

Charles County, Maryland

FLOODPLAIN
MANAGEMENT
ORDINANCE

*Chapter 238, Article II
of the
Charles County Code*

Prepared By:

Department of Planning and Growth Management

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Article II FLOODPLAIN MANAGEMENT

Section 238-5: **Purpose and General Provisions**

A. Purpose and Authority

The purposes of this Ordinance are to protect human life and health, minimize property damage, encourage appropriate construction practices to minimize future damage, protect individuals from unwittingly buying land subject to flood hazards, and to protect water supply, sanitary sewage disposal, and natural drainage. The prevention of inappropriate development in areas subject to flooding will reduce financial burdens to the community and the State, and will prevent future displacement and suffering of its residents. This protection is achieved through the review of all activities proposed within identified floodplains and by the issuance of permits for those activities that comply with the objectives of this Ordinance.

Floodplains are an important asset to the community. They perform vital natural functions such as temporary storage of floodwaters, moderation of peak flood flows, maintenance of water quality, groundwater recharge, prevention of erosion, habitat for diverse natural wildlife populations, recreational opportunities, and aesthetic quality. These functions are best served if floodplains are kept in their natural state. Wherever possible, the natural characteristics of floodplains and their associated wetlands and water bodies should be preserved and enhanced.

This Ordinance provides a unified, comprehensive approach to floodplain management which addresses these natural floodplain functions and the Federal and State programs concerned with floodplain management. These programs are: the National Flood Insurance Program (44 CRF 59-79); the State's Waterway Construction Permit Program for nontidal floodplains; the State's Tidal and Nontidal Wetlands Permit Programs; the U.S Army Corps of Engineers' Section 10 and 404 Permit Programs; and the State's Coastal Zone Management Program. Decisions to alter floodplains, especially floodways and stream channels, should be the result of careful planning processes which evaluate resource conditions and human needs.

B. Abrogation and Greater Restrictions

This Ordinance supersedes any ordinance in effect in flood-prone areas. However, any other ordinance shall remain in full force to the extent that its provisions are more restrictive.

C. Applicability

Any person or entity proposing to do any development within the floodplain zone regulated by this Ordinance must first obtain a permit for that development from the Charles County Department of Planning and Growth Management, and must comply with all provisions of this Ordinance, except for the following:

- (1) This ordinance shall not apply to: a site plan, building permit, or a grading permit

approved as of the effective date of this ordinance; or a subdivision that has received preliminary or final subdivision plan approval as of the effective date of this ordinance, provided that the requirements of Ordinance number 88-88 have been met, and that a grading permit for the project, as applicable, has been issued within one year of the effective date of this ordinance.

D. Partial Invalidity and Severability

If any part of this Ordinance is declared invalid, the remainder of the Ordinance shall not be affected and shall remain in force.

E. Disclaimer of Liability

The degree of flood protection provided by this Ordinance is considered reasonable for regulatory purposes and is based on engineering experience and scientific methods of study. This ordinance should not be, and is not intended to be, relied upon for absolute protection or insurance from flooding or flood damage. Floods of greater magnitude may occur or flood heights may be increased by man-made or natural causes. This Ordinance does not, and should not be interpreted to, imply that flooding will not occur outside of the delineated floodplain zone, nor that permitted development and land uses within the floodplain will be free of flooding and associated flood damage. This Ordinance does not, and should not be interpreted to, create liability on the part of the County, any officer, or employee thereof for any damage which may result from the herein disclaimed, and therefore, unwarranted reliance on this Ordinance.

Section 238-6 Definitions

Accessory structure - a detached structure on the same parcel of property as the principal structure, the use of which is incidental to the principal structure, eg., a shed or detached garage.

Approximate Floodplain - a floodplain where a detailed study has not been performed but where the Federal Emergency Management Agency has approximated a one hundred year floodplain boundary.

Base Flood - the 100-year frequency flood event as indicated in the Flood Insurance Study, as amended, the elevation of which is used for regulatory purposes in this Ordinance. Also known as the 100-year flood, which has a one percent chance of being equalled or exceeded in any given year.

Basement - A story having one half or more of its floor to ceiling height below the average level of the adjoining ground and with a floor to ceiling height not less than 6.5'.

Breakaway Wall - means a wall that is not part of the structural load bearing support of the building and intended through its design and construction to collapse under specific lateral holding forces, without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system.

Certificate of Use and Occupancy - means the official form issued by the County certifying that the structure has been built consistent with approved plans and may be legally inhabited or used for the intended purpose.

Coastal High Hazard Area - an area subject to coastal or tidal flooding with the addition of high velocity water and wind action. These areas are designated as V-Zones on the Flood Insurance Rate Maps.

Dam - means any obstruction, wall, or embankment, together with its abutments and appurtenance works, if any, in, along, or across any stream, heretofore or hereafter constructed for the purpose of storing or diverting water or for creating a pool upstream of the dam as determined by the Department.

The Danger Reach - means that reach of a stream or river downstream of a dam occupied by waters from a breach of the dam, where such breach waters exceed the limits of the floodplain.

Department - shall mean the Department of Planning and Growth Management of Charles County, Maryland.

