

FLOOD HAZARD AREA DEVELOPMENT REGULATIONS

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44.01 **AUTHORITY and PURPOSE** *Amended, 97-O-45*

A. Authority: This Chapter is enacted pursuant to the police powers granted to the Village by the Illinois Compiled Statutes, 65 ILCS 5/1-2-1, 11-12-12, 11-30-8 and 11-31-2.

B. Purpose: This Chapter is adopted in order to accomplish the following specific purposes:

1. To meet the requirements of 615 ILCS 5/18g, an Act in Relation to the Regulation of the Rivers, Lakes, and Streams of the State of Illinois, approved June 10, 1911, as amended.
2. To assure that new development does not increase the flood or drainage hazards to others, or create unstable conditions susceptible to erosion.
3. To protect new buildings and major improvements to buildings from flood damage.
4. To protect human life and health from the hazards of flooding.
5. To lessen the burden on the taxpayer for flood control projects, repairs to flood-damaged public facilities and utilities, and flood rescue and relief operators; and
6. To make federally subsidized flood insurance available for property in the Village by fulfilling the requirements of the National Flood Insurance Program.
7. To comply with the rules and regulations of the National Flood Insurance Program codified as 44 CFR 59-79, as amended.

8. To protect, conserve and promote the orderly development of land and water resources.
9. To preserve the hydraulic functions of watercourses and flood plains.
10. To preserve the stream corridors in order to moderate flood and storm water impacts.

44.02 **DEFINITIONS** *Amended, 06-O-48, 97-O-45*

For the purposes of this Chapter, the following definitions, whether capitalized or not, are adopted. The definitions in Appendix A are also applicable to this Chapter.

Act: An Act in relation to the regulation of the rivers, lakes and streams of the State of Illinois, 615 ILCS 5/5 et seq.

Applicant: Any person, firm, corporation or agency which submits an application.

Appropriate use: Only uses of the regulatory floodway that are permissible will be considered for permit issuance. The only uses that will be allowed are specified in Section 44.07.

Base flood/base flood elevation: The flood having a 1 percent probability of being equaled or exceeded in any given year. The base flood is also known as the 100-year frequency flood event. Application of the base flood elevation at any location is as defined in Section 44.05.

Building: A structure that is principally above ground and is enclosed by walls and a roof. The term includes a gas or liquid storage tank, a manufactured home, mobile home or a prefabricated building. This term also includes recreational vehicles and travel trailers to be installed on a site for more than 180 days, unless they are fully licensed, operable, and ready for highway use.

Channel: Any river or stream which has a definite bed and banks or shoreline, in or into which surface or groundwater flows, either perennially or intermittently. A channel does not include small headwater swales or ditches which generally would not be mapped on USGS 7.5 minute quadrangle maps.

Channel modification: Alteration of a channel by changing the physical dimensions or materials of its bed or banks. Channel modification includes damming, rip-rapping or other armoring, widening, deepening, straightening, relocating and lining. Channel modification does not include maintenance of a channel by clearing dead or dying vegetation, debris or trash from the channel.

Compensatory storage: An artificially excavated, hydraulically equivalent volume of storage within the SFHA used to balance the loss of natural flood storage capacity when artificial fill or structures are placed within the flood plain.

Condition approval of a regulatory floodway map change: Preconstruction approval by DWR and FEMA of a proposed change to the floodway map. This preconstruction approval, pursuant to this part, gives assurances to the property owner that once an Appropriate Use is constructed according to permitted plans, the floodway map can be changed as previously agreed, upon review and acceptance of as-built plans.

Condition Letter of Map Revision (CLOMR): A letter which indicates that FEMA will revise base flood elevations, flood insurance rate zones, flood boundaries or a floodway as shown on an effective Flood Hazard Boundary Map or Flood Insurance Rate Map, once the as-built plans are submitted and approved.

Dam: All obstructions, wall embankments or barriers, together with their abutments and appurtenant works, if any, constructed for the purpose of storing or diverting water or creating a pool. Underground water storage tanks are not included.

Development: Any man-made change to real estate, including:

- A. Construction, reconstruction, repair or placement of a building or any addition to a building.
- B. Installing a manufactured home on a site, preparing a site for a manufactured home or installing a travel trailer on a site for more than 180 days. If the travel trailer or recreational vehicle is on site for less than 180 days, it must be fully licensed, operable, and ready for highway use.
- C. Drilling, mining, installing utilities, construction of roads, bridges, storage of equipment or materials, or similar projects.
- D. Construction or erection of levees, walls, fences, dams or culverts; channel modification; filling, dredging, grading, excavating, paving or other non-agricultural alterations of the ground surface; and storage of materials.
- E. Any other activity of man that might change the direction, height or velocity of flood or surface water.

Development does not include maintenance of existing buildings and facilities such as reroofing or resurfacing of roads when there is no increase in elevation, or gardening, plowing and similar agricultural practices that do not involve filling, grading or construction of levees, and minor removal or planting of vegetative material.

Development Permit: A permit issued by the Village for development in a flood hazard area.

DWR: Division of Water Resources of the Illinois Department of Transportation.

Elevation Certificate: A form published by FEMA that is used to certify the elevation to which a building has been elevated.

Enforcement Official: The Building Commissioner shall be the enforcement official.

Exempt organizations: Organizations which are exempt from this Chapter per the Illinois Compiled Statutes, including state, federal or local units of government. Such exempt governmental bodies shall be under the jurisdiction of DWR.

Existing manufactured home park or subdivision: A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes

are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed before April 1, 1990.

FEMA: Federal Emergency Management Agency and its regulations at 44 CFR 59-79 effective as of October 1, 1986. This incorporation does not include any later editions or amendments.

Expansion to an existing manufactured home park or subdivision: The preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including installation of utilities, construction of streets and either final site grading or pouring of concrete pads).

Flood: A general and temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal waves, or the unusual and rapid accumulation or runoff of surface waters from any source.

Flood fringe: That portion of the flood plain outside of the regulatory floodway.

Flood Insurance Rate Map (FIRM): A map prepared by FEMA that depicts the special flood hazard area (SFHA) within a community. This map includes insurance rate zones and flood plains and may or may not depict floodways. This term may also be known as a Flood Hazard Boundary Map (FHBM).

Flood plain: That land typically adjacent to a body of water with ground surface elevations at or below the base flood or the 100-year frequency flood elevation. Flood plains may also include detached Special Flood Hazard Areas, ponding areas, etc. The flood plain is also known as the Special Flood Hazard Area (SFHA). The flood plains are those lands within the jurisdiction of the Village that are subject to inundation by the base flood or 100-year frequency flood. The SFHA's of the Village are generally identified as such on the Kane County Countywide Flood Insurance Rate Map prepared by FEMA and generally identified as such on map number 17089C, panels 0065G and 0070G, dated November 16, 2006, and the McHenry County Countywide Flood Insurance Rate Map prepared by FEMA and generally identified as such on map number 1711C, panels 0320J, 0334J, 0335J, 0336J, 0337J, 0340J, 0341J, 0342J and 0343J, dated November 16, 2006. The SFHA's of those parts of unincorporated McHenry County and Kane County that are within the extraterritorial jurisdiction of the Village or that may be annexed into the Village are generally identified as such on the FIRM prepared for McHenry County by FEMA and dated November 16, 2006, and prepared for Kane County by FEMA and dated November 16, 2006.

Floodproofing: Any combination of structural and non-structural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Floodproofing Certificate: A form published by FEMA that is used to certify that a building has been designed and constructed to be structurally dry floodproofed to the flood protection elevation.

Flood Protection Elevation (FPE): The elevation of the base flood or 100-year frequency flood plus one foot of freeboard at any given location in the SFHA.

Freeboard: An increment of elevation added to the base flood elevation to provide a factor of safety for uncertainties in calculations, unknown localized conditions, wave actions and unpredictable effects such as those caused by ice or debris jams.

Historic structure: Any structure that is:

- A. Listed individually in the National Register of Historic Places or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register.
- B. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district.
- C. Individually listed on the State inventory of historic places by the Illinois Historic Preservation Agency.
- D. Individually listed on a local inventory of historic places that has been certified by the Illinois Historic Preservation Agency.

Hydrologic and hydraulic calculations: Engineering analyses which determine expected flood flows and flood elevations based on land characteristics and rainfall events.

Letter of Map Amendment (LOMA): Official determination by FEMA that a specific structure is not in a 100-year flood zone; amends the effective Flood Insurance Rate Map or FHBM.

Letter of Map Revision (LOMR): Letter that revises base flood or 100-year frequency flood elevations, flood insurance rate zones, flood boundaries or floodways as shown on an effective Flood Insurance Rate Map or FHBM.

Manufactured home: A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”

Manufactured home park or subdivision: A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Mitigation: Mitigation includes those measures necessary to minimize the negative effects which flood plain development activities might have on the public health, safety and welfare.

National Geodetic Vertical Datum of 1929 (N.G.V.D.): Reference surface set by the National Geodetic Survey deduced from a continental adjustment of all existing adjustments in 1929.

New manufactured home park or subdivision: Manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, construction of streets) and either final site grading or pouring of concrete pads is completed on or after April 1, 1990.

