

ARTICLE 5

DESIGN STANDARDS AND SPECIFICATIONS

Section 501: Statement of Intent

- (A) Article 5 of this Ordinance provides the design standards and specifications of the improvements for all proposed subdivision plans or land development plans within Upper Bern Township.
- (B) The provisions established for design standards and specifications, as established under this Ordinance shall be subject to the interpretation of the Upper Bern Township Board of Supervisors, Planning Commission, Engineer, Planning Consultant, Zoning Officer and Solicitor. Should a dispute arise concerning the interpretation of these regulations, the person aggrieved by the interpretation may file an appeal with the Board of Supervisors. In all cases, the burden of proof and submission of technical evidence shall be the responsibility of the applicant or person appealing the interpretation of the Upper Bern Township Board of Supervisors, Planning Commission, Engineer, Planning Consultant, Zoning Officer and Solicitor.
- (C) The design standards and specifications contained within Article 5 are intended as the minimum for the promotion of the public health, safety and general welfare, and shall be applied as such by the Upper Bern Township Board of Supervisors, Planning Commission, Engineer, Planning Consultant, Zoning Officer and Solicitor in reviewing all subdivision plans and land development plans.
- (D) Whenever other regulations established by Upper Bern Township impose more restrictive standards, specifications and requirements than those contained herein, such other regulations shall prevail.
- (E) Where, in the opinion of the Upper Bern Township Planning Commission after consulting with the Engineer, Planning Consultant, Zoning Officer and Solicitor, that the literal application of these design standards and/or required improvements would, in certain cases, cause undue hardship and/or is clearly unreasonable, the Planning Commission may recommend such reasonable exceptions. All such exceptions shall be consistent with the purpose statements and community development objectives of this Ordinance. The Upper Bern Township Board of Supervisors shall have the power to grant such exceptions, as recommended by the Planning Commission, upon written request by the applicant.
- (F) The design standards and specifications identified within this Ordinance may be modified by the applicant in the case of plans for complete communities, neighborhood units or other large scale developments which, in the opinion of the Upper Bern Township Board of Supervisors and Planning Commission, achieve substantially the objectives of these regulations and which are further protected by such covenants or other legal provisions as will assure conformity to and achievement of the subdivision or land development plan.
- (G) Land subject to hazards of life, health, or property, such as may arise from fire, floods, disease, or other causes, shall not be subdivided or developed unless such hazards have been eliminated or unless the subdivision or land development plan shall show adequate safeguards against them, which shall be approved by the appropriate regulatory agencies.
- (H) Subdivision and land development plans shall give due recognition to the Joint Comprehensive Plan for Northern Berks County, the Upper Bern Township Zoning Ordinance, the Upper Bern Township Sewage Facilities Plan, and other planning or land use document that has been adopted by Upper Bern Township.
- (I) All proposed improvements that are to be considered as part of the proposed subdivision or land development shall be planned and designed with consideration to nearby developments or neighborhoods. Upper Bern Township may advise the applicant to include special notes or design criteria that should be added to the plan.
- (J) All required improvements that are required to support a subdivision or land development shall be installed by the applicant or developer in accordance with the provisions of this Ordinance and the Pennsylvania Municipalities Planning Code.

Section 502: Street Design Standards

- (A) **General Standards:** The following general design standards shall be applied to the proposed streets and transportation system providing service to a subdivision or land development:
- (1) The location, arrangement, extent, grade and width of all streets shall conform to the Joint Comprehensive Plan for Northern Berks County and/or to all other "official transportation plans", or such parts thereof, as may have been adopted by Upper Bern Township.
 - (2) All proposed subdivisions or land developments applications shall have adequate access to the public street system of Upper Bern Township.
 - (3) The proposed street system shall extend existing or recorded streets at the same width as the existing or recorded streets, but in no case at less than the required minimum width identified within this Ordinance.
 - (4) Where, in the opinion of the Upper Bern Township, it is desirable to provide for street access to an adjoining property, street stubs shall be extended to the boundary of such property. The street stub shall meet the width requirements for a minor street or cul-de-sac street. The developer of the tract shall properly grade the street stub and provide an eight (8) inch stone base. The street stub or right-of-way shall be granted as an easement to Upper Bern Township.
 - (5) If required by the Upper Bern Township, new minor streets shall be designed and located to facilitate through traffic. In addition, the applicant shall give consideration to the extension and continuation of collector streets into and from adjoining properties.
 - (6) Where a proposed subdivision or land development is of sufficient size to warrant an interior circulation system, a clear hierarchy of streets shall be designed and established.
 - (7) Where a subdivision abuts an existing street of improper width, grade or alignment, Upper Bern Township may require the dedication of land sufficient to widen the existing street, or correct the improper grade or alignment.
 - (8) Proposed streets shall be logically adjusted to the topographic conditions of the site so as to produce reasonable grades, proper drainage, sufficient erosion control and suitable building sites.
 - (9) Proposed streets shall be laid out to avoid environmentally sensitive areas such as floodplains, wetlands, riparian buffers, wellhead protection zones, sinkholes and steep slopes.
 - (10) Whenever a subdivision or land development encroaches upon the legal right-of-way of a state highway, a Highway Occupancy Permit shall be issued by the Pennsylvania Department of Transportation for the encroachment and related site improvements.
 - (11) Whenever a tract to be subdivided or developed abuts or contains an arterial or a major collector street, the Upper Bern Township Planning Commission may require restriction of access to the street by one or more of the following methods:
 - (a) Provision of reverse frontage lots;
 - (b) Provision of service streets along the rear of the abutting lots, together with prohibition of private driveways intersecting the arterial or major collector streets;
 - (c) Provision of marginal access streets, provided that the reverse strips establishing such marginal access streets shall be placed within the jurisdiction of Upper Bern Township;
 - (d) Provision of an internal street system on which the proposed lots would have proper frontage and access; or
 - (e) The restriction of ingress and egress involving left-hand turns onto or off of the arterial or major collector street.

- (12) Private streets (streets not to be offered for dedication) are prohibited, unless they meet the design standards of these regulations and are constructed to the specifications of Upper Bern Township.
- (13) Dead-end streets are prohibited, unless designed and constructed as cul-de-sac streets.
- (14) New half or partial streets shall be prohibited.
- (15) Whenever a tract to be subdivided or developed borders on an existing half or partial street, the other part of the street shall be platted within such tract.
- (16) Service streets (alleys) are prohibited in developments containing single family dwelling units, except where required to avoid direct access onto an arterial street.
- (17) Service streets (alleys) may be permitted in developments containing multi-family dwelling units (townhouses and apartments) and non-residential land uses, provided that the service street is not the primary access point to the development. Where permitted, the service street shall have a minimum paved width of sixteen (16) feet.
- (18) The developer of any residential land development or subdivision involving fifteen (15) or more dwelling units shall contact the Hamburg Area School District prior to municipal approval to establish an acceptable safe and convenient location for a school bus stop.
- (19) A matrix chart summarizing the design standards and specifications for proposed streets servicing a subdivision or land development has been included within Appendix C of this Ordinance. The provisions specified within this matrix chart shall be subject to the interpretation of Upper Bern Township.

(B) **Street Widths:** Unless otherwise permitted by Upper Bern Township, the width or profile view of all proposed streets shall be designed in accordance with the following requirements:

- (1) Minimum streets right-of-way and cartway widths shall conform to the Joint Comprehensive Plan for Northern Berks County and/or to all other "official transportation plans", or such parts thereof, as may have been adopted by Upper Bern Township, Berks County or the Commonwealth of Pennsylvania. If not shown on such plans, the required right-of-way and cartway widths shall be as follows:

Street Width Requirements				
Functional Street Classification	Right-Of-Way	Cartway	Parking Lane	Shoulder
Minor/ Local Access Street ⁽¹⁾	50 feet	18 feet	8 feet per side	0 feet
	50 feet	24 feet	No Parking	8 feet per side
Cul-De-Sac Street ⁽¹⁾	50 feet	18 feet	8 feet per side	0 feet
	50 feet	24 feet	No Parking	8 feet per side
Collector Street ⁽²⁾	60 feet	24 feet	No Parking	8 feet per side
Arterial Street ⁽²⁾	100 feet	12 feet per lane	No Parking	10 feet per side
Marginal Access Street ⁽²⁾	33 feet	24 feet	No Parking	0 feet
<p>(1) Denotes that the design criteria shall be subject to the approval of Upper Bern Township.</p> <p>(2) Denotes that the design criteria shall be subject to the approval of Upper Bern Township and/or the Pennsylvania Department of Transportation.</p>				

- (2) Additional right-of-way and cartway widths may be required by Upper Bern Township for the purpose of promoting the public safety and convenience, or to provide on-street parking for certain developments.