Development - The subdivision of a parcel of land into smaller parcels; construction, reconstruction, conversion, structural alteration, relocation or enlargement of any structure, installation of a sign; or any mining, landfill or other land disturbance, such as grading, paving, placement of fill, and excavation.

Elevation Certificate - form supplied by the Federal Emergency Management Agency (FEMA) to certify as-built elevations of structures above mean sea level (NGVD).

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

Flood Insurance Rate Map (FIRM) - map which depicts the minimum special flood hazard area to be regulated by this Ordinance (unless a Floodway Map is available).

Flood Insurance Study (FIS) - A Flood Insurance Study prepared by the Federal Emergency Management Agency.

Floodplain - that land typically adjacent to a body of water with ground surface elevations that are inundated by the base flood, excepting the land adjoining the banks of ponds, lakes or stormwater management detention and retention facilities when the banks of such water bodies provide containment of the base flood.

Floodproofing - any combination of structural or nonstructural changes which reduce or eliminate flood damage to improved real property.

Floodproofing Certificate - form supplied by FEMA 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 plus one foot freeboard.

Floodway - the channel and adjacent land area required to discharge the waters of the 100-year flood of a watercourse without increasing the water surface elevations more than a specified height.

Floodway Fringe - that portion of the floodplain outside the floodway.

Floodway Map - map which depicts floodways and special flood hazard areas to be regulated by this Ordinance.

Flood Protection Setback - an area within the floodway and located a specified distance from the top of bank of a watercourse.

Freeboard - an increment of elevation added to the base flood elevation to provide a factor of safety for uncertainties in calculations, wave actions, subsidence, or other unpredictable effects.

Historic Structure - a structure listed individually on the National Register of Historic Places, the Maryland Inventory of Historic Properties, a local inventory of historic places certified by the Maryland Historic Trust or the Secretary of the Interior, or preliminarily determined as eligible or as meeting the requirements for such listing by the State Historic Preservation Officer, Maryland Historic Trust or the Secretary of the Interior, or determined as contributing to the historic significance of a historic district registered with Secretary of the Interior.

Lowest Floor - the lowest floor of the lowest enclosed area of a structure, including a basement. An unfinished enclosure constructed of flood resistant materials used solely for parking of vehicles, storage, or building access in an area other than a basement is not the lowest floor, as long as it is supplied with water equalizing vents.

Manufactured Home or building - means a structure, transportable in one or more sections, that is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term manufactured home or building also includes park trailers, travel trailers, and other similar vehicles placed on a site for more than 180 consecutive days.

National Geodetic Vertical Datum (NGVD) - National Geodetic Vertical Datum of 1929 elevation reference points set by the National Geodetic Survey based on mean sea level.

New Construction - any structure for which construction commenced on or after the effective date of the adoption of a Floodplain Management Ordinance, including any subsequent improvements.

Non-Tidal Floodplain - an area consisting of the Floodway and the Floodway Fringe. Nontidal floodplains may have detailed engineering study, profiles, and water surface elevations, or may have approximate delineations only.

One Hundred (100) Year Frequency Flood - the Base Flood, having a one chance in a hundred (one percent chance) of being equalled or exceeded in any year.

One Hundred (100) Year Storm - means the level of flooding, water loads, wind speeds, duration, direction and forces that, when acting simultaneously, result in severe beach erosion and overwash and have a one-percent chance of occurring each year.

Overbank - that area of land between a stream or river channel, including the banks, and the limits of the floodplain.

Permanent Construction - any structure occupying a site for more than 180 days per year.

Public Works Project - development undertaken by or under contract to an agency of County government.

Recreational Vehicle - a structure that: 1) is intended to be transported over the streets and highways (either as a motor vehicle or attached to or hauled by a motor vehicle) and 2) is designed for temporary use as sleeping quarters but that does not satisfy one or more of the definitional criteria of a mobile home.

Resource Protection Zone (RPZ) - Any Resource Protection Zone as established in Chapter 295 of the County Code.

Start of Construction - the date of issue of the building permit for any development, including new construction and substantial improvements, provided that the actual start of the construction or improvement was within 180 days of permit issuance. The actual start of construction is the placement of slab or footings, piles, columns, or actual placement of a manufactured home. For substantial improvement, the start of construction is the first alteration of any structural part of the building.

Structure - a walled and roofed building, including, but not limited to, manufactured homes, gas and liquid storage tanks, garages, barns, and sheds.

Substantial Damage - damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

Substantial Improvement - any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure (not including land value) either: (a) before the improvement or repair is started; or (b) if the structure has incurred substantial damage and been restored, before the damage occurred. Substantial improvement occurs when the first alteration of any wall, ceiling, floor, or other structural part of the building commences. The minimum repairs needed to correct previously

identified violations of local health, safety, or sanitary codes, and alterations to historic structures which do not preclude their continued designation as historic structures are not considered substantial improvements.

Temporary Structure - any structure completely removed within 180 days from issuance of the permit.

Tidal Floodplain - areas subject to coastal or tidal flooding by the 100-year flood. These areas are flooded due to high tides, hurricanes, tropical storms, and steady off-shore winds.

