

# Chapter 15

## FLOODWAYS, FLOODPLAINS, DRAINAGE AND WATER QUALITY

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### **Section 15.1 Statutory Authorization, Findings of Fact, Statement of Purpose, General Provisions, and Amendments**

#### **Section 15.1.1 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.

#### **Section 15.1.2 Findings of Fact**

- 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 extreme weather events and 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 be protected from flood damage.

#### **Section 15.1.3 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 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. Provide for the sound use and development of flood prone areas in such a manner as to minimize future flood blight areas; and,
  - 7. Ensure that potential buyers are notified that property is in a FEMA Special Flood Hazard Area.

#### **Section 15.1.4 General Provisions**

In order to minimize the adverse environmental impacts caused by increased run-off, urban heat island effects, and non-point source pollution, Best Management Practices (BMPs) as described in Appendix K shall be used as prescribed in this Chapter.

#### **Section 15.1.5 Amendments**

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

#### **Section 15.2 Definitions**

Definitions of terms used in this chapter may be found in Chapter 19.

#### **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 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.

#### **Section 15.7 Basis for Establishing Special Flood Hazard Areas**

The term “special flood hazard area(s)” shall hereon refer to both items written in this section unless specified otherwise.

##### **Section 15.7.1 FEMA Special Flood Hazard Areas**

The Federal Emergency Management Agency (FEMA) special flood hazard areas (FEMA SFHA) 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 (FIRMs) 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. As future studies based on more recent data and methodology become available, including but not limited to FEMA approved data, this new data shall replace the older studies.

##### **Section 15.7.2 Community Defined Special Flood Hazard Areas**

The Community Defined special flood hazard areas (CD SFHA) estimate areas flooded during the future

100-year storm event and are identified by East Baton Rouge Parish based on scientific and engineering analysis by the methodology described in the Stormwater Management Plan Modeling Design Criteria document. The location and extent of the CD SFHA, as well as Community Defined Flood Elevations (CD FE), are maintained on the EBR GIS website. The initial CD SFHA and CD FE maps on the EBR GIS website shall be dated APRIL 1, 2023 and have an effective date of APRIL 1, 2023. As future studies based on more recent data and methodology become available, including but not limited to FEMA approved data, this new data shall replace the older studies at the discretion of the Floodplain Administrator.

#### **Section 15.8 Warning and Disclaimer of Liability**

The degree of flood protection required by this chapter shall be considered the reasonable minimum 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 special flood hazard areas 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 relevant sections of 44 Code of Federal Regulations (CFR) (Emergency Management and Assistance - National Flood Insurance Program Regulations) pertaining to floodplain management.

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

The 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 applications to determine whether proposed building sites, 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 permits issued under Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 USC 1334) from which prior approval is required;
- E. Make the necessary interpretation, where interpretation is needed as to the exact location of the boundaries of the special flood hazard areas FEMA SFHA and CD SFHA (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), as well as Stream Setbacks;

- F. Notify, in riverine situations, adjacent communities and the State coordinating agency, 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. Review and approve or deny all applications requiring an Offsite Drainage Assessment in accordance with Section 15.24, Floodplain Conveyance Zones, to minimize impacts to the flood-carrying capacity within the altered or relocated portion of any drainage way;
- H. Obtain, review, and reasonably utilize any FEMA base flood elevation data and floodway data available from a federal, State, or other source and Community Defined flood elevation and floodplain conveyance zones in order to administer the provisions of Section 15.18, Flood Prevention, through Section 15.23, Floodways, of this chapter when base flood elevation data has not been provided in accordance with Section 15.7, Basis for Establishing Special Flood Hazard Areas;
- I. Require that no new construction, substantial improvements, or other development (including fill) be permitted within Zones A, AI-30 and AE on the FIRM when a regulatory floodway has not been designated, 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 floodplain;
- J. Apply for a conditional FIRM revision through FEMA under the provisions of 44 CFR Chapter 1 Section 65.12 of the National Flood Insurance Program Regulations, before approving certain development in Zones A1-A30, AE, and AH on the FIRM that increases the water surface elevation of the base flood by more than one foot;
- K. Provide a flood zone determination for the site of any application of a building or development permit. This determination will provide the FEMA flood zone designation, FEMA base flood or adjacent base flood elevation, CD SFHA designation, Community Defined Flood Elevation (CD FE) and record inundation value for the site; and
- L. Review, approve, or deny all applications for a waiver of freeboard or variance of the National Flood Insurance Program (NFIP) requirements in accordance with the procedures defined in Section 15.12, Variance Procedures, of this chapter.