- (3) Where a subdivision or land development abuts or contains an existing street of inadequate right-of-way width and/or cartway width, additional right-of-way width and/or cartway width shall be dedicated and/or constructed to conform with the standards of this Ordinance.
- (4) Where a subdivision or land development abuts or contains an existing street of inadequate horizontal and/or vertical alignment, Upper Bern Township may require additional right-of-way width or cartway width in order to improve public safety.

(C) **Centerline Road Grades:** Unless otherwise permitted by Upper Bern Township, the centerline road grades shall be designed in accordance with the following requirements:

- (1) With the exception of approaches at or through any street intersection, the minimum and maximum centerline road grade shall comply with the following design requirements:

Centerline Road Grade Requirements		
Functional Street Classification	Minimum Requirement	Maximum Requirement
Minor or Local Access Street	1 percent	10 percent
Cul-De-Sac Street	1 percent	10 percent
Collector Street	1 percent	8 percent
Arterial Street	1 percent	8 percent
Marginal Access or Service Street	1 percent	10 percent

- (2) All approaches to an intersection shall have a leveling area not exceeding five (5) percent in grade for a distance of one hundred (100) feet, as measured from the centerline of the intersecting street.
- (3) A crown or cross-slope shall be maintained with a minimum slope of 2.08 percent or ¼ inch per foot, as designed from the centerline to the curb or edge of the cartway.

(D) **Horizontal and Vertical Curves:** Unless otherwise permitted by Upper Bern Township, all horizontal and vertical street curves shall be designed in accordance with the following requirements:

- (1) Whenever street lines are deflected in excess of two (2) degrees, the connection of such street lines shall be made by horizontal curve.
- (2) Whenever the algebraic difference of the centerline street grade exceeds one (1) percent, a vertical curve shall be designed to provide sufficient sight distance.
- (3) All proposed horizontal and vertical street curves shall be designed in accordance with the following minimum requirements:

Horizontal and Vertical Street Curve Requirements		
Functional Street Classification	Minimum centerline radii for horizontal curves	Minimum sight distance for vertical curves
Minor or Local Access Street	150 feet	200 feet
Cul-De-Sac Street	150 feet	200 feet
Collector Street	300 feet	300 feet
Arterial Street	500 feet	400 feet
Marginal Access or Service Street	100 feet	150 feet

- (4) A tangent of no less than one hundred (100) feet, as measured along the street centerline, shall be provided between all horizontal street curves.
- (5) To the greatest extent possible, combinations of the minimum horizontal and vertical street curves shall be avoided.
- (6) Where in the best interest of the health, safety or general welfare of the community, Upper Bern Township may require greater horizontal or vertical curve lengths in order to overcome obstacles such as, but not limited to, centerline street grades, street alignments, functional speed limits, existing land uses and proposed land development activities.

(E) **Street Intersections and Curb Radii:** Unless otherwise permitted by Upper Bern Township, all proposed street intersections shall be designed in accordance with the following requirements:

- (1) The centerlines of streets shall intersect at right angles unless existing conditions dictate otherwise. No street shall intersect another street at an angle of less than 70 degrees or more than 120 degrees.
- (2) Street intersections should be designed in a manner so the intersecting roads are directly opposite from each other. No more than two (2) streets shall intersect at the same point.
- (3) The minimum separation distance between street intersections shall be based upon the functional classification of the road to which the proposed street intersection is planned. The following design requirements shall apply to the minimum separation distance between the centerlines of all proposed street intersections and the minimum curb radii at all proposed street intersections.

Street Intersection and Curb Radius Requirements		
Functional Street Classification	Minimum separation distance between street intersections	Minimum tangential arc for each curb radius
Minor or Local Access Street	200 feet	20 feet
Cul-De-Sac Street	200 feet	20 feet
Collector Street	500 feet	30 feet
Arterial Street	1,000 feet	40 feet
Marginal Access or Service Street	100 feet	15 feet

- (4) All proposed street right-of-way lines shall be parallel to (concentric with) curb arcs at intersections.
- (5) Where in the best interest of the health, safety or general welfare of the community, Upper Bern Township may require greater isolation distances and curb radii in order to overcome obstacles such as, but not limited to, centerline street grades, street alignments, functional speed limits, existing land uses and proposed land development activities.

(F) **Clear Sight Triangles:** Clear sight triangles shall be provided at all street intersections. Within such triangles, nothing, except permitted street signs, traffic lights or signs, utility poles and mail boxes, which impedes vision between a height of two and one-half (2-1/2) feet and ten (10) feet above the center line grades of the intersecting streets shall be erected, placed, planted or allowed to grow. Such triangles shall be established as follows:

- (1) For intersections involving a minor street, the dimension of the clear sight triangle shall be established for a distance of seventy-five (75) feet, as measured from the middle of the intersection or where the centerlines of the intersecting streets cross.
- (2) For intersections involving a collector street, the dimension of the clear sight triangle shall be established for a distance of one hundred (100) feet, as measured from the middle of the intersection or where the centerlines of the intersecting streets cross.

- (3) For intersections involving an arterial street, the dimension of the clear sight triangle shall be established for a distance of one hundred and fifty (150) feet, as measured from the middle of the intersection or where the centerlines of the intersecting streets cross.
- (G) **Sight Distance:** All proposed intersections shall have sufficient horizontal and vertical sight distance in order to provide a safe and convenient point of ingress and egress. The following provisions shall apply:
- (1) Sight distance measurements shall be made in each direction from a point 10 feet from the edge of the cartway and 3.5 feet above the road surface to a point 3.5 feet above the centerline of the road.
 - (2) The minimum sight distance requirements shall be based on the functional classification, speed limit and grade of the intersecting street, utilizing the latest standards of the American Association of State Highway and Transportation Officials (AASHTO) and the Pennsylvania Department of Transportation.
 - (3) A summary chart of the minimum sight distance requirements has been included within Appendix C of this Ordinance. Upper Bern Township and/or the Pennsylvania Department of Transportation may require additional sight distance than those referenced on the summary chart by considering the functional classification of the road, traffic volumes, vehicular speed, pedestrian movements, land use and other relevant site conditions.
- (H) **Cul-De-Sac Streets:** The following provisions shall apply to the design of cul-de-sac streets:
- (1) Cul-de-Sac streets may be permitted if the physical development conditions and/or the tract configuration of the site limit the design options for a "through street" or a "loop street".
 - (2) Dead-end streets are prohibited unless designed as cul-de-sac streets or designed for future access to adjoining properties.
 - (3) Any street dead-ended for access to an adjoining property or because of authorized stage development shall be provided with a temporary, all-weather turnaround, within the subdivision, and the use of such turnaround shall be guaranteed to the public until such time as the street is extended.
 - (4) Cul-de-Sac streets, permanently designed as such, shall not exceed one thousand (1,000) feet in length and shall not furnish access to more than twenty (20) dwelling units.
 - (5) Cul-de-Sac streets, permanently designed as such, shall have a minimum length of two hundred and fifty (250) feet measured from the edge of the cartway of an intersecting street to the center of the bulb of the cul-de-sac.
 - (6) Unless future extension is clearly impractical or undesirable, the turnaround right-of-way shall be placed adjacent to the tract boundary with sufficient additional width provided along the boundary line to permit extension of the street at full width. Alternative designs may be considered by Upper Bern Township, provided that such design does not limit accessibility to other parcels of land
 - (7) The center line grade on a cul-de-sac street shall not exceed ten (10) percent, and the grade of the diameter of the turnaround shall not exceed five (5) percent.
 - (8) All cul-de-sac streets, whether permanently or temporarily designed as such, shall be provided at the closed end with a fully paved turnaround, having a minimum radius of fifty (50) feet. The right-of-way shall have a minimum radius of sixty (60) feet.
 - (9) Drainage of cul-de-sac streets shall preferably be towards the open end. If drainage is toward the closed end, water shall be conducted away in an underground storm sewer or other means acceptable to Upper Bern Township.

