

ARTICLE VII IMPROVEMENT STANDARDS

Note: THIS SECTION RETAINS NUMEROUS REFERENCES TO STANDARDS WHICH MAY OR MAY NOT BE CURRENT. THESE ARE UNDER REVIEW FOR INCLUSION IN THE PROPOSED VILLAGE ENGINEER'S STANDARDS.

- 7.1 Required Improvements
- 7.3 Standards for Materials and Construction
- 7.5 Drainage and Grading
- 7.7 Soil and Erosion and Sedimentation Control
- 7.9 Street Improvements
- 7.11 Underground Utilities
- 7.13 Sewer and Water Facilities
- 7.15 Monuments
- 7.17 Oversize and Off-site Improvements

7.1 REQUIRED IMPROVEMENTS

- A. The improvements required shall be designed by a Registered Engineer, and constructed by the Subdivider in accordance with the provisions of these Regulations and other regulations of the State and County.
- B. The improvements stated herein shall be required of all subdivisions **whether major or minor** should the Planning and Zoning Commission feel such improvements are necessary to accomplish the purpose of these Regulations.
- C. Schedule of Required Improvements The following required improvements shall be installed, at minimum, shall be installed in subdivisions located in the zoning districts identified below. The Planning and Zoning Commission may, with cause, require additional improvements. Where a proposed subdivision is located in more than one zoning district, the Planning and Zoning Commission shall determine the required improvements to be consistently installed in the entire subdivision or in may vary the requirements in parts of the subdivision as appropriate to the intended layout and character of development.

Schedule of Required Improvements

	Single-Family Residential Subdivision Zoning District			Multi-Family Residential, Industrial, and Business Subdivisions
	R-3	R-2	R-1	
Drainage, Grading	streets, blocks and lots	streets, blocks and lots	streets	streets, blocks and lots
Storm Systems	sewer system	sewer system	swales with sewer system	sewer system
Street Improvements (for both new and existing streets)	required	required	required	required
Pavement	required	required	required	required
Curbs and Gutters	required	required	not required	required
Sidewalks	both sides	one side	none	required both sides
Street Lights	required	at intersection	at intersection	required
Street Signs	required	required	required	required
Street Trees	required	required	required	required
Underground Utilities	required	required	required	required
Sewer and Water	central systems	central systems	well septic	central systems
Monuments	required	required	required	required

7.3 Standards for Materials and Construction

- A. Improvements shall be designed and constructed as specified in these Regulations. The specific materials, design details, sequence of installation, and other features of the improvements shall comply with the specific standards designated in these Regulations or by alternate standards adopted by and/or published by the Village Engineer in the Village Engineer’s Standards.
- B. The Village Engineer shall prepare, maintain, and make available to all interested parties, the complete and current Village Engineer’s Standards.
- C. The Village Engineer shall submit the Village Engineer’s Standards and any subsequent amendments to the Planning and Zoning Commission for recommendation and to Village Council for approval.

7.5 Drainage

A drainage system shall be designed by an Ohio Registered Engineer and constructed by the Subdivider to provide for the proper drainage of the surface water of the subdivision and any larger drainage area of which it is a part. No subdivision will be approved unless there is an outlet for all storm water. No natural drainage course shall be altered and no fill, buildings, or structures shall be placed in, on or over it unless provisions are made for the flow of water in a manner satisfactory to the Village Engineer. To this end, the subdivision shall be graded as shown in the site drainage and grading plan.

7.5.1 Drainage and Grading Plan

As part of the required improvement plan, the Subdivider's Engineer shall furnish a topographic plan showing planned methods to surface drain each lot. Proposed lot lines, street lines and building outlines shall be shown with the proposed floor elevations noted for each building. The Subdivider's Engineer shall also submit topographic maps showing areas of drainage with engineering calculations used in designing the proposed storm water collection system.

The Subdivider shall grade each subdivision in order to establish street, block and lot grades in proper relation to each other and to topography, as follows:

- A. Street Grading Plan. A grading plan shall be prepared for existing and proposed streets along with street improvement details. The grading of the roadway shall extend the full width of the right-of-way. The strips between the pavement and right-of-way shall be graded at a gradient of not less than two percent (2%) or more than three percent (3%) upward from the curb to the sidewalk or property lines.
- B. Block Grading. Blocks shall be graded from a ridge at rear lot lines with drainage into streets or with portions of lots draining into streets and the remainder into a rear lot line swale.
- C. Lot Grading. Lots shall be graded so that water drains away from each building at a minimum grade of two percent (2%) for a distance of ten feet (10'). Surface drainage swales shall have a minimum grade of one-half percent (0.5%) and shall be designed so that surface water will drain into a driveway, street gutter, storm sewer, drain inlet or natural drainage way. For driveways, a minimum grade of four-tenths percent (0.4%) and maximum grade of ten percent (10%) shall be used.
- D. Topsoil. If grading results in the stripping of topsoil, the topsoil shall not be removed from the site or used as fill, but shall be stockpiled on the site and then uniformly spread over the lots as grading is finished. Finished grading shall not be done until all underground utilities have been installed, trenches backfilled and compacted, debris disposed of and excess earth properly distributed.
- E. Trees. As many trees as can be utilized in the final development plan shall be retained and the grading adjusted to the existing grade at the tree roots.