Unmapped Streams - refers to streams and rivulets which may be discernable in the field but may or may not have been identified on any floodplain reference maps. This would apply to all perennial and intermittent streams as identified on any U.S. Geological Survey or Maryland Geological Survey Map, and any drainage served by a drainage area of 50 acres or more in size.

Variance - the grant of relief from a term or terms of this Ordinance.

Wetland - any land which is: (1) considered private wetland or State wetland pursuant to Title 9, Wetland and Riparian Rights, Natural Resources Article, Annotated Code of Maryland; or (2) defined as wetland under the procedures described in the Federally accepted version of the "Federal Manual for Identifying and Delineating Jurisdictional Wetlands" as may be amended from time to time.

Section 238-7 Permit Procedures

A. General

A permit is required for all development in any Floodplain Zone. A permit issued by the Department under this Ordinance is not valid until all necessary permits for development are obtained. Receipt of Federal or State permits does not exempt development from the provisions of this Ordinance.

B. Information for a Permit

Applications for a Building or Grading Permit shall contain, at a minimum, the information required pursuant to the Charles County Zoning Ordinance.

All permit applications must have a site plan drawn to scale which shows:

- (1) dimensions of site;
- (2) size and location of existing and proposed structures or alterations;
- (3) setbacks;
- (4) elevation contours in mean sea level (NGVD); and

- (5) delineation of the 100-year flood elevation and boundary.

The Department may require plans for tree maintenance, stormwater management, revegetation, establishment of vegetated buffers, and final grading as part of the permit application process.

All applicants shall agree in writing to provide an Elevation Certificate completed by a registered professional engineer or surveyor to certify the as-built lowest floor of a structure which must be elevated to or above the Flood Protection Elevation. An Elevation Certificate must be submitted before a Certificate of Use or Occupancy may be issued. Work undertaken prior to submission of the certification is at the applicant's risk. For enclosed areas below the Flood Protection Elevation, a Nonconversion Agreement may be required, which includes an agreement to install water equalizing vents as specified in Section 238-10 B. of this Ordinance.

If an improvement to an existing structure is proposed, adequate information on the cost of the improvement and the market value of the structure before the improvement must be supplied to the Department to allow a determination of substantial improvement. The Department may use tax assessment records to determine substantial improvement. In floodway and coastal high hazard areas, permits shall be tracked by property location to determine if the cumulative value of improvements constitutes substantial improvement of a structure.

C. Subdivision Proposals

In addition to the information required in Section 238-7 B., an applicant for subdivision in the nontidal floodplain zone shall submit a plan to demonstrate that a building site for each lot is outside of the 100-year floodplain. The Department shall assure that a plan for the perpetual protection of the floodplain areas in their natural state as required under Section 238-9 A.(2) and any Resource Protection Zone established by the County under Chapter 295 of the County Code is included.

Subdivision plans for the tidal floodplain zone shall be reviewed to assure that the provisions of Section 238-9 A.(2) are met, especially with regard to avoiding wetlands, low areas, and existing forest cover.

In all floodplain subdivisions, plans for maintenance of forest cover, flood protection setbacks, revegetation, accommodation of stormwater runoff, prevention of erosion, and other plans required by the Department must be submitted with subdivision proposals. The plans shall be evaluated as a whole to achieve maximum preservation of the natural and beneficial floodplain functions, desirable resources, and characteristics of each site. The Plans for utility ingress, stormwater drainage structures, road access, and other rights of way shall be evaluated in light of the site characteristics.

D. Issuance of Permit

(1) Considerations

Prior to issuance of a permit, the Department shall determine the location of the project relative to floodways, floodplains, or V-zones and shall note on the permit the proper elevation to which the lowest floor of proposed structures must be elevated. In approximate floodplains where an elevation is not available, the applicant shall be required to obtain such elevation. The applicant must agree to secure all other required permits, an Elevation Certificate, Floodproofing Certificate, engineering analysis, or other required verifications deemed appropriate by the Department.

Permits shall be granted by the Department only after determining that the proposed development will be in conformance with the requirements of this

Ordinance and all other applicable local codes and ordinances. All other necessary permits or approvals must be applied for or granted. Permits are valid only after all other necessary permits are granted.

(2) Dam Safety

Caution shall be exercised when approving development downstream of existing or proposed dams. The condition of the dam, as well as the design criteria, hazard class, and the danger reach, shall be investigated to avoid increasing potential hazards. Dams must meet design criteria based on the potential impacts downstream of the dam. Downstream development within the danger reach shall be denied unless the dam meets the design standards for a high hazard dam. The danger reach shall be identified and evaluated using the dam breach routing procedure contained in U.S. Department of Agriculture Soil Conservation Service Technical Release Number 66, which is incorporated within this ordinance by reference.

(3) After Issuance and During Construction

After issuance of a permit, no changes of any kind shall be made to the application, permit, or any of the plans, specifications, or other documents submitted with the application without the written approval of the Department. A copy of the permit or other verification must be displayed at the construction site during construction activity.

Work on the permitted activity shall begin within 180 days of the issuance of the permit, or the permit shall expire, unless a written extension is granted by the local permitting official. Work shall be completed within one year of the date of the permit unless a greater time is specified in the permit or a written extension is granted.

