

# Chapter 15

## FLOODWAYS, FLOODPLAINS, DRAINAGE AND WATER QUALITY

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The Metropolitan Council may amend this Chapter upon its own motion or upon petition without Planning Commission approval.

### **Section 15.1 Statutory authorization, findings of fact, purpose and methods.**

#### **Statutory authorization.**

The Legislature of the State of Louisiana has in Louisiana Revised Statutes 38:84 et. Seq. delegated the responsibility to local governmental units to adopt regulations designed to minimize flood losses. Therefore, the Metropolitan Council does ordain as provided this chapter.

#### **Findings of fact.**

- (1) The flood hazard areas of the city-parish are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect the public health, safety and general welfare.
- (2) These flood losses are created by the cumulative effect of obstructions in floodplains that cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, flood-proofed to otherwise protected from flood damage.

#### **Statement of purpose**

- A. It is the purpose of this chapter to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:
  - (1) Protect human life and health;
  - (2) Minimize expenditure of public money for costly flood control projects;
  - (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
  - (4) Minimize prolonged business interruptions;
  - (5) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in floodplains;
  - (6) Help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize future flood blight areas; and
  - (7) Insure that potential buyers are notified that property is in a flood area.

B. Definitions may be found in Chapter 20.

### **Section 15.2 Lands to which this chapter applies**

This chapter shall apply to all areas within the jurisdiction of the City-Parish.

### **Section 15.3 Establishment of development permit**

A development permit shall be required to ensure conformance with the provisions of this chapter.

### **Section 15.4 Compliance**

No structure or land shall, hereafter, be located, altered, or have its use changed without full compliance with the terms of this chapter and other applicable regulations.

### **Section 15.5 Abrogation and greater restrictions**

This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and another ordinance conflict or overlap whichever imposes the more stringent restrictions shall prevail.

### **Section 15.6 Interpretation.**

In the interpretation and application of this chapter, all provisions shall be considered as minimum requirements, liberally construed in favor of the governing body, and deemed neither to limit nor repeal any other powers granted under state statutes.

## **Part IV. Provisions for Flood Hazard Reduction**

### **Section 15.7 Basis for establishing the areas of special flood hazard**

The areas of special flood hazard identified by the Federal Emergency Management Agency in the current scientific and engineering report entitled, "The Flood Insurance Study (FIS) for East Baton Rouge Parish and Incorporated Areas," dated June 19, 2012, with accompanying Flood Insurance Rate Maps for East Baton Rouge Parish and Incorporated Areas dated May 2, 2008 and revisions as made June 19, 2012 and any revisions thereto are hereby adopted by reference and declared to be a part of this ordinance.

### **Section 15.8 Warning and disclaimer of liability**

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions greater floods can and will occur, and flood heights may be increased by man-made or natural causes. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the community or any official or employee thereof for any flood damages that result from reliance on this chapter or any administrative decision lawfully made there under.

### **Section 15.9 Designation of the Floodplain Administrator**

The Director of Development is hereby appointed the Floodplain Administrator to administer and implement the provisions of this chapter and other appropriate Sections of 44 CFR (Emergency Management and Assistance - National Flood Insurance Program Regulations) pertaining to floodplain management.

### **Section 15.10 Duties and responsibilities of the Floodplain Administrator**

Duties and responsibilities of the Floodplain Administrator shall include but not be limited to the following:

- A. Maintain and hold open for public inspection all records pertaining to the provisions of this chapter.
- B. Review permit application to determine whether proposed building site including the placement of manufactured homes will be reasonably safe from flooding.
- C. Review, approve, or deny all applications for development permits required by adoption of this chapter.
- D. Review permits for proposed development to assure that all necessary permits have been obtained from those federal, state, or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required.
- E. Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), the Floodplain Administrator shall make the necessary interpretation.
- F. Notify in riverine situations, adjacent communities and the state coordinating agency, which is the State Department of Transportation and Development, prior to any alteration or relocation of a watercourse and submit evidence of such notification to the Federal Emergency Management Agency.
- G. Assure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained.
- H. When base flood elevation data has not been provided in accordance with Section 15.7, the Floodplain Administrator shall obtain, review, and reasonably utilize any base flood elevation data and floodway data available from a federal, state, or other source in order to administer the provisions of Section 15.18 to Section 15.24 of this chapter.
- I. When a regulatory floodway has not been designated, the Floodplain Administrator must require that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A, A1-30 and AE on the community's FIRM, unless, it is demonstrated that the cumulative effect of the proposed development when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood more than one foot at any point within the community.
- J. Under the provisions of 44 CFR Chapter 1 Section 65.12 of the National Flood Insurance Program Regulations, a community may approve certain development in Zones A1-A30, AE, and AH on the community's FIRM which increases the water surface elevation of the base flood by more than one foot provided that the community first applies for a conditional FIRM revision through FEMA.

- K. For application of a building or development permit, the Department of Development shall provide a flood zone determination for the site. This determination will provide the flood zone designation, base flood or adjacent base flood elevation, and record inundation value for the site.
- L. Review, approve, or deny all applications for a waiver of freeboard or variance of NFIP requirements in accordance with the procedures defined in Section 15.12 of this chapter.