**Section 15.11      Permit Procedures**

- A. An 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 changes in topography or land alterations, existing and proposed structures, and the project location in relation to special flood hazard areas. Additionally, the following information is required:
  1. Elevation (in relation to mean sea level) of the lowest floor (including the 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, Specific Standards; and,
  4. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.
- 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 and potentially injure others;
  4. The safety of access to the property in times of flood for ordinary and emergency vehicles;
  5. 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;
  6. 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;
  7. The necessity to the facility of a waterfront location, where applicable; and,
  8. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use.

#### **Section 15.12 Variances and Waivers**

- A. The Board of Appeals shall hear and render judgment on requests for variances from the requirements of this chapter. Waivers of local freeboard requirements shall be heard and may be granted by the Floodplain Administrator.
- B. The Board of Appeals 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 shall be reviewed regularly twice a month

upon notice posted on the official government website with the day and time established by the Floodplain Administrator. These requests must be filed at least 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 Board of Appeals 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 for the approval or denial of a development permit 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 shall increase.
- G. Upon consideration of the factors noted above and the intent of this chapter, the Board of Appeals may attach such conditions to the granting of variances as it deems necessary to further the purpose and objectives of this chapter Section 15.1.3, Statement of Purpose.
- 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. Variances from the requirements in 15.25, Stream Setbacks, may upon application be considered and approved, conditionally approved, or denied by the Board of Appeals in accordance with this Chapter; however, the following additional provisions shall apply:

Where a parcel was platted prior to the effective date of the ordinance from which the Stream Setbacks were derived, and its shape, topography or other existing physical condition prevents land development consistent with this chapter, and the Development Director finds and determines that the requirements of this article prohibit the lawful use of the property by the owner, the Board of Appeals may upon application grant a variance from the Stream Setback requirements, provided that any such approval of a variance shall require mitigation measures to offset the effects of any proposed land development on the parcel for which the variance is approved, as determined by the Development Director.

## K. Requirements 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 Requirements

- a. Waivers to the local freeboard requirement as identified in Section 15.21.E, Minimum First Floor, shall only be issued for the minimum elevation 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 determination:
  - (1) The 100-year base flood, the flood with a one percent chance of occurring in any given year, elevation plus freeboard results in an elevation in excess of the 500-year flood, the flood with a 0.2% chance of occurring in any given year, elevation; or,
  - (2) 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; or,
- (4) An approval would damage the rights and property values of adjacent properties.

3. Waiver of Specific Water Pollutant Treatment by Best Management Practices

Waivers of requirement to treat specific water pollutants using specific best management practices (BMPs) may be issued upon the 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; and, the Department of Development concurs in the documentation.

4. Watershed Specific Mitigation

Stormwater discharge, which is not practicable to fully treat as defined in this chapter 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 shall 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 shall be evaluated in planning for capital improvement projects.

L. Variances may be issued 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.J, Requirements for Granting Variances and Waivers, are 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**

### **Section 15.13.1 Applicability**

In order to comply with Federal and State regulations for urban stormwater, a Stormwater Management Plan (SMP) will be required for 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 re-pavement as well as interior remodeling projects shall not be considered redevelopment for purposes of this section. Utility trenches in streets shall not be considered redevelopment unless more than 50 percent of the street width is removed and re-paved.