During construction, the Department shall inspect the site to determine that the work is in compliance with the permit. Any work found to be not in compliance must be corrected before any additional work is undertaken.

(4) Record of Permits

A record of all floodplain permits shall be maintained by the Department and be available

upon request by the Federal Emergency Management Agency or its authorized agent (Water Resources Administration) during periodic assessments of Charles County's participation in the National Flood Insurance Program. All documents needed to support any permit action, such as Elevation Certificates, map amendments or revisions, and variance actions, shall be available for review.

E. Fees

A processing fee may be charged at the time of application based upon an established fee schedule.

F. Penalties

Any act constituting a violation of the provisions of this ordinance or a failure to comply with any of its requirements, including violations of any conditions and safeguards established in connection with the grants of variances, shall be subject to a civil monetary penalty of \$500.00 for each infraction not to exceed a total civil penalty of \$10,000.00. Each day a violation continues is a separate offense. If the offender fails to pay the penalty in full within 10 days after being cited for a violation, the penalty may be recovered by the County in a civil action in the nature of debt. The violation must be corrected prior to any further work progressing on the project. Nothing herein shall prevent the County from exercising any other rights or remedies allowed by law.

The Federal Insurance Administrator and the Water Resources Administration must be notified by the local permitting official within 30 days after issuance of the citation of any infraction which requires a civil monetary penalty or court appearance. New or renewal federal flood insurance may be denied any structure remaining in violation of this Ordinance. The violation may also violate State law, may be subject to separate action, and may incur a separate penalty.

Section 238-8 Establishment of Floodplain Zones

A. Identification of Flood Zones

The regulatory floodplain shall be those areas of Charles County which are subject to the 100-year flood, delineated on the most recent revision of the community's Floodway Maps and Flood Insurance Rate Maps (FIRM) and described in the Flood Insurance Study (FIS) prepared by the Federal Emergency Management Agency (FEMA). Floodway Maps and the FIS, if available for the community, must be used. Lands adjacent to nontidal and/or unmapped streams, that do not have FEMA delineations as described above are subject to regulation by this Ordinance.

B. Floodplain Zones

An area may have one or more of the following floodplain zones:

(1) Nontidal Floodplain Zone

Nontidal Floodplain zones consist of the flood protection setback, floodway and the floodway fringe. Nontidal floodplains may have detailed engineering study data, profiles, and water surface elevations, or may have approximate delineations only.

(2) Tidal Floodplain Zone

Tidal floodplains consist of areas subject to coastal or tidal flooding by the 100-year flood. These areas are flooded due to high tides, hurricanes, tropical storms, and steady off-shore winds.

(3) Coastal High Hazard Area Zone (V-Zone)

Coastal High Hazard Areas consist of areas subject to coastal or tidal flooding with the addition of high velocity water and wind action. These areas are designated as V-Zones on the Flood Insurance Rate Maps.

C. Floodplain Boundaries

(1) Floodplain Zone Determination

The Department will determine the floodplain zone in which the development activity is proposed using the Floodway Maps and FIS if available, or, if not available, by using the FIRM or any other reference source which may be more detailed or restrictive than the FIRM. Without prior approval from FEMA, the Department shall use no other data less restrictive than the aforementioned data sources to enforce floodplain management regulations. Where map boundaries and elevations disagree, elevations prevail, with no approval from FEMA required.

(2) Approximate Floodplain Determination

For development proposed in the approximate floodplain (no water surface elevations or floodway data provided), the applicant must use the best available information to determine the elevation of the 100-year flood and the extent of the floodway, and must delineate these on the site plan submitted for approval. For new subdivisions, the applicant must have the 100-year flood elevations certified by a registered professional engineer based on hydrologic and hydraulic analyses which include a floodway analysis. For individual lot development, if no data are available, the point-on-the-boundary method may be used. In this method, the distance is scaled from a reference point at the site to the edge of the 100-year floodplain boundary indicated on the FIRM. An elevation of the 100-year flood is determined at that point by survey.

(3) Unmapped Streams

In cases in which development is proposed within 50' of an unmapped stream or on parcels containing an unmapped stream, which has no delineated 100-year floodplain, an applicant shall provide a 100-year floodplain study for contributing drainage areas of 50 acres or greater. The method of calculating the 100-year floodplain and the "N" (mannings roughness coefficients) associated with the stream and the overbanks shall be approved by the Department. The 100-year floodplain limits and elevations shall be placed on the plans and plats and will become part of Charles County's floodplain zone maps.

Section 238-9 Development Regulations in Floodplain Zones

In order to prevent excessive flood damage and to allow for the protection of the natural and beneficial floodplain functions, the following provisions shall apply to all development, new construction, and substantial improvements to existing structures in all floodplain zones. If a structure is in more than one zone, the more stringent provisions shall apply to the entire structure.

A. Nontidal and Tidal Floodplain Zones

(1) General

The restrictions on development in tidal and nontidal floodplain zones may vary depending on whether the development is structural or nonstructural and whether the proposed development is located within a flood protection setback, a floodway, or floodway fringe. As described in the sections that follow, development may be prohibited, prohibited except by variance, or prohibited except by approved alternatives analysis as specified in Section 238-11 A.