### **Section 15.11 Permit procedures**

- A. Application for a development permit shall be presented to the Floodplain Administrator on forms furnished by him/her and may include but not be limited to plans in duplicate drawn to scale showing the location, dimensions, and elevation of proposed landscape alterations, existing and proposed structures, and the location of the foregoing in relation to areas of special flood hazard. Additionally, the following information is required:
  - 1. Elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures;
  - 2. Elevation (in relation to mean sea level) to which any nonresidential structure shall be flood proofed;
  - 3. A certificate from a registered professional engineer or architect that the nonresidential flood proofed structure shall meet the flood proofing criteria of Section 15.21;
  - 4. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development; and
  - 5. Maintain a record of all such information in accordance with Section 15.10.A.
- B. Approval or denial of a development permit by the Floodplain Administrator shall be based on all of the provisions of this chapter and the following relevant factors:
  - 1. The danger to life and property due to flooding or erosion damage;
  - 2. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
  - 3. The danger that materials may be swept onto other lands to the injury of others;
  - 4. The compatibility of the proposed use with existing and anticipated development;
  - 5. The safety of access to the property in times of flood for ordinary and emergency vehicles;
  - 6. The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical, and water systems;
  - 7. The expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site;
  - 8. The necessity to the facility of a waterfront location, where applicable;
  - 9. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use; and

10. The relationship of the proposed use to the comprehensive plan for that area.

### **Section 15.12 Variance procedures**

- A. The appeal board as established in Section 3.101 shall hear and render judgment on request for variances from the requirements of this chapter.
- B. The appeal board shall hear and render judgment on an appeal only when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of this chapter. Variances and or waiver of freeboard request shall be reviewed regularly twice a month with the day and time established by the Floodplain Administrator. These requests must be filed within three working days in advance of the scheduled review meeting on forms provided by the Department of Development. A variance filing fee will be charged for each variance request and must accompany the application.
- C. Any person or persons aggrieved by the decision of the appeal board may appeal such decision in the courts of competent jurisdiction.
- D. The Floodplain Administrator shall maintain a record of all actions involving an appeal and shall report variances to the Federal Emergency Management Agency upon request.
- E. Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the state inventory of historic places without regard to the procedures set forth in the remainder of this chapter.
- F. Variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level providing the relevant factors in Section 15.11 (B) have been fully considered. As the lot size increases beyond one-half acre, the technical justification required for issuing the variance increases.
- G. Upon consideration of the factors noted above and the intent of this chapter, the appeal board may attach such conditions to the granting of variances as it deems necessary to further the purpose and objectives of this chapter Section 15.1.
- H. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
- I. Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.
- J. Prerequisites for granting variances and waivers:
  - 1. Variance of NFIP Requirements:
    - a. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
    - b. Variances shall only be issued upon:
      - (1) Showing a good and sufficient cause;

- (2) A determination that failure to grant the variance would result in exceptional hardship to the applicant, and
  - (3) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing local laws or ordinances.
- c. Any application to which a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.
2. Waiver of Local Freeboard:
- a. Waivers to the local freeboard requirement as identified in Section 15.21.E shall only be issued for the minimum necessary, considering the flood hazard to afford relief and maintain the objectives of this chapter.
  - b. Waivers may be issued to restrict the elevation of a mobile home to four feet or less above the identified lowest natural ground where practicable.
  - c. Waivers may be issued upon (i) determination that 100 year base flood plus freeboard results in an elevation in excess of the 500 year flood level; (ii) a determination that the 1993 amended FIRM increased the base flood elevation by two feet or more and the proposed construction or substantial improvement is within an existing recognized development.
  - d. Waivers shall not be issued where:
    - (1) An approval would allow the increase or expansion of an activity that is not permitted within the zoning requirements of the site;
    - (2) An approval is based solely on an economic gain or loss;
    - (3) An approval is for a hardship which was self-created; and
    - (4) An approval would damage the rights and property values of adjacent properties.
3. Waiver of specific water pollutant treatment by BMPs
- Waivers of requirement to treat specific water pollutants using specific BMPs may be issued upon (i) developer providing documentation that proves the specific pollutant does not exist on the site and will not be generated by specific activities proposed to occur on the site post construction; (ii) Department of Development concurs and approves documentation's determination.
4. Watershed specific mitigation
- Stormwater discharge, which is not practicable to fully treat as defined in this chapter of the UDC and the Stormwater Management Manual, shall either: be treated in an off-site facility or be given the option of paying a stormwater off-site management fee. The Department of Development will employ a methodology for calculating the fee that is based upon post construction stormwater runoff, first

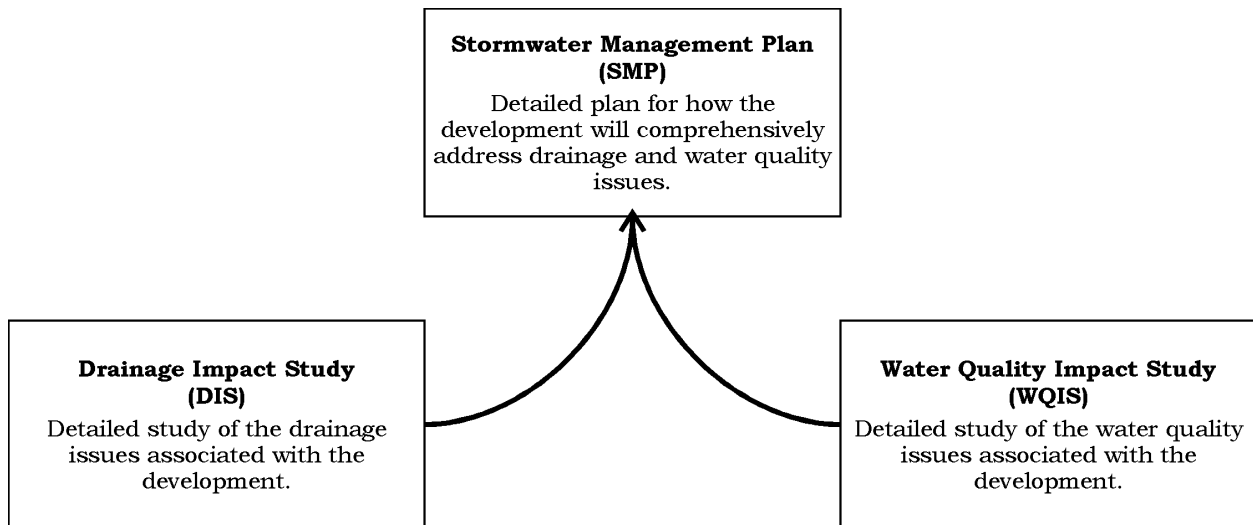
flush quantities and expected pollutants. The stormwater off-site management fee collected will be placed in a mitigation account to be used to mitigate the impacts in the same watershed as the development site that arise from off-site discharge of stormwater runoff. Information relating to sites that are paying fees will be evaluated in planning for capital improvement projects.