### **Section 15.13.2 Requirements**

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

#### **A. Exemptions**

The following development activities shall be exempted from the requirement of preparing an SMP:

1. All development in duly authorized subdivisions and master planned developments created with an approved SMP that includes both a WQIS and a DIS, provided that they comply with the SMP prepared for the subdivision or master planned development at the time of the original approval.
2. All single-family residential development on existing lots of record within subdivisions created before April 1, 2008.

#### **B. Content**

The SMP shall include:

1. A map of the location of the subject property and adjacent developments and infrastructure.
2. A description and map of existing site conditions, including land cover, contours, soil types, and estimated pollutant load, and existing site drainage patterns, including all drainage features, wetlands, and special flood hazard areas.
3. A description and site plan of the proposed development, including land cover noting impervious surfaces, contours, longitudinal slope of roadways, empirically expected pollutant load, and proposed drainage ways and stormwater BMPs, including green infrastructure opportunity footprint areas associated with proposed transportation improvements, as described in Paragraph 5 below.
4. A description of the specific proposed drainage ways and stormwater BMPs, including a prioritization chart for green infrastructure opportunity areas as defined in Paragraph 6 below, and how they meet the requirements for drainage and water quality as described in Sections 15.14, Drainage, and 15.16, Water Quality, respectively.
5. Green infrastructure opportunity areas associated with transportation improvements shall be identified using the following methodology:

- a. Green infrastructure systems shall be sited within the sidewalk, roadway shoulder, roadway parking lane, or roadway median areas and placed directly upstream of existing inlets where feasible to maximize drainage capture. Footprints shall not extend into travel lanes.
  - b. Green infrastructure systems shall consider the proximity to adjacent structures, foundations, utilities, streetlights, and other street furniture that will remain during construction. At a minimum, green infrastructure practices shall be cited at a horizontal distance of at least five feet from the adjacent buildings.
  - c. The loading ratio, or ratio of contributing impervious drainage area to footprint area, is a critical component of green infrastructure design. Conceptual green infrastructure systems shall be designed for a loading ratio of 10:1 to 25:1.
  - d. Green infrastructure solutions for transportation projects need to consider maintenance responsibilities, especially when solutions are within public right of ways. Any planting should not be dependent upon irrigation for needed water unless an HOA or some other entity will pay for water and irrigation maintenance. Curb openings, depressed medians, etc., and other design features should be used to direct rainwater to plantings as needed based on species of plant.
6. Green infrastructure opportunity areas for transportation improvements shall be prioritized based on the following priority chart with highest priority given to the opportunity areas with the highest weighted score. For example, a drainage area of 13,000 SF would carry a weighted score of 0.60 because the scoring weight is 30% and medium priority drainage areas have a value of two (30% x 2 = 0.60).

Description	Scoring Weight	Lowest Priority (Value = 1)	Medium Priority (Value = 2)	Highest Priority (Value = 3)
Drainage Area	30%	5,000 SF – 10,000 SF	10,000 SF – 15,000 SF	> 15,000 SF
Loading Ratio	40%	25:1 – 35:1	18:1 – 25:1	> 18:1
Street Slope	30%	4% - 5%	2% - 4%	> 2%

7. Example green infrastructure typologies and design considerations for transportation improvements can be found in Chapter 11 of the MOVEBR Infrastructure Enhancement and Traffic Mitigation Program Design Guidelines: [https://movebr.brla.gov/assets/documents/designguidelines/MOVEBR%20Design%20Guidelines%20Rev\\_1\\_Final\\_042920-web.pdf](https://movebr.brla.gov/assets/documents/designguidelines/MOVEBR%20Design%20Guidelines%20Rev_1_Final_042920-web.pdf).
8. A description of how the proposed drainage ways and stormwater BMPs will be maintained.

