provide vehicular access to each house in a manner conforming to the tract's natural topography and providing for a safe pattern of circulation and ingress and egress to and from the tract.
2. Streets shall avoid or at least minimize adverse impacts on the conservation open space areas. To the greatest extent practicable, wetland crossings and new streets or driveways traversing slopes over 15 percent shall be avoided.
3. Street connections shall generally be encouraged to minimize the number of new cul-de-sacs and to facilitate easy access to and from homes in different parts of the tract and on adjoining parcels.
4. A tentative network of trails shall also be shown, connecting streets with various natural and cultural features in the conserved conservation open space. Potential trail connections to adjacent parcels shall also be shown, in areas where a municipal trail network is envisioned.



Step 3 – Aligning Streets and Trail Links



Step 4 – Drawing in the Lot/Development Lines

D. Step 4: Drawing in the Lot/Development Lines

Upon completion of the preceding three steps, boundaries are drawn as required to delineate the boundaries of individual lots or development areas, following the configuration of house sites and streets in a logical and flexible manner.

603 Conservation Open Space Design Review Standards

603.1 Prioritized List of Resources to be Conserved

The design of open lands in any subdivision or land development plan shall reflect the standards set forth in §601, resources identified on the Map of Potential Conservation Lands and, to the fullest extent possible, incorporate any of the following resources if they occur on the tract (listed in order of significance):

- A. Stream channels, floodplains, wet soils, swales, springs and other lowland areas, including adjacent buffer areas which may be required to insure their protection.
- B. Significant natural areas of species listed as endangered, threatened, or of special concern, such as those listed in the Statewide Natural Diversity Inventory.
- C. Moderate to steep slopes, particularly those adjoining water courses and ponds, where disturbance and resulting soil erosion and sedimentation could be detrimental to water quality.
- D. Healthy woodlands, particularly those performing important ecological functions such as soil stabilization and protection of streams, wetlands and wildlife habitats.
- E. Areas where precipitation is most likely to recharge local groundwater resources because of topographic and soil conditions affording high rates of infiltration and percolation.
- F. Hedgerows, groups of trees, large individual trees of botanic significance, and other vegetational features representing the site's rural past.
- G. Class I, II and III agricultural soils as defined by the USDA Natural Resource Conservation Service.
- H. Historic structures and sites.
- I. Visually prominent topographic features such as knolls, hilltops and ridges, and scenic viewsheds as seen from public roads (particularly those with historic features).
- J. Existing trails connecting the tract to other locations in the municipality.

603.2 Other Design Considerations

The configuration of proposed open lands set aside for common use in residential subdivisions and open lands in non-common ownership shall comply with the following standards. Open lands shall:

- A. Be free of all structures except historic buildings, stone walls, and structures related to open land uses. The Governing body may grant approval of structures and improvements required for storm drainage, sewage treatment and water supply within the open space provided that such facilities would not be detrimental to the open space (and that the acreage of lands required for such uses is not credited towards minimum open acreage requirements for the tract, unless the land they occupy is appropriate for passive recreational use).
- B. Generally not include parcels smaller than three acres, have a length-to-width ratio of less than 4:1, or be less than 75 feet in width, except for such lands specifically designed as neighborhood greens, playing fields or trail links.

- C. Be directly accessible to the largest practicable number of lots within the subdivision. Non-adjoining lots shall be provided with safe and convenient pedestrian access to open land.
- D. Be suitable for active recreational uses to the extent deemed necessary by the Governing body, without interfering with adjacent dwelling units, parking, driveways, and roads.
- E. Be interconnected wherever possible to provide a continuous network of open lands within and adjoining the subdivision.
- F. Provide buffers to adjoining parks, preserves or other protected lands.
- G. Except in those cases where part of the open is located within private house lots, provide for pedestrian pathways for use by the residents of the subdivision. Provisions should be made for access to the open lands, as required for land management and emergency purposes.
- H. Be undivided by public or private streets, except where necessary for proper traffic circulation.
- I. Be suitably landscaped either by retaining existing natural cover and wooded areas and/or according to a landscaping plan to protect open space resources.
- J. Be made subject to such agreement with the Township and such conservation easements duly recorded in the office of the County Recorder of Deeds as may be required by the Township for the purpose of preserving the common open space for such uses.
- K. Be consistent with the municipality's Comprehensive Plan and its Open Space Plan.

604 Reserved

605 Resource Conservation Standards For Site Preparation and Cleanup

605.1 Protection of Vegetation from Mechanical Injury

Where earthwork, grading, or construction activities will take place in or adjacent to woodlands, old fields or other significant vegetation or site features, the Township may require that the limit of disturbance be delineated and vegetation protected through installation of temporary fencing or other approved measures. Such fencing shall be installed prior to commencing of and shall be maintained throughout the period of construction activity.

605.2 Protection of Vegetation from Grading Change

Grade changes to occur at any location of the property shall not result in an alteration to soil or drainage conditions which would adversely affect existing vegetation to be retained following site disturbance, unless adequate provisions are made to protect such vegetation and its root systems.

605.3 Protection of Vegetation from Excavations

When digging trenches for utility lines or similar uses, disturbances to the root zones of all woody vegetation shall be minimized. If trenches must be excavated in the root zone, all disturbed roots shall be cut as cleanly as possible. The trench shall be backfilled as quickly as possible.

605.4 Protection of Topsoil

- A. No topsoil shall be removed from the site. In the case of a non-residential development, top soil shall be retained on the site as necessary for proper site stabilization.

- B. Prior to grading operations or excavation, topsoil in the area to be disturbed shall be removed and stored on site.
- C. Topsoil removed shall be redistributed and stabilized as quickly as possible following the establishment of required grades for a project or project phase. All exposed earth surfaces shall be stabilized by hydroseeding on slopes of less than ten percent, and by sodding, hydroseeding, or rip-rap on slopes exceeding ten percent.
- D. Grading and earthmoving operations shall be scheduled to minimize site disturbance during the period from November 1 to April 1, when re-vegetation of exposed ground is difficult.

606 Blocks and Lots

606.1 Configuration

The configuration of blocks and lots shall be based upon the lot area requirements, the salient natural features, open land requirements, the existing man-made features, and the proposed type of structure. Lot configurations should provide for flexibility in building locations, while providing safe vehicular and pedestrian circulation.

606.2 Blocks

- A. Residential blocks shall have a maximum length to serve not more than twenty-five (25) lots.
- B. Commercial blocks shall have a maximum length of one thousand (1000) feet.
- C. Blocks shall be of sufficient width to permit two tiers of lots except where a public street, stream, other natural barrier or unsubdivided land prevents the platting of two tiers of lots.
- D. To facilitate pedestrian movement through the neighborhood, mid-block pedestrian connections shall be provided on blocks longer than eight hundred (800) feet.

606.3 Lots

- A. Lot sizes and dimensions shall comply with the requirements of the Township Zoning Ordinance. Lot dimensions for subdivisions with open lands are governed by §801 of the Zoning Ordinance. The maximum depth to width ratio of any lot shall not exceed 4:1; however, no lot need exceed a width of three hundred (300) feet.
- B. Lots divided by municipal boundaries shall be avoided. Where a subdivision is divided by a municipal boundary, the applicant shall so notify each municipality affected so that an administrative agreement for the platting and taxing of lots between the municipalities can be executed, if such agreement is necessary.
- C. All lots shall front on an approved street. Flag lots shall be permitted only by waiver/modification in accord with §1003 for flexibility of design, to accommodate odd shaped tracts, and to minimize impacts on natural and historic resources.
- D. All side lines of lots shall be as near as possible at right angles to straight street lines and radial to curved street lines.
- E. In order to minimize the number of driveways or road accesses to a public road in residential subdivisions, access to the abutting public road shall be limited to one (1) access per five hundred (500) feet of road frontage.
- F. Double frontage lots shall not be platted. Access to lots shall be restricted to the interior development streets unless no other reasonable design alternative is possible.

- G. All lands in a subdivision shall be included in platted lots, roads, common areas and other improvements; and no remnants of land or reserve strips controlling access to lots, public rights-of-way, public lands or adjacent private lands shall be permitted.
- H. Lots shall be laid out to the edge of any road, and lot lines along existing public or private roads shall be maintained as they exist.