Public flood control project: A flood control project which will be operated and maintained by a public agency to reduce flood damages to existing buildings and structures which includes a hydrologic and hydraulic study of the existing and proposed conditions of the watershed. Nothing in this definition shall preclude the design, engineering, construction or financing, in whole or in part, of a flood control project by persons or parties who are not public agencies.

Public navigable waters: All streams and lakes capable of being navigated by watercraft.

Recreational vehicle or travel trailer: A vehicle which is:

- A. Built on a single chassis;
- B. 400 square feet or less when measured at the largest horizontal projection;
- C. Designed to be self-propelled or permanently towable by a light duty truck; and
- D. Designed primarily not for use as a permanent dwelling, but as temporary living quarters for recreational, camping, travel or seasonal use.

Registered Land Surveyor: A land surveyor registered in the State of Illinois, under The Illinois Land Surveyors Act, 225 ILCS 330/1 *et.seq.*

Registered Professional Engineer: An engineer registered in the State of Illinois, under The Illinois Professional Engineering Act, 225 ILCS 325/1 *et.seq.*

Regulatory floodway: The channel, including on-stream lakes, and that portion of the flood plain adjacent to a stream or watercourse as designated by DWR, which is needed to store and convey the existing and anticipated future 100-year frequency flood discharge with no more than a 0.1 foot increase in stage due to the loss of flood conveyance or storage, and no more than a 10 percent increase in velocities. The regulatory floodways are designated for the Fox River and Crystal Creek in the flood insurance study (FIS) maps dated November 16, 2006 with corresponding profiles on the Flood Boundary and Floodway Map prepared by FEMA as follows: for the Village of Algonquin, map dated November 16, 2006; for McHenry County, map dated September 30, 1981; and for Kane County, map dated December 16, 2005. The regulatory floodways for those parts of unincorporated McHenry and Kane counties that are within the Village's extraterritorial planning jurisdiction that may be annexed are designated for Crystal Creek and the Fox River on the flood insurance rate maps prepared for Kane County dated November 16, 2006, and McHenry County dated November 16, 2006. To locate the regulatory floodway boundary on any site, the regulatory floodway boundary should be scaled off the regulatory floodway map and located on a site plan, using reference marks common to both maps. Where interpretation is needed to determine the exact location of the regulatory floodway boundary, the Division should be contacted for the interpretation.

Repair, remodeling or maintenance: Development activities which do not result in any increases in the outside dimensions of a building or any changes to the dimensions of a structure.

Retention/detention facility: A retention facility stores storm water runoff without a gravity release. A detention facility provides for storage of storm water runoff and controlled release of this runoff during and after a flood or storm.

Riverine SFHA: Any SFHA subject to flooding from a river, creek, intermittent stream, ditch, on-stream lake system or any other identified channel. This term does not include areas subject to flooding from lakes, ponding areas, areas of sheet flow or other areas not subject to over-bank flooding.

Runoff: The water derived from melting snow or rain falling on the land surface, flowing over the surface to the ground or collected in channels or conduits.

Special Flood Hazard Area (SFHA): Any base flood area subject to flooding from a river, creek, intermittent stream, ditch or any other identified channel or ponding and shown on a Flood Hazard Boundary Map or Flood Insurance Rate Map as Zone A, AO, A1-30, AE, A99, AH, VO, V30, VE, V, M or E.

Structure: The results of a man-made change to the land constructed on or below the ground, including the construction, reconstruction or placement of a building or any addition to a building; installing a manufactured home on a site; and preparing a site for a manufactured home, or installing a travel trailer on a site for more than 180 days, unless they are fully licensed, operable, and ready for highway use.

Substantial improvement: Any repair, reconstruction, rehabilitation, addition or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either (a) before the improvement or repair is started, or (b) if the structure has been damaged from any source and is being restored before the damage occurred. This term includes structures which were damaged whereby the cost of restoring the structure to its predamaged condition would equal or exceed 50 percent of the market value before the damage occurred, regardless of the actual repair work performed. For the purpose of this definition, "Substantial Improvement" is considered to occur when the first alteration of any wall, ceiling, floor or other structural parts of a building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either (a) any project for improvement of a structure to comply with any existing state or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions, or (b) any alteration of a "Historic Structure," provided that the alteration will not preclude the structure's continued designation as a "Historic Structure."

Transition section: Reaches of the stream or floodway where water flows from a narrow cross-section to a wide cross-section or vice versa.

44.03 ENFORCEMENT PROCEDURE

The Enforcement Official shall be responsible for fulfilling all of the duties listed in Section 44.04.

- A. To fulfill those duties, the Enforcement Official first shall use the criteria listed in Section 44.05 to determine whether the development site is located within a flood plain. Once it has been determined that a site is located within a flood plain, the Enforcement Official must determine whether the development site is within a flood fringe, a regulatory floodway or within a SFHA or flood plain on which no floodway has been identified. If the site is within a flood fringe, the Enforcement Official shall require that the minimum requirements of Section 44.06 be met. If the site is within a floodway, the Enforcement Official shall require that the minimum requirements of Section 44.07 be met. If the site is

located within a SFHA or flood plain for which no detailed study has been completed and approved, the Enforcement Official shall require that the minimum requirements of Section 44.08 be met.

- B. In addition, the general requirements of Section 44.09 shall be met for all developments meeting the requirements of Sections 44.06, 44.07 or 44.08. The Village Engineer shall assure that all subdivision proposals shall meet the requirements of Section 44.10.
- C. If a variance is to be granted for a proposal, the Enforcement Official shall review the requirements of Section 44.11 to make sure they are met. In addition, the Enforcement Official shall complete all notification requirements.
- D. In order to assure that property owners obtain permits as required in this Chapter, the Enforcement Official may take any and all actions as outlined in Section 44.13.

44.04 **DUTIES of the ENFORCEMENT OFFICIAL** *Amended, 97-O-45*

The Enforcement Official shall be responsible for the general administration and enforcement of this Chapter which shall include the following:

1. Determining the Flood Plain Designation: Check all new development sites to determine whether they are in a SFHA. If they are in a SFHA, determine whether they are in a floodway, flood fringe or a flood plain on which a detailed study has not been conducted which drains more than one square mile.

If the Enforcement Official determines that the site may be within a flood plain he may require additional information as necessary to determine if the site is in (a) a floodway or (b) a flood fringe (c) a flood plain on which floodways have not been identified or (d) an area draining to a stream that is less than 1 square mile.

If the Enforcement Official determines that the site is in an area described in (d) above no permit under this Chapter is required. If the Enforcement Official determines that the site is in areas defined in (a), (b) or (c) above, the Enforcement Official shall inform the applicant that a Development Permit is required. It shall be the obligation of the applicant to provide the Enforcement Official such data as is necessary for the Enforcement Official to determine which sections of this Chapter are applicable to the site. After such determination the applicant shall file an application for a Development Permit on a form provided by the Enforcement Official.

2. Application: All applications shall include the following information, other information as may be required in subsequent sections of this Chapter and such other information as may be necessary to complete the review of plans submitted.
 - a. Name and address of applicant.
 - b. Site location (including legal description) of the property, drawn to scale, on the regulatory floodway map, indicating whether it is proposed to be in an incorporated or unincorporated area.
 - c. Name of stream or body of water affected.

- d. Description of proposed activity.
 - e. Statement of purpose of proposed activity.
 - f. Anticipated dates of initiation and completion of activity.
 - g. Name and mailing address of the owner of the subject property if different from the applicant.
 - h. Signature of applicant or the applicant's agent.
 - i. If the applicant is a corporation, the president or other authorized officer shall sign the application form.
 - j. If the applicant is a partnership, each partner shall sign the application form.
 - k. If the applicant is a land trust, the trust officer shall sign the name of the trustee by him as trust officer. A disclosure affidavit shall be filed with the application, identifying each beneficiary of the trust by name and address and defining the respective interests therein.
 - l. Plans of the proposed activity shall be provided which include as a minimum:
 - i. A vicinity map showing the site of the activity, name of the waterway, boundary lines, names of roads in the vicinity of the site, graphic or numerical scale and north arrow.
 - ii. A plan view of the project and engineering study reach showing existing and proposed conditions, including principal dimensions of the structure or work, elevations in mean sea level (1929 adjustment) datum or N.G.V.D., adjacent property lines and ownership, drainage and flood control easements, location and orientation of cross-sections, north arrow and a graphic or numerical scale.
3. Professional Engineer Review: If the development site is within a floodway or in a flood plain on which a detailed study has not been conducted which drains more than one square mile, then the permit shall be referred to a Registered Professional Engineer (under the employ of the Village for review to ensure that the development meets the requirements of Section 44.07 or Section 44.08. In the case of an Appropriate Use, the Registered Professional Engineer shall state in writing that the development meets the requirements of Section 44.07.
 4. Dam Safety Requirements: Ensure that an DWR Dam safety permit has been issued or a letter indicating no Dam safety permit is required, if the proposed development activity includes construction of a dam as defined in Section 44.02. Regulated dams may include weirs, restrictive culverts or impoundment structures.
 5. Other Permit Requirements: Ensure that any and all required federal, state and local permits are received prior to the issuance of a Development Permit.