(2) Flood Protection Setbacks

Except as may be permitted through an approved alternatives analysis or variance, a minimum 100 foot flood protection setback or the limits of the 100-year floodplain, whichever is lesser, shall be maintained from the top of the banks of any watercourse delineated as having a floodplain on the Floodway Map or FIRM. For unmapped streams, a flood protection setback of 50 foot or the limit of any Resource Protection Zone established by the County under Chapter 295 of the County Code, whichever is greater, shall be provided from the top of the banks of the stream, if discernable, or 50 feet from the center line of the stream. This would apply to all perennial and intermittent streams as identified on any U.S. Geological Survey or Maryland Geological Survey Map. To prevent erosion, natural vegetation shall be maintained in flood protection setbacks. Forest retention and reforestation shall be in conformance with the requirements of the Charles County Forest Conservation Ordinance and Technical Manual.

For activities within the Chesapeake Bay Critical Area, the setback shall be defined

by the 100 foot Critical Area Buffer or the Buffer Exemption Area requirements of the Critical Area Overlay Zone of Chapter 295 of the County Code. New non-water dependent development is prohibited within the reach of mean high tide.

(3) Nonstructural Development In Tidal And Nontidal Floodplain Zones

An approved alternatives analysis as specified in Section 238-11 A.(1) shall be required for the issuance of a permit for nonstructural development in a floodplain. However, a variance shall be required prior the issuance of a permit for nonstructural development in a flood protection setback, except for road and utility crossings, public works projects, and regional stormwater management facilities projects if such projects obtain an approved alternatives analysis for development in a floodplain. Development in the floodway that results in any increase in flood levels is prohibited. No variances may be granted for such development. Additional specific requirements for alternatives analyses and variances for nonstructural development are contained in various sections which follow.

(4) Structural Development In Tidal And Nontidal Floodplain Zones

(a) General Prohibitions

New structures in a floodway are prohibited. The use of fill for the elevation of structures in a floodplain is prohibited except by variance. Additional specific prohibitions and requirements for alternatives analyses and variances for structural development are contained in the various sections which follow.

(b) Elevation Requirements For New And Substantially Improved Structures

(I) Residential Structures

All new or substantially improved residential structures, including manufactured homes, shall have the lowest floor elevated to or above the Flood Protection Elevation. Basements are not permitted. In nontidal floodplains, horizontal expansions which increase the footprint and that are less than substantial shall also have the lowest floor elevated to or above the Flood Protection Elevation. The elevation of the lowest floor shall be certified by a registered surveyor or professional engineer on the Elevation Certificate, after the lowest floor is in place. Enclosures below the Flood Protection Elevation must be constructed with water equalizing vents to meet the specifications of Section 238-10 B. Improvements in tidal floodplains which are less than substantial shall be constructed to minimize damage during flooding or shall be elevated to the greatest extent possible.

(2) Nonresidential Structures

All new or substantially improved nonresidential structures shall either be elevated as set forth above for residential structures or shall be floodproofed. Horizontal expansions in the nontidal floodplain which increase the footprint and that are less than substantial shall also have the lowest floor elevated to or above the Flood Protection Elevation. State regulations do not allow basements or the floodproofing option for new nonresidential structures in nontidal floodplains.

Floodproofing designs must insure that areas below the Flood Protection Elevation are watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If the floodproofing option is chosen, a Floodproofing Certificate must be completed by a registered professional engineer or architect who shall review the design and specifications and certify that the nonresidential structure will meet this standard.

(5) Fill

In the event buildings on adjacent properties are known or determined to be subject to flooding under current conditions, the Department may require submission of hydrologic and hydraulic analyses to adequately demonstrate the effects of the proposed fill.

(6) Subdivision Requirements

To achieve long-term flood damage avoidance and protection of the natural and beneficial floodplain functions, creation of any new flood-prone building sites shall not be permitted in any new subdivisions regardless of size, number of lots, and location, except in tidal floodplains.

(a) Nontidal Floodplains

In new subdivisions in nontidal floodplains, each lot platted must have a suitable building site outside the floodplain or the limit of any Resource Protection Zone established by the County under Chapter 295 of the County Code. Consideration must be given to clustering development out of the floodplain. The flood protection setback requirement of Section 238-9 A.(2) shall be met.

(b) Tidal Floodplains

New subdivisions in tidal floodplains shall be designed to develop the highest natural land available before floodplain lots are platted. The flood protection

setback requirement of Section 238-9 A.(2) shall be met. High priority should be given to clustering development out of the floodplain while preserving the low lying land and forested areas in natural vegetation.

B. Floodways

(1) General

Floodways shall be preserved to carry the discharge of the 100-year flood. Floodways present increased risks to human life and property because of their relatively faster and deeper flowing waters.

Any development in the floodway which may result in any increase in water surface elevations or change to the floodway must be submitted to FEMA for a Conditional Letter of Map Revision. Hydrologic and hydraulic analyses based on existing floodway models and performed in accordance with standard engineering practices and certified by a registered professional engineer must be submitted. Failure to receive this Letter shall be grounds for denial of the permit.

