CITY OF NORTH OLMSTED

ORDINANCE NO. 94 - 100

BY: COUNCILWOMAN JANET SARINGER

AN ORDINANCE TO REPLACE CHAPTER 927 ENTITLED "STORM WATER RETENTION SYSTEMS" WITH A NEW CHAPTER 927 ENTITLED "STORM WATER MANAGEMENT AND URBAN SEDIMENT POLLUTION ABATEMENT SYSTEMS" OF THE CODIFIED ORDINANCES OF THE CITY OF NORTH OLMSTED, OHIO, AS AMENDED

BE IT ORDAINED by the Council of the City of North Olmsted, Cuyahoga County, Ohio that:

SECTION 1: Chapter 927 of the Codified Ordinances of the City of North Olmsted, which now reads as follows:

"927.01 MAINTENANCE

All storm water retention basins and systems designed as such and located on private property shall be maintained and kept in good working order by the owner or person in charge of such private property whereon the retention basin or system is located.

927.02 INSPECTIONS

The Division of Engineering is hereby charged with the duty of inspecting all storm water retention basins and systems. The owner or person in control of private property whereon such basins or systems are located shall, at all reasonable times, permit the inspection of such basins or systems.

927.03 NOTICE TO CORRECT; NONCOMPLIANCE; REMEDY OF CITY

If, after inspection, the Division of Engineering determines that a storm water retention basin or system is malfunctioning because of the accumulation of debris, lack of maintenance or repair or for any other reason, then the Division shall notify the property owner or person in charge of the private property whereon the basin or system is located to correct the situation within thirty days. If, after notification, the property owner or person in charge of such property fails to abate the adverse situation, then the City shall either perform the work or cause work to be performed to have the adverse situation abated and thereafter bill the property owner for the cost of repair or maintenance.

Notification of cost shall be given by regular mail at the last known address of the owner of the property. Such notification shall advise the property owner that he has five days within which to pay the invoice. If he fails to do so within thirty days after the date of mailing such notice, such amount shall be certified to the County Auditor for collection in the same manner as other taxes and assessments are collected.

927.04 APPLICATION OF CHAPTER

The provisions of this chapter apply to storm water retention basins or systems designed as such located on private property. Nothing herein shall be construed as requiring any individual to assume responsibility for drainage ditches which are an intrical part of the storm water drainage system of the City.

927.99 PENALTY

In addition to the remedy provided for in Section 927.03, whoever violates or fails to comply with any of the provisions of this chapter is guilty of a minor misdemeanor. A separate offense shall be deemed committed each day during or on which a violation or noncompliance occurs or continues."

BE AND THE SAME IS HEREBY REPLACED, AND AS REPLACED SHALL READ AS FOLLOWS:

"927.01 PURPOSE

It is the purpose of this Chapter to establish standards to achieve a level of storm water management and conservation practices which will control wind or water erosion of the soil and minimize the degradation of the waters of the City of North Olmsted and the State of Ohio by soil sediment in conjunction with land grading, excavating, filling, or other soil disturbing activities of land used or being developed for non-farm commercial, industrial, residential, or other non-farm purposes, and to establish criteria for determination of the acceptability of such management and conservation practices.

927.02 SCOPE

(a) This Chapter applies to storm water management and the control of sediment pollution from accelerated water erosion of the following areas:

(1) Land use or being developed for commercial, industrial or residential purposes.

(2) Land used or being developed for streets, roads, highways, railroads, airports, other transportation facilities and utilities, and associated areas.

(3) Land used or being developed for private recreation, wildlife, or natural purposes. This includes agricultural areas converted or being converted to such uses.

(b) This Chapter does not apply to:

(1) Projects undertaken and being implemented by a government agency in accordance with sediment pollution control policies that are approved by the City Engineer and the Chief of the Division of Soil and Water Conservation, Ohio Department of Natural Resources.

(c) These rules do not apply to development areas of less than one-half acre unless such areas consist of or drain to a sensitive area, in which case they do not apply to development areas of less than eight thousand (8,000) square feet; provided, however, that the City Engineer shall enforce all other storm water management rules regardless of the development area's size.

927.03 DEFINITIONS

For the purposes of this Chapter, unless the context otherwise requires:

(a) "Accelerated Water Erosion" means the wearing away of the land surface by water, occurring at a much more rapid rate than geologic or normal erosion, primarily as a result of the influence of the activities of humans.

(b) "Approving Agency" means either the Division of Engineering or other entity, agency or official designated by the City Engineer.

(c) "Channel" means a natural stream that conveys water, a ditch, or channel excavated for the flow of water.

(d) "Concentrated Storm Runoff" means surface runoff which converges and flows primarily through water conveyance features such as swales, gullies, waterways, channels or storm sewers and which exceeds the maximum specified flow rates of filters or perimeter controls intended to control sheet flow.

(e) "Conservation" means the wise use and management of natural resources.

(f) "Cut and Fill Slopes" means a portion of land surface or area from which soil material is excavated and/or filled, forming a slope or embankment.

