# CHAPTER 1228
# Improvements



CROSS REFERENCES

Plat and subdivision defined - see Ohio R.C. 711.001
Original plats - see Ohio R.C. 711.01 et seq.
Vacating plats - see Ohio R.C. 711.17 et seq.
Revision of plats - see Ohio R.C. 711.28 et seq.
Planning Commission - see ADM. Ch. 242
Design standards - see P. & Z. Ch. 1226

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## 1228.01 GENERAL REQUIREMENTS.

The improvements set forth in this chapter are required before final plat approval or the subdivider shall furnish a guarantee as set forth in these Subdivision Regulations.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

## 1228.02 MONUMENTS.

(a) Concrete monuments four inches in diameter or square, three feet long, with flat tops, shall be set at all street corners, at all points where the street lines intersect the exterior boundaries of the subdivision, at angle points and points of curve of the street right-of-way line and at all corners on the plat. The top of the monument shall have an indented cross to identify properly the location and shall be set flush with the finished grade. Concrete monuments of different construction may be permitted upon written approval of the Planning Commission or its authorized representative.

(b) All other lot corners shall be marked with iron pipe not less than three-fourths inches in diameter and thirty inches long and driven so as to be flush with the finished grade or otherwise as approved by the Planning Commission.

(c) Before final acceptance of the street improvements by the Village, the subdivider or developer shall, through a registered surveyor, certify to the Village that all required monuments are in place or that those removed during construction have been replaced.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.03 GRADING SPECIFICATIONS.

All streets, roads and alleys shall be graded to their full widths by the subdivider so that pavements and sidewalks can be constructed. The subgrade shall be free of sod, vegetative or organic matter, soft clay and other objectionable materials for a depth of at least two feet below the finished surface. The subgrade shall be properly rolled, shaped and compacted, and shall be subject to the approval of the Planning Commission's authorized representative.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.04 STORM DRAINAGE.

(a) A complete storm sewer system and other drainage improvements shall be constructed in accordance with these standards. Where downstream storm drainage facilities are inadequate, consideration shall be given to detention basins, oversized storm sewers, or other techniques to minimize the amount of runoff developed and to provide a means of controlling the discharge to off-site outlets.

(b) A ten-year storm frequency shall be used in the design of all storm sewers and ditches, and a twenty-five year frequency shall be used in the design of major facilities such as culverts and detention facilities.

(c) Storm sewer pipes shall conform to the following standards:

(1) Minimum size shall be twelve (12) inches.
(2) Minimum cover shall be two (2) feet.
(3) Minimum grade for smooth pipe shall be as per Table 1.
(4) Materials shall consist of reinforced concrete, smooth interior high density polyethylene, corrugated aluminum, aluminized steel or galvanized steel, or PVC.

TABLE 1
MINIMUM GRADES "SMOOTH PIPE"

Using an "n" factor of 0.013, the following grades of pipe line shall be considered MINIMUM:

| Pipe Size (Inches) | Minimum Grade (Percent) |
|---|---|
| 12 | 0.33 |
| 15 | 0.23 |
| 18 | 0.18 |
| 21 | 0.14 |
| 24 | 0.12 |

For sizes larger than 24 inches where an "n" factor other than 0.013 is used, the minimum grade shall be considered as that which produces a full flow velocity of not less than 2-1/2 feet per second.

(d) Storm sewers installed under or within five feet of pavements and sidewalks shall be reinforced concrete or high density polyethylene installed per ODOT 603. One year of natural settlement may be accepted in lieu of granular material compacted in place if soil conditions appear to be suitable (subject to Village approval).

(e) Storm sewer manholes, or inlets serving as manholes, shall be spaced a intervals of 400 feet or less for pipe less than twenty-four (24) inches, and at all grade, alignment and pipe size changes. Manholes shall conform to ODOT Item 604 and be designed per ODOT standards Construction Drawing MH-3. Layed up manholes may be permitted providing they are specified at the time of improvement plan submission, constructed in accordance with ODOT Standard Construction Drawing MH-1 and are plastered with cement mortar both inside and out to ensure water tightness. Manhole castings located in asphalt pavement shall be set in a minimum twelve (12) inch wide concrete collar with a thickness equal to the pavement section and finished one quarter (1/4) inch below the pavement surface. The concrete/asphalt interface shall be sealed with liquid asphalt cement.