(2) Existing Structures

Existing structures in the floodway shall be substantially improved only by variance and if they can be brought into conformance with this Ordinance without increasing the footprint. Minor additions (less than substantial) must be elevated to the Flood Protection Elevation on pilings or columns. In the event of substantial damage or replacement, the applicant shall submit an alternative analysis to determine if the structure can be relocated to a less hazardous site. Where replacement structures cannot be relocated, they shall be limited to the footprint of the previous structure and must comply with the elevation requirements of Sections 238-9 A.(4)(b)(i) or 238-9 A.(4)(b)(ii) of this Ordinance. Permits for incremental improvements and additions shall be tracked by the Department, and if cumulative improvements constitute substantial improvement, no further permits may be issued unless the structure conforms to the provisions of this Ordinance.

(3) Maintenance of Natural Channel

The natural watercourse shall be maintained for protection of aquatic resources. A variance is required for alteration of watercourses. Any variance issued must assure that the conditions for encroachment in the floodway are met, adverse impacts to aquatic resources are minimized, and the public good outweighs the adverse impacts. Alterations of a watercourse shall meet the provisions of Section 238-9.

(4) Obstructions

Structures or fill which may impede, retard, or change the direction of the flow of flood waters, or any materials that may be carried downstream to cause damage shall not be placed in the floodway. Fences, except two-wire fences, shall not be placed

in the floodway.

C. Coastal High Hazard Areas (V-Zones)

(1) General

An approved alternatives analysis as specified in Section 238-11 A.(2) shall be required for new development in a coastal high hazard area where the action of wind and waves, in addition to tidal flooding, are potential hazards to new development.

(2) New and Substantially Improved Structures

All new or substantially improved structures shall be elevated on adequately anchored pilings or columns to resist flotation, collapse, and lateral movement due to the effects of the 100-year water loads and wind loads acting simultaneously on all building components. Water loading values shall be those associated with the base flood, and wind loading values shall be those required by Ordinance #91-40. The bottom of the lowest horizontal structural member supporting the lowest floor shall be elevated to or above the Flood Protection Elevation. Building designs and elevations must be certified by a registered professional engineer or architect knowledgeable in such designs that the building has been designed to withstand the water and wind loads and be anchored properly. The use of slabs or other at grade foundation systems is prohibited.

The space below the Flood Protection Elevation shall be free of obstruction or may be enclosed with open wood lattice, insect screening, or breakaway walls. Glass walls are not to be considered breakaway walls. Breakaway walls shall be designed to collapse under a wind and water load less than would occur during the 100-year flood, and have a designed safe loading resistance of not less than 10 pounds and no more than 20 pounds per square foot. Such enclosed space shall be no lower than grade and shall be usable solely for parking of vehicles, building access, or storage. If a separate storage area is provided at grade, such area shall not exceed 300 square feet. Break-away walls that exceed the above stated safe loading resistance may be permitted only if a Registered Professional Engineer or Architect certifies that the wall shall collapse under a force less than that exerted by a One Hundred (100) Year Storm in this region without jeopardizing the structural integrity of the supporting foundation. When the design safe loading resistance exceeds 20 pounds per square foot, but is certified to collapse under a force less than that exerted by the One Hundred (100) year Storm, the designed resistance must be stated clearly and certified independently on the building plans. Enclosed areas below the Flood Protection Elevation shall be used solely for the parking of vehicles, limited storage, and building access. If such areas are enclosed, a recordation on the deed of a **Nonconversion Agreement** must be made which states that the enclosed area may not be used for human habitation without first complying with the construction requirements of this Ordinance.

(3) Manufactured Homes and Recreational Vehicles

Manufactured homes are not permitted in the coastal high hazard area. Recreational vehicles must meet the requirements of Section 238-10 G.

(4) Fill and Excavation

The use of fill for the structural support of buildings is prohibited. Excavation under existing structures or excavation within any enclosed space is prohibited.

Earth or sand removed for the proper placement of pilings or columns shall be replaced. Excavation to create a basement is prohibited.

(5) Location of Structures

New construction within the reach of mean high tide is prohibited. New construction within the 100 foot flood protection setback as described in Section 238-9 A.(2) is prohibited.

(6) Existing Structures

Existing structures located in the V-zone shall not be substantially improved or expanded unless the entire foundation system is certified by a professional engineer or architect as capable of supporting the existing building and the proposed improvement during the 100-year storm as specified in Section 238-9 C.(2). Permits for incremental improvements shall be tracked, and when cumulative improvement constitute substantial improvement the entire building must comply with Section 238-9 C.(2).

Section 238-10 Additional Requirements

In addition to the requirements outlined in Section 238-9, the following specific requirements must be applied.

A. Orientation of Buildings and Storage of Materials

All structures permitted in the floodplain shall be oriented so as to offer the least resistance to the flow of flood waters. Materials which are buoyant, flammable, explosive, hazardous to health, or which at times of flooding may be injurious to human, animal, or plant life, shall not be stored below the Flood Protection Elevation.

B. Enclosures Below Lowest Floor

Buildings which have been elevated and have fully enclosed areas below the Flood Protection Elevation, as well as garages and accessory structures which are not

elevated (Section 238-10 F.), shall be constructed with water equalizing vents which meet or exceed the following standards:

- (1) a minimum of two openings on different walls having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;
- (2) the bottom of all openings shall be no higher than one foot above grade; and
- (3) openings may be equipped with screens, louvers, valves, or other coverings or devices, provided that they permit the automatic entry and exit of floodwaters to equalize hydrostatic forces on the walls.