**Section 15.14 Drainage**

Adequate provisions shall be made for the management of stormwater subject to the approval of the

Department of Development.

A. Stormwater Management Plan

As provided 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 2-, 10-, 25-, and 100-year (the fifty, ten, four, and one percent annual-exceedance probability [AEP]) storm events. The SMP shall be consistent with the issues and recommendations presented in the 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. Drainage Ways

1. 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 any drainage way shall comply with the criteria of the Department of Development and all State and federal regulations. At its sole discretion, the Department of Development may require that such plans be submitted to the Department for review. All work shall be approved by, and be subject to inspection by, the Department of Development.
2. 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 or servitudes shall be determined based upon established criteria after review and approval by the Department of Development of the drainage requirements of the development and the SMP for drainage in consultation with the engineer designing the 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.

C. Contour Map

A contour map shall be prepared for the area comprising the development and any additional area required by the Department of Development. The additional area shall include all watersheds that drain into the property to be developed. The map of the additional area may be prepared from USGS datum or datum filed at the Department of Development, if it is available.

D. Drainage of Contributing Watersheds

In the design of the drainage for a development, provisions must be made to adequately convey water from contributing watersheds. All drainage ways shall be constructed to meet current drainage needs but shall have adequate servitudes for the future needs of contributing watersheds, as determined by the Department of Development. The Department of Development, at its discretion, may require that overland flow checks be provided demonstrating no increase in the 2-, 10-, 25-, and 100-year peak water surface elevations at all inflow locations to the property.

E. Floodplain Management

All proposed developments shall be reviewed by the Department of Development such 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**

The purpose of this section is to ensure that existing drainage conditions at proposed sites are evaluated and the potential impacts of proposed improvements to drainage in the vicinity are determined. To ensure that this is done, two copies of the required DIS of the proposed development and surrounding affected areas shall be submitted to the Department of Development. The development may not be approved until the DIS 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 DIS:

1. Development on a site in which the area of impervious surface does not exceed 20 percent of the developed site area. The total impervious area shall include all buildings, driveways, sidewalks, streets, parking areas, lakes, ponds, and similar facilities. All undeveloped open space and common areas shall 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 engineered or subsurface (not natural) 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 DIS. If such a request is granted, no detailed DIS 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 may be considered for approval provided:

1. Sufficient information is submitted by the developer indicating that the runoff from the proposed development is consistent with and discharges to a previously approved development having adequate drainage facilities is a part of an approved larger plan of development with an approved drainage study, or is served by a network of subsurface public storm drainage facilities engineered to accommodate the runoff from the developed site.

C. Development Location and Description:

The DIS shall comply with the following minimum requirements:

1. Location

Describe the location of the subject property Township and Range, identifying 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 the project watershed (Comprehensive Land Use Data, aerial photos, etc.). Describe the proposed development, soil types, vegetative cover, and watershed slopes. Provide an estimate of percent of impervious area for pre- and post-development conditions. Provide photos of existing channels, ditches, natural drains, and drainage structures.

D. Watershed Map

Delineate drainage boundaries, indicate the acreage, and show the slope of basins, and peak 2-, 10-, 25-, and 100-year runoff rates at entry and exit locations 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 location.

The latest published Elevation Product (3DEP) dataset from the USGS's The National Map (TNM) (<https://apps.nationalmap.gov/downloader>) or approved comparable dataset may be used as the base for the watershed map.