(f) Storm sewer inlets shall be designed and constructed in conformance with ODOT Item 604 and ODOT Standard Construction Drawings for CB2-2-A and B; CB 2-3 and 2-4; CB2-5 and 2-6; and CB-3 and 3A. Inlet CB-3 or CB-3A shall be used with curbing wherever possible and shall be fitted with vee type grates. Inlets shall be designed to accept no less than one and one-half (1-1/2) cubic feet of storm water per second. Inlet time shall be computed based upon Table 2. Layed up catch basins may be permitted providing they are specified at the time of improvement plan submission, constructed in accordance with the time appropriate ODOT Standard Construction Drawing and are plastered with cement mortar both inside and out to ensure tightness. When inlets are located in asphalt pavement, the concrete/asphalt interface shall be sealed with liquid asphalt cement.

TABLE 2
MAXIMUM INLET TIMES

Inlet time shall be computed by the design engineer. However, the maximum inlet time shall be as follows:

| Distance of Travel to Inlet (Feet) | Inlet Time (Minutes) |
|---|---|
| 100 | 12 |
| 200 | 16 |
| 300 | 30 |

(g) The allowable velocity in open drainage channels shall not exceed the values shown below in Table 3 for the various soil types and flexible linings. If the calculated velocity exceeds the shown, a gabion lining or other satisfactory treatment shall be required.

TABLE 3
ALLOWABLE DITCH VELOCITY (FEET PER SECOND)

| Soil Type | Seed Lining ODOT 659 | Sod Lining ODOT 660 | Jute or Excelsior Matting ODOT 667 or 669 |
|---|---|---|---|
| Sand | 1.5 | 3.5 | 3.0 |
| Firm Loam | 2.0 | 4.0 | 4.0 |
| Clay | 2.5 | 5.0 | 4.0 |
| Gravel | 3.5 | 6.0 | 5.0 |
| Weathering Shale | 4.5 | 6.0 | 5.0 |

(h) In designing the storm system, the developer shall use the methods described in Urban Hydrology for Small Watersheds, Technical Release Number 55, by the Natural Resources Conservation Service of the United States of Department of Agriculture and its Ohio Supplement to determine storm water runoff. The rational method shall only be used for very small areas with prior approval of the Village. When determining runoff from upstream areas, the developer shall use the most recent Land Use Development Plan in conjunction with topographic and other available sources of information.

(i) Storm water runoff control involves both peak and total volume of runoff.

(1) The peak rate of runoff from an area after development shall not exceed the peak rate of runoff from the same area before development for all storms up to a 200-year frequency, 24-hour storm. In addition, if it is found a proposed development will increase the volume of runoff from an area, the peak rate of runoff from certain more frequent storms must be controlled further. The permissible peak rate shall be determined as follows:

(A) Determine the total volume of runoff from a 1-year frequency, 24-hour storm occurring over the area to be developed before and after development.

(B) Determine the percent of increase in volume due to development and; using this percentage, pick the critical storm from the following Table 4:

TABLE 4
CRITICAL STORMS

| If the percentage of increase in volume of runoff is: | | The critical storm for discharge limitation will be: |
|---|---|---|
| Equal to or greater than | and less than | |
| -- | 10 | 1 Year |
| 10 | 20 | 2 Years |
| 20 | 50 | 5 Years |
| 50 | 100 | 10 Years |
| 100 | 250 | 25 Years |
| 250 | 500 | 50 Years |
| 500 | -- | 100 Years |

(2) The peak rate of runoff from the critical storm occurring over the development shall not exceed the peak rate of runoff from a one-year frequency storm occurring over the same area under predevelopment conditions. Storms of less frequent occurrence (longer return period) than the critical storm shall have peak rate of runoff not greater than for the same storm under predevelopment conditions.