(g) "Denuded Area" means portion of land surface on which the vegetation or other soil stabilization features have been removed, destroyed, or covered and which may result in or contribute to erosion and sedimentation.

(h) "Development Area" means any tract, lot or parcel of land or combination of tracts, lots or parcels of land which are in one ownership or are contiguous and in diverse ownership in which earth disturbing activity is to be performed, and includes redevelopment where an existing building or structure will be removed.

(i) "District" means a soil and water conservation district, organized under Chapter 1515 of the Ohio Revised Code.

(j) "Ditch" means an excavation either dug or natural for the purpose of drainage or irrigation with intermittent flow.

(k) "Division" means the Division of Soil and Water Conservation, Ohio Department of Natural Resources.

(l) "Drainage Way" means a channel or storm sewer used to drain an area.

(m) "Dumping" means grading, pushing, piling, throwing, unloading or placing of soil.

(n) "Earth Disturbing Activity" means any grading, excavating, filling, or other alteration of the earth's surface where natural or man-made ground cover is destroyed and which may result in or contribute to erosion and sediment pollution.

(o) "Earth Material" means soil, sediment, rock, sand, gravel, and organic material or residue associated with or attached to the soil.

(p) "Emergency Flow Way" means the drainage way necessary to convey a 100 year storm.

(q) "Engineer" means the City Engineer or his designated representative.

(r) "Erosion" means the process by which the land surface is worn away by the action of water, wind, ice or gravity.

(s) "Erosion and Sediment Control Plan" means a written and/or drawn sediment pollution abatement plan or strategy to minimize erosion and prevent off-site sedimentation throughout all earth disturbing activities on a development area.

(t) "Erosion and Sediment Control Practices" means conservation measures used to abate sediment pollution and includes structural practices, vegetative practices and management techniques.

(u) "Flood" means the temporary inundation of any land not normally covered by water due to heavy rainfall or runoff or due to a temporary rise in the level of rivers, streams, watercourses, or lakes.

(1) "Average Annual Flood" means a flood equal to the mean of discharges of all the maximum annual floods during the period of record.

(2) "Regional Flood" means the name applied to the 100-year flood in flood plain information reports. The 100-year flood has a one percent probability of being equalled or exceeded in a period of 100 years.

(3) "Maximum Probable Flood" means the largest flood discharge believed possible considering the meteorologic conditions and snow cover on the watershed.

(v) "Floodway" means the channel of the watercourse and those portions of the adjoining flood plain which are used to convey the regional flood.

(w) "Frequency Storm" means a rainfall event of a magnitude with a specified average recurrence interval and is calculated with soil conservation service Type II twenty-four hour curves or depth-duration frequency curves.

(x) "Grading" means earth disturbing activity such as excavation, stripping, cutting, filling, stockpiling, or any combination thereof.

(y) "Grubbing" means removing, clearing or scalping material such as roots, stumps or sod.

(z) "Highly Erodible Soil" means a portion of land surface which is very susceptible to erosive forces and is characterized by a high soil erodibility factor, steep slopes or long slopes.

(aa) "Landslide" means the rapid mass movement of soil and rock material downhill under the influence of gravity in which the movement of the soil mass occurs along an interior surface of sliding.

(bb) "Outfall" means an area where water flows from a structure such as a conduit, storm sewer, improved channel or drain, and the area immediately beyond the structure which is impacted by the velocity of flow in the structure.

(cc) "Person" means any individual, corporation, partnership, joint venture, agency, unincorporated association, municipal corporation, township, county, state agency, the federal government, or any combination thereof.

(dd) "Runoff" means the portion of rainfall, melted snow or irrigation water that flows across the ground surface and eventually is returned to streams.

(1) "Accelerated Runoff" means increased runoff due to less permeable surface area primarily caused by urbanization.

(2) "Peak Rate of Runoff" means the maximum rate of runoff for any storm.

(3) "Runoff Volume" means the total quantity or volume of runoff during a specified time period. It may be expressed in acre-feet, in inches-depth of the drainage area, or in other units of volume.

(ee) "Sediment" means solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by wind, water, gravity, or ice and has come to rest on the earth's surface.

(ff) "Sediment Basin" means settling facility meeting or exceeding the design specifications of a temporary sediment basin as defined in Water Management and Sediment Control for Urbanizing Areas (Soil Conservation Service, Ohio)

(gg) "Sediment Control" means the limiting of sediment transport by preventing erosion, filtering sediment from water, or detaining sediment laden water, allowing sediment to settle out.

(hh) "Sediment Filter" means a sediment control device such as a slit fence, straw bale barrier, or filter strip usually capable of controlling only small flow rates.

(ii) "Sediment Pollution" means failure to use management or conservation practices to abate wind or water erosion of the soil or to abate the degradation of the waters of the state by soil sediment in conjunction with land grading, excavating, filling, or other soil disturbing activities on land use or being developed for non-farm commercial, industrial, residential, or other non-farm purposes.