K. Variances may be issued by a community for new construction, substantial improvements, and for other development necessary for the conduct of a functionally dependent use provided that:

1. The criteria outlined in Section 15.12 is met; and
2. The structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

### **Section 15.13 Stormwater Management Plan**

In order to comply with Federal and State regulations for urban storm water, a Stormwater Management Plan (SMP) will be required for all development and redevelopment projects that require demolition or complete removal of existing structures or impervious surfaces at a site and replacement with new development. Maintenance activities such as top-layer grinding and repavement are not considered redevelopment. Interior remodeling projects are also not considered to be redevelopment. Utility trenches in streets are not considered redevelopment unless more than 50 percent of the street width is removed and re-paved.



Stormwater Management Plan (SMP). The developer shall prepare and submit to the Department of Development, a Stormwater Management Plan that recommends specific drainage and stormwater runoff quality improvements. The SMP shall be consistent with the issues and recommendations presented in the Drainage Impact Study (DIS) as described in Section 15.15 and/or the Water Quality Impact Study (WQIS) as described in Section 15.17, when either or both of these are required. Specific drainage improvements must be addressed in the SMP, regardless of the need for a Drainage Impact Study. Specific stormwater runoff quality improvements and drainage impacts must be addressed in the SMP, regardless of the need for a Water Quality Impact Study and Drainage Impact Study

1. Exemptions: The following development activities shall be exempted from the requirements of preparing a Stormwater Management Plan, but must comply with the SMP prepared for the subdivision:
2. All lots in duly authorized subdivisions created with an SMP.

The SMP shall include:

1. Location: Map of location of subject property and adjacent developments and infrastructure.
2. Existing Conditions: Description and map of existing site conditions, including land cover, contours, soil types, and estimated pollutant load.
3. Proposed Development: Description and site plan of the proposed development, including land cover, contours, empirically expected pollutant load, and proposed drainage ways and stormwater best management practices.
4. Plan Implementation: Description of the specific proposed drainage ways and stormwater best management practices and how they meet the requirements for drainage and water quality as described in Sections 15.14 and 15.16 respectively.
5. Maintenance: Description of how the proposed drainage ways and stormwater best management practices will be maintained.

#### **Section 15.14          Drainage**

Adequate provisions shall be made for the management of storm water subject to the approval of the Department of Development.

- A. Stormwater Management Plan (SMP). As stated in Section 15.13 Stormwater Management Plan, the developer shall prepare and submit to the Department of Development a Stormwater Management Plan that recommends specific on-site drainage improvements to provide adequate capacity for a ten year storm event. The SMP shall be consistent with the issues and recommendations presented in the Drainage Impact Study (DIS), when it is required. All drainage improvements shall be planned in accordance with the criteria for drainage as specified by the Department of Development.
- B. Changing or altering existing drainage ways. No person shall perform construction activity or deepen, widen, fill, reroute, or change the location of any existing drainage way without first obtaining written permission from the Department of Development. Plans for such activity in the drainage way shall comply with the criteria of the Department of Development and all state and federal regulations and shall be constructed under the supervision of and be approved by the Department of Development. Adequate servitudes or rights-of-way must be dedicated for the construction and maintenance of any channels.
  1. Drainage ways shall be construed to include any drainage ditch or swale built or being constructed at any development pursuant to the SMP as approved by the Department of Development for that development.
  2. No person shall install pipe, cover, or otherwise alter any drainage way without first obtaining written permission from the Department of Development. The Department of Development may require, at its sole discretion, that such plans be submitted to and installed to specifications of the Department of Development.



- C. Wherever drainage ways exist or are provided within the development, rights-of-way or servitudes shall be dedicated on either side of such drainage ways for maintenance and construction. The width of such dedicated rights-of-way shall be determined based upon established criteria after review of the drainage requirements of the development and the Stormwater Management Plan (SMP) for drainage and consultation with the engineer designing the development, and the design shall be approved by the Department of Development. Lots created along drainage ways shall not encroach on drainage rights-of-way, and all rights-of-way shall be excluded from lot area. Special servitudes may be required for outfall purposes.
- D. Contour map. A contour map shall be prepared for the area comprising the development and such additional area as may be required by the Department of Development necessary to include all watersheds which drain into the property to be developed provided that this map of the adjacent area may be prepared from U.S.G.S. datum and datum filed at the Department of Development, where such is available.
- E. Drainage of contributing watersheds. In the design of the drainage for a development, provisions must be made to adequately convey contributing watersheds. All closed drainage ways must be sufficient for the drainage of all contributing watersheds based on complete development of the contributing watersheds in accordance with the maximum allowed density in the comprehensive plan. Open drainage ways are to be constructed to meet current drainage needs but shall have adequate servitudes for future needs of contributing watersheds, as determined by the criteria of the Department of Development.
- F. Downstream drainage. Downstream drainage improvements shall be mutually coordinated between the developer and the Department of Development. Until further implementation of the policy of providing for downstream drainage, the developer shall not be required to provide downstream drainage in excess of that required for development of the particular area for which approval is sought.
- G. Floodplain management. All proposed developments shall be reviewed by the Department of Development in order to assure that:
  - 1. All such proposals are consistent with the need to minimize flood damage;
  - 2. All public utilities and facilities such as sewer, gas electrical, and water systems are located, elevated, and constructed to minimize or eliminate flood damage;
  - 3. Adequate drainage is provided so as to reduce exposure to flood hazards; and
  - 4. All necessary permits required by federal or state laws have been obtained, including those required by Section 404 of the Federal Water Pollution Control Act (33 USC 1334).