7.5.3 Drainage System Requirements

The design criteria for the drainage systems shall be based on the **State of Ohio Department of Transportation Design Policy** and the **Village Engineer's Standards**. These criteria shall apply to development along existing roads as well as those requiring new roads to be constructed.

- A. Road Drainage System. The road storm drainage system shall serve as the local drainage system. It shall be designed to carry area drainage if necessary, roadway, adjacent land, and house storm water drainage. To prevent excessive pipe sizes, storm sewers shall drain into natural waterways as soon as possible and practical.

- B. Off-Road Drainage System. The design of the off-road drainage system shall include the watershed area affecting the allotment and shall be extended to a water course or ditch adequate to receive the storm drainage.
1. Existing creeks or ditches located within the subdivision shall be provided with an easement of sufficient width to allow a fifteen foot (15') wide strip for access of maintenance equipment to all sections of the ditch. The ditch easement shall be wide enough to contain said ditch slopes and access with ample clearance for the operation of maintenance equipment. Open ditches will have a maximum side slope ratio of 2:1 and a minimum two foot (2') bottom width. The side slopes shall be rounded to blend into the existing ground. This is a maximum slope and shall be permitted only at the discretion of the Village Engineer.
 2. No open ditches shall be constructed within one hundred feet (100') of the rear or side of a probable occupied building location, as measured from the probable building outline to the edge of the ditch easement. *Current best practices?*
 3. Any storm drainage courses carried along side lot lines shall be enclosed with approved pipe to a point one hundred feet (100') minimum behind the building setback line or as approved by the Village Engineer. *Current best practices?*
 4. All waterways with a design capacity not exceeding the capacity of a thirty-six inch (36") concrete pipe as critical slope shall be enclosed throughout the development. *Current best practices?*
 5. All off-road drainage easements shall be established as a Village ditch in accordance with Section 711.01 Ohio Revised Code, and the allotment owners shall be assessed for the maintenance of said drainage courses in an amount as recommended by the Commission. *Current best practices?*
 6. Where streets are curbed, each lot must be furnished with a connection to the storm sewer system for building downspouts and footing drains. *Current best practices?*
- C. Storm Water Drainage. The design and construction of storm water drainage facilities shall require the review and approval of the Village Engineer in accordance with the criteria as established by the Summit Soil and Water Conservation District and the Village Engineer's Standards. All project sites or development areas shall at a minimum limit the peak rate of discharge from the project site or development area to the downstream receiving water course. All storm water management shall be reviewed and approved by the Village Engineer, the Planning and Zoning Commission and any other agencies that they may contact for further references.
- D. Flood Hazard. If any portion of the land within the subdivision is subject to flooding (flood plains, sewer overflow, elevations, etc.) or other hazards, due consideration shall be given to such problems in the design of the subdivision and the flood plain must be shown on the improvement plans and plat.
- E. Dams or Basin Embankments. Detailed drawings of proposed dams or basins and all calculations shall be submitted to the Village Engineer for approval. The Subdivider or the Subdivider's engineer shall apply for a permit from the State of Ohio, Department of Natural Resources, Division of Water, if applicable.
- F. Drainage Easements. Easements for drainage purposes shall be a minimum of thirty feet (30') in width. Where the water course is large, easement widths shall be increased as determined by the Village Engineer. Easements shall be shown on the record plat and deeds shall include all existing and/or reconstructed water courses.