(jj) "Sensitive Area" means an area or body of water that requires special management because of its fragile nature or because of its importance to well-being of the surrounding communities, region, or the state and includes:

(1) Ponds or small lakes with less than five (5) acres of surface area;

(2) Small streams with gradients less than ten (10) feet per mile with average annual flows of less than 3.5 feet per second containing sand or gravel bottoms; and

(3) Wetlands.

(kk) "Settling Facility" means a runoff detention structure, such as sediment basins or sediment traps which detain sediment laden runoff, allowing sediment to settle out.

(ll) "Sheet Flow" means overland water runoff in a thin uniform layer.

(mm) "Slip" means landslide as defined in paragraph (w) of this Section.

(nn) "Sloughing" means a slip of downward movement of an extended layer of soil resulting from the undermining action of water or the earth disturbing activity of man.

(oo) "Soil" means unconsolidated erodible earth material consisting of minerals and/or organics.

(pp) "Soil Loss" means soil moved from a site by the forces of erosion and redeposited at another site on land or in a body of water.

(qq) "Soil Stabilization" means vegetative or structural soil cover controlling erosion and includes permanent and temporary seed, mulch, sod, pavement, etc.

(rr) "Storage" means the control, retention, or detention of runoff.

(1) "Detention Storage" means storm runoff collected and stored for a short period of time and then released at a controlled rate. (Dry Pond)

(2) "Retention Storage" means storm runoff collected and stored for a short period of time and which is released at a controlled rate leaving in the facility a permanent pool of water. This facility is often associated with water-related recreational or aesthetic uses. (Wet Pond)

(3) "Underground Storage" means storm runoff collected and stored for a short period of time and then released at a controlled rate from a system of underground pipes or vaults.

(ss) "Storage Facility" means any facility used to store, retain or detain storm runoff, which shall include but not be limited to retention and detention storage facilities, underground pipe, rooftop or parking lot storage, basins, depressions and pools.

(tt) "Storm Frequency" means the average period of time in which a storm of a given duration and intensity can be expected to be equaled or exceeded.

(uu) "Storm Drainage System" means the surface and subsurface system for the removal of water from the land, including both the natural elements of streams, gullies, ravines, marshes, swales and ponds, whether of an intermittent or continuous nature, and man-made elements which include conduits and appurtenant features, culverts, ditches, channels, storage facilities, streets, and the storm sewer system.

(1) "Initial Drainage System" means that part of the storm drainage system which is used regularly for collecting, transporting, and disposing of storm runoff, snow melt, and miscellaneous minor flows. The initial system is also termed the "convenience system", "minor system", or the "storm sewer system", and may include many features ranging from curbs and gutters to storm sewer pipes and open drainage ways.

(2) "Major Drainage System" means that storm drainage system which carries the runoff from a storm having a frequency of occurrence of once in 100 years. The major system will function whether or not it has been planned and designed and whether or not improvements are situated wisely in respect to it. The major system is also termed the "Emergency Flow Way." The major system usually includes many features such as streets, ravines, and major drainage channels. Storm sewer systems may reduce the flow in many parts of the major system by storing and transporting water underground.

(vv) "Stormwater Control Structure" means practices used to control accelerated stormwater runoff from development areas.

(ww) "Stormwater Conveyance System" means all storm sewers, channels, streams, ponds, lakes, etc. used for conveying concentrated stormwater runoff or storing stormwater runoff.

(xx) "Stream" means a body of water running or flowing on the earth's surface of channel in which such flow occurs. Flow may be seasonally intermittent.

(zz) "Waters of the State" means all streams, lakes, ponds, wetlands, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, regardless of the depth of the strata in which underground water is located, which are situated wholly or partly within, or border upon, this State, or within its jurisdiction, except those private waters which do not combine or effect a junction with natural surface or underground waters.

927.04 STORMWATER MANAGEMENT AND EROSION AND EROSION AND SEDIMENT CONTROL PLAN

(a) In order to control sediment pollution of the waters of the City of North Olmsted or the State of Ohio, the owner or person responsible for the development area shall be responsible for developing a storm water management and erosion and sediment control plan.

(b) The plan shall identify potential erosion and sediment pollution problems and describe the measures to be taken to control those problems.

(c) Provisions of the plan must satisfy all applicable requirements of these rules.

(d) The plan must be submitted to and be approved by the City Engineer prior to any earth disturbing activity of the development area.

(e) The following information shall be included in the storm water management and erosion and sediment control plan:

(1) A general project description including the nature and purpose of the earth disturbing activity;

(2) A vicinity sketch locating the development area and all pertinent surrounding features, including waters of the state;

(3) An analysis of any impacted sensitive areas;

(4) The existing and proposed topography;

(5) The location and description of existing and proposed drainage patterns and facilities, including any pertinent drainage facilities beyond the development area;

(6) The limits of earth disturbing activity;

(7) The types of soils within or affected by the development area and the location of all highly erodible or unstable soils;

(8) Erosion and sediment control practices to be employed on the development area:

(A) Their location and,

(B) Where applicable, their size, detail drawing, maintenance requirements, and design calculations;

(9) The schedule, phasing, and coordination of construction operation and erosion and sediment control practices.