6. Plan Review and Permit Issuance: Ensure that all development activities within the SFHAs of the jurisdiction of the Village meet the requirements of this Chapter and issue a Development Permit in accordance with the provisions of this Chapter and other regulations of the Village when the development meets the conditions of this Chapter.
7. Inspection Review: Inspect all development projects before, during and after construction to assure proper elevation of the structure and to ensure they comply with the provisions of this Chapter.
8. Elevation and Floodproofing Certificates: Maintain in the permit files an Elevation Certificate certifying the elevation of the lowest floor (including basement) of a residential or non-residential building or the elevation to which a non-residential building has been floodproofed, using a Floodproofing Certificate, for all buildings subject to Section 44.09 for public inspection, and provide copies of same.
9. Records for Public Inspection: Maintain for public inspection and furnish upon request base flood data, SFHA and regulatory floodway maps, copies of federal or state permit documents, variance documentation, Conditional Letter of Map Revision, Letter of Map Amendment, Letter of Map Revision, and as-built Elevation and Floodproofing or Elevation and Floodproofing Certificates for all buildings constructed subject to this Chapter.
10. State Permits: Ensure that construction authorization has been granted by the DWR for all development projects subject to Sections 44.07 and 44.08, unless enforcement responsibility has been delegated by the Village. Upon acceptance of this Chapter by DWR and FEMA, responsibility is hereby delegated to the Village as per 92 Ill. Administrative Code 708 for construction in the regulatory floodway and flood plain when floodways have not been defined in Sections 44.07 and 44.08. However, the following review approvals are not delegated to the Village and shall require review or permits from DWR:
 - a. Organizations which are exempt from this Chapter pursuant to the Illinois Compiled Statutes.
 - b. Department of Transportation projects, dams or impoundment structures as defined in Section 44.02 and all other state, federal or local unit of government projects, including projects of the Village, Kane County and McHenry County, except for those projects meeting the requirements of Section 44.07-J.
 - c. An engineer's determination that an existing bridge or culvert crossing is not a source of flood damage and the analysis indicating the proposed flood profile, per Section 44.07-F5.
 - d. An engineer's analysis of the flood profile due to Section 44.07-F4.
 - e. Alternative transition sections and hydraulically equivalent compensatory storage as indicated in Sections 44.07-F2 and 44.07-F8.
 - f. Permit issuance of structures within or over publicly navigable rivers, lakes and streams.

- g. Any changes in the Base Flood Elevation or floodway locations.
 - h. Base Flood Elevation determinations where none now exist.
11. Cooperation with other Agencies: Cooperate with state and federal flood plain management agencies to improve base flood or 100-year frequency flood and floodway data and to improve the administration of this Chapter. Submit data to DWR and FEMA for proposed revisions of a regulatory map. Submit reports as required for the National Flood Insurance Program. Notify FEMA of any proposed amendments to this Chapter.
 12. Promulgate Regulations: Promulgate rules and regulations as necessary to administer and enforce the provisions of this Chapter, subject however to the review and approval of DWR and FEMA for any changes to this Chapter.

44.05 **BASE FLOOD ELEVATION** *Amended, 06-O-48*

This Chapter's protection standard is based on the Flood Insurance Study for the Village. If a Base Flood Elevation or 100-year frequency flood elevation is not available for a particular site, then the protection standard shall be according to the best existing data available in the Illinois State Water Survey's Flood Plain Information Repository. When a party disagrees with the best available data, he may finance the detailed engineering study needed to replace existing data with better data and submit it to DWR and FEMA.

1. The Base Flood or 100-year frequency flood elevation for the SFHAs of the Fox River shall be as delineated on the 100-year flood profiles in the Flood Insurance Study of the Village prepared by FEMA and dated September 16, 1980, and such amendments to such study and maps as may be prepared from time to time.
2. The Base Flood or 100-year frequency flood elevation for the SFHAs of Crystal Creek and the Fox River of unincorporated McHenry County and Kane County that are within the extraterritorial jurisdiction of the Village, or that may be annexed into the Village, shall be as delineated on the 100-year flood profiles in the Flood Insurance Study of McHenry County prepared by FEMA and dated November 16, 2006, and for Kane County prepared by FEMA and dated November 16, 2006,, and such amendments or revisions to such study and maps as may be prepared from time to time.
3. The Base Flood or 100-year frequency flood elevation for each SFHA delineated as an "AH Zone" or "AO Zone" shall be that elevation (or depth) delineated on the Flood Insurance Rate Map of the Village.
4. The Base Flood or 100-year frequency flood elevation for each of the remaining SFHAs delineated on an "A Zone" on the Flood Insurance Rate Map of the Village shall be according to the best existing data available in the Illinois State Water Survey Flood Plain Information Repository. When no Base Flood or 100-year frequency flood elevation exists, the Base Flood or 100-year frequency flood elevation for a riverine SFHA shall be determined from a backwater model, such as HEC-II, WSP-2 or a dynamic model such as HIP. The flood flows used in the hydraulic models shall be obtained from a hydrologic model, such as HEC-I, TR-20 or HIP, or by techniques presented in various publications prepared by the U.S. Geological Survey for estimating peak flood discharges. Flood flows should be based on anticipated future land use conditions in the watershed as de-

terminated from adopted local and regional land use plans. Along any watercourses draining more than 1 square mile, the above analysis shall be submitted to DWR for approval; once approved, it must be submitted to the Illinois State Water Survey Floodplain Information Repository for filing. For a non-riverine SFHA, the Base Flood Elevation shall be the historic Flood of Record plus 3 feet, unless calculated by a detailed engineering study and approved by the Illinois State Water Survey.

44.06 OCCUPATION and USE of FLOOD FRINGE AREAS

A. Development in and/or filling of the flood fringe will be permitted if protection is provided against the Base Flood or 100-year frequency flood by proper elevation, and compensatory storage and other provisions of this Chapter are met. No use will be permitted which adversely affects the capacity of drainage facilities or systems. Developments located within the flood fringe shall meet the requirements of this Section, along with the requirements of Section 44.09.

B. When the limits of the floodway are substantially the same as the limits of the floodplain, except as marked herein, no development activities may occur within the minimum setback zone which is defined as 25 feet from the floodway limits.

Allowable development activities are as follows:

1. Normal park and open space improvements
2. Village facilities
3. Maintenance, repair and replacement of highways and bridges, and electrical and telecommunication facilities
4. Accessory buildings allowed in the zoning ordinance

C. Development Permit: No person, firm, corporation, or governmental body not exempted by State law shall commence any development in the SFHA without first obtaining a Development Permit from the Village.

D. Permit Application: Application for a Development Permit shall be made on a form provided by the Enforcement Official. The application shall include the information required in paragraph 2 of Section 44.04 and be accompanied by drawings of the site, drawn to scale, showing property line dimensions; existing grade elevations in M.S.L., 1929 adj. datum or N.G.V.D. and all changes in grade resulting from excavation or filling; the location and dimensions of all buildings and additions to buildings; and all proposed buildings and the elevation of the lowest floor (including basement) and lowest adjacent grade.

The plans shall be sealed by a licensed architect or engineer. The application shall also be accompanied by a plat of survey showing all existing conditions including topography prepared and sealed by a licensed land surveyor. The development will be subject to the requirements of Section 44.09.

E. Permit Processing: Upon receipt of a Development Permit application, the Enforcement Official shall compare the elevation of the site to the base flood or 100-year

frequency flood elevation. Any development located on land that can be shown to have been higher than the Base Flood Elevation as of the site's first Flood Insurance Rate Map identification is not in the SFHA and, therefore, not subject to the requirements of this Chapter. The Enforcement Official shall maintain documentation of the existing ground elevation at the development site and certification that this ground elevation existed prior to the date of the site's first Flood Insurance Rate Map identification.

F. Soil Erosion and Sedimentation Control Plan: A soil erosion and sedimentation control plan for disturbed areas shall be submitted. This plan shall include a description of the sequence of grading activities and the temporary sediment and erosion control measures to be implemented to mitigate their effects. This plan shall also include a description of final stabilization and revegetation measures.

G. Local, State and Federal Permits: The Enforcement Official shall be responsible for obtaining from the applicant copies of all other local, state and federal permits, approvals or permit-not-required letters that may be required for this type of activity. The Enforcement Official shall not issue a permit unless all other local, state and federal permits have been obtained.

H. Preventing Increased Damages: No development in the flood fringe shall create a threat to public health and safety.

I. When Fill is Used: If fill is being used to elevate the site above the Base Flood or 100-year frequency flood elevation, the applicant shall submit sufficient data and obtain a Letter of Map Revision (LOMR) from FEMA for the purpose of removing the site from the flood plain.

J. Compensatory Storage: Whenever any portion of a flood plain is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the Base Flood or 100-year frequency flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the Base Flood or 100-year frequency flood elevation. The excavation volume shall be at least equal to 1.5 times the volume of storage lost due to the fill or structure. In the case of streams and watercourses, such excavation shall be made opposite or adjacent to the areas so filled or occupied. All flood plain storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All flood plain storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation. All such excavations shall be constructed to drain freely and openly to the watercourse.