607 Streets/Roads

- A. Every subdivision and land development shall have access to a public road.
- B. In general, all streets shall be continuous and in alignment with existing streets and shall compose a convenient system to insure circulation of vehicular and pedestrian traffic, with the exception that minor streets shall be laid out including the use of loop streets and cul-de-sacs, so that their use by thorough traffic will be discouraged.
- C. Roads shall be graded, improved and surfaced to the grades and specifications shown on the plans, profiles and cross sections as approved by the Township.
- D. Proposed streets shall conform in all respects to the Township Comprehensive Plan.
- E. Proposed streets shall further conform to such County and State highway plans as have been prepared, adopted and/or filed as prescribed by law and to the requirements of a general plan of the area as developed by the Township.

607.1 Topography

Roads shall be logically related to topography to produce reasonable grades, minimize stormwater run-off and provide suitable building sites.

607.2 Existing Access

Existing private roads or rights-of-way proposed to provide access to a subdivision and/or land development shall meet all the requirements of this §607 or shall otherwise be improved to such standards.

607.3 Street Continuation

Residential streets shall be planned to discourage through traffic; however, the arrangement of streets wherever possible shall provide for continuation of existing or platted streets and for adequate access to adjoining undeveloped tracts suitable for future subdivision by reserving rights-of-way to the adjoining undeveloped tracts.

607.4 Subdivision Names and Street Names

Streets that are extensions of, or obviously in alignment with, existing streets shall bear the names of the existing streets. Subdivision and street names shall not be repeated or be similar to those existing within the Township or adjacent areas and all street names shall be subject to the approval of the Township for conformance with the 911 emergency call system. Four way street name signs of a design approved by the Township shall be installed by the developer at his expense at each street intersection.

607.5 Further Subdivision

If lots resulting from original subdivision are large enough to permit re-subdivision, or if a portion of the tract is not subdivided, adequate street rights-of-way to permit further subdivision shall be provided as necessary. At least one right-of-way shall be reserved for each one thousand six hundred (1,600) feet of frontage on a public road or on a collector street within the subdivision in order to provide access to undeveloped land.

607.6 Cul-de-Sac Streets

Cul-de-sac streets shall be permitted only in cases where the property configuration does not permit the logical use of continuous streets, and the Township shall have the right to deny the use of cul-de-sac streets in cases where the Township determines that the use of continuous streets is practical. Cul-de-sac streets, where permitted, shall meet the following design regulations:

- A. Dead-end streets are prohibited unless otherwise designed as cul-de-sac streets or designed to provide future access to adjoining properties.
- B. Any temporary dead end street, if no longer than two-hundred (200) feet or fronted by existing lots, shall be provided with a temporary all-weather turn-around, within the subdivision with a surfaced area with a radius equal to that required for a permanent turnaround, and the use of such turnaround shall be guaranteed to the public but shall be removed when the street is extended.
- C. Cul-de-sac streets, permanently designed as such, shall not serve more than twenty-five (25) lots nor exceed one thousand (1,000) feet in length.
- D. All cul-de-sac streets, whether permanently or temporarily designed as such, shall terminate in a circular turnaround with a right-of-way with a minimum outside radius of forty (40) feet and the outer pavement edge or curb line shall have a minimum radius of thirty (30) feet and be improved to the required construction specifications.
- E. The turnaround right-of-way of the cul-de-sac shall be connected to the approach right-of-way by an arc having a radius of not less than twenty-five (25) feet.
- F. When the Township determines that a cul-de-sac street may be required to be converted to a through street to provide access to adjoining property, a right-of-way equal to the width of the cul-de-sac street shall be provided to the perimeter boundary of the development parcel.
- G. As an alternative to a cul-de-sac street, the Township may permit a one-way loop lane with a midway length not to exceed one thousand (1,000) feet and with a center median not less than fifty (50) feet in width.

607.7 Reserved

607.8 Intersections

- A. Center-lines of streets shall intersect as nearly at right angles as possible.
 - 1. Any center-line angle of less than eighty (80) degrees shall be allowed only upon grant of a waiver by the Township based upon a written request by the Developer.
 - 2. Center-line angles of less than sixty (60) degrees shall not be approved under any condition.
- B. Intersections of more than two (2) streets at one (1) point are not permitted.
- C. Where streets intersect other streets, the minimum offset or distance between center-lines of parallel or approximately parallel streets intersecting a cross street from opposite directions shall be as follows:
 - 1. One hundred fifty (150) feet for minor streets.
 - 2. Four hundred (400) feet for collector streets.

- D. The cartway edge at intersections shall be rounded by a tangential arc with a minimum radius of forty (20) feet for minor streets or streets of lesser classification and fifty (50) feet for collector streets and Township, or State roads.

607.9 Major Street Frontage

Where a subdivision and/or land development abuts or contains an existing or proposed collector street, or Township, or State road, the Township may require access from interior subdivision streets or such other treatment as will provide protection for abutting properties, reduction in number of intersections with the collector or public street and separation of local and through traffic.

607.10 Street Right-of-Way, Travelway, Shoulder Widths, and Cross Sections

Street right-of-way, travelway and shoulder widths shall be provided to the minimum standards provided in Table VI-1 and Table VI-2.

- A. Shoulder surfaces shall be graded at a slope one-half (0.5) inch per foot away from the pavement edge.
- B. The finished paved travelway surface of tangent sections and curve sections not required to be superelevated, shall be crowned at one-quarter (0.25) inch per foot away from the center-line.
- C. Properly superelevated cross-sections shall be required on collector streets when the curve radii are less than one-thousand five-hundred (1500) feet. The maximum permissible superelevation shall be 0.08 feet per foot.

607.11 Easements

Easements for utilities shall be provided and shall conform in width and alignment to the recommendations of the appropriate utility company. Easements shall also be provided for all storm water drainage ditches, sewers, and watercourses. All easements shall be shown on the Preliminary and Final Plan, and the Township or its agents shall have the right to enforce the restrictive easements relative to the water supply and sewage disposal in the event that the developer and/or lot owners fail, or are unable to do so. The Township shall further have free access to all developments and lots at all times for the purpose of inspection and enforcement.

A. Access Easements

- 1. Access easements shall be shown and labeled on the plans to indicate the purpose, easement users and the rights of said users.
- 2. No access easement shall be a part of any lot, but shall be a separate area designed with the express purpose of access to a particular site or facility. (Example: An access to a well lot would be part of the well lot and not a right-of-way across the adjoining building lot.)
- 3. Ownership and maintenance responsibility shall be noted on the plan for each easement.

B. Utility Easements

- 1. Utility easements shall be a minimum of ten (10) feet in width and shall be provided along all street rights-of-way in addition to the required street width.
- 2. All existing and proposed utility easements shall be shown and labeled on the plan and included in the restrictive covenants as appropriate.
- 3. Existing and proposed utility easements shall be included in lot sizes unless otherwise restricted by the utility.

TABLE VI-1 DESIGN STANDARDS FOR STREETS			
DESIGN SPECIFICATION	COLLECTOR [f]	MINOR	COUNTRY LANE [g]
Number of dwelling units served	> 200	26 - 200	25 or less
Cross Section Standards			
Street right-of-way width (feet) [a]	50	50	50
Additional road width [a]	as required for drainage, slope and utility easements		
Cartway width (feet)	32	26	22
Travelway width (feet)	24	20	18
Shoulder width, each - cut or fill (feet) [h]	4	3	2
Shoulder slope (inches per foot)	0.5		
Crown (inches per foot)	0.25		
Superelevation, maximum (feet per foot)	0.08		
Geometric Standards			
Maximum grade (%)	7 [c] [e]	12 [d] [e]	12 [d] [e]
Minimum center line radius for horizontal curves (ft) [b]	200	150	100
Minimum horizontal and vertical sight distance (ft)	300	150	150
Minimum tangents between curves (ft)	100	50	NA
Vertical curves	see §607.14		
<p>Notes:</p> <ul style="list-style-type: none"> a. Right-of-way width does not include slope, drainage or utility easements. Additional road width and cartway widths may be required by the Township to provide for additional construction requirements such as cuts, fills and embankment areas, or to lessen traffic congestion, to secure safety from fire, panic, or other dangers, to facilitate the adequate provision for transportation and other public requirements and to promote the general welfare. Or, in cases where topography or other physical conditions make a street required width impractical, the Township may modify the above requirements. b. Larger radii may be required as determined by alignment to provide required sight distances. c. 10% for up to 500 feet in distance. d. 14% for up to 500 feet in distance. e. The maximum grades in c. and d. above may be repeated if separated by distances of five hundred (500) feet meeting the standard grade requirements for the class of road. f. Collector standards apply to all commercial and industrial subdivisions and land developments. g. Curbs not permitted. h. If curbs are provided, shoulders shall not be provided. 			