(10) Storm water provisions, including:

(A) A general description of the storm water management strategy;

(B) The location and design calculation for all permanent storm water conveyance, detention, and retention structures; and

(C) Hydrologic and hydraulic studies for development areas greater than 5 acres:

(1) A hydrologic and hydraulic study of each subdivision or development shall be submitted as part of the construction drawings.

(2) These studies will be used to establish the adequacy of the drainage system of the development site. As part of these studies, the adequacy of the storm drainage facility necessary to carry the run-off from the intial storm design shall be shown. Also the flow routes and drainageway necessary to convey the 100-year storm (the emergency flow way) through the development shall be shown. All necessary easements shall be shown.

(3) These studies will also be used to establish the adequacy of the drainage system of the proposed development to receive and convey and initial and major storms from dominant (upstream) property.

(4) These studies will also be used to establish the adequacy of the drainage system of the proposed development so as not to create or worsen drainage problems downstream. As part of these studies, storage facilities will be located and identified by type.

(5) Submittals for review shall include, but not be limited to:

A. 1" = 200' Scale Soil Map with the following:

1. Contours shall be 2' intervals.

2. All soil types shall be noted along with all ground cover and woodlands and all other ground conditions noted.

3. The total drainage area tributary to the proposed project including the project shall be noted. (Before and after development conditions must be noted.)

(4) Legend must be provided noting the soils, area in acres, and soils groups (Before and after development.)

(5) Copy of the U. S. Department of Agriculture SCS Soil Survey of Cuyahoga County, Ohio 1980 or latest Edition, showing the entire drainage area and sub-area.

(6) All existing drainage facilities must be noted. i.e. storm sewer culverts, lake and swamps, etc.

(B) DRAINAGE AREA MAP

(Before and After Development)

(1) An aerial photograph with a scale of 1" - 100', must be supplied with the entire drainage area and all sub-areas noted along with all existing land use conditions.

Contours shall be 2'intervals minimum. (Any other submittal shall meet with prior approval of the City Engineer.)

(2) All existing drainage facilities must be noted along with all necessary field data.

(3) All natural waterways must be noted, and cross sections of all waterways must be submitted along with any other data to sufficiently determine the exact time of concentration or travel time.

(4) All existing and proposed modifications to drainage system must be noted.

(5) A complete Storm Sewer Design noting all proposed storm sewers, culverts and other storm water management facilities must be submitted.

(6) Emergency Flow Way must be shown on this plan, the flow route for a 100-year storm conveyed thru the proposed project.

927.05 SEDIMENT POLLUTION CENTRAL STANDARDS

(a) In order to control sediment pollution of the waters of the City of North Olmsted and the State of Ohio, the owner or person responsible for the development area shall use conservation planning and practices to maintain the level of conservation established by the minimum standards.

(b) The minimum standards are general criteria and shall not limit the right of the City Engineer to impose additional, more stringent requirements whenever a plan which meets the requirements of this Chapter is not adequate due to special circumstances.

(c) Erosion and sediment control practices used to satisfy the standards shall meet the specifications in the current edition of Water Management and Sediment Control for Urbanizing Areas (Soil Conservation Service, Ohio.)

The minimum standards are listed below:

(1) Timing of Sediment Trapping Practices. Sediment control practices shall be functional throughout earth disturbing activity.

Settling facilities, perimeter controls, and other practices intended to trap sediment shall be implemented as the first step of grading and within seven days from the start of grubbing. They shall continue to function until the upslope development area is restabilized.

(2) Stabilization of Denuded Areas. Denuded areas shall have soil stabilization applied within seven days if they are to remain dormant for more than thirty (30) days.

Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site, and shall also be applied within seven days to denuded areas which may not be at final grade, but will remain dormant (undisturbed) for longer than thirty (30) days.

(3) Settling Facilities. Concentrated stormwater runoff from denuded areas shall pass through a sediment settling facility.

The facility's storage capacity shall be seventy-five (75) cubic yards per acre of drainage area. A sediment basin shall be the required facility if the size of the denuded area contributing runoff exceeds five (5) acres.

(4) Perimeter Controls. Sheet flow runoff from denuded areas shall be filtered or diverted to a settling facility.

Perimeter controls such as sediment filters or diversions to settling facilities shall protect adjacent properties and waters of the City of North Olmsted and the State of Ohio from sediment transported by sheet flow.

(5) Storm Sewer Inlet Protection. All storm sewer inlets which accept water runoff from the development area shall be protected so that sediment-laden water will not enter the storm sewer system without first being filtered or otherwise treated to remove sediment, unless the system drains to an on-site settling facility.

(6) Working in or Crossing Streams.

(A) Streams including bed and banks shall be restabilized immediately after in-channel work is completed, interrupted, or stopped.

To the extent practicable, construction vehicles shall be kept out of streams. Where in-channel work is necessary, precautions shall be taken to stabilize the work area during construction to minimize erosion.