44.07 OCCUPATION and USE of IDENTIFIED FLOODWAYS

A. General: This Section applies to proposed development, redevelopment, site modification or building modification within a regulatory floodway. The regulatory floodway for the Fox River shall be as delineated on the regulatory floodway maps designated by DWR and defined in Section 44.02. Only those uses and structures will be permitted which meet the criteria of this Section. All floodway modifications shall be the minimum necessary to accomplish the purpose of the project. The development shall also meet the requirements of Section 44.09.

B. Development Permit: No person, firm, corporation or governmental body not exempted by State law shall commence any development in a floodway without first obtaining a Development Permit from the Enforcement Official.

C. Form of Application: Application for a Development Permit shall be made on a form provided by the Enforcement Official. The application shall include the information required in paragraph 2 of Section 44.04 and the following additional information or documents:

1. Cross-section views of the project and engineering study reach showing existing and proposed conditions, including principal dimensions of the work as shown in plan view, existing and proposed elevations, normal water elevation, 10-year frequency flood elevation, 100-year frequency flood elevation and graphic or numerical scales (horizontal and vertical).
2. A plan view of the project and engineering study reach showing existing and proposed conditions including principal dimensions of the structure or work, elevations in mean sea level (1929 adjustment) datum or N.G.V.D., adjacent property lines and ownership, drainage and flood control easements, location of any channels and any existing or future access roads, distance between proposed activity and navigation channel (when the proposed construction is near a commercially navigable body of water), regulatory floodway limit, flood plain limit, specifications and dimensions of any proposed channel modifications, location and orientation of cross-sections, north arrow and a graphic or numerical scale.
3. A soil erosion and sedimentation control plan for disturbed areas. This plan shall include a description of the sequence of grading activities and the temporary sediment and erosion control measures to be implemented to mitigate their effects. This plan shall also include a description of final stabilization and revegetation measures.
4. A copy of the regulatory floodway map, marked to reflect any proposed change in the regulatory floodway location.
5. Any and all other local, state and federal permits or approval letters that may be required for this type of development.
6. Engineering calculations and supporting data shall be submitted showing that the proposed work will meet the permit criteria of Section 44.07.
7. If the regulatory floodway delineation, Base Flood or 100-year frequency flood elevation will change due to the proposed project, the application will not be considered complete until DWR has indicated conditional approval of the regulatory floodway map change. No structures may be built until a Letter of Map Revision has been approved by FEMA.
8. The application for a structure shall be accompanied by drawings of the site, drawn to scale, showing property line dimensions and existing ground elevations and all changes in grade resulting from any proposed excavation or filling, and flood plain and floodway limits; sealed by a registered professional engineer, licensed architect or registered land surveyor; the location and dimensions of all buildings and additions to buildings; and

the elevation of the lowest floor (including basement) of all proposed buildings subject to the requirements of Section 44.09.

9. If the proposed project involves a channel modification, the applicant shall submit the following information:
 - a. A discussion of the purpose of and need for the proposed work.
 - b. A discussion of the feasibility of using alternative locations or methods to accomplish the purpose of the proposed work.
 - c. An analysis of the extent and permanence of the impacts the project would have on the physical and biological conditions of the body of water affected.

D. Other Applicable Permits: The Enforcement Official shall be responsible for obtaining from the applicant copies of all other local, state and federal permits and approvals that may be required for this type of activity. The Enforcement Official shall not issue the Development Permit unless all required federal and state permits have been obtained. A Registered Professional Engineer, under the employ or contract of the Village, shall review and approve applications reviewed under this Section.

E. Preventing Increased Damages and a List of Appropriate Uses: The only developments in a floodway which will be allowed are Appropriate Uses, which will not cause a rise in the base flood elevation, and which will not create a damaging or potentially damaging increase in flood heights or velocity or be a threat to public health and safety and welfare. Construction impacts shall be minimized by appropriate mitigation methods as called for in this Chapter. Only those Appropriate Uses listed in 92 Illinois Administrative Code 708 will be allowed. Appropriate uses do not include the construction or placement of any new structures, fill, building additions, buildings on stilts, excavation or channel modifications done to accommodate otherwise non-appropriate uses in the floodway, fencing (including landscaping or planting designed to act as a fence) and storage of materials except as specifically defined above as an Appropriate Use. The approved Appropriate Uses are as follows:

1. Flood control structures, dikes, dams and other public works or private improvements relating to the control of drainage, flooding, erosion or water quality or habitat for fish and wildlife.
2. Structures or facilities relating to the use of, or requiring access to, the water or shoreline, such underground piping, intake or discharge structures and like structures required for treatment facilities and improvements related to recreational boating and other functionally water dependent uses.
3. Storm and sanitary sewer outfalls.
4. Underground and overhead utilities.
5. Recreational facilities such as playing fields and trail systems, including any related fencing (at least 50 percent open when viewed from any one

direction) built parallel to the direction of flood flows, and including open air pavilions.

6. New bridges and/or culverts and roadway access thereto provided that such roadways do not run parallel to the stream flow, and improvements to existing roadways and sidewalks.
7. Regulatory floodway regrading, without fill, to create a positive non-erosive slope toward a watercourse if such regrading is performed to achieve a valid public purpose.
8. Flood proofing activities to protect previously existing lawful structures, including the construction of water tight window wells, elevating structures or construction of floodwalls around residential, commercial or industrial principal structures where the outside toe of the floodwall shall be no more than 10 feet away from the exterior wall of the existing structure, and which are not considered substantial improvements to the structure.
9. In the case of damaged or replacement buildings, reconstruction or repairs made to a building that is valued at less than 50 percent of the market value of the building before it was damaged or replaced, and which do not increase the outside dimensions of the building.
10. Additions to existing buildings above the Base Flood Elevation that do not increase the building's foot print and are valued at less than 50 percent of the market value of the building.

F. Within the regulatory floodway as identified on the regulatory floodway maps designated by DWR, the construction of an Appropriate Use will be considered permissible provided that the proposed project meets the following engineering and mitigation criteria and is so stated in writing with supporting plans, calculations and data by a Registered Professional Engineer and provided that any structure meets the protection requirements of Section 44.09.

1. Preservation of Flood Conveyance so as Not to Increase Flood Stages Upstream: For Appropriate Uses other than bridge or culvert crossings, on-stream structures or dams, all effective regulatory floodway conveyance lost due to the project will be replaced for all flood events up to and including the 100-year frequency flood. In calculating effective regulatory floodway conveyance, the following factors shall be taken into consideration:
 - a. Regulatory floodway conveyance,

$$"K" = \frac{1.486}{n} AR^{2/3}$$

where "n" is Manning's roughness factor, "A" is the effective area of the cross-section, and "R" is the ratio of the area to the wetted

perimeter. (See *Open Channel Hydraulics*, Ven Te Chow, 1959, McGraw-Hill Book Company, New York).

- b. The same Manning's "n" value shall be used for both existing and proposed conditions unless a recorded maintenance agreement with a federal, state or local unit of government can assure the proposed conditions will be maintained or the land cover is changing from a vegetative to a non-vegetative land cover.
 - c. Transition sections shall be provided and used in calculations of effective regulatory floodway conveyance. The following expansion and contraction ratios shall be used unless an applicant's engineer can prove to DWR through engineering calculations or model tests that more abrupt transitions may be used with the same efficiency:
 - 1) When water is flowing from a narrow section to a wider section, the water should be assumed to expand no faster than at a rate of 1 foot horizontal for every 4 feet of the flooded stream's length.
 - 2) When water is flowing from a wide section to a narrow section, the water should be assumed to contract no faster than at a rate of 1 foot horizontal for every 1 foot of the flooded stream's length.
 - 3) When expanding or contracting flows in a vertical direction, a minimum of 1 foot vertical transition for every 10 feet of stream length shall be used.
 - 4) Transition sections shall be provided between cross-sections with rapid expansions and contractions and when meeting the regulatory floodway delineation on adjacent properties.
 - 5) All cross-sections used in the calculations shall be located perpendicular to flood flows.
2. Preservation of Floodway Storage so as Not to Increase Downstream Flooding: Compensatory storage shall be provided for any regulatory floodway storage lost due to the proposed work from the volume of fill or structures placed and the impact of any related flood control projects. Compensatory storage for fill or structures shall be equal to at least 1.0 times the volume of flood plain storage lost. Artificially created storage lost due to a reduction in head loss behind a bridge shall not be required to be replaced. The compensatory regulatory floodway storage shall be placed between the proposed normal water elevation and the proposed 100-year flood elevation. All regulatory floodway storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All regulatory floodway storage lost above the exist-

ing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation. All such excavations shall be constructed to drain freely and openly to the watercourse. If the compensatory storage will not be placed at the location of the proposed construction, the applicant's engineer shall demonstrate to DWR through a determination of flood discharges and water surface elevations that the compensatory storage is hydraulically equivalent.