## **Section 15.15            Drainage Impact Study**

Two copies of the required Drainage Impact Study of the proposed development and surrounding affected areas must be submitted to the Department of Development. The development will not be approved until the Drainage Impact Study has been reviewed and approved by the Department of Development.

- A. Exemptions: The following development activities shall be exempted from the requirements of preparing a Drainage Impact Study:
1. Development in which the area of impervious surface does not exceed 20 percent of the development area at the point of discharge from the site. The total impervious area shall include all buildings, driveways, sidewalks, streets, parking lots, lakes, ponds, etc. All undeveloped open space, common area, etc. must be clearly identified.
  2. Additions or modifications to existing developments which result in no more than a ten percent increase in existing impervious area and which have existing public storm drainage facilities designed to accommodate runoff from the existing site.
- B. Waivers: Developers may request that the Department of Development approve a waiver of the Drainage Impact Study. If such a request is granted, no detailed Drainage Impact Study shall be required for the development. A waiver must be requested in writing and contain sufficient information regarding the specific details of the proposed development. A waiver shall be considered for approval provided:
1. The proposed development results in no more than a ten-percent increase in the ten year pre-development peak discharge at the point of discharge from the development site.
  2. The site is located within existing developed areas, which are served by a network of public storm drainage facilities, which were designed to accommodate runoff from the development site.
  3. Sufficient information is submitted indicating that the runoff from the proposed development is consistent with and discharges to a previously approved development or is a part of an approved larger plan of development, both having adequate drainage facilities.
- C. Development Location and Description: The Drainage Impact Study shall comply with the following minimum requirements:
1. Location:  
Describe location of subject property; locate by Township and Range; identify adjacent developments, major drainage outfalls, streets, highways, lot and block page number, and provide a vicinity map.
  2. Description:  
Describe the predominant existing land use and future land use in project watershed (Comprehensive Land Use Data, aerial photos, etc.); describe the proposed development, soil types, vegetative cover, watershed slopes; provide an estimate of percent of impervious area for pre and post development conditions; and provide photos of existing channels, ditches, natural drains, and drainage structures.

- D. Watershed Map: Delineate drainage boundaries; indicate the acreage; and show slope of basins, and peak ten year runoff rate at entry and exit points of the development. The watershed map should indicate the location of existing channels, ditches, natural drains, proposed major drainage structures, channel realignments, and cross section locations.

The latest U. S. G. S. seven and one-half minute quadrangle map or better at a scale of one inch equals five hundred feet (1:500) or less may be used as the base for the watershed map.

E. Hydrologic Design:

1. The Drainage Impact Study shall indicate existing condition peak ten (10) year flow rates at the development entry and exit points.
2. The Drainage Impact Study shall indicate future condition peak ten (10) year flow rates at the development entry and exit points.
3. If ponds are used in design for routing of flows, the ten (10) year storm event shall be used in design. The effects of a 100-year storm on the pond should be provided.

F. Hydraulic Capacities:

1. On site capacity:  
Indicate capacity of any existing drainage outfall facility (ditch, canal, culvert, bridge, etc.) within the proposed development site and required type, size, and capacity of any proposed outfall facilities as defined above.
2. Off-site capacity:  
Determine capacity of existing downstream outfall facilities (ditches, canals, culverts, bridges, etc.) that will be utilized to convey flow from the downstream limits of the proposed development to the first public outfall as identified on the East Baton Rouge Parish Stream Index Map. An inventory of downstream structures including size, type, invert elevation, and cover topping elevation should be made. Channel cross sections at upstream and downstream limits of the proposed development at structure locations and at intermediate canal locations shall be required to adequately define existing channel capacities.

Where the proposed development is located an extended distance from an indexed stream, the study may be terminated at a point where the total area drained exceeds the project area by five times for single family A1 residential developments and ten times for all other developments.

G. Special Site Conditions:

Special conditions, which may exist at the proposed development site, should be clearly identified including but not limited to such items as:

1. Special Flood Hazard Areas (Firm Zones A and AE)
2. Regulatory Floodway
3. Fill placement location and mitigation requirements
4. Potential wetland sites

5. Churches
6. Schools
7. Cemeteries
8. Landfills and Hazardous Waste Sites
9. Parks

H. Drainage Impact Study Conclusions and Recommendations:

Drainage Impact Study should clearly identify the results and conclusions of the study and provide recommendations of any required action(s) so that surrounding properties experience no adverse impact.