(B) If a live (wet) stream must be crossed by construction vehicles regularly during construction, a temporary stream crossing shall provided.

(7) Construction Access Routes. Measures shall be taken to prevent soil is transported by vehicle tracking onto surfaces where runoff is not checked by sediment controls, or onto public roads. Such measures may include tire wash-off utilizing a temporary or permanent water supply connection or tanker truck, and temporary paved construction roadways or, loading and unloading areas.

If soil is transported onto a public road surface, the roads shall be cleaned thoroughly at the end of each day, or more frequently if public safety dictates. Soil shall be removed from paved surfaces by shoveling or sweeping and street washing. Street washing shall be utilized only after soil has been removed by shoveling or sweeping. All wash-off from street washing shall be intercepted by an approved sediment control facility.

(8) Underground Utility Construction. The construction of underground utility lines shall be subject to the following criteria:

(A) Trenches shall remain open for nor more than five (5) days.

(B) Trench dewatering devices shall discharge in a manner approved by the plan of the City Engineer and shall not adversely affect waters of the City and the State of Ohio or off-site property.

(9) Sloughing and Dumping.

(A) No soil, rock debris, or any other material shall be dumped or placed into waters of the City of North Olmsted and State of Ohio or into such proximity that it may readily slough, slip or erode into waters of the City of North Olmsted and the State of Ohio unless such dumping or placing is authorized by the City Engineer, and when applicable, the Army Corps of Engineers, for such purpose as, but nor limited to, constructing bridges, culverts, and erosion control structures.

(B) Unstable soils prone to slipping or landsliding shall not be graded, excavated, filled or have loads imposed upon them unless the work is done in accordance with a qualified professional engineer's recommendations to correct, eliminate, or adequately address the problems.

(10) Cut and Fill Slopes. Cut and fill slopes shall be designed and constructed in a manner which will minimize erosion. Consideration shall be given to the length and steepness of the slope, soil type, upslope drainage area, groundwater conditions, and slope stabilization.

(11) Stabilization of Outfalls and Channels. Outfalls and construction or modified channels shall be designed and constructed to withstand the expected velocity of flow from a post-development, ten year frequency storm without eroding.

(12) Establishment of Permanent Vegetation. A permanent vegetation cover shall be established on denuded areas not otherwise permanently stabilized.

Permanent vegetation shall not be considered established until ground cover is achieved which, in the opinion of the City Engineer, provides adequate cover and is mature enough to control soil erosion satisfactorily and to survive adverse weather conditions.

(13) Disposition of Temporary Practices. All temporary and permanent erosion and sediment control practices shall be disposed of within thirty (30) days after final site stabilization is achieved or after the temporary practices are no longer needed, unless otherwise authorized by the Engineering Division. Trapped sediment shall be permanently stabilized to prevent further erosion.

(14) Maintenance. All temporary and permanent erosion and sediment control practices and facilities shall be maintained and repaired by the owner or person in charge of the parcel of land on which such facilities are located as needed to assure continued performance of their intended function.

(15) Special Provision. Standard Number (5), Storm Sewer Inlet Protection, and Standard Number (7), Construction Access Routes, apply to all earth-disturbing-activity regardless of lot size.

927.06 STORMWATER CHANNEL EROSION CONTROL STANDARDS

(a) In order to control channel erosion caused by increased stormwater runoff rates and volumes, stormwater runoff from development areas shall be restricted. This provision shall apply to all new construction and redevelopment on lots larger than 8,000 square feet, and for all additions on lots larger than one-half acre.

(b) The peak rates of runoff after development shall be no greater than ninety (90%) percent of the peak rates of runoff occurring before any development for all twenty-four hour storms from one to one hundred year frequency. If this requirement is satisfied for the one, two, five, ten, twenty-five, fifty and one hundred year frequency storms, all storms from one to one hundred year frequency may be assumed to satisfy this requirement.

(c) The run-off coefficients shall be as follows:

Before development or redevelopment,

Flat slope, less than 2 percent	0.01 to 0.05
Average slope, 2 to 7 percent	0.05 to 0.12
Steep slope, greater than 7 percent	0.012 to 0.18

After development or redevelopment,

Roof surface	0.85 to 0.95
Asphalt surface	0.85 to 0.95
Concrete surface	0.80 to 0.90
Gravel roadway surface	0.65 to 0.75
Grassed area	0.60 to 0.70
Other surfaces	As approved by City Engineer

Each type of area shall be calculated separately and the individual run-off quantities added together to give the total storm water run-off.

The run-off coefficient used for each site within each given range shall be subject to the approval of the City Engineer.

(d) The time of concentration shall be determined as follows:

(1) Residential Areas:

The concentration times to the critical inlet varies between 12 and 20 minutes with 15 minutes to be used as the general case based upon full development of the land.

(2) Industrial/Commercial, Multi-Family and School Areas:

The concentration time to the critical inlet varies between 10 and 15 minutes with 12.5 minutes to be used as the general case based upon full development of the land.