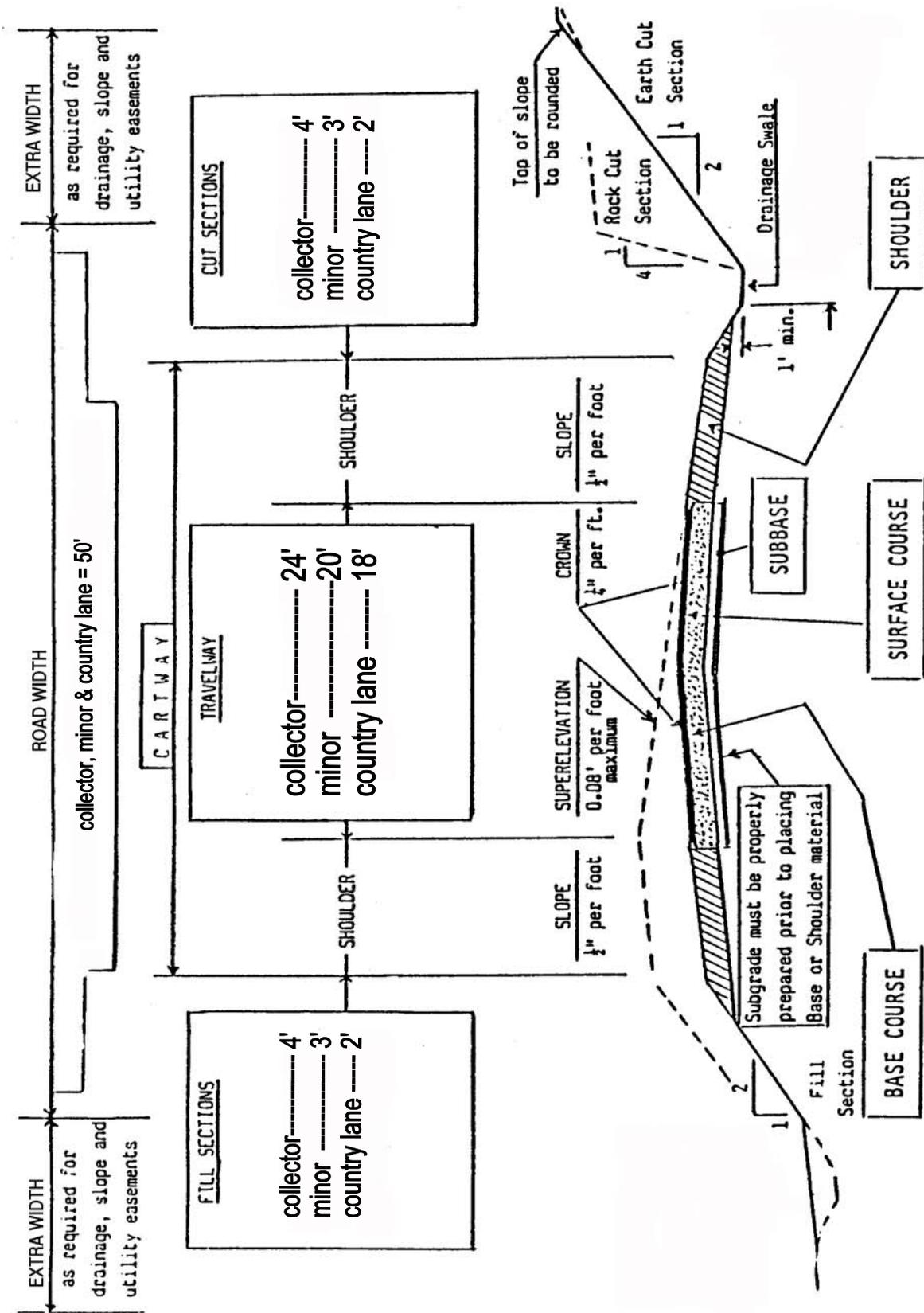


TABLE VI-2 TYPICAL STREET CROSS SECTION

TABLE VI-2 CONTINUED

RESIDENTIAL ROAD TRAVELWAY CROSS SECTION				
COURSE	MATERIAL*	MINIMUM DEPTHS (inches)		
		ROAD CLASSIFICATION		
		Collector	Minor	Country Lane
Surface	2A Coarse Aggregate**	NA	NA	NA
Bituminous Surface	ID-2 Wearing	1.5	1.5	1.5
Bituminous Base	Bituminous Concrete Base Course (BCBC)	4.5	4.5	4.5
Subbase	Subbase (No. 2A)	4	4	4
Aggregate Base	AASHTO #1 Coarse Aggregate with #10 Choke	8	8	8
Shoulders	2A Coarse Aggregate**	6	6	6
MODIFICATION FOR PRIVATE ROADS - In the case where a residential road will not be offered for dedication and will remain private, the bituminous surface and bituminous base may be replaced by a total of eight (8) inches of 2A Coarse Aggregate**				
COMMERCIAL AND INDUSTRIAL SUBDIVISIONS AND LAND DEVELOPMENTS				
TRAVELWAY CROSS SECTION		MINIMUM DEPTHS (inches)		
Bituminous Surface	ID-2 Wearing	1.5		
Bituminous Base	Bituminous Concrete Base Course (BCBC)	4.5		
Subbase	Subbase (No. 2A)	4		
Aggregate Base	AASHTO #1 Coarse Aggregate with #10 Choke	8		
Shoulders	2A Coarse Aggregate**	6		
NOTES: * All material shall meet PennDOT specifications, Publication 408, latest edition. ** 2A Coarse Aggregate = Coarse aggregate treated with PennDOT-approved oil for dust control at the application rate specified by PennDOT..				

607.12 Street Alignment

Street alignment shall be designed as follows:

- A. Whenever street lines are deflected in excess of seven and one half (7 ½) degrees, connection shall be made by horizontal curves.
- B. Streets shall be designed so that there will be unobstructed sight distances along the center-line thereof as set forth in Table VI-1.
 - 1. Stopping Site Distance - Stopping sight distance is the length of highway over which an object is visible to the driver at all times. For the purpose of measuring the available stopping sight distance at a particular

location, the driver's eye height is assumed to be three and one-half (3.5) feet above the roadway surface and the object height is assumed to be six (6) inches above the roadway surface.

2. Corner Site Distance - Corner site distance refers to the maximum length of highway along which a driver stopped at an intersection or driveway can continuously see another vehicle approaching on another roadway or driveway. For the purpose of measuring the available corner sight distance, the height of both the driver's eye and the approaching vehicle should be assumed to be three and one-half (3.5) feet above the roadway surface. In addition, the driver's eye should be assumed to be ten (10) feet from the near edge of the intersecting roadway or driveway or the near edge of the closest travel lane in the event there is parking permitted on the intersecting roadway or driveway.

C. Between reverse curves the following minimum tangents shall be provided:

1. Two hundred (200) feet on collector streets.
2. One hundred (100) feet on minor streets.
3. Fifty (50) feet on country lanes.

607.13 Street Grades

Street grades shall be designed as follows:

- A. Center-line grades shall not exceed the grades set forth in Table VI-1.
- B. The maximum grade across the turnaround on a dead end street shall not exceed four (4) percent.
- C. To provide for adequate drainage, the minimum grade of any street gutter shall not be less than one (1) percent.
- D. To provide for adequate drainage, the minimum grade of any parallel ditch along a street shall be not less than one (1) percent.
- E. A leveling area for all street intersections shall be provided as follows:
 1. The tangent grade of the through street at the point of intersection of the center-lines of the two streets shall not exceed eight (8) percent for minor street or minimum access street intersections, and all other intersections shall comply with the grades as required on Table VI-1. Crest and sag vertical curves shall be provided in accordance with §607.14.
 2. The tangent grade of the connecting street(s) shall not exceed three four (4) percent within twenty-five (25) feet of the right-of-way lines of the through street. Crest and sag vertical curves shall be provided in accordance with §607.14. The point of vertical curvature or tangency shall not be within the through street right-of-way.

