Chapter 27
# SOIL EROSION AND SEDIMENT CONTROL



## 27.01 AUTHORITY, FINDINGS AND PURPOSE

A. Authority: This Chapter is enacted by ordinance pursuant to the police powers granted to the Village by the Illinois Compiled Statutes, 65 ILCS 5/11-13-1, et seq.

B. Findings: The Village hereby finds that:

1. Excessive quantities of soil may erode from areas undergoing development for certain non-agricultural uses including, but not limited to, the construction of dwelling units, commercial buildings and industrial plants, the building of roads and highways, the modification of stream channels and drainage ways, and the creation of recreational facilities;

2. The washing, blowing and falling of eroded soil across and upon roadways endangers the health and safety of users thereof, by decreasing vision and reducing traction of road vehicles;

3. Soil erosion necessitates the costly repairing of gullies, washed-out fills and embankments;

4. Sediment from soil erosion tends to clog sewers and ditches and to pollute and silt rivers, streams, lakes, wetlands and reservoirs;

5. Sediment limits the use of water and waterways for most beneficial purposes, promotes the growth of undesirable aquatic weeds, destroys fish and other desirable aquatic life, and is costly and difficult to remove; and

6. Sediment reduces the channel capacity of waterways and the storage capacity of floodplains and natural depressions, resulting in increased chances of flooding at risk to public health and safety.

C. Purpose: The purpose of this Chapter is to safeguard persons, protect property, prevent damage to the environment and promote the public welfare by guiding, regulating and controlling the design, construction, use and maintenance of any development or other activity

which disturbs or breaks the topsoil or otherwise results in the movement of earth on land situated in the Village. It is the intention of this Chapter that the delivery of sediment from sites affected by land disturbing activities be limited, as closely as practicable, to that which would have occurred if the land had been left in its natural undisturbed state.

## 27.02 **DEFINITIONS**

For the purposes of this Chapter certain terms, whether capitalized or not, used herein are defined below. Reference is also made to definitions in Appendix A of this Code.

**Certify or Certification**: Formally attesting that the specific inspections and tests comply with the applicable requirements of this Chapter.

**Clearing**: Any activity which removes vegetative ground cover.

**Cubic Yards**: The amount of material in excavation and/or fill measured by the method of "average end areas."

**Excavation**: Any act by which organic matter, earth, sand, gravel, rock or any other similar material is cut into, dug, quarried, uncovered, graded, removed, displaced, relocated or bulldozed, and shall include the conditions resulting there from.

**Existing Grade**: The vertical location of the existing ground surface prior to excavation or filling.

**Fill**: Any act by which earth, sand, gravel, rock or any other material is deposited, placed, replaced, pushed, dumped, pulled, transported or moved by man to a new location and shall include the conditions resulting there from.

**Final Grade**: The vertical location of the ground or pavement surface after the grading work is completed in accordance with the site development plan.

**Grading**: Excavation or fill or any combination thereof, and shall include the conditions resulting from any excavation or fill.

**Natural Drainage**: Channels formed in the existing surface topography of the earth prior to changes made by unnatural causes.

**Parcel**: All contiguous land in one ownership.

**Permittee**: Any person to whom a Site Plan and Development Permit is issued.

**Removal**: (as applies to Chapter 27) Cutting vegetation to the ground or stumps; complete extraction or killing by spraying.

**Site**: (as applies to Chapter 27) A lot or parcel of land, or a contiguous combination thereof, where grading work is performed as a single unified operation.

**Site Development**: Altering terrain and/or vegetation and constructing improvements.

**Site Plan and Development Permit**: A permit issued by the Village for the construction or alteration of ground improvements and structures, and for the control of erosion, runoff and grading.

**Stream**: Any river, creek, brook, branch, flowage, ravine or natural or man-made drainage way which has a definite bed and banks or shoreline, in or into which surface or groundwater flows, either perennially or intermittently.