**Section 15.16 Water Quality**

The purpose of this section is to ensure that water quality is not impaired because of development and that Stormwater Best Management Practices, are implemented according to the Stormwater Management Plan. Stormwater Best Management Practices, (BMPs) are to be incorporated into all new developments and redevelopments to preserve water quality

- A. Stormwater Management Plan (SMP). As stated in Section 15.13 Stormwater Management Plan, the developer shall prepare and submit to the Department of Development a Stormwater Management Plan that documents proposed specific on-site water quality improvements to treat or retain on site all first flush stormwater pollutants that originate from the site post-construction, or as otherwise required by Total Maximum Daily Loads (TMDLs) Stormwater Permit Requirements that are developed by the United States Environmental Protection Agency (USEPA) and the Louisiana Department of Environmental Quality (LDEQ). All on-site water quality improvements shall be planned and maintained in a manner approved by the Department of Development.
- B. Construction Phase Site Storm Water Control. For all development activities a Stormwater Pollution Prevention Plan (SWPPP) must be submitted to the Department of Development for review. The SWPPP must describe the types and placement of BMPs, that will be utilized to retain sediment on site, to prevent erosion and sedimentation as a result of construction, and to control other sources of pollution at the construction site that may cause adverse impacts on the quality of storm water runoff from the construction site. This plan must also describe how storm water will be treated during the construction phase of the project in order to prevent pollution from entering any drainage ways or conveyances. This Stormwater Pollution Prevention Plan must be consistent with all Federal and State requirements.
- C. Post-Construction Water Quality Management in New Development and Redevelopment that requires demolition or complete removal of existing structures or impervious surfaces at a site and replacement with new development. For all developments or redevelopments, all first-flush stormwater pollutants that originate from the site post-construction, shall be treated or retained on the site or as otherwise required by Total Maximum Daily Loads (TMDLs) or Stormwater Permit Requirements that are developed by the United States Environmental Protection Agency and the Louisiana Department of Environmental Quality. All stormwater BMPs constructed onsite must meet EPA standards and specifications for BMP implementation and maintenance:

1. **BMP Implementation:** The SMP must describe the types of BMPs that will be constructed on the site after construction is complete with specific locations of each and estimated capacity for pollutant load reduction.
2. **BMP Maintenance:** The SMP must also ensure long-term operation and maintenance of the BMPs that have been designed and implemented to minimize water quality impacts from storm water discharges from the project site.

### **Section 15.17      Water Quality Impact Study**

Two copies of the required Water Quality Impact Study (WQIS) of the proposed development and surrounding affected areas must be submitted to the Department of Development reflecting the following contents. The development will not be approved until the WQIS has been reviewed and approved by the Department of Development.

A. **Exemptions:** The following development activities shall be exempted from the requirements of preparing a Water Quality Impact Study, but shall comply with stormwater best management practices described in this chapter and shall document these in a Stormwater Management Plan:

1. Sites with a developed area of less than one acre.
2. Farming or agricultural activities.

B. **Existing Site Conditions and Location**

1. **Site location:** Describe location of subject property using street address and latitude/longitude.
2. **Watershed and subwatersheds:** Describe watersheds and subwatersheds both on and off site.
3. **Total Maximum Daily Loads (TMDLs):** List Total Maximum Daily Loads as established by the USEPA and LDEQ for applicable affected waterbodies. If Total Maximum Daily Loads have not been established, all first flush stormwater pollutants that originate from the site post-construction shall be treated or retained on the site.  
[www.deq.louisiana.gov/portal/tabid/130/Default.aspx](http://www.deq.louisiana.gov/portal/tabid/130/Default.aspx)
4. **Soils and Topography:**
  - Site contours at maximum two-foot contour interval
  - General land slopes
  - Soil types and characteristics
5. **Land Cover:** Show existing land cover on a current aerial photo and in a table with square footage of land cover area and percent of total site. Types of land cover to be listed include but are not limited to the following:
  - Forest
  - Paving (list by type)
  - Meadow
  - Crops
  - Buildings
  - Water Bodies

- Wetlands

C. Proposed Development Conditions:

1. Watershed and subwatersheds: Describe impact of proposed development on watersheds both on and off site.
2. Land cover: Show existing land cover on a current aerial photo and in a table with square footage of land cover area and percent of total site. Types of land cover to be listed include but are not limited to the following:
  - Forest
  - Paving (list by type)
  - Meadow
  - Crops
  - Buildings
  - Water Bodies
  - Wetlands
3. Land cover comparison table: Table of existing land cover and proposed development land cover
  - Roadways and Parking Lots (oil, grease, Freon, heavy metals, other chemicals)
  - Lawn, Plantings, and Golf Course Maintenance (oil, grease, pesticides, herbicides, nutrients, other chemicals)
  - Roofs and Gutters (organic materials, roofing materials, coatings, heavy metals)
  - Automotive (oil, grease, Freon, heavy metals, other chemicals)
  - Food Preparation (organic material, grease, other chemicals)
  - Commercial Activities (oil, heavy metals, other chemicals)
  - Residential Activities (organic materials, pesticides, herbicides, other chemicals)
  - Light Industrial (oil, grease, coatings, heavy metals, other chemicals)
4. Empirically expected pollutants from land cover, uses, and activities.

D. Proposed Water Quality Treatment

1. Stormwater Treatment Train.
2. Stormwater Best Management Practices (BMPs)
  - Sizes
  - Water Capacity
  - Function
  - Percent of empirically expected pollutant reductions. BMPs must reduce the pollutant load in site stormwater runoff by treating or retaining all first flush stormwater pollutants that originate from the site post-construction or as otherwise required by US Environmental Protection Agency and LDEQ Total Maximum Daily Loads.
  - Operation and maintenance.
  - Control and containment per special activity
  - Housekeeping measures for BMP maintenance
3. Water flows per subwatershed (cfs)

#### E. Study Conclusions and Recommendations

Table of empirically expected percent removal of each pollutant by type per BMP for expected impact to affected waters.