607.14 Vertical Curves

Vertical curves shall be used at changes of grade exceeding four (4) percent and shall be designed as follows:

- A. Crest vertical curves shall be designed in relation to the road classification to provide vertical sight distance consistent with the horizontal sight distances as set forth in Table VI-1.
- B. On minor streets, sag vertical curves shall have a minimum length of fifteen (15) feet for each one (1) percent algebraic difference in tangent grade with an absolute minimum length of seventy-five (75) feet. (Example: 5% = 75' v.c.; 5.1% to 6% = 90' v.c.; etc.)

- C. Except on minor streets, sag vertical curves shall have a minimum length of twenty-five (25) feet for each one (1) percent algebraic difference in tangent grade with an absolute minimum length of one hundred (100) feet. (Example: 4% = 100' v.c.; 4.1% to 5% = 125' v.c.; etc.)
- D. The following vertical curve information should be shown on the plans:
 - 1. Length of vertical curve.
 - 2. Elevation and stationing of the VPI, VPC, VPT and MO.

607.15 Clear Sight Triangles

At all intersections, a triangular area shall be graded and/or other sight obstructions removed in such a manner as not to obscure vision between a height of from two (2) to ten (10) feet above the center-line grades of the intersecting streets.

- A. The clear sight triangle shall be guaranteed either by deed restriction, by lease restriction or by plan reference, whichever method is applicable. Vegetation shall not be planted or allowed to grow in such a manner as to obscure said vision.
- B. Such triangular area shall be determined by the intersecting street center-lines and a diagonal connecting the two points, one point at each street center-line:
 - a. One hundred seventy-five (175) feet from the intersection of such street center-lines if either street is a state or Township road.
 - b. One hundred twenty-five (125) feet from the intersection of such street center-lines if either street is a collector street.
 - c. Eighty-five (85) feet from the intersection of such street center-lines if both streets are minor streets.
 - d. Whenever a portion of the line of such triangle occurs behind (from the street) the building setback line, such portion shall be shown on the final plan of the subdivision and shall be considered a building setback line.

607.16 Residential Driveways

This §607.16 shall apply to lots in subdivisions approved after the effective date of this Ordinance. Driveways proposed for pre-existing lots and non-residential driveways shall be governed by other applicable Township and State requirements. Residential driveways shall comply with the following standards:

- A. Driveways shall not be permitted to have direct access to public streets unless authorized by the Township or the Pennsylvania Department of Transportation, as applicable, via issuance of a highway occupancy permit.
- B. Lots shall not be platted which would result in driveways which would exceed sixteen (16) percent in grade or as otherwise required by state or Township regulations.
- C. Entrances shall be rounded at a minimum radius of five (5) feet or shall have a flare construction that is equivalent to this radius at the point of intersection with the cartway edge.
- D. Future driveways which are to be constructed adjacent to a street intersection shall be shown on the preliminary and final plans.
- E. The minimum distance between a driveway or point of access and the nearest intersecting street shall be as follows:

Type of Subdivision or Land Development	Distance between center-line of driveway and center-line of nearest intersecting road by type of intersecting road.		
	Township or State	Collector	Minor & Country Lane
Residential	100 ft.	75 ft.	40 ft.

The nearest intersecting street shall be construed as being on the same or the opposite side of the street on which the lot is located.

- F. A leveling area not exceeding four (4) percent in grade and not less than twenty-five (25) feet in length shall be provided where a driveway intersects with the right-of-way of the adjoining road.
- G. Adequate provision shall be made for parallel drainage facilities.

607.17 Bridges and Stream Crossings

Bridges and other stream crossing structures which are part of the proposed street system shall be designed and constructed in accordance with the current Pennsylvania Department of Transportation Standards and Specifications for an H-20 loading. Copies of required DEP permits and evidence of compliance with any other state or federal requirements shall be provided. At a minimum, the width of the bridge or stream crossing shall be equal to the travelway width of the roadway carried by the bridge or stream crossing.

607.18 Clearing and Grubbing

The right-of-way for all collector, minor and minimum access roads shall be cleared and grubbed only to the extent necessary to provide the required road cartway, cuts and fills, and associated drainage facilities.

- A. All trees, stumps, roots and other material deemed unsuitable by the Township shall be removed from the grading area.
- B. Voids created by the removal of stumps or roots shall be backfilled and compacted to the satisfaction of the Township.
- C. Rocks greater than twelve (12) inches in diameter shall be removed to a minimum depth of six (6) inches below the finish subgrade.
- D. All cleared and grubbed areas shall be inspected and approved by the Township prior to the cut and fill operations.

607.19 Cuts and Fills

All cuts and fills shall be constructed as follows:

- A. The maximum slope of any earth embankment or excavation shall not exceed one foot vertical to two (2) feet horizontal unless stabilized by a retaining wall or cribbing, except as approved by the Township for special conditions.
- B. The maximum slope of any rock excavation shall not exceed four (4) feet vertical to one (1) foot horizontal.
- C. All excavations and embankments shall have a slope to the point of intersection with the natural grade with a rounding of the top of the slope of excavations to prevent erosion.

- D. All embankments shall be compacted to the satisfaction of the Township.
- E. Adequate provisions shall be made to prevent surface water from damaging the cut face of excavations of the sloping surfaces of fills.
- F. Cuts and fills shall not endanger adjoining property.
- G. Fills shall be placed in lifts and compacted in accord with specifications of PennDOT Publication 408, latest edition, to minimize sliding or erosion of the soil.
- H. Fills shall not encroach on natural watercourses or constructed channels, and fills placed adjacent to such natural watercourses or constructed channels shall have suitable protection against erosion during periods of flooding.
- I. Grading shall be done in a manner so as not to divert water onto the property of another landowner without the written consent of the landowner and the Township.
- J. During grading operations, necessary measures for dust control shall be exercised.
- K. Grading equipment shall not be allowed to cross streams and adequate provisions shall be made for the installation of culverts and bridges.

607.20 Sub-Grade, Base and Surface

A. Subgrade

- 1. The design and construction of the roadbed shall take into consideration the supporting capacities of the subgrade, with particular attention to those soils which are subject to frost heave.
- 2. Subgrade, parallel and cross drainage facilities shall be provided when necessary and shall be located, designed and installed to maintain proper drainage.
- 3. Unsuitable soils, as identified by the Project Engineer and confirmed by the Township Engineer, shall be removed and replaced, drained or otherwise stabilized to provide adequate support for the roadbed and anticipated loads. If construction of a road bed in such locations and particularly on soils identified in the Lackawanna County Soil Survey as subject to frost heave is proposed, the Township shall require such drainage facilities and/or underdrains and subgrade drains as necessary to stabilize the subgrade. The design of such facilities shall be approved by the Township.