E. Hydrologic Design

1. The DIS shall indicate existing conditions for peak 2-, 10-, 25-, and 100-year flow rates at the development's stormwater inflow and outflow locations.
2. The Drainage Impact Study shall indicate post-construction conditions for the peak 2-, 10-, 25-, and 100-year flow rates at the development's stormwater inflow and outflow locations.
3. The post-construction peak flow rates at all stormwater outflow points from the property shall not exceed the existing conditions peak flow rates for the 2-, 10-, 25-, and 100-year storm events.
4. If ponds or sub-surface detention systems are used in design for routing of flows, the peak - 2-, 10-, 25-, and 100-year storm events (the fifty, ten, four, and one percent AEP storms) shall be used in the design of the detention pond capacity and outfall structure(s) to achieve no increase in the peak flow rate for each event. The interior sub-surface conveyance system shall be designed for the ten year storm. Storms which surcharge the subsurface system, up to and including the 10-year storm, shall be routed to the detention pond. Detention ponds shall have

a designated weir to direct outflow for storms greater than the 100-year storm.

5. Developments shall not create a new point-source discharge or a new non-point source discharge onto adjacent properties of lower ground elevations without appropriate drainage servitudes.

F. Hydraulic Capacities

1. On-site capacity

Indicate the capacity of any existing drainage outfall facility (ditch, canal, culvert, bridge, or similar) within the proposed development site and the required type, size, and capacity of any proposed outfall facilities.

2. Off-site capacity

Determine the capacity of existing downstream outfall facilities (ditches, canals, culverts, bridges, or similar) that will be utilized to convey flow from the downstream limits of the proposed development to the first public outfall as identified on the EBR stream segment data layer maintained by the City-Parish Department of Information Services as part of the City-Parish geographic information system. An inventory of downstream structures including the size, type, invert elevation, and cover topping elevation should be made. Channel cross sections at the 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-zoned residential developments and ten times for all other developments.

G. Special Site Conditions

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

1. FEMA SFHA (including Firm Zones A and AE) and CD SFHA
2. Regulatory Floodways
3. Floodplain Conveyance Zones
4. Drainage Servitudes
5. Stream Setbacks

6. Fill placement locations and mitigation requirements
7. Existing and Potential wetland sites
8. Churches
9. Schools
10. Cemeteries
11. Landfills and hazardous waste sites
12. Parks

H. Conclusions and Recommendations

The DIS 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 or redevelopment and that BMPs<sub>7</sub> are implemented according to the SMP.

A. Stormwater Management Plan

The developer shall prepare and submit to the Department of Development an SMP 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 developed by the United States Environmental Protection Agency (EPA) 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 Stormwater Control

For all development activities a Stormwater Pollution Prevention Plan (SWPPP) shall be submitted to the Department of Development for review. The SWPPP shall 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 stormwater runoff from the construction site. This plan shall also describe how stormwater will be treated during the construction phase of the project in order to prevent pollution from entering any drainage ways or conveyances. This SWPP shall be consistent with all federal and State requirements.

C. Post-Construction Water Quality Management in New Development and Redevelopment

For all developments or redevelopments that require demolition or complete removal of existing structures or impervious surfaces at a site and replacement with new development, 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 TMDLs or stormwater permit requirements developed by the EPA and LDEQ. All stormwater BMPs constructed on-site must meet EPA standards and specifications for implementation and maintenance.

1. The SMP shall describe the types of BMPs that will be on the site after construction is complete with specific locations of each and estimated capacity for pollutant load reduction.
2. The SMP shall ensure long-term operation and maintenance of the BMPs that have been designed and implemented to minimize water quality impacts from stormwater discharges from the project site.
3. An inspection report, prepared by a licensed professional engineer or other qualified person approved by the Floodplain Administrator shall be provided to the City-Parish by the person(s) or entity(ies) responsible for the development on a schedule approved by the Floodplain Administrator. The report shall be consistent with the SMP maintenance plan and describe the conditions and recommended maintenance requirements of all components of the SMP, including ponds, swales, and subsurface manufactured water quality features. It shall also describe the condition of the BMP and any proposed corrective actions required. Corrective actions shall be completed within 90 days of the submittal of the inspection report with evidence that the work has been completed and provided to the Department of Development.