Section 503: Street Construction and Improvement Specifications

- (A) All proposed streets shall be graded, improved and surfaced to the grades and dimensions on the approved plans, profiles and cross-sections.
- (B) All proposed streets shall be constructed and improved in accordance with the standards and specifications referenced within the Upper Bern Township Standard Construction and Material Specifications for Public Improvements, which is contained under Appendix E of this Ordinance.
- (C) Additional right-of-way and cartway widths, beyond what is required within this Ordinance , may be required by Upper Bern Township in order to control traffic patterns, to lesson traffic congestion, to facilitate the adequate provision for future community or transportation improvements, and/or when clearly in the interest of the public health, safety, or general welfare.
- (D) Where a subdivision or land development abuts or contains an existing street of inadequate horizontal and/or vertical alignment, Upper Bern Township may require adjustments in order to improve public safety.
- (E) All storm drainage facilities located within the ultimate right-of-way shall be designed and constructed in accordance with the provisions established by Upper Bern Township.

Section 504: Street Names and Addresses

- (A) All proposed street names shall be subject to the approval of Upper Bern Township, the Berks County Emergency Management Coordinator and the Postmaster having jurisdiction.
- (B) Proposed streets, which are obvious extensions of existing streets shall bear the same name as the existing street.
- (C) In no case shall the name of a proposed street duplicate an existing street name in Upper Bern Township and/or in the same postal district(s), irrespective of the use of the suffix street, road, avenue, boulevard, drive, way, place, court or lane.
- (D) Upon approval of the proposed subdivision plan or land development plan, Upper Bern Township shall assign street addresses to all proposed lots or uses.

Section 505: Street Signs and Lighting

- (A) All street signs, including but not limited to traffic control signs, street signs, and directional signs, shall be acquired and installed by the applicant. All such street signs shall meet the minimum requirements of Upper Bern Township and the Pennsylvania Department of Transportation as well as the provisions of the Americans with Disabilities Act.
- (B) Where traffic control signs are required, the applicant shall prepare and submit all studies, engineering reports, and documentation for procuring approval by Upper Bern Township and/or the Pennsylvania Department of Transportation.
- (C) Unless otherwise directed by Upper Bern Township, streetlights shall be provided at all street intersections within a proposed subdivision or land development. Upper Bern Township may require additional streetlights in order to provide safe and convenient vehicular and/or pedestrian circulation.
- (D) The type, quantity, positioning and illumination of the selected streetlight shall be subject to the approval of the Upper Bern Township Planning Commission.
- (E) Electrical installations for all streetlights shall be in accord with prevailing regulations and specifications by the local utility company providing service. It shall be the responsibility of the contractor or his agent to have final construction by an electrical inspection agency and a written report attesting this fact shall be submitted to Upper Bern Township and the local utility company providing service.

Section 506: Blocks, Lots and Parcels

- (A) The length, width and shape of blocks shall be determined with due regard to zoning requirements, topographic conditions, environmentally sensitive lands, and requirements for safe and convenient vehicular and pedestrian circulation. Unless otherwise permitted by Upper Bern Township the following provisions shall apply:
- (1) Blocks shall have a maximum length of two thousand six hundred (2,000) feet and a minimum length of five hundred (500) feet.
 - (2) In the design of blocks longer than one thousand (1,000) feet special consideration shall be given to the requirements of satisfactory fire protection.
 - (3) Residential blocks shall be of sufficient depth to accommodate two (2) tiers of lots, except where reverse frontage lots are required along a major collector or arterial street, or where prevented by physical site conditions.
 - (4) Blocks in non-residential areas may vary from the design criteria indicated above if the applicant demonstrates that the alternative design is essential to the proposed development. In all cases, however, adequate provisions shall be made for off-street parking, loading areas and traffic circulation.
- (B) The size, shape and orientation of proposed lots shall be appropriate for the type of development and use contemplated. Unless otherwise permitted by Upper Bern Township, the following provisions shall apply:
- (1) Lots shall conform to the applicable minimum lot sizes, lot widths and setback requirements as set forth in the Upper Bern Township Zoning Ordinance.
 - (2) Side lot lines shall be at right angles to street line tangents or radial to street line curves.
 - (3) The depth to width ratio of a residential lot shall not be less than 1 to 1 or greater than 3 to 1.
 - (4) The depth to width ratio of lots designated for non-residential land development shall be adequate for the land use proposed and sufficient to provide satisfactory space for on-site parking, loading and unloading, setbacks, buffer yards and landscaping.
 - (5) Where feasible, lot lines shall follow municipal boundaries rather than cross them, in order to avoid jurisdictional problems.
 - (6) Where feasible, lots shall be orientated and sited to take advantage of solar energy.
 - (7) Double or reverse frontage lots shall be avoided except as needed to avoid direct vehicular access onto an arterial or major collector street by individual driveways, or to overcome physical site conditions. All permitted residential reverse frontage lots shall have frontage onto a minor or minor collector street. The rear yard setback shall be established seventy-five (75) feet from the ultimate right-of-way line of the arterial or major collector street. Between the rear yard setback and the ultimate right-of-way line, a ten (10) foot wide planting screen easement shall be established in order to prohibit vehicular access onto the arterial or major collector street. The easement shall contain evergreen plantings meeting the standards of Section 914 of the Upper Bern Township Zoning Ordinance.
 - (8) The minimum lot width and front yard setback requirements shall be applied to each street on which the lot has frontage.
 - (9) In cases in which a pre-existing lot of record is changed or converted into a corner lot, as the result of an adjacent subdivision or land development, the front yard of the pre-existing lot shall be established along the public street to which it originally had frontage as well as along the proposed or new road to which it will have frontage. All other setback requirements shall conform with the appropriate side and rear yard setback requirements for the zoning district to which the pre-existing lot is located.