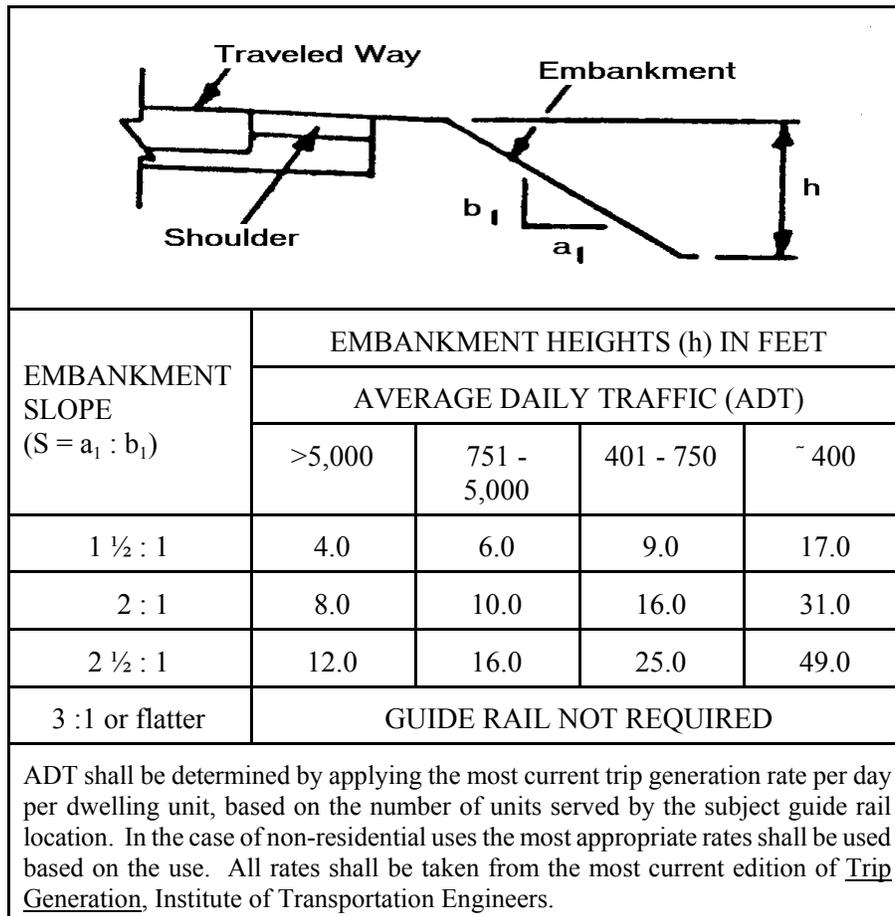
B. Subbase and Base Course - Subbase and base course aggregate material shall conform in type and be compacted to the depths shown in Table VI-2 of this Ordinance in accordance with the latest specifications of the Pennsylvania Department of Transportation (Form 408) and the requirements of Glenburn Township.

C. Surface Course - The bituminous surface course shall conform in type and be compacted to the depths shown in Table VI-2 of this Ordinance in accordance with the latest specifications of the Pennsylvania Department of Transportation (Form 408) and the requirements of Glenburn Township.

D. Shoulders - Shoulders shall be constructed of the material and compacted to the width and depth shown in Table VI-2 of this Ordinance.

607.21 Walls, Slopes, and Guide Rails

- A. Where the grade of the street is above or below the grade of the adjacent land, walls or slopes shall be constructed in a manner satisfactory to the Township to support the street or the adjacent land, as the case may be.



- B. Guide rails shall be installed at points where a road or required parking area will be constructed three (3) feet or more above existing grade or as otherwise determined by the Township Engineer in accord with the above Table.

607.22 Curbs and Gutters

- A. In commercial developments or where other similar intensive uses exist or are anticipated, curbs shall ordinarily be required if such construction is deemed necessary by the Township for public safety.
- B. Minimum curb or pavement edge radii at street intersections shall be thirty (30) feet.
- C. Where curbs exist on abutting properties, their extension will ordinarily be required throughout the proposed subdivision.
- D. Where curbs are not required, adequate gutters shall be graded and protected by seeding, or appropriate surfacing.
- E. Curbs shall be constructed in accord with the requirements for RC 64 Curbs and Gutters in the most current edition of PennDOT publication *Standards for Roadway Construction*.

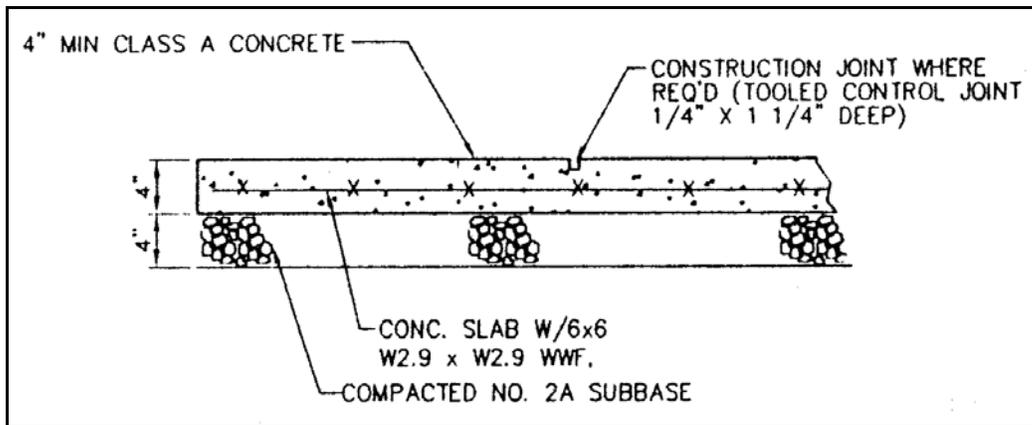
607.23 Sidewalks

Sidewalks may be required where necessary to provide proper pedestrian circulation or to provide access to

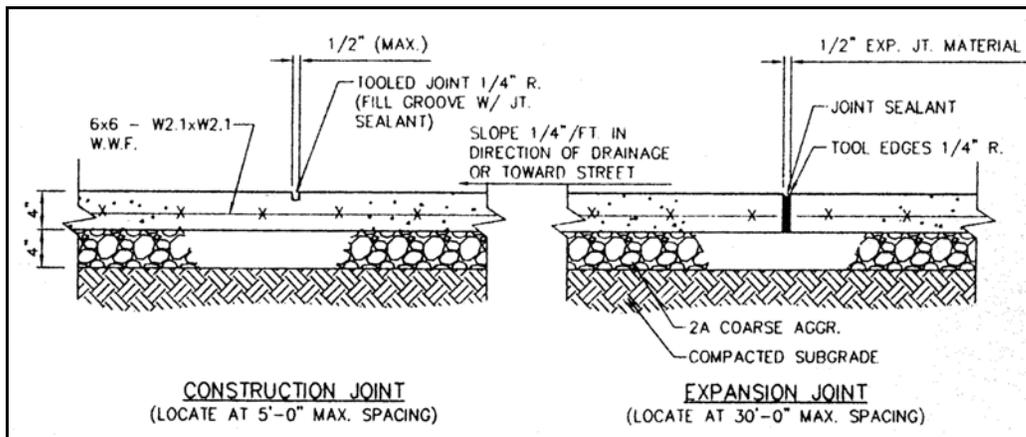
community facilities and common areas. Sidewalks, where required or provided, shall be located within the street right-of-way immediately adjacent to the curbs, except as may be approved by the Township to accommodate street trees or other landscaping.

G. Sidewalks and street crosswalks in residential and nonresidential subdivisions or land developments shall have a minimum width of four (4) feet.

H. Sidewalk construction shall conform to the following:



Concrete Sidewalk (Not to Scale)



Concrete Sidewalk Joint Detail (Not to Scale)

607.24 Parking On Streets

Off-street parking for all uses shall be provided in accord with the Township Zoning Ordinance, and streets shall not be designed to accommodate on-street parking.

607.25 Driveway and Cross Drainage

At each point where a street is intersected by a driveway that requires surface drainage water to be carried under the driveway at the intersection, a culvert pipe shall be installed across the width of the driveway to meet the drainage requirements determined in accord with §609 of this Ordinance. Such cross drains as may be necessary shall also be installed under the street in accord with the drainage plan. Pipes shall be installed at such depth and in such manner as dictated by the site; and, no pipe shall be installed that is less than eighteen (18) inches in diameter. (See also §609.)

608 Monuments and Markers

Monuments and markers shall be placed so that the center or scored or marked point shall coincide exactly with the intersection of the lines being monumented or marked and shall conform to the following:

608.1 Monuments

A. Monuments shall consist of either:

1. Solid steel rods not less than one (1) inch in diameter and not less than thirty-six (36) inches in length (preferred 42" to 48").
2. A two (2) inch (inside diameter) galvanized pipe filled with concrete at least thirty-six (36) inches in length (preferred 42" to 48").
3. A concrete cylinder four (4) inches in diameter and at least thirty-six (36) inches in length (preferred 42" to 58").
4. Other types approved by the Township.

B. Monuments shall be set flush with the finish grade of the surrounding ground.

C. All monuments shall be placed under the direction of a Registered Professional Land Surveyor who will take full responsibility for their accuracy and placement.

D. Monuments shall be placed as follows:

1. At all exterior property corners where permanent corners do not exist at the time of the perimeter survey. (Existing permanent corners shall not be removed or replaced but shall be noted on the plan as existing and described.)
2. One monument for every ten lots proposed shall be placed at intersections of rear lot lines, the location of which shall be proposed by the developer and approved by the Township. However, an adequate number of monuments shall be provided so that in no case shall the distance between monuments exceed one thousand (1000) feet.