Fully enclosed areas below the Flood Protection Elevation shall be used solely for parking of vehicles, access to the building, or limited storage. If such areas are enclosed, a nonconversion Agreement as described in Section 238-9 C.(2) must be signed by the applicant.

In coastal high hazard areas, enclosures below the Flood Protection Elevation shall comply with the provisions of Section 238-9 C.(2) of this Ordinance.

C. Manufactured Homes and Manufactured Home Parks

New manufactured homes and manufactured home parks are prohibited in the coastal high hazard area and in the floodplain. In other floodplain zones, all new, replacement, or substantially improved manufactured homes, whether in a manufactured home park or not, shall comply with Section 238-9 A.(4)(b) of this Ordinance.

Methods of anchoring shall include use of over-the-top and frame ties to ground anchors. Pilings or columns shall be used to maintain storage capacity of the floodplain. Concrete block support pilings must be reinforced by placing reinforcing bars inside and extending them into the footing, filling the hollows with cement, and using mortar to cement the blocks together. FEMA Publication 85, "Manufactured Home Installation in Flood Hazard Areas", should be consulted for specific recommendations.

Manufactured homes repaired or replaced because of substantial damage due to flooding or other causes are considered to be new structures and must fully comply with Section 238-9 A.(4)(b).

Owners of manufactured home parks or subdivisions that are partially or fully within the floodplain must file an evacuation plan with the local emergency management agency. In nontidal floodplains, a flood free access road shall be provided in all new manufactured home parks and subdivisions.

D. Anchoring

All structures shall be firmly anchored in accordance with acceptable engineering practices to prevent flotation, collapse, and lateral movement during flooding. All air ducts, large pipes, and storage tanks located below the Flood Protection Elevation shall be firmly anchored to resist flotation.

E. Utilities

(1) Electric

All electric utilities to the building side of the meter, both interior and exterior to the building, are regulated by this Ordinance. Distribution panel boxes must be at least 2 feet above the Flood Protection Elevation. All outlets and electrical installations, such as heat pumps, air conditioners, water heaters, furnaces, generators, distribution systems, must be installed at or above the Flood Protection Elevation.

(2) Plumbing

Toilets, sinks, showers, water heaters, pressure tanks, furnaces, and other permanent plumbing installations must be installed at or above the Flood Protection Elevation.

(3) Gas

Gas meters, distribution lines, and gas appliances must be installed at or above the Flood Protection Elevation.

(4) Water Supply and Sanitary Facilities

Water supply distribution and sanitary disposal collection systems must be designed to minimize or eliminate the infiltration of flood waters into the systems or discharges from the systems into flood waters and shall be located and constructed so as to minimize or eliminate flood damage. On-site sewage disposal systems shall meet these same standards. Septic systems must be setback a minimum of 25 feet from the floodplain.

F. Accessory Structures and Garages

(1) Variance Requirement

Accessory structures and garages shall be located out of the floodplain, except as permitted by variance. If a variance is granted the following measures shall apply:

- (a) the floor of the structure must be at or above the flood

protection elevation;

(b) the structure must be located, oriented, and constructed so as to minimize flood damage; and

(c) the structure must be firmly anchored to prevent flotation.

(2) Attached Garages

A garage attached to the main structure shall be elevated to the greatest extent possible, but may be exempt from the strict elevation requirement of Section 238-9 A.(4)(b) if it is used solely for parking of vehicles, storage, or building access and is no more than 600 square feet in area. Attached garages must meet the venting requirements of Section 238-10 B., have all interior walls, ceilings, and floors below the Flood Protection Elevation unfinished, and have no machinery or electric devices or appliances located below the Flood Protection Elevation. A Non Conversion Agreement as described in Section 238-9 C.(2) must be signed by the property owner stating that the garage may never be used for human habitation without first becoming fully compliant with this Ordinance.

(3) Detached Garages and Accessory Structures

An accessory structure or detached garage may **not** be permitted as an exemption to the elevation requirement.

G. Recreational Vehicles

Recreational vehicles located within the floodplain may be exempted from the elevation and anchoring requirements provided they are located on the site less than 180 consecutive days per year and fully licensed and ready for highway use.

A recreational vehicle is ready for highway use if it is on its wheels and jacking system, is attached to the site only by quick disconnect type utilities and securing devices, and has no permanently attached additions. If it cannot meet all of these criteria, the recreational vehicle must be considered a manufactured home and is subject to the elevation and construction standards of this Ordinance.

H. Fill

Fill may not be placed within a floodplain except as may be permitted by this Ordinance or under any Resource Protection Zone established by the County under Chapter 295 of the County Code.

Fill must consist of soil and rock materials only. Dredged material may be used as fill only upon certification of suitability by a registered professional engineer. Landfills, rubble fills, dumps and sanitary landfills are not permitted in the

floodplain.