Section 507: Curbs, Sidewalks, Trails and Greenways

- (A) Unless otherwise required by Upper Bern Township, vertical concrete curbs shall be required for all subdivision and land development plans in accordance with the following provisions:
- (1) Vertical concrete curbs shall be installed along both sides of all proposed streets.
 - (2) Rolled concrete curbs or other alternative curb provisions may be permitted by Upper Bern Township, provided that it is structurally durable, maintains a consistent gutter flow volume, and that it has been approved by the Upper Bern Township Engineer and Planning Consultant.
 - (3) Where in the interest to control drainage or traffic patterns, curbs shall be installed along an existing or exterior street on which a subdivision or land development abuts.
 - (4) Vertical curbs shall be installed within common parking areas for developments containing multi-family uses or non-residential uses.
 - (5) Vertical curbs shall be constructed and improved in accordance with the standards and specifications referenced within the Upper Bern Township Standard Construction and Material Specifications for Public Improvements, which is contained under Appendix E of this Ordinance. The Upper Bern Township Engineer and Planning Consultant may prescribe additional or alternative design requirements.
- (B) Unless otherwise required by Upper Bern Township, sidewalks shall be required for all subdivision and land development plans in accordance with the following provisions:
- (1) Sidewalks shall be installed along both sides of the cartway for all residential subdivisions and land developments when the gross residential density is greater than two (2) dwelling units per acre or when zoning district regulations permit the gross residential density to exceed two (2) dwelling units per acre.
 - (2) Sidewalks shall be installed along one side of the cartway in all residential subdivisions and land developments when the gross residential density is greater than one (1) dwelling unit per acre but less than two (2) dwelling units per acre or when zoning district regulations permit the gross residential density to exceed one (1) dwelling unit per acre.
 - (3) At the discretion of the Upper Bern Township, a concrete or macadam pedestrian trail shall be installed along one side of the cartway in all subdivisions (except where the lot width exceeds 200 feet) and land developments when the gross residential density is less than one (1) dwelling unit per acre or when zoning district regulations do not permit the gross residential density to exceed one (1) dwelling unit per acre. The pedestrian trail or pathway shall be at least four (4) feet in width.
 - (4) A greenway or natural trail shall be required for all subdivisions and land development that are not required to provide sidewalks or impervious trails. The greenway or natural trail should be designed along the cartway or within areas designated as common open space. The location, width, composition and design specifications for all proposed greenways and natural trails shall be subject to the approval of Upper Bern Township.
 - (5) Unless otherwise permitted by Upper Bern Township, sidewalks shall be integrated as part of the design for all non-residential subdivision and land developments. If required, the sidewalks shall be located as follows: along the street to which the subdivision or land development has access; within the off-street parking areas; and to the main entrance(s) of the principal building(s).
 - (6) Where in the interest of public safety, sidewalks or a pedestrian pathway shall be installed along an existing or exterior street on which a residential subdivision or land development abuts.
 - (7) Sidewalks, trails and greenways shall be shall be constructed and improved in accordance with the standards and specifications referenced within the Upper Bern Township Standard Construction and Material Specifications for Public Improvements (refer to Appendix E of this Ordinance). The Upper Bern Township Engineer and Planning Consultant may prescribe additional or alternative design requirements to the established provisions.

- (C) Unless otherwise required by Upper Bern Township, handicapped ramps shall be provided at all street intersection and crosswalks. All such handicapped ramps shall comply with the standards specified by Upper Bern Township as well as the provisions of the provisions of the Americans with Disabilities Act.
- (D) Crosswalks shall be required whenever necessary to facilitate pedestrian circulation and to provide access to community facilities. All such crosswalks shall have a minimum width of ten (10) feet with a paved walk of not less than four (4) feet wide.

Section 508: Monuments and Markers

- (A) Monuments, as defined under Article II of this Ordinance, shall be accurately placed at the following locations within a development:
 - (1) At all external property corners forming the perimeter of the development;
 - (2) At each proposed street intersection;
 - (3) At the beginning and end of all horizontal street curves;
 - (4) At such places where topographical or other site conditions make impossible to establish a line of sight between two (2) otherwise required monuments; and
 - (5) At locations deemed necessary by the Upper Bern Township Engineer and Planning Consultant.
- (B) Property markers, as defined under Article II of this Ordinance, shall be accurately set at the following locations within a development:
 - (1) At all property corners and at all changes in course direction along a deed line;
 - (2) At all changes in course direction along the legal or ultimate right-of-way of an existing street; and
 - (3) At locations deemed necessary by the Upper Bern Township Engineer and Planning Consultant
- (C) All required monuments and markers shall be accurately set by a professional engineer or land surveyor, who shall be registered within the Commonwealth of Pennsylvania.

Section 509: Driveways and Access Lanes

- (A) All proposed driveways and access lanes shall be located, designed and constructed in accordance with the applicable standards specified by Upper Bern Township. Unless otherwise specified by Upper Bern Township, the following specific provisions shall apply:
 - (1) All driveways, access lanes and off-street parking areas serving a residential use within the MDR and SV Zoning District shall be paved.
 - (2) All driveways and access lanes serving a residential use in the AP, BMP, RC, HC, GI and AI Zoning District shall be paved a minimum distance of twenty-five (25) feet from the edge of the cartway of the public road to which the driveway or access land has access.
 - (3) All driveways, access lanes, parking areas and loading areas serving a non-residential use within the SV, RC, HC, GI and AI Zoning District shall be paved.
 - (4) All driveways and access lanes serving agricultural or conservation uses within the AP, BMP and AI Zoning District shall be maintained in a mud-free condition.

- (5) The maximum centerline grade of any residential driveway or access lane shall not exceed twelve (12) percent.
 - (6) All driveways and access lanes shall be designed and constructed with a leveling area not to exceed a centerline grade of five (5) percent, as measured twenty (20) feet from the edge of the cartway of the public road to which the driveway or access land has access.
 - (7) Where a lot within an approved subdivision or land development plan fronts on either the arc of the curve of a public road or on a cul-de-sac bulb, the required driveway or part thereof, including any turnaround area, shall be located a minimum of five (5) feet from a property boundary line.
 - (8) Driveways serving residential uses shall have a minimum width of ten (10) feet and a maximum width of thirty-six (36) feet.
 - (9) Driveways or access lanes entrances shall not intersect the existing or proposed streets to which they intersect at angles of less than 60 degrees nor more than 120 degrees.
 - (10) In order to provide a safe and convenient point of ingress and egress, driveway entrances should be rounded with a minimum radius of five (5) feet.
- (B) All proposed driveways and related improvements shall be located, designed and constructed in order to control stormwater run-off, prevent sedimentation of public roads, maintain the structural stability of public roads, maintain the existing drainage patterns of the area and prevent undue traffic hazards.
- (C) Where required by the Upper Bern Township Engineer, a driveway pipe shall be installed under the driveway or access lane. The following minimum requirements shall apply:
- (1) The applicant shall be responsible for the design, permitting, purchase and installation of the pipe.
 - (2) The design shall be submitted to the Upper Bern Township review and consideration. Where required, permits should be issued as part of the subdivision or land development plan.
 - (3) If required, the design shall be submitted to the Pennsylvania Department of Environmental Protection and the Berks County Conservation District for their review and approval.
 - (4) The pipe material should be either reinforced concrete or smooth bore polyethylene meeting pipe, which shall be installed in accordance with the manufactures specifications. Unless otherwise permitted by the Upper Bern Township Engineer, the minimum diameter of the pipe should be fifteen (15) inches or an equivalent capacity and shall be installed with a minimum grade of one-half (0.5) percent.
- (D) No residential use shall have more than one (1) vehicular access point to a public road. In order to reduce the number of curb cuts along a given road, Upper Bern Township may permit adjoining or common driveways.
- (E) All driveways and access lanes shall be located, designed and constructed as to provide optimum sight distance and visibility at the intersection with the existing or proposed street. The following provisions shall apply:
- (1) Sight distance measurements shall be made in each direction from a point 10 feet from the edge of the cartway and 3.5 feet above the road surface to a point 3.5 feet above the centerline of the road.
 - (2) The minimum sight distance and safe stopping distance requirements specified by Upper Bern Township and/or the Pennsylvania Department of Transportation shall be utilized to determine the optimum location for all driveways and access lanes. A summary chart of the minimum sight distance requirements has been included within Appendix C of this Ordinance.
 - (3) Upper Bern Township and/or the Pennsylvania Department of Transportation may require additional sight distance than those referenced on the summary chart by considering the functional classification of the road, traffic volumes, vehicular speed, pedestrian movements, land use and other relevant site conditions.

- (F) Clear sight triangles shall be provided for all driveways and access lanes at all street intersections. Within such triangles, nothing, except permitted street signs, traffic control signs, traffic lights, street lights, mail boxes or utility poles, which impedes vision between a height of two and one-half (2-1/2) feet and ten (10) feet above the center line grades of the intersecting streets shall be erected, placed, planted or allowed to grow. The dimension of the clear sight triangle shall be established for a distance of fifty (50) feet, as measured from the middle of the intersection or where the centerlines of the driveways or access roads intersect with the intersecting street.
- (G) If required by Upper Bern Township, the developer shall prepare a typical cross-section for each driveway located within the subdivision or land development. The profiles should demonstrate how problems associated with slope and drainage will be overcome.
- (H) A Driveway Occupancy Permit, issued by Upper Bern Township shall be required for all proposed driveways entering onto a road, which is currently either owned by or to be dedicated to Upper Bern Township.
- (I) A Highway Occupancy Permit, issued by the Pennsylvania Department of Transportation, shall be required for all proposed driveways entering onto a state road.
- (J) Fire lanes and/or fire apparatus access roads shall be located, designed and constructed as per the specifications provided by Upper Bern Township.