#### **Section 15.18 Flood Prevention**

- A. The flood hazard areas of the City-Parish are subject to periodic inundation, which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect the public health, safety, and general welfare.
- B. These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, flood-proofed, or otherwise protected from flood damage.

#### **Section 15.19 Methods of reducing flood losses**

- A. In order to accomplish its purposes, this chapter uses the following methods:
  - 1. Restrict or prohibit uses that are dangerous to health, safety, or property in times of flood or cause excessive increases in flood heights or velocities;
  - 2. Require that uses vulnerable to floods including facilities, which serve such uses, be protected against flood damage at the time of initial construction;
  - 3. Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;
  - 4. Control filling, grading, dredging, and other development which may increase flood damage; and
  - 5. Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.

#### **Section 15.20 General Standards**

- A. In all areas of special flood hazard, the following provisions are required for all new construction and substantial improvements:
  - 1. All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads including the effects of buoyancy;
  - 2. All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;
  - 3. All new construction or substantial improvements shall be constructed with materials resistant to flood damage;
  - 4. All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service

facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;

5. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;
6. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from the systems into floodwaters; and
7. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

## **Section 15.21            Specific Standards**

Except as provided in Section 15.21.F, in all areas of special flood hazard and in Zones B, C, and X, an applicant must submit a fee to the Department of Development Inspection Division for a flood zone determination to be used in the preparation of the FEMA approved Certificate of Elevation. Where base flood elevation data has been provided as set forth in Section 15.7, Section 15.10.H, or Section 15.22.C, the following provisions are required:

- A. Residential Construction. New construction and substantial improvement of any residential structure shall have the lowest floor (including the basement and mechanical equipment) elevated to meet the requirements of Section 15.21.E. (Other utilities see 15.20.4.) A registered professional engineer, architect, or land surveyor shall submit a FEMA approved Certificate of Elevation certification to the Floodplain Administrator that the standard of this subsection as proposed in Section 15.11.A.1 is satisfied.
- B. Nonresidential Construction. New construction and substantial improvements of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including the basement and mechanical equipment) elevated to meet the requirements of Section 15.21.E or, together with attendant utility and sanitary facilities, be designed so that below the level required in Section 15.21.E the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall develop and/or review structural design, specifications and plans for the construction and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection. A record of such certification including the specific elevation (in relation to mean sea level or NAVD) to which such structures are flood proofed shall be maintained by the Floodplain Administrator.
- C. Enclosures. Solid fences, walls and landscaping features constructed or placed within the drainage system, as shown on the final plat, and new construction, attached garage and substantial improvements, with fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:
  1. A minimum of two openings on separate walls having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;



2. The bottom of all openings shall be no higher than one foot above grade;
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; and
4. Any variance of the requirements of this subsection must be approved by the Director of the Department of Development.

D. Manufactured Homes.

1. Require that all manufactured homes to be placed within Zone A shall be installed using methods and practices, which minimize flood damage. For the purpose of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse or lateral movement. Methods of anchoring may include, but are not limited to, use of over the top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces;
2. Require that all manufactured homes that are placed or substantially improved within Zones A1-30, AH, AE, B, C, and X on the community's FIRM on sites: (i) outside of a manufactured home park or subdivision, (ii) in a new manufactured home park or subdivision, (iii) in an expansion to an existing manufactured home park or subdivision, or (iv) in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood, be elevated on a permanent foundation such that the bottom of the longitudinal structural I beam of the manufactured home is elevated to or above the base flood elevation is elevated to be in compliance with Section 15.21.A, and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement; and
3. Require that manufactured homes be placed or substantially improved on sites in and existing manufactured home park or subdivision with Zones A1-A30, AH and AE on the community's FIRM that are not subject to the provisions of paragraph (D)(2) of this section be elevated so that either:
  - a.-The bottom of the longitudinal structural I beam of the manufactured home is at or above the base flood elevation; or
  - b.The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.
4. All owners of manufactured home subdivision lots and owners of an individually and privately owned manufactured home site developed prior to August 1, 1990 must submit a completed official certificate of elevation to the Department of Development by November 15, 1990. As a prerequisite, the applicant must submit a fee to the Department of Development for the flood zone determination to be used in preparation of the certificate of elevation.

All owners of manufactured homes subject to this provision shall comply with the freeboard requirements of Section 15.21.E by February 15, 1991. A temporary certificate of occupancy may be issued to the manufactured home owner pursuant to a Section A 103.9.3 of the Standard Building Code. This certificate shall expire on February 15, 1991, and shall not be renewed unless the manufactured home owner has complied with all freeboard requirements of Section 15.21.E.

- 5.a. All mobile home park owners submitting construction documents for a mobile home park after August 1, 1990 shall, prior to approval by the Department of Development, submit a common certificate of elevation for the mobile home park and a final plat of the mobile home park site. The final plat shall comply with Section 4.6 of this Unified Development Code and shall also show the elevation of each manufactured home pad and the required lowest floor elevation pursuant to Section 15.21.E. As a prerequisite, the applicant must submit a fee to the Department of Development for the flood zone determination to be used in preparation of the certificate of elevation.
- b. All owners of a manufactured home subdivision lot owners of an individually and privately owned manufactured home site developed after August 1, 1990 must submit, prior to approval by the inspection division, a completed official certificate of elevation pursuant to Section 15.21.E. As a prerequisite, the applicant must submit a fee to the Department of Development for the flood zone determination to be used in preparation of the certificate of elevation.
6. All manufactured homes placed or substantially improved after August 1, 1990 must submit, prior to authorization of utilities and/or occupancy, a completed official certificate of elevation pursuant to Section 15.21E.
7. Recreational vehicles require that recreational vehicles placed on sites within Zones A1-30, AH, and AE on the community's FIRM either:
  - a. Be on the site for fewer than 180-consecutive days,
  - b. Be fully licensed and ready for highway use, or
  - c. Meet the permit requirements of Section 15.11.A and the elevation and anchoring requirements for "manufactured homes" of this subsection. 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 utilities and security devices, and has no permanently attached additions.