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

The purpose of this section is to ensure that the potential for water quality impacts to existing surface water and/or groundwater resources are evaluated as part of any development or redevelopment project. Two copies of the required WQIS of the proposed development and surrounding affected areas shall be submitted to the Department of Development reflecting the requirements of this section. The development shall 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 WQIS, but shall comply with the stormwater BMPs described in an SMP:

1. Residential 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 the location of the subject property using the street address and the latitude and longitude.

###### **2. Watershed and Subwatersheds**



Describe the watersheds and subwatersheds both on- and off-site.

3. Total Maximum Daily Loads

List all TMDLs established by the EPA and LDEQ for applicable affected waterbodies. If TMDLs have not been established, all first flush stormwater pollutants that originate from the site post-construction shall be treated or retained on the site.

4. Soils and Topography

Provide the following:

- a. Site contours at maximum two-foot contour intervals;
- b. General land slopes; and,
- c. 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:

- a. Forest;
- b. Paving (list by type);
- c. Meadow;
- d. Crops;
- e. Buildings;
- f. Water bodies; and,
- g. Wetlands.

C. Proposed Development Conditions

1. Watershed and subwatersheds

Describe the impact of development on watersheds and subwatersheds both on- and off-site.

2. Land Cover

Show proposed development 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:

- a. Forest;
  - b. Paving (list by type);
  - c. Meadow;
  - d. Crops;
  - e. Buildings;
  - f. Water Bodies; and,
  - g. Wetlands.
3. Land Cover Comparison Table  
Provide a table comparing existing land cover with proposed development land cover. Types of land cover and empirically expected contaminants from the land cover, uses, and activities to be listed include, but are not limited to the following:
- a. Auto-oriented use areas, including roadways, parking areas, and heavy equipment and maintenance areas (oil, grease, Freon, heavy metals, other chemicals);
  - b. Lawn, plantings, and golf course maintenance (oil, grease, pesticides, herbicides, nutrients, other chemicals);
  - c. Roofs and gutters (organic materials, roofing materials, coatings, heavy metals);
  - d. Food preparation (organic material, grease, other chemicals);
  - e. Commercial activities (oil, heavy metals, other chemicals);
  - f. Residential activities (organic materials, pesticides, herbicides, other chemicals); and,
  - g. Light industrial (oil, grease, coatings, heavy metals, other chemicals).
- D. Proposed Water Quality Treatment  
Provide the following information to identify how stormwater will be treated to protect water quality:
- 1. Stormwater Treatment Train;
  - 2. BMPs, identifying the following:
    - a. Sizes;
    - b. Water capacity;

- c. Function;
  - d. Percent of empirically expected pollutant reductions;  
BMPs shall 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 EPA and LDEQ TMDLs.
  - e. Operation and maintenance;
  - f. Control and containment per special activity; and,
  - g. Measures for BMP maintenance.
3. Water flows per subwatershed (in cubic feet per second)
- E. Study Conclusions and Recommendations  
Provide a table of the empirically expected percent removal of each pollutant by type per BMP for expected impact to affected waters.

**Section 15.18 Flood Prevention**

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. These flood losses are created by extreme weather events and 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 such critical facilities vulnerable to floods and hazardous to other lands that are inadequately elevated, flood-proofed, or otherwise protected from flood damage. The following sections provide the measures used to protect life and property from the hazards attributable to flooding.

**Section 15.19 Methods of reducing flood losses**

In order to accomplish its purposes, this chapter uses the following methods:

- A. 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;
- B. Require that uses vulnerable to floods including facilities, which serve such uses, be protected against flood damage at the time of initial construction;
- C. Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;
- D. Control filling, grading, dredging, and other development which may increase flood damage; and

- E. 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**

In all special flood hazard areas, the following provisions are required for all new construction and substantial improvements:

- A. 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;
- B. All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;
- C. All new construction or substantial improvements shall be constructed with materials resistant to flood damage;
- D. 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 in accordance with Section 15.21.E, Minimum First Floor Elevation;
- E. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;
- F. 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
- G. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
- H. All subdivision proposals and manufactured home parks shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.