(3) Storage volume does not have to be provided for off-site upstream areas. Flow from such areas will be routed through the drainage system in the development under consideration at a rate determined in the same manner as the on-site system. Off-site land uses averaged over the last five preceding years before the development shall be considered as the predevelopment condition for the purpose of calculating changes in runoff. The required detention shall be determined using the TR-55 methodology.

(A) The subdivider shall obtain Village approval of his detention facilities and outlot control devices prior to final plat approval.

(B) All detention facilities shall be graded and seeded, and easily maintained.

(C) All open detention facilities designed to hold water for more than twenty-four (24) hours and having side slopes steeper than one (1) to four (4) shall be fenced with a six (6) foot chain link fence set back ten (10) feet from the top of the bank and have a twelve (12) foot wide lockable gate for maintenance access.
(Ord. 75-96. Passed 11-18-96)

1228.05 PAVEMENT SPECIFICATIONS FOR STREETS.

Other than the following minimum standards the base and surface courses of streets shall be constructed in accordance with the specifications set forth in the current edition of Construction and Material Specification of the Ohio Department of Transportation.

(a) State and U.S. highways shall be subject only to State and Federal construction standards.

(b) Major streets and minor streets shall be constructed in accordance with one of the following alternatives:

(1) Eight-inch aggregate base, bituminous prime coat, and two and one-half inch asphalt concrete surface in accordance with State Department of Transportation specifications.

(2) Other specifications as may be approved by the Planning Commission, but only if the proposed construction is equivalent to or better than the above.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.06 MINIMUM PAVEMENT WIDTHS.

Minimum pavement widths between curbs or edges of pavement shall be as follows:

(a) Minor streets, twenty-six feet. These are most streets in residential developments where lots of less than one-half acre exist and where conditions are such as to discourage high speeds, non-local traffic and heavy street parking. Where, in the opinion of the Planning Commission, wider minor streets are needed to accommodate traffic and parking, the width requirement may be increased.

(b) Major streets, thirty-two feet. These include minor streets which, in the opinion of the Planning Commission, will involve sufficient traffic and/or parking to justify such width.

When the nature of the street demands it, pavement widths larger than the above minimums may be required by the Planning Commission. Commercial and industrial streets will often require wider pavement width.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.07 CURBS.

The subdivider shall provide standard six-inch by eighteen-inch concrete curbs. Curbs shall be constructed in conformance with the current edition of Construction and Material Specifications of the Ohio Department of Transportation, as they pertain to this type of improvement. Curbs of different construction than those specified may be permitted upon approval of the Planning Commission if the curbs proposed meet equivalent standards of those specified above.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.08 SIDEWALKS.

For the safety of pedestrians and of children at play, installation by the developer of sidewalks on both sides of major streets and other streets with heavy traffic will normally be required. The Planning Commission shall waive the requirement of sidewalks for minor streets, or where a park, railroad or other use on one side of a street makes a sidewalk nonessential.

Sidewalks, when required, shall be located not less than one foot from the property line to prevent interference or encroachment by fencing, walls, hedges or other planting or structures placed on the property line at a later date. When required in a single-family residential area, concrete sidewalks shall be four feet wide

and four inches thick. In multifamily or group housing developments, sidewalks shall be five feet wide and ten feet wide in commercial areas.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.09 CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR SIDEWALKS.

Construction standards and specifications for sidewalks shall be the same as provided for in Section 1014.02 of the Codified Ordinances.
(Ord. 06-2007. Passed 2-19-07.)