- G. Drainage Outlets. Where the Village finds it necessary to clean, alter, or reconstruct a natural drainage course outside the development boundary to provide an adequate storm water outlet, or to prevent damage to other properties due to an accelerated flow, the outlet shall be constructed at the expense of the Subdivider in accordance with plans and specifications approved by the Village Engineer.
- H. **The allotment owners shall be assessed** for the maintenance of said drainage outlet in an amount recommended by the Village Engineer.
- I. Protection of Drainage Systems. The Subdivider shall adequately protect all ditches (roadways and water courses) to the satisfaction of the Village Engineer as shown by calculations made in accordance with the policy of the State of Ohio Department of Transportation and the Village Engineer's Standards. On all adjoining land where the vegetation has been injured or destroyed or where the land is in need of protection to prevent erosion, deposits in the drainage facilities and/or unsightly conditions shall be restored and protected as directed by the Village Engineer. In all cases, any drainage facility within the subdivision shall be in a stable condition, free from either erosion or sedimentation and/or other debris. If necessary, sedimentation basins shall be constructed within the proposed subdivision and maintained until erosion is under control.
- J. Pipe Policy. The pipe policy shall be the Policy of the State of Ohio Department of Transportation and as shown in the Village Engineer's Standards.
- K. Bridges. All bridges having a span greater than ten feet (10') shall be designed in accordance with the latest **Design Regulations as practiced by the Ohio Bureau of Bridges**, the Village Engineer's Standards and approved by the Village Engineer. Reference shall also be made to current standard Bridge Drawings. Design flood elevations shall be indicated on plan-profile sheets and on structure site plans.

7.7 Soil and Erosion and Sedimentation Control

The Village Engineer is authorized to require a soil study where, in the Village Engineer's opinion, the existing soil conditions may be unsuitable for the proposed subdivision improvements or subsequent construction on the sublots, and may also require adjustments in design to compensate for the existing conditions.

When the Subdivider intends to remove or disturb the natural topsoil, trees, and other vegetation, or where the Subdivider intends to change the surface contour of a proposed subdivision, the developers engineer shall prepare an Erosion Control Plan (as required in the Village Engineer's Standards and in the Village Planning and Zoning Code, Chapter 1169, Erosion and Sediment Control and Post Construction Storm Water Quality), and have such plan approved by the Summit Soil and Water Conservation District. The Erosion Control Plan shall be included in the improvement drawings. In general, erosion and sedimentation control work will consist of, but not be limited to grading, soil preparation, fertilization, seed and mulching as necessary to establish a sufficient growth of grass or other ground cover that minimizes damage to subdivision areas and to adjoining properties. The developer shall comply with the plans approved by the Village Engineer and the Summit Soil and Water Conservation District.

7.9 Street Improvements

The Subdivider shall construct pavements, side road ditches, curbs and gutters, guardrails, drives, driveway culverts, and other required improvements of sizes and types not less than set forth in these Regulations and in the Village Engineer's Standards for all proposed streets.

7.9.1 Pavements

- A. Pavement materials shall be as specified by the current edition of the **State of Ohio Department of Transportation Construction and Material Specification** and in the Village Engineer's Standards.
- B. Higher standards and/or greater widths than indicated herein may be required by the Commission and/or Village Engineer to provide adequately for unusual soil conditions or extraordinary traffic volumes or loads.
- C. After the underground utilities and building connections are installed and rough grading completed, the roadway sub-grade shall be shaped, rolled and compacted. The Subdivider may construct a temporary roadway of stone or recycled concrete, or other acceptable material as directed by the Village Engineer for use during the building construction period. Such pavements shall be maintained in a safe and passable condition by the Subdivider without expense to the Village.

7.9.3 Curbs and Gutters

- A. Concrete curbs and gutters, separate or integral with pavement, shall be provided. Where curbs exist, building downspout and footing drains must be connected to the storm sewer unless otherwise approved. Drains through the curb will not be permitted.
- B. Curbs and gutters shall conform to a typical drawing as approved by the Village Engineer.
- C. In addition, a ramp with no-slip surface shall be built into the curb at each pedestrian crosswalk so that the sidewalk and street blend to a common level. Such ramps shall be constructed in accordance with the State of Ohio Standards.
- D. Where a new subdivision creates an intersection with an existing street which does not have curbs, then at the expense of the Subdivider new curbing, gutters, and necessary pavement adjustments shall be extended into the existing street right-of-way as necessary to create a functional transition of pavements, curbs, storm water control, and other features as required by the Village Engineer.

7.9.5 Guardrail

Guardrail shall be installed as required by the Village Engineer. Guardrail shall be in accordance with State Standards. The developer shall submit details to the Village Engineer for approval.

7.9.7 Drives and Driveway Culverts

Except when drive and culvert designs are approved in the Improvement Plan and construction is completed as part of subdivision construction, drives require a driveway permit which will specify the type of pipe required, the minimum size of pipe, aggregate cover and all installation procedures. Drives shall not exceed a ten percent (10%) grade.