(3) Major Urban Business Areas and Shopping Centers:

The concentration time to the critical inlet varies between 5 and 12 minutes with 10 minutes used as the general case based upon full development of the land.

Runoff characteristics which vary from the expected for either residential, commercial, or industrial development will be supported by data submitted for approval by the City Engineer.

(e) The rainfall intensity shall be based on Table 1 entitled "Standard Rainfall Intensity Duration Table".

TABLE 1

STANDARD RAINFALL INTENSITY-DURATION-TABLE

DESIGN STORM

Tc (mins.)	1 Yr. (0.95 in/hr)	2 Yr. (1.20 in/hr)	5 Yr. (1.50 in/hr)	10 Yr. (1.80 in/hr)	25 Yr. (2.00 in/hr)	50 Yr. (2.25 in/hr)	100 Yr. (2.50 in/hr)
10	3.15	3.79	4.30	4.95	5.20	5.75	6.15
11	3.02	3.64	4.14	4.78	5.04	5.58	5.98
12	2.91	3.52	4.00	4.63	4.89	5.41	5.81
13	2.81	3.41	3.87	4.48	4.74	5.26	5.65
14	2.71	3.30	3.74	4.34	4.61	5.11	5.51
15	2.62	3.20	3.62	4.21	4.48	4.98	5.37
16	2.54	3.11	3.51	4.09	4.36	4.85	5.23
17	2.46	3.02	3.41	3.98	4.25	4.72	5.11
18	2.38	2.93	3.31	3.87	4.14	4.60	4.99
19	2.30	2.84	3.22	3.76	4.04	4.49	4.87
20	2.22	2.75	3.13	3.67	3.94	4.39	4.76
21	2.14	2.66	3.05	3.57	3.85	4.28	4.65
22	2.06	2.57	2.97	3.49	3.76	4.19	4.55
23	1.99	2.48	2.89	3.40	3.67	4.09	4.46
24	1.92	2.39	2.82	3.32	3.59	4.01	4.37
25	1.85	2.30	2.76	3.25	3.51	3.92	4.28
26	1.78	2.22	2.69	3.17	3.44	3.84	4.19
27	1.71	2.14	2.63	3.10	3.37	3.76	4.11
28	1.64	2.06	2.57	3.04	3.30	3.69	4.03
29	1.57	1.98	2.52	2.97	3.23	3.61	3.96
30	1.50	1.90	2.46	2.91	3.17	3.54	3.88
35	1.37	1.75	2.22	2.64	2.89	3.23	3.56
40	1.25	1.61	2.03	2.41	2.65	2.97	3.28
45	1.13	1.47	1.86	2.22	2.45	2.75	3.04
50	1.07	1.38	1.72	2.06	2.28	2.56	2.84
55	1.01	1.29	1.60	1.92	2.13	2.40	2.66
60	0.95	1.20	1.50	1.80	2.00	2.25	2.50
70	0.86	1.09	1.33	1.60	1.78	2.01	2.23
80	0.78	0.98	1.19	1.43	1.60	1.81	2.02
90	0.70	0.87	1.08	1.30	1.46	1.65	1.84
100	0.65	0.81	0.99	1.19	1.34	1.51	1.70
110	0.61	0.75	0.91	1.10	1.24	1.40	1.57
120	0.57	0.70	0.84	1.02	1.15	1.30	1.46
180	0.43	0.50	0.63	0.75	0.87	0.97	1.07
360	0.25	0.28	0.37	0.43	0.50	0.55	0.62
720	0.16	0.18	0.22	0.25	0.28	0.30	0.36
1440	0.09	0.10	0.12	0.14	0.16	0.18	0.19

(f) If the volume of runoff is greater after development than before development, the peak rate of runoff shall be reduced. The critical storm shall be determined by the percent increase in runoff volume. the peak rate of runoff from the critical storm and all more frequent storms, shall be no greater than ninety (90) percent of the peak rate of runoff from the one year storm occurring before any development. Runoff rates from less frequent storms (longer return periods) than the critical storm shall satisfy the requirements in Paragraph (b) of this Section.

(g) The critical storm for a specific development area is determined as follows:

(1) Determine the total volume of runoff from a twenty-four-hour one year frequency storm, occurring on the development area based on the difference between after development and ninety (90) percent of before any development.

(2) From the volumes in Paragraph (c) of this Section, determine the percent of increase in volume of runoff due to development and, using this percentage, select the critical storm from the following table:

If the percentage increase in volume of runoff is

Equal to or Greater than	and Less than	The "critical storm" for discharge limitation limitation will be:
0	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

(h) The requirements shall be satisfied at each location where runoff leaves the development area. The runoff rates and volumes shall be considered for both the conditions before development and after development at each of these locations.

(i) To ensure the continued functioning of stormwater control structures, the following information shall be identified to the satisfaction of the City Engineer.

(1) The person or entity responsible for continued maintenance of the stormwater control structure and the mechanism establishing responsibility;

(2) Maintenance requirements and Schedules; and

(3) Permanent access and access easements required to perform inspection and maintenance of stormwater control structures and stormwater conveyance systems if easements are required by City. The minimum size of an easement shall be approved by the City Engineer.