E. Minimum Slab Elevation.

1. All new residential, nonresidential, manufactured homes, and substantial improvements for those located in the special flood hazard area (Zone A, AE, and A1-A30) shall meet or exceed minimum lowest floor elevation levels: one foot above the FIRM base flood elevation, one foot above the record inundation, one foot above the center line of the street, and one foot above the top of the lower upstream or downstream sanitary sewer manholes between the house connection;
2. All new residential, nonresidential, manufactured homes for those located in Zones B and X, the minimum lowest floor elevation shall meet or exceed each of the following levels: one foot above the nearest adjacent FIRM Base Flood Elevation, one foot above the record inundation, one foot above the center line of the street, and one foot above the top of the lower upstream or downstream sanitary sewer manhole between the house connection;
3. All new residential, nonresidential, manufactured homes for those located in Zones C and X, the minimum lowest floor elevation shall meet or exceed each of the following levels: one (1) foot above the nearest adjacent FIRM base flood elevation, one foot above the record inundation, one foot above the center line of the street, and one foot above

the top of the lower upstream or downstream sanitary sewer manhole between the house connection;

4. The requirements set forth in Sections 15.21.E.1, 15.21.E.2, and 15.21.E.3 require that the minimum slab elevation be one foot above the center line of the street shall not apply when the approved drainage schematic contemplates that: (1) the street pavement will not serve as the drainage collector system; or (2) drainage will not be conveyed toward the street;
5. In lieu of the requirements regarding sanitary sewer manholes set forth in Sections 15.21.E.1, 15.21.E.2, and 15.21.E.3, the lowest floor elevation may be lower than one foot but not lower than six inches above the top of the lower upstream or downstream sanitary sewer manhole providing that the following requirements are met:
  - a. A sanitary sewer backwater check valve and a sewer clean out:
    - (1) Shall be installed in the building sanitary sewer line and located on the applicant's property but outside of the street rights-of-way and utility servitudes; and
    - (2) Shall meet the requirements of Section 8:110 of the Plumbing Code.
  - b. The property owner shall be responsible for perpetually maintaining the sanitary sewer backwater check valve in proper operating condition.
  - c. The property owner shall sign a waiver of local freeboard which shall serve to place on notice all future owners and shall make public record of such waiver and the property owners' assumption of all liability pursuant to the granting of a waiver for the requirements regarding sanitary sewer manholes set forth in Sections 15.21.E.1, 15.21.E.2, and 15.21.E.3. This agreement shall be recorded by the Clerk of Court in the conveyance records; and a certified copy, with recording data and filing date, shall be furnished to the Department of Development before a building permit will be issued; and
6. The lowest floor elevation may be lower than six inches above the top of the lower upstream or downstream sanitary sewer manhole provided that the provisions of Sections 15.21.E.1, 15.21.E.2, and 15.21.E.3 are met and approval is granted by the chief engineer and the Floodplain Administrator.

F. Use of Landfill Material Restricted.

1. Except as provided, hereinafter, in areas of special flood hazard (Zones A, A1, A30, AH, and AE.), no off-site landfill material shall be allowed except for:
  - a. Backfill required for chainwall construction. This exemption shall apply to structures of 5000 square feet or less contained within the footprint of the structure.
  - b. Building pads for mobile homes, trailers, and pier/column construction. This exemption shall allow for the building pad to be filled to a maximum of 18 inches above natural grade under the elevated structure to facilitate drainage. The building pad must be transitioned back to natural grade within five feet of the outside limits of the footprint of the elevated structure.
  - c. Transition of driveways into carports or garages. The transition distance shall extend only through the limits of the structure. The driveway from the street

connection to the start of transition shall be constructed in such a manner that the finished driveway grade is at or below the natural grade prior to construction. Appropriate drainage facilities must be provided to prevent the redirection of runoff water onto adjacent properties or the blockage of surface sheet runoff.

This subsection shall not apply to improvement and reasonable transition grading on existing tracts or lots of five acres or less located within existing recognized subdivisions (residential, commercial, industrial and mobile home park) which have not experienced any reported inundation of structures constructed after July 2, 1979.

2. Unless otherwise provided, no fill shall be permitted in areas of special flood hazard, unless, the fill is mitigated by excavation and meets the following requirements:

No encroachments, including fill for landfill or other purposes, new construction, substantial improvements or other type of developments, will be allowed unless a technical evaluation demonstrates that the proposed encroachments will not decrease the existing volume storage capacity, based upon the base flood elevation, within the boundaries of the proposed development or encroachment site located within the area of special flood hazard. Additionally, encroachment shall not increase the existing calculated base flood elevation.

A technical evaluation shall include any one or a combination of the following methods:

- a. For developments with proposed onsite fill and excavation construction (no imported or offsite fill), a before and after development construction grading plan shall be provided to show no decrease in the existing flood volume storage capacity below the base flood elevation established for the site.
  - (1) Fill shall not be used to restrict the existing channel cross-sectional area.
  - (2) For channels with intermittent flow, the excavation site shall drain to the existing adjacent channel.
  - (3) For channels with continuous flow, the excavation sites shall drain to the existing channel.
  - (4) For mitigation purposes, no credit shall be given for that portion of the excavation, which is lower than the existing channel.
- b. For developments requiring imported or off-site fill in addition to the excavation, grading, and fill requirements outlined above, approved engineering methodologies such as the methods shown in the Louisiana Department of Transportation and Development Hydraulics Manual shall be used to make a before and after development analysis of the proposed site, including its off-site drainage areas, to show the increased runoff for a 100 year storm event. The existing 100 year storm channel flow, the calculated base flood elevation and the hydraulic grade line for the channel at the downstream end of the proposed site will be provided by the Department of Development. One or more of the following methods may be used, unless otherwise approved by the Department of Development:
  - (1) A rating curve analysis shall be made of the channel to show that the water surface for a 100 year storm event resulting from the proposed development or landfill does not increase the calculated base flood elevation.