3. Preservation of Floodway Velocities as Not to Increase Stream Erosion or Flood Heights: For all Appropriate Uses, except bridges or culverts or on-stream structures, the proposed work will not result in an increase in the average channel or regulatory floodway velocities or stage, for all flood events up to and including the 100-year frequency event. However, in the case of bridges or culverts or on-stream structures built for the purpose of backing up water in the stream during normal or flood flows, velocities may be increased at the structure site if scour, erosion and sedimentation will be avoided by the use of rip-rap or other design measures.
4. Construction of New Bridges or Culvert Crossings and Roadway Approaches: The proposed structure shall not result in an increase of upstream flood stages greater than 0.1 foot when compared to the existing conditions for all flood events up to and including the 100-year frequency event; or the upstream flood stage increases will be contained within the channel banks (or within existing vertical extensions of the channel banks), such as within the design protection grade of existing levees or flood walls or within recorded flood easements. If the proposed construction will increase upstream flood stages greater than 0.1 feet, the developer must contact DWR, Dam Safety Section, for a Dam safety permit or waiver.
 - a. The engineering analysis of upstream flood stages must be calculated using the flood study flows and corresponding flood elevations for tailwater conditions for the flood study specified in Section 44.05. Culverts must be analyzed using the U.S. DOT, FHWA Hydraulic Chart for the Selection of Highway Culverts. Bridges must be analyzed using the U.S. DOT/Federal Highway Administration Hydraulics of Bridge Waterways calculations procedures.
 - b. Lost floodway storage must be compensated for per Section 44.07-F2.
 - c. Velocity increases must be mitigated per Section 44.07-F3.
 - d. If the crossing is proposed over a public water that is used for recreational or commercial navigation, an Illinois Department of Transportation permit must be received.
 - e. The hydraulic analysis for the backwater caused by the bridge showing the existing condition and proposed regulatory profile

must be submitted to DWR for concurrence that a CLOMR is not required by Section 44.07.

- f. All excavations for the construction of the crossing shall be designed per Section 44.07.

5. Reconstruction or Modification of Existing Bridges, Culverts and Approach Roads:

- a. The bridge or culvert and roadway approach reconstruction or modification shall be constructed with no more than 0.1 foot increase in backwater over the existing flood profile for all flood frequencies up to and including the 100-year event, if the existing structure is not a source of flood damage.
- b. If the existing bridge or culvert and roadway approach is a source of flood damage to buildings or structures in the upstream flood plain, the applicant's engineer shall evaluate the feasibility of re-designing the structure to reduce the existing backwater, taking into consideration the effects on flood stages on upstream and downstream properties.
- c. The determination as to whether or not the existing crossing is a source of flood damage and should be redesigned must be prepared in accordance with the Department of Transportation Rules, 91 Illinois Administrative Code 708 (Floodway Construction in Northeastern Illinois) and submitted to the Division for review and concurrence before a permit is issued.

6. On-Stream Structures Built for the Purpose of Backing Up Water: Any increase in upstream flood stages greater than 0.0 feet when compared to the existing conditions for all flood events up to and including the 100-year frequency event, shall be contained within the channel banks (or within existing vertical extensions of the channel banks) such as within the design protection grade of existing levees or flood walls, or within recorded flood easements. A permit, or letter indicating a permit is not required, must be obtained from DWR Dam Safety Section, for a dam safety permit or waiver for any structure built for the purpose of backing up water in the stream during normal or flood flow. All dams and impoundment structures as defined in Section 44.02 shall meet the permitting requirements of 92 Illinois Administrative Code 702 (Construction and Maintenance of Dams). If the proposed activity involves a modification of the channel or floodway to accommodate an impoundment, it shall be demonstrated that:

- a. The impoundment is determined to be in the public interest by providing flood control, public recreation, or storm water detention.

- b. The impoundment will not prevent the migration of indigenous fish species, which require access to upstream areas as part of their life cycle, such as for spawning.
- c. The impoundment will not cause or contribute to degraded water quality or habitat conditions. Impoundment design should include gradual bank slopes, appropriate bank stabilization measures, and a pre-sedimentation basin.
- d. A non-point source control plan has been implemented in the upstream watershed to control the effects of sediment runoff as well as minimize the input of nutrients, oil and grease, metals, and other pollutants. If there is more than one municipality in the upstream watershed, the municipality in which the impoundment is constructed should coordinate with upstream municipalities to ensure comprehensive watershed control.
- e. The project otherwise complies with the requirements of Section 44.07. When on-stream structures are proposed and the upstream drainage area is less than 1 square mile, the Village Engineer may modify the requirements of this Section provided that such modification will not have an adverse impact downstream.

7. Flood Proofing of Existing Habitable, Residential and Commercial Structures: If construction is required beyond the outside dimensions of the existing building, the outside perimeter of the floodproofing construction shall be placed no further than 10 feet from the outside of the building. Compensation of lost storage and conveyance will not be required for floodproofing activities.

8. Excavation in the Floodway: When excavation is proposed in the design of bridges and culvert openings, including the modifications to and replacement of existing bridge and culvert structures, or to compensate for lost conveyance for other Appropriate Uses, transition sections shall be provided for the excavation. The following expansion and contraction ratios shall be used unless an applicant's engineer can prove to DWR through engineering calculations or model tests that more abrupt transitions may be used with the same efficiency.

- a. When water is flowing from a narrow section to a wider section, the water should be assumed to expand no faster than at a rate of 1 foot horizontal for every 4 feet of the flooded stream's length.
- b. When water is flowing from a wide section to a narrow section, the water should be assumed to contract no faster than at a rate of 1 foot horizontal for every 1 foot of the flooded stream's length.
- c. When expanding or contracting flows in a vertical direction, a minimum of 1 foot vertical transition for every 10 feet of stream length shall be used.

- d. Erosion/scour protection shall be provided inland upstream and downstream of the transition sections.
9. Channel Modification: If the proposed activity involves a channel modification, it shall be demonstrated that:
- a. There are no practicable alternatives to the activity which would accomplish its purpose with less impact to the natural conditions of the body of water affected. Possible alternatives include levees, bank stabilization, flood proofing of existing structures, removal of structures from the flood plain, clearing the channel, high flow channel, or the establishment of a stream side buffer strip or green belt. Channel modification is acceptable if the purpose is to restore natural conditions, water quality, and fish and wildlife habitat to at least the conditions that existed prior to the channel modification.
 - b. Water quality, habitat and other natural functions would be significantly improved by the modification and no significant habitat area may be destroyed, or the impacts are offset by the replacement of an equivalent degree of natural resource values.
 - c. The activity has been planned and designed and will be constructed in a way which will minimize its adverse impacts on the natural conditions of the body of water affected, consistent with the following criteria:
 - 1) The physical characteristics of the modified channel shall match as closely as possible those of the existing channel in length, cross section, slope and sinuosity. If the existing channel has been previously modified, restoration of more natural physical conditions should be incorporated into channel modification design, where practical.
 - 2) Hydraulically effective transitions shall be provided at both the upstream and downstream ends of the project, designed such that they will prevent erosion.
 - 3) One-sided construction of a channel shall be used when feasible. Removal of stream side (riparian) vegetation should be limited to one side of the channel, where possible, to preserve the shading and stabilization effects of the vegetation.
 - 4) Clearing of vegetation shall be limited to that which is essential for construction of the channel.
 - 5) Channel banks shall be constructed with a side slope no steeper than 3:1 horizontal to vertical, wherever practical. Natural vegetation and gradual side slopes are the preferred

methods for bank stabilization. Where high velocities or sharp bands necessitate the use of alternative stabilization measures, natural rock or rip-rap are preferred materials. Artificial materials such as concrete, steel walls, gabions, or construction rubble should be avoided unless there are no practical alternatives.

- 6) All disturbed areas associated with the modification shall be seeded or otherwise stabilized as soon as possible upon completion of construction. Erosion blanket or an equivalent material shall be required to stabilize disturbed channel banks prior to establishment of the vegetative cover.
 - 7) If the existing channel contains considerable bottom diversity such as deep pools, riffles, and other similar features, such features shall be provided in the new channel. Spanning and nesting areas and flow characteristics compatible with fish habitat shall also be established, where appropriate.
 - 8) A sediment basin shall be installed at the downstream end of the modification to reduce sedimentation and degradation of downstream water quality.
 - 9) New or relocated channels should be built in the dry and all items of construction, including vegetation, should be completed prior to diversion of water into the new channel.
 - 10) There shall be no increases in stage or velocity as the channel enters or leaves the project site for any frequency flood unless necessitated by a public flood control project or unless such an increase is justified as part of a habitat improvement or erosion control project.
 - 11) Unless the modification is for a public flood control project, there shall be no reduction in the volume of floodwater storage outside the floodway as a result of the modification; and
- d. The project otherwise complies with the requirements of Section 44.07. When channel modification is proposed and the upstream drainage area is less than 1 square mile, the Village Engineer may modify the requirements of this Section provided that such modification does not have an adverse impact downstream.
10. Seeding and Stabilization Plan: For all activities located in a floodway, a seeding and stabilization plan shall be submitted by the applicant.
 11. Soil Erosion and Sedimentation Measures: For all activities in the floodway, including grading, filling, and excavation, in which there is po-

tential for erosion of exposed soil, soil erosion and sedimentation control measures shall be employed consistent with the following criteria:

- a. The construction area shall be minimized to preserve the maximum vegetation possible. Construction shall be scheduled to minimize the time soil is exposed and unprotected.
- b. Temporary and/or permanent soil stabilization shall be applied to denuded areas as soon as possible.
- c. Sedimentation control measures shall be installed before any significant grading or filling is initiated on the site to prevent the movement of eroded sediments off-site or into the channel.
- d. A vegetated buffer strip of at least 25 feet in width shall be preserved and/or re-established, where possible, along existing channels. Construction vehicle use of channels shall be minimized. Temporary stream crossings shall be constructed where necessary to minimize erosion. Necessary construction in or along channels shall be restabilized immediately.
- e. Soil erosion and sedimentation control measures shall be designed and implemented consistent with *Procedures and Standards for Urban Soil Erosion and Sedimentation Control in Illinois* (1988), also known as the "Green Book," and *Standards and Specifications for Soil Erosion and Sediment Control* (IEPA, 1987), and as they may be amended from time to time.