608.2 Markers

A. Lot markers shall consist of either:

1. Solid steel rods not less than three-quarters (3/4) inch in diameter and not less than twenty-four (24) inches in length.
2. Steel pipes not less than three-quarters (3/4) inch in diameter and not less than twenty-four (24) inches in length.
3. Other types approved by the Township.

B. Markers normally shall be set two (2) inches above the finish grade of the surrounding ground.

C. All markers shall be placed under the direction of a Registered Professional Land Surveyor who will take full responsibility for their accuracy and placement.

- D. Markers shall not be placed until road grading has been completed.
- E. Lot markers shall be placed as follows:
 - 1. At all points where lot lines intersect street right-of-way lines.
 - 2. At all points where lot lines intersect exterior property lines.
 - 3. At all interior lot corners.
 - 4. At such other lot corners and locations as the Township may direct.

609 Stormwater and Drainage Control

609.1 Purpose and Stormwater Management Ordinance

- A. **Generally** - The purpose of this section is to minimize stormwater run-off, maximize on-site infiltration and aquifer recharge, provide for the management of the quantity, velocity and direction of stormwater flow to provide protection to downstream property owners, to control soil erosion and sedimentation and to protect the public general health, safety and welfare.
- B. **Storm Water Management Plans** - In cases where the Township has adopted a special purpose ordinance governing stormwater management in accord with a watershed management plan approved by the PA Department of Environmental Protection under the terms of the Stormwater Management Act, the requirements of such ordinance shall apply to developments in that watershed in addition to the requirements of this Ordinance. In cases where two standards conflict, the more restrictive shall apply.

609.2 Plan

A stormwater drainage and management plan shall be required for all major subdivisions and all land developments (except Minor Residential Land Developments) and shall be subject to the approval of the Township and Township Engineer. The Plan shall show all existing surface drainage features and shall include all appropriate designs, details and dimensions necessary to clearly explain proposed construction materials, grades and elevations. The Developer shall submit the plan and all associated engineering calculations to the Planning Committee at the time of subdivision or land development plan submission. Construction materials shall comply with the latest PennDOT Publication 408 standards and the applicable PennDOT RC standards for construction.

609.3 Compliance with State Regulations

The Plan shall meet the intent of §13 of the Pennsylvania Stormwater Management Act and other applicable regulations to assure that the maximum rate of storm water runoff is no greater after development than prior to development activities; or, the quality, velocity and direction of stormwater is managed in a manner which otherwise adequately protects health and property from possible injury. Said Plan shall comply with all Pennsylvania Department of Transportation requirements.

609.4 Design Criteria

- A. The basic goal of the stormwater management plan shall be to maximize the on-site infiltration of stormwater and minimize the overall volume of stormwater leaving the property after development, and the plan shall incorporate best management practices to achieve this goal.
- B. Stormwater management facilities shall be designed for a storm frequency of ten (10) years, using generally accepted engineering principles appropriate for the proposed site and development. In addition to being designed

for a ten year storm, detention facilities shall be designed to pass a 100 year storm without facility failure. In general, the soil cover complex method (Soil Conservation Service method) or the rational method shall be used to determine peak discharge and estimated runoff.

- C. The post-development, peak rate of stormwater discharge from the parcel being developed shall not exceed the pre-development, peak rate of stormwater discharge from the parcel being developed. The calculation of post development discharge shall, in addition to areas disturbed during development, include the estimated effect of all run-off expected from driveways, buildings, walkways, parking areas and other impervious areas associated with the ultimate build-out of the subdivision or land development. In addition to the ten (10) year storm, storms of less frequency shall also be controlled.
- D. The Township shall in cases where existing drainage problems, flooding or other factors relating to the public health, safety and welfare and upon the recommendation of the Township Engineer, require that the proposed stormwater control facilities be designed to a twenty-five (25) year storm frequency and/or other more stringent criteria; or, require the provision of stormwater control facilities in areas where no such facilities are proposed by the developer.

609.5 Additional Requirements

- A. All proposed surface drainage structures shall be indicated on the drainage plan submitted with the subdivision or land development plan and shall be considered "improvements" for the purposes of final subdivision approval. Construction materials shall comply with the latest PennDOT Publication 408 standards.
- B. Natural drainage courses and points of natural drainage discharge shall not be altered.
- C. Stormwater or natural drainage water shall not be diverted to overload existing drainage systems, or create flooding or the need for additional stormwater management or drainage facilities on other properties without the written consent of the owners of such properties and the provision by the developer of facilities to control the stormwater or drainage.
- D. Where a subdivision is traversed by a natural drainage way or channel there shall be reserved by the developer a drainage easement conforming substantially with the line of such drainage way or channel, and of such width as determined by the Township adequate to preserve the unimpeded flow of natural drainage, or for the purpose of widening, deepening, relocating, maintaining, improving or protecting such drainage facilities. A drainage easement shall also be so provided for all proposed stormwater control facilities.
- E. Where a subdivision is traversed by a watercourse, there shall be provided a drainage easement of not less than twenty-five (25) feet on each side of the stream from each stream bank, or such additional width as will be adequate to preserve the unimpeded flow of the watercourse.
- F. All streets shall be so designed as to provide for discharge of surface water from their right-of-ways.
- G. In no case shall any pipe system of less than fifteen (15) inches be installed underneath a street or driveway, and all pipes shall be of a plastic, PVC, HDPE, concrete or other material of an equal or greater useful life, meeting the requirements of PennDOT Publication 408, latest edition.
- H. Drainage structures that are located on State Highway right-of-ways shall be provided in accord with Pennsylvania Department of Transportation requirements and a copy of the required highway occupancy permit shall be provided to the Township prior to final plan approval.
- I. Lots shall be laid out and graded to prevent cross lot drainage and to encourage drainage away from proposed

building areas.

- J. Drainage easements of a minimum of ten (10) feet in width shall be provided along all side and rear lot lines; (a total of twenty (20) feet for abutting lots) and adjacent to street rights-of-way as required by the stormwater drainage and management plan.
- K. Paved street shoulders, gutters and/or drainage swales and rip/rap of drainage swales may be required to provide for adequate stormwater management.

609.6 Maintenance of Stormwater Control Facilities

- A. Maintenance of stormwater control facilities, including easements between lots, shall be the responsibility of the owner of said facilities. A legally binding agreement may be required between the owner and the Township to provide for such maintenance and providing for inspections by the Township.
- B. In cases where a property owners association is created for the ownership, operation and maintenance of common facilities such property owners association shall be responsible for the maintenance of stormwater control facilities and such maintenance shall be established in the deed covenants and restrictions.
- C. When stormwater management control facilities are located on an individual lot, and when such facilities are the responsibility of that landowner to maintain, a description of the facility or system and the terms of the required maintenance shall be incorporated as part of the deed to the property.
- D. If the Township determines at any time that any permanent stormwater management control facility has been eliminated, altered or improperly maintained, the owner of the stormwater control facility shall be advised of corrective measures required and given a reasonable period of time to take necessary action. If such action is not taken by the property owner, the Township may cause the work to be done and lien all costs against the property.

610 Soil Erosion and Sedimentation Controls

All soil erosion and sedimentation control plans shall meet the specifications of and shall be approved by the Lackawanna County Conservation District and PA DEP. Said Plan shall comply with Commonwealth of Pennsylvania, Title 25, Chapter 102 Department of Environmental Protection regulations for soil erosion and sedimentation control. Erosion and sedimentation controls shall be installed according to the approved Plan and shall be maintained by the developer in proper functioning condition until stabilization of the area is completed as determined by the Lackawanna County Conservation District. The Applicant shall submit the Plan to the Township at the time of preliminary plan application. Preliminary Plan approval shall not be granted by the Township until all required approvals and any NPDES permits are obtained from the Lackawanna County Conservation District and DEP.