- (2) If the imported or off-site fill is taken from the channel (within the proximity of or within one-half mile upstream of the proposed development or landfill site), an inflow-outflow flood routing analysis of the proposed borrow site on the channel shall be made to show that the adverse effect of increased runoff from the 100-year storm event due to the proposed development or landfill site is balanced by the beneficial effects of the increased storage provided by the proposed borrow site.
  - (3) If the imported or off-site fill is taken from elsewhere, approved engineering methodologies shall be used to show that the water surface elevation resulting from the proposed development or landfill does not increase the base flood elevation.
- c. If downstream channel improvements are included as part of the proposed development or landfill, engineering calculations shall be made to show that the adverse effects of increased runoff from a 100 year storm event due to the proposed development is offset by the beneficial effects of the proposed channel improvements.
- G. Any permissible use of off-site landfill material as provided in Section 15.21.F shall be subject to the provisions of Section 8:3 of the City Code.
- H. No building shall be constructed over an existing identified natural drain as determined by the Department of Development.
- I. The surface of parking lots and private streets in subdivisions of more than five lots, shall not be constructed lower than two feet below the FIRM base flood elevation or record inundation, whichever is greater.
- J. When the subsurface storm water systems are available and designed to accommodate the flow of storm water runoff:
- 1. Except in single-family residential use, all paved parking areas shall be graded and sloped so that the storm water runoff is conducted to trench drains or catch basins, which are connected to the storm water system.
  - 2. No sheet flow from paved parking areas on lots greater than one-third acre but less than five acres shall be allowed to drain directly into the street or street catch basins.
  - 3. Sheet flow from paved parking areas on lots greater than five acres, in addition to the foregoing requirements, must be directed into a storm drain and catch basin system designed for this area which would be connected to the existing storm water system, or if the aforesaid system is inadequate, it must be designed to include on-site detention/retention basin for storm water runoff. The design of storm water facilities must be submitted to the Department of Development for approval.

The Department of Development shall grant a waiver of the provisions of this subsection when it is demonstrated that the applicable existing streets have been designed to accommodate the storm water runoff from paved parking areas and adequate catch basins and inlets are available.

**Section 15.22                      Standards for subdivision proposals**

- A. All subdivision proposals including manufactured home parks and subdivisions shall be consistent with Section 15.1, Section 15.18, and Section 15.19.

- B. All proposals for the development of subdivisions including manufactured home parks and subdivisions shall meet development permit requirements of Section 15.4, Section 15.18 to Section 15.24.
- C. Base flood elevation data shall be generated for subdivision proposals and other proposed development including manufactured home parks and subdivisions which is greater than 50 lots or five acres, whichever is lesser, if not otherwise provided pursuant to Section 15.20 or Section 15.10.H.
- D. All subdivision proposals including manufactured home parks and subdivisions shall have adequate drainage provided to reduce exposure to flood hazards.
- E. All subdivision proposals including manufactured home parks and subdivisions shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.

**Section 15.23 Standards for areas of shallowflooding (AO/AH Zones)**

Located within the areas of special flood hazard are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may be evident. Such flooding is characterized by-ponding or sheet flow; therefore, the following provisions apply:

- A. All new construction and substantial improvements of residential structures have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified).
- B. All new construction and substantial improvements of nonresidential structures:
  - 1. Have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified); or
  - 2. Together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is water tight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy.
- C. A registered professional engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this Section as proposed in Section 15.11.A.1 are satisfied.
- D. Require within Zones AH or AO adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.

**Section 15.24 Floodways**

Floodways located within areas of special flood hazard established in Section 15.7, are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters, which carry debris, potential projectiles, and erosion potential, the following provisions shall apply:

- A. Encroachments are prohibited including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway, unless, it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.
- B. If Section 15.24 above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 15.18 to Section 15.24.
- C. Under the provisions of 44 CFR Chapter 1, Section 65.12 of the National Flood Insurance Regulations, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations provided that the community first applies for a conditional FIRM and floodway revision through FEMA.
- D. Permitted Uses. The following open space uses are allowed within the limits of the regulatory floodway provided that they are not prohibited by any other ordinance or zoning restriction:
  - 1. Agricultural uses such as general farming, pasturing, outdoor plant nurseries, horticulture, forestry, and sod farming;
  - 2. Nonstructural industrial and commercial uses such as loading areas, parking areas, and landing strips;
  - 3. Nonstructural public and private recreational uses such as golf courses, tennis courts, driving ranges, ball fields, archery ranges, picnic grounds, parks and gardens, biking and hiking trails, and horseback riding;
  - 4. Uses or structures accessory to open space uses are essential for historic preservation providing they comply with the provisions of Sections 15.24.A and 15.24.B;
  - 5. Extraction of sand, gravel, or other natural resources;
  - 6. Functionally water-dependent uses such as docks, piers, dams, utility, and pipeline crossings; and
  - 7. Public utilities, streets, and bridges provided that any associated fill complies with the provisions of Sections 15.21.F and 15.24.A, and the fill does not encroach into the channel area within the limits of mean annual high-water.