Section 510: Off-Street Parking and Loading

- (A) All proposed off-street loading areas and access drives shall be located, designed and constructed in accordance with the provisions of the Upper Bern Township Zoning Ordinance.
- (B) All proposed off-street parking areas and access drives shall be located, designed and constructed in accordance with the provisions of the Upper Bern Township Zoning Ordinance.

Section 511: Easements and Rights-Of-Way

- (A) Where easements or rights-of-way are required to accommodate utility installations, such easements shall have a minimum width of twenty (20) feet. New utility easements and rights-of-way shall be located only upon consultation with the appropriate utility company.
- (B) Where feasible, easements and rights-of-way shall be centered or adjacent to rear or side lot lines. No structures, materials and/or trees shall be placed within such easements and rights-of-way.
- (C) Where a proposed subdivision or land development is traversed by a watercourse, drainage way, channel or stream, there shall be provided a drainage easement or right-of-way conforming substantially with the line of such watercourse and of such width as will be adequate to preserve the natural drainage channel and provide sufficient width for maintenance. Stormwater management and drainage way easements shall be no less than twenty (20) feet in width, or as directed by Upper Bern Township, the County of Berks and/or the Commonwealth of Pennsylvania. Stream and watercourse easements shall be no less than fifty (50) feet in width, or as specifically directed by Upper Bern Township, the County of Berks and/or the Commonwealth of Pennsylvania.
- (D) Right-of-way standards and installation procedures for natural gas and petroleum product transmission lines shall conform to all applicable federal and state regulations, including regulations governing the width of the right-of-way, location of pipeline within the right-of-way, the proposed depth of the pipeline, and the pipe wall thickness. There shall be a minimum distance of fifty (50) feet, measured in the shortest distance, between any proposed or existing dwelling and any petroleum products or natural gas transmission line.
- (E) Where feasible, sanitary sewer collection lines and water supply lines shall be located and installed within the right-of-way of a public street.
- (F) All easements or rights-of-way shall be properly described by bearings and distances. The area occupied by any required easement or right-of-way shall not be calculated as part of the net lot area.

- (G) No easement or right-of-way shall be created, recited and/or described in any deed unless the same has been shown on the approved subdivision plan or land development plan.
- (H) Any deed conveying a lot from an approved plan shall make reference to the approved plan including all easements and encumbrances referenced on the approved plan. Where required by Upper Bern Township, a representative description expressing the references by which easements and encumbrances will appear on all affected deeds shall be presented to the Upper Bern Township Engineer, Planning Consultant and Solicitor for their review prior to action on the final plan.

Section 512: Stormwater Management

- (A) As part of all subdivision and land development plan applications, the applicant shall prepare and submit a stormwater management plan considering the following criteria:
 - (1) The stormwater management plan shall be prepared considering all pertinent provisions relating to drainage, runoff, infiltration, erosion and discharge, as adopted by Upper Bern Township.
 - (2) The stormwater management plan shall be prepared to consider all regional watershed management plans and studies that have been adopted or endorsed by Upper Bern Township.
 - (3) The stormwater management plan shall be prepared to comply with the Upper Bern Township Stormwater Management Ordinance, as independently adopted by the Upper Bern Township Board of Supervisors as a free-standing Ordinance, which has been incorporated as Appendix D of this Ordinance and may be amended from time to time.
 - (4) The stormwater management plan shall comply with the Upper Bern Township Standard Construction and Material Specifications for Public Improvements (refer to Appendix E of this Ordinance).
 - (5) The stormwater management plan shall be prepared to consider the recommendations pertaining to natural resources, floodplains, wetlands, stormwater management and hydrological resource planning, as contained within the Joint Comprehensive for Northern Berks County.
 - (6) The stormwater management plan shall be prepared to consider the National Pollution Discharge Elimination System (NPDES) Phase II Stormwater Permitting Regulations.
 - (7) The stormwater management plan shall consider the implementation of “best management practices”, as endorsed within the Upper Bern Township Comprehensive Plan and/or as recommended by the Upper Bern Township Engineer and Planning Consultant.
 - (8) The stormwater management plan shall be prepared to consider all pertinent local, regional, state and federal permitting requirements.
- (B) Unless otherwise required by Upper Bern Township, the stormwater management plan shall contain the following:
 - (1) Mapping of the watershed area or areas in which the proposed subdivision or land development is located.
 - (2) A study shall be performed of the watershed in which the subdivision or land development is located to assess the impact the proposal will have on downstream conditions. The stormwater management plan shall address all identified impacts to the satisfaction of Upper Bern Township.
 - (3) Computations of the stormwater runoff for all points of runoff concentration before and after development, including all supporting data.
 - (4) Complete drainage systems for the subdivision or land development. All existing drainage features, which are to be incorporated as part of the design shall be identified with a detailed explanation of the operations of the facilities.

- (5) Plans showing all existing and proposed drainage facilities affecting the subject property, including plan views, profile views and/or detail sheets.
 - (6) Computations for all existing and proposed drainage structures that are associated with the development.
 - (7) Plans showing proposed grading; including typical structure footprint(s) with first floor elevation(s).
 - (8) Construction details for all proposed facilities.
 - (9) If, in the course of preparing or reviewing the stormwater management plan the Upper Bern Township Engineer determines that off-site improvements are necessary to satisfactorily control the stormwater from the proposed development, the developer shall be responsible for the off-site improvements.
 - (10) A detailed plan of all required off-site drainage improvements.
 - (11) All other documentation that may be required to satisfy and address the compliance criteria specified under Section 512(A) of this Ordinance.
- (C) All stormwater management basins, ponds, pipes, structures and related site improvements shall be located, designed, constructed and installed in accordance with all requirements specified by Upper Bern Township.
 - (D) All permits that are required to satisfy the provisions of this Ordinance shall be obtained prior to municipal approval of the subdivision or land development plan.
 - (E) Where certain stormwater management improvements are inadvertently omitted from the approved plan or if any inconsistencies arise between the approved plan and the adopted requirements specified by Upper Bern Township, the applicant shall be responsible for the design, construction and installation of those site improvements, as directed by the Upper Bern Township Engineer and Planning Consultant.
 - (F) The Upper Bern Township Engineer or Planning Consultant may advise the applicant to include special notes or design criteria that should be added to the plan.
 - (G) All stormwater management improvements shall be inspected and approved by the authorized representative of Upper Bern Township prior to the release of funds held in escrow and/or the issuance of permits

Section 513: Riparian Buffers

- (A) The Riparian Buffer Overlay District shall be a conservation overlay to the underlying zoning districts of Upper Bern Township. The purpose and objective of the Riparian Buffer Overlay District Overlay District is further outlined under Section 506 of the Upper Bern Township Zoning Ordinance.
- (B) The Riparian Buffer Overlay District shall apply to all perennial stream corridors within Upper Bern Township. The following provisions shall apply:
 - (1) The limits of the Riparian Buffer Overlay District shall be recognized as a conservation overlay as part of the Upper Bern Township Zoning Ordinance. The design standards and specifications for the Riparian Buffer Overlay District are referenced under this Ordinance.
 - (2) Properties located along or adjacent to a perennial stream corridor, which are not subject to subdivision and land development activity shall be subject to an education and volunteer effort, whereas, the landowner may implement the design standards contained within this Ordinance. All such efforts may be coordinated with local, county, state or federal agencies, provided that such efforts enhances, restores, stabilizes and/or maintains the integrity woodland and vegetation within the Riparian Buffer Overlay.
 - (3) Properties located along or adjacent to a perennial stream corridor, which are subject to subdivision and land development activity shall be subject to a mandatory effort, whereas, the landowner or developer shall be required to implement the design standards contained within this Ordinance. All such efforts may be coordinated with other agencies, provided that such efforts enhances, restores, stabilizes and/or maintains the integrity woodland and vegetation within the Riparian Buffer Overlay.