611 Water Supply and Sewage Disposal

611.1 General Standards

- A. All subdivisions and land developments shall be served by an adequate water supply and sewage disposal system; and the developer shall provide evidence documenting said adequacy.
- B. All suppliers of non-municipally owned, central water and/or sewer services shall be organized in such a fashion as may be required by the Pennsylvania Public Utility Commission and the Developer shall provide for operation, maintenance and continuity of services in a manner which is acceptable to the Township.
- C. One (1) copy of all correspondence, supporting documentation, applications for permits and certificates for

operation submitted to the Pennsylvania Department of Environmental Protection and/or the Pennsylvania Public Utilities Commission for the right to provide such services shall be forwarded to the Township as a part of the public record. One (1) copy of the permit and/or certificate of convenience issued by the Pennsylvania Department of Environmental Protection and/or the Pennsylvania Public Utilities Commission authorizing such services shall be forwarded upon receipt to the Township as a part of the public record.

- D. In the case of utilization of a publically owned or other existing central water supply and/or sewage disposal system the developer shall submit at the preliminary stage a letter from the operator of such utility indicating the utility owner's willingness to supply service to the development and including a verification of the adequacy of the utility system to serve the proposed development. At the final approval stage an executed agreement with the service supplier shall be submitted.
- E. All required Certificates of Convenience, approvals and permits shall be obtained by the developer and/or the utility owner as a condition of preliminary approval and shall be submitted with the final plan application.
- F. All water supply and sewage disposal systems shall be designed and certified by a Registered Professional Engineer or other individual otherwise certified for such design work; and all systems shall be designed in accord with all applicable federal, state and local standards.
- G. Pressure testing of all collection/conveyance of any central water supply or central sewage disposal system lines shall be required as part of the inspections required in accord with Article VI of this Ordinance. All such testing shall be conducted in accord with the procedures specified by the Township Engineer.
- H. All sewage disposal systems shall be consistent with the Township Sewage Facilities Plan.

611.2 On-Site Water Supply

All on-site water supply systems shall comply with the requirements of Pennsylvania Department of Environmental Protection and/or applicable Township Ordinances. The requirement for the installation of on-lot wells shall be noted on the development plan and shall be required by restrictive covenant to be approved by the Township prior to preliminary plan approval.

611.3 Shared Water Supply

Shared water supply systems shall only be permitted to serve a minor (residential) land development or a non-residential land development and the standards in this §611.3 shall apply. In the case of non-residential land developments, the Township may, based on the nature and scale of development, apply any or all of the standards contained in §611.4 of this Ordinance.

611.3.1 Well Capacity - The capacity of the well shall be certified by a licensed well driller to be adequate for the use proposed.

611.3.2 Water Distribution System

- A. The system design shall follow good engineering practice and the requirements of the Pennsylvania Department of Environmental Protection. The distribution system shall be designed and sized to provide the design flows at a minimum pressure of twenty-five (25) pounds per square inch at curb stops.
- B. Pipe classes shall be consistent with design pressures.
- C. Before being placed into service, the system must be tested and disinfected by procedures established by Department of Environmental Protection.

D. Service connections shall be a minimum of three-fourths (3/4) inch diameter.

611.3.3 Other Standards - All shared water supply systems shall comply with the requirements of Pennsylvania Department of Environmental Protection and/or applicable Township Ordinances.

611.4 Central Water Supply

611.4.1 Public Supply - If a central water system is proposed and an existing public or private central water supply exists within one-thousand (1,000) feet of the proposed development, said development shall connect to such system in accord with the requirements of the system owner, the PA PUC and the PA DEP; provided, the owner of the existing system agrees to such connection.

611.4.2 Project Supply - If an approved public water supply is not accessible and water is to be furnished on a project basis, the Applicant shall, upon submission of the subdivision or land development plan, submit written evidence that he has complied with all Township, County and State regulations, and that the proposed system to be installed meets the requirements of the PA PUC, PA DEP, and any other applicable regulations.

611.4.3 Deep Well Source

- A. Wells shall be sited, drilled and tested under the direct supervisor of a Registered Professional Engineer and/or a Professional Groundwater Geologist.
- B. Wells shall be located away from potential source of pollution on a reserved parcel of not less than five thousand (5,000) square feet in size.
- C. The capacity of the well(s), as certified by a professional engineer, shall be sufficient to produce at least one hundred ten (110) gallons per capita per day and/or four hundred (400) gallons per day for each residential dwelling unit to be served. Adequate capacity of any well(s) to service industrial or commercial establishments shall be documented by the Applicant to the satisfaction of the Township and the Township Engineer.
- D. Wells shall be pump tested utilizing a controlled step-draw down test to establish the specific capacity of each well and to establish a long term pumping rate. The well shall be pumped at the above determined long term pumping rate for a sufficient period of time for stabilization to occur and the recovery noted. In no case will a pumping rate greater than the recharge rate be allowed.
- E. Well construction shall be consistent with generally accepted practice and the guidelines of the PA Department of Environmental Protection.
- F. Documentation of the effect of the projected area-wide draw down of the water table may be required by the Township if the anticipated pumping of groundwater warrants such documentation.

611.4.4 Water Distribution System

- A. The system design shall follow good engineering practice and the requirements of the PA DEP and/or the Public Utilities Commission. The distribution system shall be designed and sized to provide the design flows at a minimum pressure of twenty-five (25) pounds per square inch at curb stops.
- B. Pipe classes shall be consistent with design pressures.
- C. Before being placed into service, the system must be tested and disinfected by procedures established by

Department of Environmental Protection.

- D. The proposed utility shall provide for adequate flow of water for the subdivision supplied, by interconnecting two or more wells or by providing storage for a minimum of one (1) day's demand.
- E. Service connections shall be a minimum of three-fourths (3/4) inch diameter.

611.4.5 Flow Rates

- A. Distribution systems serving residential developments shall provide for a minimum flow rate of at least one and one-fourth (1.25) gallons per minute for each lot or proposed dwelling unit for domestic purposes only.
- B. Distribution systems serving commercial or industrial developments shall provide for a minimum flow rate of at least twenty-five (25) times the projected average daily flow rate.
- C. Distribution systems intended to provide for fire flow shall provide for minimum flow rates in accordance with the standards of the National Fire Underwriters Association.

611.5 On-Lot Sewage Disposal

- A. Standards - All on-site sewage disposal systems shall comply with the applicable PA DEP standards, the Township Sewage Facilities Ordinance and all other applicable standards.
- B. Site Suitability
 - 1. All residential lots in developments proposing the use of on-site sewage disposal shall contain two areas suitable for such a disposal system with such areas indicated on the Preliminary Plan and Final Plan. One area shall be used for installation of the system and the second area shall be reserved for future use should the constructed sewage system fail beyond repair. All sewage disposal areas shall remain undisturbed and this shall be assured via a covenant placed on the plan.
 - 2. Prior to any action on the Preliminary Plan by the Township, the Applicant must document that all lots in subdivisions proposing on-site sewage disposal contain a suitable area as tested by the Township SEO in accord with DEP requirements and this §611.5, or are already served by an adequate, existing sewage disposal system.
 - 3. Should the Applicant propose the use of individual systems which do not require soil testing, documentation shall be provided that the affected lots are suitable for the proposed system. In addition, a note shall be placed on the Preliminary Plan and Final Plan detailing the type of system(s) proposed and stating that the affected lots have not been tested for a soil-based system.
- C. Conservation Design Subdivisions - In the case of conservation design subdivisions the primary and reserved on-site sewage disposal areas may be located on common land provided the necessary easements for construction and maintenance of such systems are provided.
- D. System Maintenance - In order to extend the useful life of on-site sewage disposal systems and minimize on-site disposal system problems, the developer shall, for all subdivisions of ten (10) lots or more, provide for on-site system maintenance via the creation of a Property Owners Association (POA). This requirement shall also apply to any subdivisions of less than ten (10) lots if a POA is otherwise required or proposed. Such POA shall be created in accord with §506 of this Ordinance, and shall provide for the inspection of the on-site systems and the pumping of septic tanks at intervals of not less than three (3) years from the date of the operation of each system.

The POA shall file with the Township an annual report detailing which systems have been inspected and pumped, showing receipts for same from a septage hauler disposing of the septage at a DEP licensed facility. Failure of the POA to comply with this Subsection C shall be considered a violation of this Ordinance.

611.6 Central Sewage Disposal System

In addition to the following standards, the Township Sewage Facilities Ordinance shall govern all central sewage disposal facilities, as defined by the said Ordinance.