7.9.9 Sidewalks

Sidewalks shall be provided as indicated in these Regulations. Sidewalks shall be constructed of Portland Cement Concrete four inches (4") thick with the thickness increased to six inches (6") where the sidewalk is crossed by a driveway. They shall be located and shown as approved by the Village Engineer. The construction and materials

shall be specified in Item 608 of the State of Ohio Departments of Transportation Construction and Materials Specifications. Sidewalk widths shall be a minimum of four feet (4'). The Commission may recommend a variance subject to the approval of the Village Council.

7.9.11 Street Names and Street Signs

The Subdivider shall submit the proposed names of all streets on the preliminary and final plans for approval. The Director of Planning and Zoning shall obtain comments from the Fire Chief and Police Chief regarding the suitability of proposed street names giving attention to avoiding duplication and confusion for visitors and safety services. Once platted, the approved names shall be used as the official street names.

The Subdivider shall pay the Village for installation of street signs and posts showing the names of all streets at all street intersections within the proposed subdivision. The signs shall conform to the specification of the Service Director and the Village Engineer and be mounted at a height of approximately seven feet (7') above the top of the curb of the crown of the pavement. The sign shall be located as directed by the Service Director and the Village Engineer.

7.9.13 Street Lights

The Subdivider shall arrange for the installation of street lights, at the Subdivider's expense, in the subdivision in accordance with the Village street lighting policy as indicated in these Regulations.

7.9.15 Street Trees

Trees shall be provided on proposed streets as required in these Regulations and as follows:

A. Species

- 1) The trees shall be species which are resistant to damage and disease and which do not cause interference with underground utilities or street lighting.
- 2) The species of trees suggested are Red Maple, Norway Maple, Sugar Maple, Sycamore Maple, Red Oak, Pin Oak, Thornless Honey Locust, London Plane Tree, Amur Cork Tree and Sweet Gum, Buckeye, Ruby Red Horse Chestnut, European Hornbeam, Hornbeam, American Hop Hornbeam, Chinese Hackberry, Hackberry, Maidenhair Tree and European Linden.
- 3) The species of trees which are prohibited because of their undesirable characteristics such as fruit, low branches, unpleasant odors, excessively thick foliage, susceptibility to disease or attack by insects, or large root systems belonging to the Poplar, Willow Cottonwood, American Elm, Ailanthus, Mountain Ash, Silver Maple, Ash Leaved Maple, and Oregon Maple species. The aforesaid are prohibited in the planting strip. Poplar, Willow, or cottonwood trees, if planted on private property, shall be located not less than one hundred feet (100') from any public sewer.

- ##### **B. Location.**
- Street trees shall be spaced so that there will be approximately ten feet (10') between branch tips when the trees are full grown. No trees shall be planted within

forty feet (40') of the intersection of two (2) street right-of-way lines. Approaches and driveways to buildings should be considered when locating trees.

- C. Tree Size. Trees at planting shall be at least one and one-half inches (1½") in diameter and one foot (1') above the ground. Lowest branches shall be not less than seven feet (7') and more than ten feet (10') above the ground. The Commission may require and permit planting screens or fences where double frontage lots abut a major arterial street or between a major arterial thoroughfare and a marginal access street, provided that such planting screens or fences shall not constitute a safety hazard. A plan of proposed planting screens shall be submitted for approval with the final plat.

7.11 Underground Utilities

- 7.11.1 The preliminary plan of any new subdivision shall be submitted to all utility companies serving the subdivision as well as the Village Engineer for their recommendations.
- 7.11.3 Utility easements of at least ten feet (10') in width for communication and electric power, and street lighting distribution lines and facilities shall be provided on all front lot lines and along certain side or rear lot lines where necessary.
- 7.11.5 Prior to granting final approval, the Subdivider shall have installed or shall have furnished adequate bond for the ultimate installation of the following in accordance with **the requirements of the National Electrical Code:**
 - A. Underground communication cables;
 - B. Underground distributions cables for power and street lighting from a common distribution system, and the equipment and housing necessary in the operation of the distribution system; and
 - C. Adequate provision for street light lamps and standards in accordance with a design approved by the Village Engineer.
- 7.11.7 The Subdivider shall bear the increase in costs, if any, over the normal mode of construction of communication or electrical lines and facilities, as determined by the telephone or electric company involved in accordance with the rules and regulations of the telephone or electric company involved.
- 7.11.9 The Village Engineer may authorize relief from the underground communication regulations when undue hardship may result from strict compliance. In granting such relief, the Village Engineer shall prescribe only conditions that he deems necessary or desirable for the public interest and when he finds that there are special circumstances or conditions affecting the property such that the strict application of the provisions of this section would deprive the applicant of the reasonable use of this land.
- 7.11.11 Requirements for Underground Electric Power and Street Lighting. In a new subdivision of five (5) or more lots, all communication, electric power and street lighting wires, conduits or cables to serve lots in such subdivision shall be constructed underground and upon easements provided for utilities, except that those wires, conduits or cables owned by or serving individual customers and located wholly on the customer's property need not be located upon easements. The Subdivider shall bear the increase in costs, if any, over the normal mode of construction on of electric lines and facilities, as determined by the telephone or electric company involved in accordance with the rules and regulations of the telephone or electric company.