- (4) All land uses and site improvements should be located, design and conducted in a manner that meets the design standards contained within this Ordinance.
 - (5) Volunteer and mandatory efforts should be reviewed by the Berks County Conservation District to determine if the selected landscape materials will implement the overall purpose and objective of the Riparian Buffer Overlay District.
- (C) The Riparian Buffer Overlay District shall be delineated in accordance with the following zones and provisions:
- (1) Zone 1 shall include the landward area located between the stream bank edge under typical flow conditions, as measured twenty (20) feet upland or perpendicular to the stream bank.
 - (2) Zone 2 shall include the area beginning at the inland edge of Zone 1, extending a minimum of fifty (50) feet inland from Zone 1, which shall include the 100-year floodplain and all areas delineated as wetlands.
 - (3) Zone 3 shall include the area beginning at the inland edge of Zone 2, extending a minimum of twenty (20) feet inland from Zone 2.
- (D) Unless otherwise permitted by Upper Bern Township, the following uses and activities shall be permitted within the Riparian Buffer Overlay District:
- (1) Accessory uses and accessory buildings to a permitted land use provided that they are not located within Zone 1 or Zone 2.
 - (2) General agricultural uses provided that they are not located within Zone 1. Corridor crossings for farm vehicles and livestock and livestock watering facilities, all of which are approved by the Berks County Conservation District and have been completed considering best management practices.
 - (3) Conservation uses provided that they are not located within Zone 1.
 - (4) Municipal site improvements, including streets, curbs, sidewalks, sanitary sewer facilities, water supply facilities, stormwater management facilities, public utilities, and other similar improvement, provided they are located in a manner to minimize impacts on Zones 1, 2 and 3, and provided that they are designed and constructed in accordance with this Ordinance.
 - (5) Stormwater detention or retention facilities, provided they are not located within Zone 1 or Zone 2.
 - (6) Passive recreation uses, provided they are not located within Zone 1 or Zone 2.
 - (7) Municipal uses.
- (E) The Riparian Buffer Overlay District should be designed to include native vegetation that may exist prior to any earth disturbance activities. The following plantings for each zone are recommended and should be utilized as a guide to establish the desired riparian buffer:
- (1) Zone 1 should include mature canopy trees and a ground cover of native grasses. New tree plantings should be selected, arranged and managed to accelerate canopy growth, and offer native species habitat and food supply. New grass plantings shall be selected and managed to filter out pollutants and offer habitat. All vegetation selected for Zone 1 should thrive in wet conditions.
 - (2) Zone 2 should include mature canopy trees and natural undercover. New tree plantings should be selected, arranged and managed to accelerate canopy growth, and offer native species habitat and food supply. The undercover plants shall be allowed to “evolve” with the canopy of Zone 2. All vegetation selected for planting within the 100 year floodplain should thrive in wet conditions.
 - (3) Zone 3 should be planted with natural ground cover that could mature naturally without maintenance, mowing or harvesting activities. The selected species should accommodate overland stormwater flows and act as an upland filter to Zone 2.

(F) Riparian buffers should be maintained in a natural condition with minimal disturbance. Mature trees and native grasses and ground cover have the capacities to absorb more nutrients. As a result, best management practices are established, erosion is limited, hydrological resources are balanced, and biodiversity corridors are preserved. Unless otherwise permitted by Upper Bern Township, the following maintenance activities and disturbance limitations shall apply to the Riparian Buffer Overlay District:

- (1) Zone 1 should require minimal maintenance. As trees mature, die and decay, the natural debris should be allowed to decompose within the stream. This will provide important food sources and habitats for beneficial microorganisms, fish and amphibious animals. However, any debris that may cause a rise in the floodplain due to obstruction or displacement shall be removed. Streamside grasses shall be allowed to seasonally flourish and recede.
- (2) Zone 2 should receive significant attention since the objective is to develop a stable and broad canopy of tree cover. The trees within Zone 2 should be pruned and trimmed on an as-needed basis, but should not jeopardize the overhead canopy of shade. The natural undercover should be undisturbed.
- (3) Zone 3 requires minimal maintenance. Native grasses and ground cover should flourish and recede with the seasons. Grazing and haying are permitted provided that the residual grass length is sufficient to disperse overland stormwater flows.
- (4) Trees that have been damaged, contracted with disease, or create an unsafe situation may be removed within the Riparian Buffer Overlay Zone, provided that the tree is replaced with another tree that could survive and flourish within the Riparian Buffer Overlay District.
- (5) Replacement trees shall be deciduous, noninvasive and native to Upper Bern Township, which are nursery stock grown within a locale with similar climatic conditions as Upper Bern Township. The replacement trees shall be balled and burlapped and not less than two (2) inches in caliper measured, as measured at breast height. The trees shall be at least ten (10) feet tall after planting and trimming. Branching shall start not less than six (6) feet from the top of the root ball.
- (6) Replacement trees should not be used as credits to meet other planting requirements of this Ordinance relative to street tree plantings, landscape buffers, unless the original trees would have satisfied such requirements.
- (7) Replacement trees shall be planted within one hundred and twenty (120) days of the existing tree being removed from the Riparian Buffer Overlay District.

Section 514: Erosion and Sedimentation Control

- (A) No changes shall be made to the contour of the land, and no grading, excavating, removal or destruction of the topsoil, trees or other vegetative cover of the land shall be commenced, until such time as a plan for minimizing erosion and sedimentation has been processed and reviewed by the appropriate local, county, state and/or federal agencies.
- (B) All permits required to implement the erosion and sedimentation control plan shall be obtained from the appropriate agencies prior to municipal approval of the subdivision plan or land development plan.
- (C) The approval of a subdivision plan or land development plan does not relieve the developer's obligation to execute the erosion and sediment control measures, as specified on the approved plans or as otherwise required by local, state and federal laws.
- (D) When erosion and sedimentation control measures are required, the improvements shall be incorporated within the municipal improvements agreement and escrow.
- (E) During the development phase, the Upper Bern Township Engineer and Planning Consultant shall be provided with the opportunity to inspect the site improvements and enforce compliance with the approved subdivision plan or land development plan.

- (F) Prior to the issuance of an occupancy permit, the Upper Bern Township Engineer and Planning Consultant shall conduct a site inspection to determine compliance with the approved subdivision plan or land development plan. The occupancy permit shall not be issued until all site improvements have been completed to the satisfaction of the Upper Bern Township Engineer and Planning Consultant.