Fill used to support structures must be compacted to 95% of the maximum density obtainable by the Standard Proctor Test (ASTM Standard D-698), and its suitability to support structures certified by a registered professional engineer. Fill slopes shall be no greater than two horizontal to one vertical. Flatter slopes may be required where velocities may result in erosion.

The use of fill shall not increase flooding or cause drainage problems on neighboring properties.

I. Roads and Drives

New public roads or private access drives located in a floodplain zone shall be elevated to or above the Flood Protection Elevation.

Section 238-11 Alternatives Analyses and Variances

A. Alternatives Analyses

(1) Tidal and Nontidal Floodplain Zones

As specified in Sections 238-9 (A) and (B), an approved alternatives analysis is required before a permit may be issued for certain development in a floodplain. Through an alternatives analysis, an applicant shall demonstrate that the proposed development cannot be located out of the floodplain and that encroachments onto the floodplain are minimized. A complete alternatives analysis shall specifically demonstrate the following:

- (a) No reasonable alternatives exist outside the floodplain, or floodway, or flood protection setback as appropriate.
- (b) Encroachment in the floodplain, or floodway, or flood protection setback, as appropriate, is the minimum necessary;
- (c) The development will withstand the 100-year flood without significant damage;
- (d) Environmental impacts are avoided or minimized; and
- (e) For nontidal floodplains, that the development will not increase downstream or upstream flooding or erosion.

Documented results of a pre-application meeting or consultation with the State Water Resources Administration shall be required and included as part of an alternatives analysis for proposed development in a tidal or nontidal floodplain zone.

(2) Coastal High Hazard Area Zones

As specified in Section 238-9 (C), an approved alternatives analysis shall be required before a permit may be issued for new development in a coastal high hazard area. A complete alternatives analysis for proposed development in a coastal high hazard area zone shall demonstrate the following:

- (a) no reasonable alternative exists outside the coastal high hazard area;
- (b) the encroachment into the coastal high hazard area is the minimum necessary;
- (c) the development will withstand the 100-year wind and water loads without damage;
- (d) the development will not create an additional hazard to existing structures;
- (e) any natural dune system will not be disturbed; and
- (f) the development conforms to development regulations specified in the critical area overlay zone of Chapter 295 of the County Code.

Documented results of a pre-application meeting or consultation with the State Water Resources Administration shall be required and included as part of an alternatives analysis for proposed development in a coastal high hazard zone.

B. Variances

(1) Reasons for Granting

The Deputy County Administrator for Planning and Growth Management or Designee shall hear and decide requests for variances from the requirements of this Ordinance. Conditions may be attached to the variance action, and variance actions must be consistent with sound floodplain management and any Resource Protection Zone as established by the County under Chapter 295 of the County Code. Variances may not be issued except as specified below, nor shall variances be issued for any encroachment in floodways if any increase in the 100-year flood levels will result. A variance application shall include the appropriate alternatives analysis as given in section A above.

Variances shall only be issued upon:

- (a) a showing of good and sufficient cause;
- (b) a determination that failure to grant a variance would result in exceptional hardship (other than economic) to the applicant; and

- (c) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud or victimization of the public, or conflict with existing local and State laws or ordinances.

The variance action shall be the minimum necessary, considering the flood hazard, to afford relief, and shall be made only after due consideration is given to varying siting standards such as front, back, and side lot line setbacks as appropriate. In considering a variance action, comments from the State Coordinating Office of the Water Resources Administration must be taken into account and maintained with the permit file.

(2) Administrative Procedures

For any variance issued, a letter shall be sent to the applicant indicating the terms and conditions of the variance, the increased risk to life and property in granting the variance, and the increased premium rates for National Flood Insurance coverage. The applicant shall be notified in writing of the requirement for recordation of these conditions on the deed or Memorandum of Land Restriction prior to obtaining a permit, and of the need to secure all necessary permits as conditions for granting a variance. The Memorandum is described in Article 3-102 and 3-103 of the Real Property Article of the Annotated Code of Maryland.

The local permitting official shall maintain a record of all variance actions and the justification for their issuance, as well as all correspondence. This record must be submitted as a part of the Biennial Report to FEMA, and be available for periodic review. The number of variance actions should be kept to a minimum.

(3) Water Dependent Uses

Variances may be issued for new construction and substantial improvements for the conduct of a water dependent use. A water dependent use cannot perform its intended purpose unless it is located or carried out in close proximity to water. It includes only: docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, or those uses as defined as being water dependent in the Critical Area Overlay Zone of Chapter 295 of the County Code, but does not include long-term storage or related manufacturing facilities. The variance may be issued only upon sufficient proof of water dependence. The provisions of Section 238-11 A. and B. must be met and the structure must be protected by methods that minimize flood damage up to the Flood Protection Elevation and must create no additional threats to public safety. This may require methods of "wet floodproofing" which allow the structure to flood without significant damage. Methods of floodproofing must not require human intervention.

Section 238-12 Effective Date and Subsequent Amendments

This ordinance is hereby enacted and shall become effective April 16, 1992. This Ordinance shall be amended as required by the Federal Emergency Management Agency, 44 Code of Federal Regulations. All subsequent amendments to this ordinance are subject to approval of the Federal Emergency Management Agency and the Maryland Department of Natural Resources.