12. Public Flood Control Projects: For public flood control projects, the permitting requirements of this Section will be considered met if the applicant can demonstrate to DWR through hydraulic and hydrologic calculations that the proposed project will not singularly or cumulatively result in increased flood heights outside the project right-of-way or easements for all flood events up to and including the 100-year frequency event.

13. General Criteria for Analysis of Flood Elevations:

- a. The flood profiles, flows and floodway data in the regulatory floodway study, referenced in Section 44.05, must be used for analysis of the base conditions. If the study data appears to be in error or conditions have changed, DWR shall be contacted for approval and concurrence on the appropriate base conditions data to use.
- b. If the 100-year regulatory floodway elevation at the site of the proposed construction is affected by backwater from a downstream receiving stream with a larger drainage area, the proposed construction shall be shown to meet the requirements of this Section for the 100-year frequency flood elevations of the regulatory

floodway conditions and conditions with the receiving stream at normal water elevations.

- c. If the applicant learns from DWR, local governments, or a private owner that a downstream restrictive bridge or culvert is scheduled to be removed, reconstructed or modified, or a regional flood control project is scheduled to be built, removed, constructed or modified within the next 5 years, the proposed construction shall be analyzed and shown to meet the requirements of this Section for both the existing conditions and the expected flood profile conditions when the bridge, culvert or flood control project is built.
14. Conditional Letter of Map Revision: If the Appropriate Use would result in a change in the regulatory floodway location or the 100-year frequency flood elevation, the applicant shall submit to DWR and to FEMA all the information, calculations and documents necessary to be issued a conditional regulatory floodway map revision and receive from DWR a conditional approval of the regulatory floodway change before a permit is issued. However, the final regulatory floodway map will not be changed by DWR until as-built plans or record drawings are submitted and accepted by FEMA and DWR. In the case of non-government projects, the municipality in incorporated areas and the county in unincorporated areas shall concur with the proposed conditional regulatory floodway map revision before DWR approval can be given. No filling, grading, dredging or excavating shall take place until a conditional approval is issued. No further development activities shall take place until a final Letter of Map Revision (LOMR) is issued by FEMA and DWR.
 15. Professional Engineer's Supervision: All engineering analyses shall be performed by or under the supervision of a Registered Professional Engineer.
 16. Construction Criteria: For all activities in the floodway involving construction within 25 feet of the channel, the following criteria shall be met:
 - a. A natural vegetation buffer strip shall be preserved within at least 25 feet of the ordinary high water mark of the channel.
 - b. Where it is impossible to protect this buffer strip during the construction of an Appropriate Use, a vegetated buffer strip shall be established upon completion of construction.
 17. Conditional Approval: After receipt of conditional approval of the regulatory floodway change and issuance of a permit and a Conditional Letter of Map Revision, construction as necessary to change the regulatory floodway designation may proceed but no buildings or structures or other construction that is not an Appropriate Use may be placed in that area until the regulatory floodway map is changed and a final Letter of Map Revi-

sion is received. The regulatory floodway map will be revised upon acceptance and concurrence by DWR and FEMA of the as-built plans.

G. State Review: For those projects listed below, located in a regulatory floodway, the following criteria shall be submitted to DWR for their review and concurrence prior to the issuance of a permit:

1. DWR will review an engineer's analysis of the flood profile due to a proposed bridge pursuant to Section 44.07-F4.
2. DWR will review an engineer's determination that an existing bridge or culvert crossing is not a source of flood damage and the analysis indicating the proposed flood profile, pursuant to Section 44.07-F5.
3. The DWR will review alternative transition sections and hydraulically equivalent storage pursuant to Sections 44.07-F2 and 44.07-F8.
4. The DWR will review and approve, prior to the start of construction, any Department projects, dams and all other state, federal or local units of government projects, including projects of the municipality or county.

H. Other Permits: In addition to the other requirements of this Chapter, a Flood Plain Development Permit for a site located in a floodway shall not be issued unless the applicant first obtains a permit or written documentation that a permit is not required from the DWR, issued pursuant to 615 ILCS 5/5. No permit from the DWR shall be required if the DWR has delegated this responsibility to the Village.

I. Dam Safety Permits: Any work involving the construction, modification or removal of a dam, as defined in Section 3 of 92 Ill. Administrative Code 702 (Rules for Construction of Dams), shall obtain a DWR dam safety permit prior to the starting construction. If the Enforcement Official finds a dam that does not have a DWR permit, the Village Engineer shall immediately notify the DWR Dam Safety Section. If the Village Engineer finds a dam which is believed to be in unsafe condition, he shall immediately notify the owner of the dam, DWR Dam Safety Section and the Illinois Emergency Services and Disaster Agency (ESDA).

J. Activities Not Requiring a Registered Professional Engineer's Review: The following activities may be permitted without a Registered Professional Engineer's review. Such activities shall still meet the other requirements of this Chapter, including the mitigation requirements.

1. Underground and overhead utilities that:
 - a. Do not result in any increase in existing ground elevations.
 - b. Do not require the placement of above-ground structures in the floodway.
 - c. In the case of underground stream crossings, the top of the pipe or encasement is buried a minimum of 3 feet below the existing stream bed.

- d. In the case of overhead utilities, no supporting towers are placed in the watercourse and are designed in such a fashion as not to catch debris.
2. Storm and sanitary sewer outfalls that:
 - a. Do not extend riverward to lakeward of the existing adjacent natural bank slope.
 - b. Do not result in an increase in ground elevation.
 - c. Are designed so as not to cause stream erosion at the outfall location.
 3. Construction of sidewalks, athletic fields (excluding fences), properly anchored playground equipment and patios at grade.
 4. Construction of shoreline and stream bank protection that:
 - a. Does not exceed 1,000 feet in length.
 - b. Materials are not placed higher than the existing top of bank.
 - c. Materials are placed so as not to reduce the cross-sectional area of the stream channel or bank of the lake.
 5. Temporary stream crossings in which:
 - a. The approach roads will be one-half foot or less above natural grade.
 - b. The crossing will allow stream flow to pass without backing up the water above the stream bank vegetation line or above any drainage tile or outfall invert.
 - c. The top of the roadway fill in the channel will be at least 2 feet below the top of the lowest bank.
 - d. All disturbed stream banks will be seeded or otherwise stabilized as soon as possible upon installation and again upon removal of construction.
 - e. The access road and temporary crossings will be removed within 1 year after authorization.

44.08 OCCUPATION and USE of SFHA AREAS WHERE FLOODWAYS are NOT IDENTIFIED

In SFHA or flood plains (including AO Zones, AH Zones or Unnumbered A Zones) where no floodways have been identified and no Base Flood or 100-year frequency flood elevations have been established by FEMA, and draining more than a square mile, no development shall be permitted unless the cumulative effect of the proposals, when combined with all other existing and anticipated uses and structures, shall not significantly impede or increase the flow and passage of the floodwaters nor significantly increase the Base Flood or 100-year frequency flood elevation.

1. Development Permit: No person, firm, corporation or governmental body, not exempted by state law, shall commence any development in a SFHA or flood plain without first obtaining a Development Permit from the Enforcement Official. Application for a Development Permit shall be made on a form provided by the Enforcement Official. The permit must contain all information required in paragraph 2 of Section 44.04 and provide the following additional information:
 - a. A plan view of the project and engineering study showing existing and proposed conditions including principal dimensions of the structure or work, elevations in mean sea level (1929 adjustment) datum or N.G.V.D., adjacent property lines and ownership, drainage and flood control easements, distance between proposed activity and navigation channel (when the proposed construction is near a commercially navigable body of water), flood plain limit, location and orientation of cross-sections, north arrow and a graphical or numerical scale; and
 - b. Cross-section views of the project and engineering study showing existing and proposed conditions including principal dimensions of the work as shown in plan view, existing and proposed elevations, normal water elevation, 10-year frequency flood elevation, 100-year frequency flood elevation and graphical or numerical scales (horizontal and vertical); and
 - c. A soil erosion and sedimentation control plan for disturbed areas. This plan shall include a description of the sequence of grading activities and the temporary sediment and erosion control measures to be implemented to mitigate their effects. This plan shall also include a description of final stabilization and revegetation measures, and the identification of a responsible party to ensure post construction maintenance; and
 - d. Engineering calculations and supporting data shall be submitted showing that the proposed work will meet the criteria of paragraph 4 in Section 44.08; and
 - e. Any and all other local, state and federal permits or approvals that may be required for this type of development.
2. Comparing Elevation Information: Based on the best available existing data according to the Illinois State Water Survey's Flood Plain Information Repository, the Village Engineer shall compare the elevation of the site to the Base Flood or 100-year frequency flood elevation. Should no elevation information exist for the site, the developer's engineer shall calculate the elevation according to paragraph 4 of Section 44.05. Any development located on land that can be shown to have been higher than the base flood elevation as of the site's first Flood Insurance Rate Map Identification is not in the SFHA and, therefore, is not subject to the requirements of this Chapter. The Enforcement Official shall main-

tain documentation of the existing ground elevation at the development site and certification that this ground elevation existed prior to the date of the site's first Flood Insurance Map Identification.