1228.10 WATER SUPPLY SYSTEM.

Where the public water supply is reasonably accessible and available to the proposed subdivision, the subdivider shall construct a complete water distribution system which shall adequately serve all lots and which shall include appropriately spaced fire hydrants, and this system shall be properly connected with the public water supply. Where a public water supply is not within a reasonable distance or otherwise available, the subdivider shall normally be required to construct a similar water distribution system and connect it with an alternative supply approved by the County or Ohio Department of Health or Ohio Environmental Protection Agency. If the County Board of Health approves the use of individual wells, lot sizes shall meet the approval of the County Board of Health.

All water mains, when and if constructed, shall be at least six inches in diameter, unless the Fire Chief and the Board of Trustees of Public Affairs have certified that larger mains are required or that smaller mains are adequate for fire protection and future extensions. All provisions of Chapter 1032 (Water) of these Codified Ordinances shall be adhered to.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.11 SANITARY SEWERS.

Where the public sanitary sewer system is reasonably accessible and available to the proposed subdivision the subdivider shall construct a subdivision sewer system to adequately serve all lots and connect the subdivision system to the existing system. Where lots cannot be served by the extension of an existing sanitary sewer, the subdivider shall do one of the following:

(a) Obtain approval of lot sizes for individual sewage disposal systems and fields from the County Board of Health and other agencies as required by law.

(b) Obtain approval and assure construction of a group or central sewage disposal system in accordance with State law and all rules and regulations of the County Health Department and the State of Ohio Health Department or the Ohio Environmental Protection Agency.

All provisions of Chapter 1024 (Extension of Sanitary Sewers) of these Codified Ordinances shall be adhered to.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.12 GAS AND ELECTRIC SPECIFICATIONS.

Gas and electric lines, when and if constructed, shall be in conformity with the rules and regulations of the servicing company and shall conform to specifications approved by the servicing company, except as may be regulated by other provisions of these Subdivision Regulations.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.13 STREET NAME SIGNS.

Street name signs shall be placed at all intersections.
(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.14 TREES.

Trees shall be permitted to be planted in the street right of way, but only with the prior approval of the Village Tree Commission.
(Ord. 51-90. Passed 6-4-90; Ord. 75-96. Passed 11-18-96.)

1228.15 GUARANTEES OR COMPLETION OF IMPROVEMENTS.

No final subdivision plat shall be approved by the Planning Commission until one of the following alternatives has been achieved:

(a) All improvements listed on the plat have been constructed in a satisfactory manner and approved as follows:
  (1) Sanitary sewer extensions and water systems have been approved by the Board of Trustees of Public Affairs.
  (2) All other improvements, including monuments, storm drainage, street paving, curbs and gutters, sidewalks and street name signs, have been approved by the Planning Commission's authorized representative.

(b) Security bonds or certified checks have been accepted by the Village as follows:
  (1) Sanitary sewer extensions and water systems have been bonded in accordance with the provisions of Chapter 1024 (Extensions of Sanitary Sewers) and Chapter 1032 (Water) of these Codified Ordinances.
  (2) Grading, storm drainage, street paving, curbs and gutters, sidewalks, street name signs and any other required improvements have been assured by a security bond or certified check accepted by the Village and made payable to the Village in an amount at least equal to the estimated cost, subject to approval of the Planning Commission's authorized representative, whereby such improvements may be completed without cost to the Village in the event of default of the subdivider. The bond or check shall be subject to the condition that the improvements will be completed within one year after approval unless an extension is granted by the Planning Commission.

(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)

1228.16 INSTALLATION OF UTILITIES.

Utilities, including, but not necessarily limited to, gas, water, sewage, overhead electric power, telephone, and cable TV facilities, shall be provided in the street right of way in the grass plot area, except that underground residential electrical systems may be on private rights of way. When desirable, utilities may be installed in rear lot easements.

Before any pavement base is applied, all grading must be completed and approved by the Planning Commission's authorized representative, and all of the in-street underground work, such as water mains, gas mains, etc., and all service connections, shall be completely installed and approved by the authorized representative throughout the length of the street and across the flat section. The subdivider shall install all laterals to the lot line prior to construction of the street.

(Ord. 1433. Passed 2-2-76; Ord. 75-96. Passed 11-18-96.)