927.07 STORMWATER STORAGE STANDARDS

(a) All materials and components used for the construction of a stormwater storage facility shall conform to the latest version of the UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS or other approved standards and, where necessary, shall be designed to support a standard H-20 wheel load if the facility is located under a roadway, drive or parking area.

Corrugated metal pipe shall have annular ends with matching bands, gasket joints, and watertight seams. All plate bulkheads over 24" in diameter shall be reinforced with external braces and stiffeners. Corrugated metal pipe shall be galvanized or aluminized.

Reinforced concrete pipe used for storage facilities shall have premium joints and shall have endwalls or bulkheads designed to resist anticipated loads.

Access manholes with access steps shall be provided at each end of an underground storage facility and at intermediate points, if deemed necessary by the City Engineer. The invert elevation of the storage facility outlet and the restrictor pipe shall be aligned in such a manner to eliminate the creation of a sump within the storage facility.

Pipe installation methods and bedding materials shall conform to those recommended in the UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS.

Retention and detention facilities, other than underground pipes or culverts, shall be considered a special design and are subject to the approval of the City Engineer and Planning Commission.

(b) Infiltration basins, also known as stone beds, shall only be approved subject to the following standards:

(1) A report shall be submitted from a certified testing laboratory containing sufficient records and data to establish the character of the soil. Such records shall describe the soil conditions found to a depth of at least five feet (5') below the deepest point proposed for the the installation of the stone bed or dissipation wells. The report shall include information regarding the level of the water table and soil permeability.

(2) The stone bed shall be located a minimum of twenty feet (20') from any building or ten feet (10') from any property line or sanitary sewer easement.

(3) An approved filter fabric shall cover the top and sides of the stone bed.

(4) The required volume of the stone bed shall be calculated using approved terms for coefficient of runoff, drainage area, storm intensity and time of concentration. The porosity ratio shall be 0.33 to figure net volume from the gross volume.

(5) An observation well shall be required for inspection purposes. The location and diameter shall be approved by the Engineering Department. The observation well shall be as deep as the deepest part of the stone bed. Perforated pipe may be approved for use in an observation well.

(6) The infiltration basin shall have a sump pump to discharge excess water to an approved storm sewer or ditch.

(c) All storm water flow from the proposed development, including flows from upstream areas passing through, and further including increased flow attributable to changes in time of concentration or changes in the former runoff factor (Imperviousness), shall be conveyed to the proper storage facility end outlet for the entire tributary area via a natural channel or pipe/culvert either or both of which shall be improved so as to be of adequate capacity.

927.08 MAINTENANCE.

(a) Any portion of the drainage system and storage facilities, that is constructed by the developer will be continuously maintained by the owner or owners. The developer shall cause the maintenance obligation to be inserted in the chain of title to the affected lands as a covenant running with the land.

(b) The Planning Commission may restrict the planting of trees, shrubbery or plantings with woody growth characteristics, and against the construction therein of building, accessory buildings, fences, walls or any other obstructions to the free flow of storm water or where such may hinder the maintenance of storm water control structures.

(c) The Division of Engineering is hereby charged with the duty of inspecting all storm water management and erosion and sediment control systems. The owner or persons in control of private property whereon such systems are located shall, at all reasonable times, permit the inspection of such systems.

(d) If, after inspection, the City Engineer determines that a storm water system management system or sediment pollution control system is malfunctioning because of the accumulation of debris, lack of maintenance or repair or for any other reason, then the City Engineer shall notify the property owner or person in charge of the private property whereon the system is located to correct the situation within thirty days. If, after notification, the property owner or person in charge of such property fails to abate the adverse situation, then the City shall either perform the work or cause work to be performed to have the adverse situation abated and thereafter bill the property owner for the cost of repair or maintenance.

(e) An approved plan may be changed in the following cases:

(1) Where inspection has revealed the inadequacy of the facilities installed to accomplish the storm water management and erosion and sediment control objectives of the approved plan, appropriate modifications to correct the deficiencies of the plan shall be submitted to the City Engineer for approval by the person responsible for carrying out the plan;

(2) Where the person responsible for carrying out the approved plan finds that because of changed circumstances or for other unexpected conditions the approved plan cannot be effectively carried out, proposed amendments to the plan, consistent with the requirements of this Chapter shall be submitted to the City Engineer and Planning Commission for approval.

927.09 PERFORMANCE BOND.

Prior to the issuance of any permits for construction which would require a storm water management or sediment control plan, the owner must execute and file with the City Engineer a performance bond, secured as hereinafter required.