3. Other Applicable Permits: The Enforcement Official shall be responsible for obtaining from the applicant copies of all other local, state and federal permits, approvals or permit-not-required letters that may be required for this type of activity. The Enforcement Official shall not issue the Development Permit unless all required local, state and federal permits have been obtained.
4. Preventing Increased Damages: No development in the SFHA, where a floodway has not been determined, shall create a damaging or potentially damaging increase in flood heights or velocity or threat to public health, safety and welfare.
5. Riverine Standards: Within all riverine SFHA's where the floodway has not been determined, the following standards shall apply:
 - a. The developer shall have a Registered Professional Engineer state in writing and show through supporting plans, calculations and data that the project meets the engineering requirements of Section 44.07 for the entire flood plain as calculated pursuant to Section 44.05. The developer of new subdivisions shall have an engineering study performed to determine a floodway and submit that engineering study to the DWR for acceptance as a regulatory floodway. Upon acceptance of their floodway by the DWR, the developer shall then demonstrate that the project meets the requirements of Section 44.07 for the regulatory floodway. The floodway shall be defined according to Section 44.02.
 - b. A Development Permit shall not be issued unless the applicant first obtains a permit from DWR or written documentation that a DWR permit is not required.
 - c. No permit from the DWR shall be required if the DWR has delegated permit responsibility to the Village per 92 Ill. Administrative Code, part 708 for regulatory floodways per DWR's statewide permit entitled *Construction in Flood Plains with No Designated Floodways in Northeastern Illinois*.
 - d. Dam Safety Permits: Any work involving the construction, modification or removal of a dam or an on-stream structure to impound water shall obtain an DWR dam safety permit or letter stating a permit is not required prior to the start of construction of a dam. If the Village Engineer finds a dam that does not have a DWR permit, the Village Engineer shall immediately notify the DWR Dam Safety Section. If the Village Engineer finds a dam which is believed to be in unsafe condition, the Village Engineer shall immediately notify the owner of the dam and the Illinois Emergency Services and Disaster Agency (ESDA) and the DWR Dam Safety Section.
 - e. The following activities may be permitted without a Registered Professional Engineer's review or calculation of a base flood elevation and regulatory floodway. Such activities shall still meet the other requirements of this Chapter:
 - i. Underground and overhead utilities that:

- (a) Do not result in any increase in existing ground elevations.
 - (b) Do not require the placement of above-ground structures in the floodway.
 - (c) In the case of underground stream crossings, the top of the pipe or encasement is buried a minimum of 3 feet below the existing stream bed.
 - (d) In the case of overhead utilities, no supporting towers are placed in the watercourse and are designed in such a fashion as not to catch debris.
- ii. Storm and sanitary outfalls that:
- (a) Do not extend riverward or lakeward of the existing adjacent natural bank slope.
 - (b) Do not result in an increase in ground elevation.
 - (c) Are designed so as not to cause stream bank erosion at the outfall location.
- iii. Construction of shoreline and stream bed protection that:
- (a) Does not exceed 1,000 feet in length or 2 cubic yards per lineal foot of stream bed.
 - (b) Materials are not placed higher than the existing top of bank.
 - (c) Materials are placed so as not to reduce the cross-sectional area of the stream channel by more than 10 percent.
- iv. Temporary stream crossings in which:
- (a) The approach roads will be one-half foot or less above natural grade.
 - (b) The crossing will allow stream flow to pass without backing up the water above the stream bank vegetation line or above any drainage tile or outfall invert.
 - (c) The top of the roadway fill in the channel will be at least 2 feet below the top of the lowest bank. Any fill in the channel shall be non-erosive material.
 - (d) All disturbed stream banks will be seeded or otherwise stabilized as soon as possible upon installation and again upon removal of construction.

- (e) The access road and temporary crossings will be removed within 1 year after authorization.
 - v. The construction of light poles, sign posts and similar structures.
 - vi. The construction of sidewalks, driveways, athletic fields (excluding fences), patios and similar surfaces which are built at grade.
 - vii. The construction of properly anchored, unwallled, open structures such as playground equipment and public pavilions that would not obstruct the flow of flood waters.
 - viii. The construction of additions to existing buildings which do not increase the first flood area by more than 20 percent, which are located on the upstream or downstream side of the existing building, and which do not extend beyond the sides of the existing building that are parallel to the flow of flood waters.
 - ix. Minor maintenance dredging of a stream channel where:
 - (a) The affected length of stream is less than 1,000 feet.
 - (b) The work is confined to reestablishing flows in natural stream channels.
 - (c) The cross-sectional area of the dredged channel conforms to that of the natural channel upstream and downstream of the site.
 - f. The flood carrying capacity within any altered or relocated watercourse shall be maintained.
6. Compensatory Storage: Whenever any portion of a flood plain is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the Base Flood or 100-year frequency flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the Base Flood or 100-year frequency flood elevation unless the floodway portion of the floodplain has been determined. The excavation volume shall be at least equal to 1.5 times the volume of storage lost due to the fill or structure. In the case of streams and water courses, such excavation shall be made opposite or adjacent to the areas so filled or occupied. All flood plain storage lost below the existing 10-year flood elevation shall be replaced below the proposed 10-year flood elevation. All flood plain storage lost above the existing 10-year flood elevation shall be replaced above the proposed 10-year flood elevation. All such excavations shall be constructed to drain freely and openly to the watercourse.

44.09 **PERMITTING REQUIREMENTS APPLICABLE to all FLOOD PLAIN AREAS**

In addition to the requirements found in Sections 44.06, 44.07 and 44.08 for development in flood fringes, regulatory floodways, and SFHA or flood plains where no floodways have been

identified (Zones A, AO, AH, AE, A1-A30, A99, V0, V1-30, VE, V, M, or E), the following requirements shall be met:

1. Public health standards.
2. No developments in the SFHA shall include locating or storing chemicals, explosives, buoyant materials, animal wastes, fertilizers, flammable liquids, pollutants or other hazardous or toxic materials below the FPE.
3. New and replacement water supply systems, wells, sanitary sewer lines and on-site waste disposal systems may be permitted providing all manholes or other above-ground openings located below the FPE are watertight.
4. Carrying Capacity and Notification. For all projects involving channel modification, fill or stream maintenance (including levees), the flood carrying capacity of the watercourse shall be maintained. In addition, the Village shall notify adjacent communities in writing 30 days prior to the issuance of a permit for the alteration or relocation of the watercourse.
5. Protecting Buildings. All buildings located within a 100-year flood plain, also known as a SFHA, shall be protected from flood damage below the flood protection elevation. However, existing buildings located within a regulatory floodway shall also meet the more restrictive Appropriate Use standards included in Section 44.07 This building protection criteria applies to the following situations:
 - a. Construction or placement of a new building.
 - b. A structural alteration to an existing building that either increases the first floor area by more than 20 percent or the building's market value by more than 50 percent. This alteration shall be figured cumulatively, beginning with any alteration which has taken place subsequent to April 1, 1990.
 - c. Installing a manufactured home on a new site or a new manufactured home on an existing site. This building protection requirement does not apply to returning a mobile home to the same site it lawfully occupied before it was removed to avoid flood damage.
 - d. Installing a travel trailer on a site for more than 180 days.

This building protection requirement may be met by one of the following methods:

- a. A residential or non-residential building, when allowed, may be constructed on permanent landfill in accordance with the following:
 - i. The lowest floor (including basement) shall be at or above the flood protection elevation.
 - ii. The fill shall be placed in layers no greater than 1 foot deep before compaction and should extend at least 10 feet beyond the foundation of the building before sloping below the flood protection elevation. The top of

the fill shall be above the flood protection elevation. However, the 10 foot minimum may be waived if a structural engineer certifies an alternative method to protect the building from damages due to hydrostatic pressures. The fill shall be protected against erosion and scour. The fill shall not adversely affect the flow or surface drainage from or onto neighboring properties.