Section 515: Sanitary Sewage Disposal

- (A) As part of all subdivision and land development plan applications, the applicant shall develop a plan for the collection, conveyance and treatment of wastewater considering the following criteria:
- (1) The plan for sewage disposal shall be consistent with the most recent Upper Bern Township Sewage Facilities Plan, as adopted by the Upper Bern Township Board of Supervisors under the provisions of the Pennsylvania Sewage Facilities Act (PA Act 537, as amended).
 - (2) The plan for sewage disposal shall consider the recommendations pertaining to land use, sewage disposal and water supply, as contained within the Joint Comprehensive Plan for Northern Berks County.
 - (3) The plan for sewage disposal shall be consistent with the provisions specified and adopted by Upper Bern Township, including: the Upper Bern Township Sanitary Sewer Use Ordinance; the Upper Bern Township Holding Tank Ordinance; the Upper Bern Township On-Lot Sewage Management Ordinance; and the Upper Bern Township On-Lot Water Supply Ordinance.
 - (4) The plan for sewage disposal shall be consistent with all pertinent design requirements specified by Upper Bern Township and the Pennsylvania Department of Environmental Protection.
 - (5) The plan for sewage disposal shall be prepared to consider all pertinent local, regional, state and federal permitting requirements.
- (B) Unless otherwise permitted by Upper Bern Township, all proposed land uses that are located within a designated sewer service district or planned growth area shall be required to connect to the municipal sanitary sewage disposal system subject to the following provisions:
- (1) Upper Bern Township shall review all such subdivision or land development plan applications, which shall review the adequacy of the proposed sanitary sewer improvements. Upper Bern Township shall not approve a proposed subdivision or land development plan until the Upper Bern Township Engineer and Planning Consultant have issued a favorable recommendation for the sanitary sewer improvements.
 - (2) Unless otherwise permitted or required by Upper Bern Township, all proposed sanitary sewer improvements shall be located, designed, constructed and installed in accordance with the provisions of this Ordinance (refer to Appendix F for sanitary sewer design standards and specifications) and the Upper Bern Township Sanitary Sewer Use Ordinance. Where certain standards and specifications do not exist, the Upper Bern Township Engineer and Planning Consultant shall provide a designated requirement or alternative for the proposed sanitary sewer improvements.
 - (3) The applicant shall be responsible for any required off-site sanitary sewage disposal improvements that may be necessary to accommodate the wastewater flow from the development. All such off-site improvements shall be coordinated with Upper Bern Township.
 - (4) Where required, the appropriate planning modules or exemption requests shall be submitted to Upper Bern Township and the Pennsylvania Department of Environmental Protection for review and consideration.
 - (5) All proposed uses connected to the municipal sanitary sewer system shall be subject to the provisions of the Upper Bern Township Sanitary Sewer Use Ordinance.

- (C) Unless otherwise permitted by Upper Bern Township, all proposed land uses that are located outside of a designated sanitary sewer service district or planned growth area shall be required to utilize on-lot sewage disposal technology, as the method for sewage disposal. All such on-lot sewage disposal systems shall be subject to the following provisions:
- (1) The Upper Bern Township Sewage Enforcement Officer shall review all subdivision or land development plans in which the proposed uses will utilize on-lot sewage disposal systems. All field testing procedures and applications requirements shall be subject to the approval of the Sewage Enforcement Officer. The Board of Supervisors shall not approve a proposed subdivision or land development plan until the Sewage Enforcement Officer has received a favorable recommendation for the on-lot sewage disposal system.
 - (2) All proposed on-lot sewage disposal facilities shall be located, designed, constructed and installed in accordance with the standards and specifications of the Pennsylvania Department of Environmental Protection and Upper Bern Township.
 - (3) Where required, the appropriate planning modules or exemption requests shall be submitted to Upper Bern Township and the Pennsylvania Department of Environmental Protection for review and consideration.
 - (4) All proposed uses connected to an on-lot sewage disposal system shall be subject to the provisions of the Upper Bern Township On-Lot Sewage Management Ordinance.
 - (5) All proposed uses connected to a holding tank shall be subject to the provisions of the Upper Bern Township Holding Tank Ordinance.
- (D) If municipal sewage disposal service is not accessible to an approved subdivision or land development, but is planned to be accessible within five (5) years of final approval, the applicant shall install approved capped collection system within the limits of the subdivision or land development, in addition to the approved on-lot sewage facilities. The collection and conveyance system shall be capped at the limits of the subdivision or land development and the laterals shall be capped at the street right-of-way.

Section 516: Water Supply

- (A) As part of all subdivision and land development plan applications, the applicant shall develop a plan for water supply considering the following criteria:
- (1) The plan for water supply shall be consistent with the most recent Sewage Facilities Plan, as adopted by the Upper Bern Township Board of Supervisors under the provisions of the Pennsylvania Sewage Facilities Act (PA Act 537, as amended).
 - (2) The plan for water supply shall consider the recommendations pertaining to land use, sewage disposal and water supply, as contained within the Joint Comprehensive Plan for Northern Berks County.
 - (3) The plan for water supply shall be consistent with the provisions specified and adopted by Upper Bern Township, including: the Upper Bern Township Sanitary Sewer Use Ordinance; the Upper Bern Township Holding Tank Ordinance; the Upper Bern Township On-Lot Sewage Management Ordinance; and the Upper Bern Township On-Lot Water Supply Ordinance.
 - (4) The plan for water supply shall be consistent with all pertinent design requirements specified by Upper Bern Township and the Pennsylvania Department of Environmental Protection.
 - (5) The plan for water supply shall be prepared to consider all pertinent local, regional, state and federal permitting requirements.
- (B) Unless otherwise permitted by Upper Bern Township, all proposed land uses that are located within a designated water supply service district or planned growth area shall be required to connect to the municipal water supply system subject to the following provisions:

- (1) Upper Bern Township shall review all such subdivision or land development plan applications, which shall review the adequacy of the proposed water supply improvements. Upper Bern Township shall not approve a proposed subdivision or land development plan until the Upper Bern Township Engineer and Planning Consultant have issued a favorable recommendation for the water supply improvements.
 - (2) All proposed water supply facilities shall be located, designed, constructed and installed in accordance with the standards and specifications of Upper Bern Township. Where certain standards and specifications do not exist, the Upper Bern Township Engineer and Planning Consultant shall provide a designated requirement or alternative for the proposed water supply improvements.
 - (3) The applicant shall be responsible for any required off-site municipal water supply improvements that may be necessary to provide a reliable supply of water to the development. All such off-site improvements shall be coordinated with Upper Bern Township.
- (C) Unless otherwise permitted by Upper Bern Township, all proposed land uses that are located outside of a designated water supply service district or planned growth area shall be required to utilize on-lot water supply facilities through individual well(s). All such individual water supply wells shall be subject to the following provisions:
- (1) All proposed individual on-lot wells shall be located, designed, drilled, constructed and installed in accordance with the standards and specifications of Upper Bern Township and the Pennsylvania Department of Environmental Protection.
 - (2) Each lot to be served by individual on-lot water supply shall be of a size and shape to permit the safe location for each well. All proposed wells shall be located, designed, constructed and maintained in accordance with the Upper Bern Township On-Lot Water Supply Ordinance.
 - (3) A hydrogeological study shall be required for subdivision plans involving twenty (20) or more lots or for land development plans in which the estimated water usage shall exceed 5,000 gallons per day. The hydrogeological study shall be prepared by a professional hydrogeologist, who shall provide documentation to conclude that the proposed individual well(s) will be capable of supplying each lot or use(s) with a dependable supply of water and that the proposed well(s) will not adversely affect the groundwater table or existing wells near the project site.
- (D) Unless otherwise permitted by Upper Bern Township, all proposed land uses that are located outside of a designated water supply service district or planned growth area may utilize a community water supply system through individual well(s). All such community water supply systems shall be subject to the following provisions:
- (1) All proposed community water supply wells shall be located, designed, drilled, constructed and installed in accordance with the standards and specifications of the Pennsylvania Department of Environmental Protection and Upper Bern Township.
 - (2) All proposed community water supply wells shall be located at least two hundred (200) feet from any sewage disposal system, one hundred (100) feet from any external property line, and one hundred (100) feet from any watercourse or surface waters.
 - (3) A detailed hydrogeological study shall be prepared by a professional hydrogeologist, who shall provide documentation to conclude that the following:
 - (a) That the proposed community water supply well(s) will be capable of supplying each lot or use(s) with a dependable supply of water. At a minimum, the water source should be capable of supplying 150 percent of the average daily demand based on 100 gallons per day per person and/or 400 gallons per day per dwelling unit, for the design population of the development or the service area.
 - (b) That the water supply shall be drawn from an adequate and reliable source, which can supply the proposed storage facilities plus the water demands of the proposed service area at all times, including the fire flow demand during the average or peak daily consumption. A dynamic recovery rate and draw-down test shall be conducted prior to preliminary plan approval to demonstrate the capacity and safe daily yield of the community well sources.