**Stripping**: Any activity which removes the vegetative surface cover including tree removal, clearing, and storage or removal of top soil.

**Vacant**: Land on which there are no structures, or only structures which are secondary to the use or maintenance of the land itself.

**Wetlands**: Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

## 27.03 GENERAL PRINCIPLES

It is the objective of this Chapter to control soil erosion and sedimentation caused by development activities, including clearing, grading, stripping, excavating and filling of land in the Village. Measures taken to control soil erosion and off-site sediment runoff should be adequate to assure that sediment is not transported from the site by a storm event of 10-year frequency or less. The following principles shall apply to all development activities within the Village and to the preparation of the submissions required in Chapter 26, and supplemental submissions required in Section 27.06 of this Chapter:

A. Development should be related to the topography and soils of the site so as to create the least potential for erosion. Areas of steep slopes where high cuts and fills may be required should be avoided wherever possible, and natural contours should be followed as closely as possible.

B. Natural vegetation should be retained and protected wherever possible. Areas immediately adjacent to natural watercourses, lakes, ponds and wetlands should be left undisturbed. Temporary crossings of watercourses, when permitted, must include appropriate stabilization measures.

C. Special precautions should be taken to prevent damages resultant from any necessary development activity within or adjacent to any stream, lake, pond or wetland. Preventative measures should reflect the sensitivity of these areas to erosion and sedimentation.

D. The smallest practical area of land should be exposed for the shortest practical time during development.

E. Sediment basins or traps, filter barriers, diversions and any other appropriate sediment or runoff control measures should be installed prior to site clearing and grading and maintained to remove sediment from run-off waters from land undergoing development.

F. The selection of erosion and sedimentation control measures should be based on assessment of the probable frequency of climatic and other events likely to contribute to erosion, and on evaluation of the risks, costs and benefits involved.

G. In the design of erosion control facilities and practices, aesthetics and the requirements of continuing maintenance should be considered.

H. Provision should be made to accommodate the increased run-off caused by changed soil and surface conditions during and after development. Drainage ways should be designed so that their final gradients and the resultant velocities and rates of discharge will not create additional erosion on-site or downstream.

I. Permanent vegetation and structures should be installed and functional as soon as practical during development.

J. Those areas being converted from agricultural purposes to other land uses should be vegetated with an appropriate protective cover prior to development.

K. All waste generated as a result of site development activity should be properly disposed of and should be prevented from being carried off the site by either wind or water.

L. All construction sites should provide measures to prevent sediment from being tracked onto public or private roadways.

## 27.04 **HANDBOOKS ADOPTED BY REFERENCE**

The standards and specifications contained in *Standards and Specifications for Soil Erosion and Sediment Control* (the "Yellow Book," latest edition) and the *Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control* (the "Green Book," latest edition) are hereby made part of this Chapter by reference. In the event of conflict between provisions of said manuals and this Chapter, this Chapter shall govern.

## 27.05 **PERMIT REQUIREMENTS**

The documents, plans and specifications required in this Chapter shall be included with the documents required to be submitted to secure the Site Plan and Development Permit required in Chapter 26.

## 27.06 **MANDATORY SUBMISSIONS**

A. An erosion and sediment control plan showing all measures necessary to meet the objectives of this Chapter throughout all phases of construction and permanently after completion of development of the site, including:

1. Location and description, including standard details, of all sediment control measures and design specifics of sediment basins and traps, including outlet details.

2. Location and description of all soil stabilization and erosion control measures, including seeding mixtures and rates, types of sod, method of seed

bed preparation, expected seeding dates, kind and quantity of mulching for both temporary and permanent vegetative control measures, and types of non-vegetative stabilization measures.

3. Location and description of all runoff control measures, including diversions, waterways, and storm sewers proposed and connections to existing storm sewers.

4. Location and description of methods to prevent tracking of sediment off-site, including construction entrance details, as appropriate.