611.6.1 Public Sewage Disposal - If a central sewage disposal system is proposed and an existing public sewage disposal system or an existing private sewage disposal system identified as a "regional system" by the Township Sewage Facilities Plan, said development shall connect to such system in accord with the requirements of the Township Sewage Facilities Plan, the system owner, the PA PUC and the PA DEP.

611.6.2 Project System - If an approved sewage disposal system is not accessible and sewage disposal is to be furnished on a project basis, the Applicant shall, upon submission of the subdivision or land development plan, submit written evidence that he has complied with all Township, County, and State regulations, and that the proposed system to be installed meets the requirements of the Pennsylvania Department of Environmental Protection and any other applicable regulations.

- A. All central sewage disposal systems shall be consistent with the sewage feasibility studies and plans of the Township.
- B. All sewage collection and treatment facilities shall be designed and constructed in accordance with regulations and requirements of PA DEP and applicable Township Ordinances.
- C. All central sewage disposal systems shall be designed and constructed to provide adequate capacity for the ultimate flow of the subject development. The Township may also require that any central sewage disposal system be designed and constructed to provide for service to adjacent or nearby properties. In such instances, developers shall be financially responsible solely for those costs associated with their individual development.
- D. All central sewage disposal systems using subsurface or land application of sewage effluent shall be designed and constructed in accord with applicable PA DEP standards; and, a suitable replacement area for the effluent disposal area shall be provided.

611.7 Community System Maintenance

In order to extend the useful life of community sewage disposal systems and minimize disposal system problems, the developer shall, for all subdivisions or land developments using a community system, provide for system maintenance via the creation of a Property Owners Association. Such POA shall be created in accord with §506 of this Ordinance, and shall provide for the inspection of the community system each year and the pumping of septic tanks at intervals as required but not less once every three (3) years from the date of the operation of each system. The POA shall file with the Township an annual report detailing which systems have been inspected and pumped, showing receipts for same from a septage hauler disposing of the septage at a DEP licensed facility. Failure of the POA to comply with this §611.7 shall be considered a violation of this Ordinance.

612 Utilities

All utility lines required to service the subdivision shall be planned in cooperation with the respective utility companies. A letter shall accompany the subdivision or land development plan stating that the utility plan has been reviewed by the applicable utility company and that such plan is approved and that service will be available. All cables, wires, conduits, pipes and lines servicing the development shall be subject to the requirements set forth in this Ordinance.

613 Sidewalks

See §607.23.

614 Trees and Vegetation

614.1 Tree Protection

All areas of a site which have not been approved for any type of improvements shall remain undisturbed and the developer shall provide a plan for the protection of trees and other vegetation during construction. The general standard shall be that filling, grading, and use of heavy equipment within one (1) foot of the outer edge of the tree canopy drip line shall be prohibited. Any trees cut or damaged in areas not approved for improvements shall be replaced by the developer by planting trees of a type and size so that the total basal area of trees which have been removed or damaged will be regenerated within fifteen (15) years.

614.2 Street Trees

Where the subdivision or land development is cleared or devoid of trees, the developer shall plant shade trees meeting the following specifications within a ten-foot planting strip adjacent to all street rights-of-way.

- A. Types of Trees - Trees shall be of nursery stock quality of a deciduous species capable of attaining a height of sixty (60) feet approved by the Township. Topography and natural and historical features shall be considered by the developer and the Township in selecting and approving species. All trees shall be a minimum of 2.5 inches diameter at breast height.
- B. Location - Trees shall be planted along the street right-of-way on both sides of the street at intervals of not less than fifty (50) feet. The location of shade trees will be subject to the approval of the Township. Where sidewalks are provided or required, trees may be planted between the sidewalk and building line at least three (3) feet from the sidewalk or between the curb and sidewalk, provided that the planting strip is a minimum of five (5) feet in width. If no curb or sidewalk is provided, the trees shall be planted on the lot side of any drainage structures.
- C. Maintenance - Besides conforming to all parts of this subsection, all planting shall be done in accordance with good nursery and landscape practice. The developer shall be responsible for replacing any trees within eighteen (18) months of planting, and this shall be assured via a maintenance guarantee. A covenant running with the land shall stipulate that the responsibility for maintenance and replacement of street trees shall be borne by the owner of record.

615 Street Lighting

Street lights may be required when considered necessary by the Board and shall be of such design and spacing as required by the Board in accord with PPL or other generally accepted lighting standards.

616 Commercial and Industrial Subdivisions and Land Developments - see Article IX

617 Multi-Family Dwellings

In addition to the applicable requirements of this Ordinance, multi-family dwelling projects shall comply with Zoning Ordinance §603 and all other applicable requirements of the Township Zoning Ordinance.

618 Fire Fighting -- Adequate and Reliable Water Source

Each major subdivision or land developments shall provide an adequate and reliable water source for fire fighting purposes. The provisions for an adequate and reliable water source shall be submitted as part of the subdivision application. Such plans and installations shall be inspected by the Fire Department and shall be approved by the Township. The developer may elect to provide this water source through the establishment of a pressurized water system, static water source or combination thereof. When utilizing an off-site water source, the developer shall secure a permanent contract with the source owner to provide said water. Water sources shall conform to the requirements

set forth in this §618.

618.1 Pressurized System

When electing to use a pressurized water distribution system, the developer may use a gravity, direct pumping, or combination system. Regardless of the type of pressurized system installed, the system shall be installed in compliance with NFPA 24, unless the Township imposes other specific requirements.

- A. The flow capacity of the system shall such that it will maintain a delivery rate of one thousand (1,000) gallons per minute and forty (40) pounds per square inch residual pressure for a two-hour duration. No piping shall be used which is less than six (6) inches in diameter.
- B. Hydrants shall be of the dry barrel type with two (2), two and one-half- inch *nst* male discharges and one (1), four and one-half-inch male *nst* discharge. All discharges shall have caps installed. Hydrants shall not be set more than ten (10) feet from the road edge and shall have the four and one-half-inch connection facing the roadway. Each hydrant shall be equipped with a curb stop to allow for isolation of the hydrant. Fire hydrants shall be installed with a maximum spacing not to exceed eight hundred (800) feet. The Developer shall provide the Fire Department with a key to operate the curb stops. Hydrant bodies shall be painted bright yellow, with the bonnet and caps painted bright green.
- C. When pumps are used as part of the distribution system, a reserve power source shall be provided. This power source shall be designed to automatically start when primary power is lost. The Developer shall be responsible to provide monthly maintenance and testing of the power system.

618.2 Static Water Sources

When electing to use a static water source, the Developer shall ensure that access to the water source is provided within two thousand (2,000) feet road distance (not point to point) of any buildable point within the subdivision. This may be met either through the use of ponds, cisterns or a combination thereof. Regardless of the type of static source provided, the system shall be installed in compliance with NFPA 1231, unless the Township imposes other specific requirements.

- A. Static water sources shall be of sufficient capacity to provide an uninterrupted flow of at least one thousand five hundred (1,500) gallons per minute for a two-hour duration. Dry hydrants shall be installed in static water sources and located as required to meet the two thousand-foot requirement.
- B. The dry hydrant shall be capable of supplying a one thousand five hundred- gallons per minute pumper operating at one hundred (100) percent capacity at one hundred and fifty (150) pounds per square inch through ten (10) feet of six-inch suction hose. Dry hydrants shall be terminated with a forty-five-degree dry hydrant head a with six-inch male *nst* treads and a cap. The centerline of the head shall be three (3) feet from the ground. All piping used in the dry hydrant shall be *schedule 80 PVC*, with a minimum diameter of eight (8) inches. All exposed above ground components shall be primed with a PVC primer to prevent deterioration. The hydrant head shall be connected to the piping with a tapered coupling.
- C. The piping for the dry hydrant shall be installed a minimum of three (3) feet below the frost line and average ice depth of the water source. The strainer shall be located below the surface of the water at a depth that is greater than three (3) feet below the average ice depth of the water (and the water surface) and no less than two (2) feet from the bottom of the water source. The strainer shall have a clean-out cap installed for maintenance. The vertical distance from the water surface to the centerline of the hydrant head shall not exceed ten (10) feet.
- D. The access road to the dry hydrant shall meet the requirements for minor roads contained in this Ordinance.