(A) Form of Bond. The performance bond shall be conditioned upon proper installation of all improvements required by this Chapter, according to the approved schedule, plans and specifications. The City shall have the right, in the event of default, to install the required improvements after first giving ten (10) days written notice to the owner,to proceed against the owner and against any surety on the bond for the cost thereof and to apply to the cost of such improvements any funds deposited with the City or in escrow as security for performance of the conditions of the bond. The bond shall further provide that the owner shall hold harmless the City, its officers and employees from all claim, demands and causes of action of every nature and description arising out of the installation of such improvements within the owner's property, conditions existing during the construction or installation of such improvements and all damages to neighboring property, including, without limitations, damages resulting from increase in surface water flowing from the property and all claims arising out of changes to natural ditches or drainage courses.

The terms "claims, demands and causes of actions," shall include all expenses of defending against such claims, demands and causes of action, including fees payable to attorneys and expert witnesses, wages paid to City employees while occupied in defense of such claims, demands and causes of actions and wages or salaries reimbursed by the City to City officers to compensate them for wages and salaries lost while engaged in such defense. The form of each performance bond shall be approved in writing by the Director of Law.

(B) Security for Bond. Performance bonds shall be secured as follows:

(1) By the written guarantee of one or more surety companies authorized to conduct business within the State of Ohio. The form of guarantee shall be approved in writing by the Director of Law. The Director may reject a performance bond in the event that he reasonably determines that the assets of the surety company or companies, subject to attachment within the State of Ohio, are insufficient to secure performance of the owner's obligations, taking into account other outstanding liabilities and contingent liabilities of the surety company or companies; or

(2) By deposit of cash in the full face amount of the bond, with the City.

(C) Amount of Bond. The amount of performance bond shall be determined by the City Engineer and shall be in an amount equal to the estimated total cost of materials and labor required to install or construct all improvements required by this Chapter. The amount of a performance bond shall include estimated damages,if any, to neighboring properties which are the subject of the hold harmless provision contained in subsection (A) hereof, and the estimated costs of defending against claims for any such damages.

(D) Reduction of Bond and Return of Security. When the City Engineer shall have certified in writing that all improvements have been satisfactorily completed in accordance with approved plans and specifications, the performance bond submitted by the developer shall be cancelled and all funds deposited as security therefor shall be returned. Upon written certification by the Engineer that any portion of the improvements has, upon inspection, been found satisfactorily completed, a reduction in the amount of the bond or partial withdrawal of funds deposited as security therefor, equal to the cost of such completed improvements, as estimated by the City Engineer, may be authorized by the City Engineer if, in the opinion of the City Engineer the remaining bond or security shall be fully sufficient, under all the circumstances, to guarantee performance of the conditions of the bond.

927.10 VARIANCE

The City Council may grant a variance to these regulations where the owner or his appointed representative can show that a hardship exists whereby compliance with these regulations is not appropriate, based upon the following:

(a) That exceptional topographic or other physical conditions exists which are peculiar to the particular parcel of land;

(b) That the peculiar condition in paragraph (a) did not result from previous actions by the owner;

Adverse economic conditions shall not be considered as a valid reason or a hardship for a variance request to be granted. No variances will be granted where activities occur that will defeat the purposes of regulations.

City Council may impose stricter requirements in some portion of a development to compensate for a variance affecting a portion of the development.

The request for a variance shall be submitted to City Council with a copy to the City Engineer and shall state the specific variances sought and include sufficient data to justify the granting of a variance.

927.11 SENSITIVE AREA IMPACT CRITERIA.

(a) The control of sediment pollution of sensitive areas by accelerated erosion from earth-disturbing activity may require additional erosion and sediment control practices beyond those indicated in these rules. In such instances, the owner or person responsible for earth-disturbing activity shall analyze potential impacts and potential erosion and sediment control practices.

(b) The analysis shall identify:

(1) Sensitive areas that receive drainage from the proposed development area;

(2) Existing water uses and biological characteristics of receiving waters;

(3) The probability of sediment reaching sensitive areas; and

(4) The percentage of the sensitive area's contributing drainage area that is proposed for the earth-disturbing activity.

(c) Information gained by the analysis shall be incorporated into the erosion and sediment control plan and taken into consideration by the City during the plan review process. The City Engineer shall make the final decision as to the limits of any sensitive area.

927.12 DEPOSIT.

All inspection costs associated with inspections for compliance with the requirements of this Chapter are chargeable to the grade deposit required by Chapter 1353 of the Building Code.

927.99 PENALTY.

Whoever violates or fails to comply with any of the provisions of this Chapter shall be guilty of a misdemeanor of the fourth degree and shall be fined not more than two hundred fifty dollars ($250.00) or imprisoned not more than thirty (30) days, or both. A separate offense shall be deemed committed each day during or on which a violation or noncompliance occurs or continues."

Section 2. That this Ordinance shall be in force from and after the earliest period allowed by law.

PASSED: August 16, 1994 James D. Bachman
PRESIDENT OF COUNCIL

ATTEST: Barbara L. Seaman
CLERK OF COUNCIL

APPROVED: August 17 1994

FILED WITH
THE MAYOR: _____

ED BOYLE, MAYOR
CITY OF NORTH OLMSTED

First Reading: 6/21/94
Second Reading: As Amended: 7/5/94
Third Reading: 8/16/94
Committee: Environmental