5. Description of dust and traffic control measures proposed.

6. Locations of stockpiles and description of stabilization methods.

7. Description of off-site fill or borrow volumes, locations and methods of stabilization.

8. Provisions for maintenance of control measures, including type and frequency of maintenance.

9. Where seasonal conditions may impact the development of the site, the plan shall indicate a schedule of work to minimize the impacts of seasonal conditions.

10. Maintenance plan for the sediment basins.

11. Identification (name, address and telephone) of the person(s) or entity which will have legal responsibility for maintenance of erosion control structures and measures during development and after development is completed.

B. The proposed phasing of the development of the site, including stripping and clearing, rough grading and construction, and final grading and landscaping. Phasing should identify the expected date on which clearing will begin; the estimated duration of exposure of cleared areas; the sequence of installation of temporary sediment control measures; clearing and grading; installation of temporary soil stabilization measures, including a maintenance schedule; installation of storm drainage; paving of streets and parking areas; final grading; the establishment of permanent vegetative cover; and the removal of temporary measures. It shall be the responsibility of the applicant to notify the Public Works Director of any significant changes which occur in the site development schedule after the initial erosion and sediment control plan has been approved.

These submissions shall be prepared in accordance with the requirements of this Chapter and the standards and requirements contained in the referenced handbooks.

The Public Works Director may waive specific requirements for the content of submissions upon finding that the information submitted is sufficient to show that the work will comply with the principles and standards of this Chapter.

## 27.07 **BONDS**

The applicant shall file with the Village a letter of credit or other improvement security satisfactory to the Public Works Director in an amount deemed sufficient by the Public Works Director to cover all costs of installing, maintaining, and removing all temporary facilities, costs of installing permanent erosion and siltation control facilities, and for the costs of reviews and inspections. The letter of credit shall remain in effect for a period of the time determined by the Public Works Director, but the period of time shall not exceed 5 years.

## 27.08 **DESIGN AND OPERATION STANDARDS AND REQUIREMENTS**

A. On-site sediment control measures, as specified by the following criteria, shall be constructed and be functional prior to initiating clearing, removal, grading, stripping, excavating or fill activities on the site:

1. For disturbed areas draining less than one acre, filter barriers (including filter fences, straw bales or equivalent control measures) shall be constructed to control all off-site runoff as specified in the referenced handbooks. Vegetated filter strips, with a minimum width of 25 feet, may be used as an alternative only where runoff in sheet flow is expected.

2. For disturbed areas draining more than 1 acre but less than 5 acres, a sediment trap or equivalent control measure shall be constructed at the down slope point of the disturbed area.

3. For disturbed areas draining more than 5 acres, a sediment basin or equivalent control measure shall be constructed at the down slope point of the disturbed area.

4. Sediment basins and sediment trap designs shall provide for both detention storage and sediment storage. The detention storage shall be sized so that there is at least 10 hours detention time. The release rate shall be established so that the basin will drain in a 24-hour period. The elevation of the outlet shall be at an elevation at least 24 inches above the sediment storage.

5. The sediment storage shall be sized to store the estimated sediment load generated from the site over the duration of the construction period unless the construction period exceeds 9 months. At the completion of the construction or at 9-month intervals, the sediment shall be removed and disposed of properly. The maintenance of the sediment basin shall be in accordance with the approved maintenance plan.

B. Stormwater conveyance channels, including ditches, swales and diversions, and the outlets of all channels and pipes shall be designed and constructed to withstand the expected flow velocity from the 10-year frequency storm without erosion. All constructed or modified channels shall be stabilized immediately after construction, consistent with the following standards:

1. For grades up to 4 percent, seeding in combination with mulch, erosion blanket, or an equivalent control measure shall be applied. Sod or erosion blanket or mat shall be applied to the bottom of the channel.