- 7.11.13 All underground communication, electric power and street lighting wires, conduits or cables shall be constructed in accordance with the standards **required in the Public Utilities Commission of Ohio Rules, Regulations and Specification for Situations Where Electric Lines Cross or More or Less Parallel the Line of a Railroad, Interurban Railway, or Other Public Utility and Safety Rules for Electric Supply and Communication Lines, published by the State of Ohio, 1967, or by other regulations of the Public Utilities Commission of Ohio.**
- 7.11.15 Provisions shall be made for the installation of street lighting by the electric utility serving the subdivision at a minimum mounting height of fifteen feet (15') for luminaries and spaced no farther apart than every fourth (4th) lot. Provisions shall be made for the installation of street lighting standards on major or collector streets by the electric utility serving the subdivision to provide lighting intensity meeting the minimum recommendations of **American Standard Practice for Roadway Lighting.**
- 7.11.17 The wiring used shall be safety insulated and/or de-energized.
- 7.11.19 The Subdivider shall make arrangements for the installation of gas mains and shall submit drawings to the Village Engineer for approval.
- 7.11.19 The provisions of this section shall be applicable to all zoning districts.

7.13 Sewer and Water Facilities

Central sanitary sewer and water supply systems shall be provided by the Subdivider, either by the installation of new systems or by connection to existing systems which are deemed adequate by the Village Engineer to handle the additional demands and volume which will result from the proposed subdivision. The Subdivider, prior to the submission of the Final plat for approval by the Commission, must receive the prior written approval for the extension or installation of said central water system and central sanitary sewer system from the Village Engineer and the agencies having jurisdiction over the water and sanitary sewer systems.

NOTE: Staff believes that the following section addressed possible package treatment plants and should be deleted as no longer current.

The Commission may grant an appropriate variance from the foregoing requirements when one (1) or more of the following conditions are met:

(a) ~~Each of the proposed lots is two (2) acres or larger in area and has an average width of two hundred feet (200') or more with frontage on a public street and that rural density of development is approved for the area in which the subdivision is proposed and provided that written evidence is submitted that the Subdivider shall have demonstrated to the satisfaction of the Ohio Environmental Protection Agency and the County Health Department that the subsoil conditions are suitable for individual sewage disposal facilities.~~

(b) ~~Where:~~

~~1. central sanitary sewer systems cannot be provided because of location or other reasons as determined by the Ohio Environmental Protection Agency or because of the inability to connect with existing sanitary sewers~~

~~—Or~~

~~2. central water supply systems cannot be provided because of inadequate water supply as determined by the Ohio Environmental Protection Agency, and~~

~~3. — it appears that urban density of development would be approved for the area in which the subdivision is proposed, the Subdivider may be permitted to develop interim individual sewage disposal and/or water supply systems, provided that written evidence is submitted that the Subdivider shall have demonstrated to the satisfaction of the Ohio Environmental Protection Agency and County Health Department that the subsoil conditions are suitable for the individual sewage disposal facilities, and each of the proposed lots is two (2) acres in area and has an average width of two hundred feet (200') or more with frontage on a public street.~~

7.15 Monuments

Monuments shall be one inch (1") pipe or steel rods set in and running through a poured concrete block at least six inches (6") in diameter and at least thirty inches (30") long. The bottom of such block shall be set at least thirty inches (30") deep below finished grade in the plat. The points at which they may be found shall be designated on the plat. All monuments set in pavement shall be set in standard type monument boxes. Where new streets intersect existing highways, monuments may be placed on the center line of the new road at the right-of-way of the existing road.

Iron pins shall be set at all lot corners and in all changes in lot direction and at the point of tangency of all right-of-way curves.

7.17 OVERSIZE AND/OR OFF-SITE IMPROVEMENTS

Oversize and/or off-site extensions of utilities, pavements and other improvements shall be designed and constructed to facilitate the orderly development of nearby land which is an integral part of the neighborhood service or drainage area. Where the Village Engineer determines that improvements in excess of the size needed to serve the proposed subdivision are necessary, the Subdivider shall install all improvements required to serve the subdivision plus the additional oversize and/or off-site improvements required. Such improvements shall be available for connection by individual property owners and/or Subdividers of adjoining land.