- b. A residential or non-residential building may be elevated in accordance with the following:
 - i. The building or improvements shall be elevated on crawl space, stilts, piles, walls or other foundation that is permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood or 100-year frequency flood. The permanent openings shall be no more than 1 foot above grade, and consist of a minimum of 2 openings. The openings must have a total net area of not less than 1 square inch for every 1 square foot of enclosed area subject to flooding below the Base Flood Elevation.
 - ii. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice and floating debris.
 - iii. All areas below the flood protection elevation shall be constructed of materials resistant to flood damage. The lowest floor (including basement) and all electrical, heating, ventilating, plumbing and air conditioning equipment and utility meters shall be located at or above the flood protection elevation. Water and sewer pipes, electrical and telephone lines, submersible pumps and other waterproofed service facilities may be located below the flood protection elevation.
 - iv. The areas below the flood protection elevation may only be used for the parking of vehicles, building access or storage in an area other than a basement.
 - v. Manufactured homes shall be anchored to resist flotation, collapse or lateral movement by being tied down in accordance with the Rules and Regulations for the Illinois Mobile Home Tie-Down Act issued pursuant to 77 Illinois Administrative Code 870. In addition, all manufactured homes shall meet the following elevations requirements:
 - (a) In the case of manufactured homes placed or substantially improved (a) outside of a manufactured home park or subdivision, (b) in a new manufactured home park or subdivision, (c) in an expansion to an existing manufactured home park or subdivision, or (d) in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage from a flood, the top of the lowest floor shall be elevated to or above the flood protection elevation.

(b) In the case of manufactured homes placed or substantially improved in an existing manufactured home park or subdivision, the manufactured home shall be elevated so that either the top of the lowest floor is above the base flood elevation or the chassis is at least 36 inches in height above grade and supported by reinforced piers or other foundations of equivalent strength, whichever is less.

vi. Recreational vehicles or travel trailers shall be required to meet the elevation and anchoring requirements of this Section unless:

(a) They are on site for less than 180 consecutive days; and

(b) They are fully licensed and ready for highway use.

A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utility and service devices, and has no permanently attached additions.

c. Only a non-residential building may be structurally dry floodproofed (in lieu of elevation), provided that a Registered Professional Engineer shall certify that the building has been structurally dry floodproofed below the flood protection elevation, the structure and attendant utility facilities are watertight and capable of resisting the effects of the Base Flood or 100-year frequency flood. The building design shall take into account flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy and impacts from debris or ice. Floodproofing measures shall be operable without human intervention and without an outside source of electricity. (Levees, berms, floodwalls and similar works are not considered floodproofing for the purpose of this Section.)

d. Non-conforming structures located in a regulatory floodway may remain in use, but may not be enlarged, replaced or structurally altered. A non-conforming structure damaged by flood, fire, wind or other natural or man-made disaster may be restored unless the damage exceeds 50 percent of its market value before it was damaged, in which case it shall conform to the provisions of this Chapter.

e. Tool sheds and detached garages on an existing single-family platted lot may be constructed with the lowest floor below the flood protection elevation in accordance with the following:

i. The building shall not be used for human habitation.

ii. All areas below the Base Flood or 100-year frequency flood elevation shall be constructed with waterproof material. Structures located in a regulatory floodway shall be constructed and placed on a building site so as not to block the flow of flood waters and shall also meet the Appropriate Use Criteria of Section 44.07. In addition, all other requirements of Sections 44.06, 44.07 and 44.08 shall be met.

iii. The structure shall be anchored to prevent flotation.

- iv. Service facilities such as electrical and heating equipment shall be elevated or floodproofed to the flood protection elevation.
- v. The building shall be valued at less than \$5,000 and be less than 500 square feet in floor size.
- vi. The building shall be used only for the storage of vehicles or tools and may not contain other rooms, workshops, greenhouses or similar uses.

44.10 OTHER DEVELOPMENT REQUIREMENTS

The Village shall take into account flood hazards to the extent that they are known in all official actions related to land management, use and development.

1. New subdivisions, re-platted subdivisions, manufactured home parks, annexation agreements and planned developments (PUDs) within the SFHA shall be reviewed to assure that the proposed developments are consistent with Sections 44.06, 44.07, 44.08 and 44.09 and the need to minimize flood damage. Plats or plans for new subdivisions, manufactured home parks and PUDs shall include a signed statement by a Registered Professional Engineer that the plat or plans account for changes in the drainage of surface waters in accordance with the Plat Act, 765 ILCS 205/2.
2. Proposals for new subdivisions, manufactured home parks, travel trailer parks, PUDs and additions to manufactured home parks and additions to subdivisions shall include Base Flood or 100-year frequency flood elevation data and floodway delineations. Where this information is not available from an existing study filed with the Illinois State Water Survey, the applicant's engineer shall be responsible for calculating the Base Flood or 100-year frequency flood elevation per Section 44.05 and the floodway delineation and submitting it to the State Water Survey and DWR for review and approval as best available regulatory data.
3. Streets, blocks, lots, parks and other public grounds shall be located and laid out in such a manner as to preserve and utilize natural streams and channels. Wherever possible, the flood plains shall be included within parks or other public grounds.
4. The Village Board shall not approve any PUD or plat of subdivision located outside the corporate limits unless such PUD or plat is in accordance with this Chapter.

44.11 VARIANCES

No variances shall be granted to any development located in a regulatory floodway. However, when a development proposal is located outside of a regulatory floodway, and whenever the standards of this Chapter place undue hardship on a specific development proposal, the applicant may apply to the Enforcement Official for a variance. The Planning and Zoning Commission shall review the applicant's request and shall submit its recommendation to the Village Board.

1. No variance shall be granted unless the applicant demonstrates that:
 - a. The development activity cannot be located outside the SFHA.

- b. An exceptional hardship would result if the variance were not granted.
 - c. The relief requested is the minimum necessary.
 - d. There will be no additional threat to public health, safety, beneficial stream uses and functions, especially aquatic habitat, or creation of a nuisance.
 - e. There will be no additional public expense for flood protection, lost environmental stream uses and functions, rescue or relief operations, policing or repairs to stream beds and banks, roads, utilities or other public facilities.
 - f. The provisions of Sections 44.06-H and 44.08-D shall still be met.
 - g. The activity is not in a regulatory floodway.
 - h. The applicant's circumstances are unique and do not represent a general problem.
 - i. The granting of the variance will not alter the essential character of the area involved, including existing stream uses.
2. The Enforcement Official shall notify an applicant in writing that a variance from the requirements of Section 44.09 that would lessen the degree of protection to a building will:
- a. Result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage.
 - b. Increase the risks to life and property.
 - c. Require that the applicant proceed with knowledge of these risks and that he will acknowledge in writing that he assumes the risk and liability.
3. Variances requested in connection with restoration of an historic site or historic structure may be granted using criteria more permissive than the requirements of paragraphs 1 and 2 of this Section subject to the conditions that:
- a. The repair or rehabilitation is the minimum necessary to preserve the historic character and design of the structure.
 - b. The repair or rehabilitation will not result in the structure being removed as a certified historic structure.

44.12 **DISCLAIMER of LIABILITY**

The degree of flood protection required by this Chapter is considered reasonable for regulatory purposes and is based on available information derived from engineering and scientific methods of study. Larger floods may occur or flood heights may be increased by man-made or natural causes. This Chapter does not imply that development, either inside or outside of the SFHA, will be free from flooding or damage. This Chapter does not create liability on the part of the Village

or any officer or employee thereof for any flood damage that results from reliance on this Chapter or any administrative decision made lawfully thereunder.

44.13 PENALTY

Failure to comply with the requirements of a permit or conditions of a variance shall be deemed to be a violation of this Chapter. Upon due investigation, the Enforcement Official may determine that a violation of the minimum standards of this Chapter exist. The Enforcement Official shall notify the owner in writing of such violation. If such owner fails after 10 days' notice to correct the violation:

1. The Village may make application to the Circuit Court for an injunction requiring conformance with this Chapter or make such other order as the Court deems necessary to secure compliance with the Chapter.
2. Any person who violates any provision of this Chapter shall, upon conviction thereof, be fined not less than \$50 or more than \$1,000 for each offense.
3. A separate offense shall be deemed committed upon each day during or on which a violation occurs or continues.
4. The Village may record a notice of violation on the title to the property.

The Village shall inform the owner that any such violation is considered a willful act to increase flood damages and, therefore, may cause coverage by a Standard Flood Insurance Policy to be suspended.

Nothing herein shall prevent the Village from taking such other lawful action to prevent or remedy any violations. All costs connected therewith shall accrue to the person or persons responsible.

44.14 ABROGATION and GREATER RESTRICTIONS

This Chapter is not intended to repeal, abrogate or impair any existing easements, covenants, or deed restrictions. Where this Chapter and other ordinances, easements, covenants or deed restrictions conflict or overlap, whichever imposes the more stringent restrictions shall prevail. This Chapter is intended to repeal the original ordinance or resolution which was adopted to meet the National Flood Insurance Program regulations, but is not intended to repeal the resolution which the Village passed in order to establish initial eligibility for the program.

44.15 SEPARABILITY

If any section, paragraph, subdivision, clause, sentence or provision of this Chapter shall be adjudged by any Court of competent jurisdiction to be invalid, such judgement shall not affect, impair, invalidate or nullify the remainder thereof, which remainder shall remain and continue in full force and effect.

44.16 EFFECTIVE DATE

This Chapter shall be effective on September 15, 1994.