- (c) That the proposed community water supply well(s) will not adversely affect the groundwater table or existing wells near the project site.
 - (d) That the quality of the source shall conform to the minimum water quality requirements of the Pennsylvania Department of Environmental Protection.
 - (e) That a minimum static pressure shall exceed twenty (20) pounds per square inch at any point within the community water supply system during the average or peak daily consumption.
- (4) All community water supply facilities shall be designed with a minimum of two (2) well sources.
 - (5) The community water supply wells shall be located within an open space water protection zone with a minimum area of one (1) acre in size. No structures other than community water facilities and accessory components shall be located within the protected zone.
- (E) Unless otherwise permitted by Upper Bern Township, all proposed subdivisions and land developments that are to be served by a public or community water supply system shall provide fire hydrants. The proposed fire hydrants shall comply with the following provisions:
- (1) Fire hydrants shall be located no further than one thousand (1,000) feet apart, as measured along the centerline of each road. All residential dwelling units and non-residential principal buildings shall be located no farther than six hundred (600) feet from an active fire hydrant.
 - (2) Fire hydrants shall be located in a manner to provide complete accessibility and so that possibility of damage from vehicles or injury to pedestrians will be minimized. Unless otherwise directed by Upper Bern Township, the barrel of the fire hydrant shall be set so that no portion of the pumper or hose nozzle cap will be less than eighteen (18) inches from the curb line.
 - (3) The type and location of all required fire hydrants are subject to the review and approval of Upper Bern Township and the local fire departments.

Section 517: Well Head Protection

- (A) The well head protection provisions contained within this Ordinance are designed to prevent pollution of groundwater, which is utilized to support a community water supply system or a municipal water supply system. The following purpose statements and objectives shall apply for well head protection:
- (1) To protect existing and future groundwater supply sources from contamination.
 - (2) To protect groundwater resources from excessive extraction and depletion.
 - (3) To manage land use activities that store, handle, or produce regulated substances, which can contaminate water supply sources through improper stormwater and other inadequate site management.
 - (4) To encourage the use of best management practices for water supply and groundwater recharge.
 - (5) To encourage intergovernmental cooperation with adjacent municipalities in order to promote the protection of groundwater resource areas.
- (B) The provisions for well head protection are contained within the Upper Bern Township Zoning Ordinance. This authority is provided under the provisions under Article I, Section 27 of the Constitution of the Commonwealth of Pennsylvania and the Pennsylvania Municipalities Planning Code.
- (C) Unless otherwise designated, the Upper Bern Township Engineer, Planning Consultant and Zoning Officer shall be responsible for the administration and enforcement for well head protection. Upper Bern Township may hear appeals from the decisions and orders that have been issued relating to administration and enforcement.

Section 518: Utilities

- (A) All basic utility service lines for electric, natural gas, cable television, and telephone shall be placed underground.
- (B) The installation of all utilities shall be in strict accordance with the engineering standards and specifications of the public utility company.
- (C) Where such underground utilities are located under the proposed cartway, they shall be put in place, connected, and approved before the streets are constructed and before any person is permitted to occupy any building to be served by such utilities.
- (D) Prior to municipal approval, the applicant shall be responsible for contacting all utility companies to determine the locations and depths of all underground utilities within the tract of land being subdivided or development.
- (E) A complete list of the applicable utility companies and their phone numbers shall appear on the approved subdivision plan or land development plan.

Section 519: Landscaping

- (A) Reasonable efforts should be made by the developer to preserve existing trees within the site of the development.
- (B) Where street trees, buffer yards, screening and other landscaping improvements are required, the applicant shall submit a landscaping plan to Upper Bern Township for review and consideration. The landscaping plan shall be prepared in accordance with the provisions established by Upper Bern Township.
- (C) Upper Bern Township may consider alternative landscaping requirements provided that the alternative tree, hedge and/or shrub will be more effective to meet the standards and specifications for buffer yards and landscaping.

Section 520: Tree Protection and Replacement

- (A) The Woodland Protection and Management Overlay District has been designated as a conservation overlay district as part of the Upper Bern Township Zoning Ordinance. The Woodland Protection and Management Overlay District shall include the following planning and zoning initiatives:
 - (1) Woodland extraction and tree replacement provisions, which apply to all subdivision and land development activities shall be subject to Section 505.1 of the Upper Bern Township Zoning Ordinance.
 - (2) Forestry, timber harvesting, tree harvesting and logging regulations, which apply to all operations involved with the cutting down of trees and removal of logs from woodlands or forests for the primary purpose of sale and commercial processing into wood products shall be subject to subject to Section 505.2 of the Upper Bern Township Zoning Ordinance.
 - (3) Tree protection and replacement regulations, which apply to all earth disturbance activities including subdivision and land development activities, shall be subject to Section 505.3 of the Upper Bern Township Zoning Ordinance.
- (B) The provisions for tree protection and replacement are intended to complement and not replace the provisions established by Woodland Protection and Management Overlay District.
- (C) Where tree protection and replacement requirements apply to a subdivision or land development plan, the applicant shall submit a landscaping plan to Upper Bern Township for review and consideration. The landscaping plan shall be prepared in accordance with the provisions established by Upper Bern Township.
- (D) Upper Bern Township may consider optional tree protection and replacement alternatives if the standard requirements are determined to be unwarranted or inappropriate.

Section 521: Community Facilities

- (A) During the review phase of any subdivision or land development plan, the Upper Bern Township Planning Commission shall consider the adequacy of existing or proposed community facilities to serve the proposed development. The Planning Commission shall utilize the applicable components of the Joint comprehensive Plan for Northern Berks County to provide background support and guidance.
- (B) The applicant shall give earnest consideration to the desirability of providing or reserving areas for community facilities normally required in residential neighborhoods, including educational facilities, utility services, emergency management facilities and recreational facilities.
- (C) Land or water areas provided or reserved for community facilities should provide sufficient area to accommodate any proposed buildings, structures and off-street parking areas. All such areas should be located in an area of the development, which is accessible to the general public.

Section 522: Parks, Recreation and Open Space

- (A) Pursuant to the procedures and requirements of the Pennsylvania Municipalities Planning Code, Upper Bern Township has enacted the Joint Comprehensive Plan for Northern Berks County. The provisions and requirements for parks, recreation and open space referenced within this Ordinance are consistent with the Joint Comprehensive Plan for Northern Berks County.:
- (B) During the review phase of a subdivision or land development plan, Upper Bern Township shall refer to the Joint Comprehensive Plan for Northern Berks County to determine if the existing or proposed recreational facilities and/or common open space areas are sufficient to serve the proposed development and benefit the community.
- (C) Upper Bern Township shall determine if land within the proposed development should be devoted for recreation and open space or if a fee in lieu of recreation land should be required from the applicant, as permitted under the authority of the Pennsylvania Municipalities Planning Code and Upper Bern Township.
- (D) All guidelines, standards and formulas for land dedication and/or fees in lieu of land dedication are recommended as part of the Joint Comprehensive Plan for Northern Berks County and as further established within Upper Bern Township Municipal Park and Recreation Report (July 2004), Upper Bern Township Ordinance 55-2000, and by Upper Bern Township Ordinance 75-2004, as may be amended from time to time.
- (E) If land or water areas are to be dedicated as parks, recreation areas and/or open space, the applicant shall make arrangements (suitable to Upper Bern Township) for the perpetual ownership and maintenance of such land. The following options for ownership, management and maintenance of the land areas designated as parks, recreation areas and open space shall be as follows:
 - (1) Dedicate the land encompassing the park, recreation area and/or open space to Upper Bern Township, who shall have the option to accept or refuse the land offered for dedication;
 - (2) Dedicate the land encompassing the park, recreation area and/or open space to a homeowners association which is comprised of all the residents of the development; or
 - (3) Dedicate the land encompassing the park, recreation areas and/or open space to a conservation management group or non-profit organization that has the capacities and resources to adequately maintain the park, recreation area and/or open space.
- (F) The provisions specified for common open space, as referenced within the Upper Bern Township Zoning Ordinance, do not relieve the applicant of other requirements for open space and recreation, as specified by Upper Bern Township, whereas, the applicant shall be responsible for all requirements for recreation impact fees associated with this development.