2. For grades of 4 to 8 percent, sod or an equivalent control measure shall be applied in the channel.

3. For grades greater than 8 percent, rock, riprap or an equivalent control measure shall be applied, or the grade shall be effectively reduced using drop structures or such other measures as are approved by the Public Works Director.

4. Additional measures as may be required to control outlet velocity.

C. Disturbed areas shall be stabilized with temporary or permanent measures immediately following the end of active disturbance or re-disturbance, consistent with the following criteria:

1. Appropriate temporary or permanent stabilization measures shall include seeding, mulching, sodding and/or non-vegetative measures.

2. Areas having slopes greater than 10 percent shall be stabilized with sod, mat or blanket in combination with seeding or equivalent.

D. Land disturbance activities in stream channels shall be avoided wherever possible. If disturbance activities are unavoidable, the following requirements shall be met:

1. Construction vehicles shall be kept out of the stream channel to the maximum extent practicable. Where construction crossings are necessary, temporary crossings shall be constructed of non-erosive material, such as riprap or gravel. No reduction in stream cross sections shall be allowed.

2. The time and area of disturbance of stream channels shall be kept to a minimum. The stream channel, including bed and banks, shall be re-stabilized immediately after channel disturbance is completed.

3. Whenever channel relocation is necessary, the new channel shall be constructed in the dry and fully stabilized before flow is diverted.

E. Storm sewer inlets and culverts shall be protected by sediment traps or filter barriers meeting accepted design standards and specifications.

F. Soil storage piles containing more than 10 cubic yards of material shall not be located with a down slope drainage length of less than 25 feet to a roadway or drainage channel. Filter barriers, including straw bales, filter fences or equivalent, shall be installed immediately on the down slope side of the piles.

G. If de-watering devices are used, discharge locations shall be protected from erosion. All pumped discharges shall be routed through appropriately designed sediment traps or basins, or their equivalent.

H. Each site shall have graveled (or equivalent) entrance roads, access drives and parking areas of sufficient length and width to prevent sediment from being tracked onto public or private roadways. Any sediment reaching a public road shall be removed by shoveling or street cleaning (not flushing) before the end of each workday and transported to a controlled sediment disposal area.

I. All temporary and permanent erosion and sediment control practices must be maintained and repaired as needed to assure effective performance of their intended function.

J. All temporary erosion and sediment control measures shall be disposed of within 30 days after final site stabilization is achieved with permanent soil stabilization measures. Trapped sediment and other disturbed soils resulting from the disposition of temporary measures should be permanently stabilized to prevent further erosion and sedimentation.

## 27.09 **MAINTENANCE OF CONTROL MEASURES**

All soil erosion and sediment control measures necessary to meet the requirements of this Chapter shall be maintained in compliance with the approved maintenance plan by the applicant or subsequent landowner during the period of land disturbance and development of the site in a satisfactory manner to ensure adequate performance.

## 27.10 **INSPECTION**

The Public Works Director will make inspections and shall notify the permittee where the work fails to comply with the site development or erosion and sedimentation control maintenance plan as approved. Approved plans for grading, stripping, excavating and filling work shall be maintained at the site during progress of the work. The permittee shall notify the Public Works Director at least 24 hours prior to starting the improvements. No stripping, clearing or excavation shall be started until the control measures have been completed. The permittee shall provide a work schedule so that inspections can be made during the various phases.

## 27.11 **SPECIAL PRECAUTIONS**

If at any stage of the grading of the site the Public Works Director determines by inspection that the nature of the site or the procedures used by the contractor is such that further work is necessary to prevent damage to adjacent property, public way, stream, lake, wetland or drainage structure, the Public Works Director may require, as a condition of allowing the work to proceed, that special precautions be taken to avoid such damage. “Special precautions” may include, but shall not be limited to, a more level exposed slope; construction of additional drainage facilities, berms, terracing, compaction or cribbing; and installation of plant materials for erosion control.

## 27.12 **ENFORCEMENT**

Enforcement powers of the Village are contained in Chapter 26 of this Code.