### **Section 15.21 Specific Standards**

An applicant shall 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, the following provisions shall be 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., Minimum First Floor Elevation. (Other utilities see 15.20.D.) A registered professional engineer, architect, or land surveyor shall submit a FEMA approved certificate of

elevation certification to the Floodplain Administrator indicating that this standard 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 Section 15.21.E., Minimum First Floor Elevation, or, together with attendant utility and sanitary facilities, be designed so that below this level 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. 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 and all required net area shall be below the FIRM base flood elevation;
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 Floodplain Administrator.

D. Manufactured Homes.

1. All manufactured homes to be placed within Zone A shall be installed using methods and practices that 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 in addition to applicable State and local anchoring requirements for resisting wind forces.

2. 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 outside of a manufactured home park or subdivision, in a new manufactured home park or subdivision, in an expansion to an existing manufactured home park or subdivision, or in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as a result of a flood, shall be elevated on a permanent foundation such that the bottom of the longitudinal structural I beam of the manufactured home is elevated to one foot or more above the base flood elevation and securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.
3. Manufactured homes placed or substantially improved on sites in an existing manufactured home park or subdivision within Zones A1-A30, AH and AE on the community's FIRM that are not subject to the provisions of paragraph (D)(2), above, shall be elevated so that either:
  - a. The bottom of the longitudinal structural I beam of the manufactured home is at least one foot 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 securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.
4. All mobile home park owners submitting construction documents for a mobile home park shall, prior to approval, 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 show the elevation of each manufactured home pad and the required lowest floor elevation. As a prerequisite, the applicant shall submit a fee to the Department of Development for the flood zone determination to be used in preparation of the certificate of elevation.
5. All manufactured homes placed or substantially improved must submit, prior to authorization of utilities and/or occupancy, a completed official certificate of elevation pursuant to Section 15.21.E, Minimum First Floor Elevation.
6. Recreational vehicles placed on sites within Zones A1-30, AH, and AE on the FIRM shall 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, Permit Procedures, and the elevation and anchoring requirements for manufactured homes. A recreational vehicle may be considered 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 First Floor Elevation.

1. All new residential and nonresidential development, as well as substantial improvements, in the FEMA SFHA and CD SFHA shall have the lowest floor located at least one foot above the highest of the following: the FEMA BFE, CD FE, the record inundation, the highest cross-sectional point at the lowest street cross-section along the frontage of the property, or the top of the lowest first upstream or downstream sanitary sewer manholes to the service connection;
2. All new residential and nonresidential development in Zones B, C, and X shall have the lowest floor elevation located at least one foot above the highest of the following: the nearest adjacent FEMA BFE, the record inundation, the highest cross-sectional point at the lowest street cross-section along the frontage of the property, or the top of the lower of the first upstream or downstream sanitary sewer manholes to the service connection;
3. The above requirements regarding elevation above the highest cross-sectional point at the lowest street cross-section along the frontage of the property shall not apply when the approved drainage schematic demonstrates that:
  - a. The street pavement will not serve as the drainage collector system; or,
  - b. Drainage will not be conveyed toward the street;
4. Rather than the above requirements regarding elevation above sanitary sewer manholes the lowest floor elevation may be as low as six inches above the top of the lower of the first 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) Is 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) The requirements of the State-mandated Plumbing Code are met.
  - 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 that 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. 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 may be issued.
5. The lowest floor elevation may be lower than six inches above the top of the lower of the first upstream or downstream sanitary sewer manhole provided that the above provisions are met

and approval is granted by the Floodplain Administrator.

F. Use of Fill Material Restrictions

Unless otherwise provided no fill shall be permitted in FEMA SFHAs and/or CD SFHAs unless the fill is mitigated by excavation and meets the requirements in this section.

1. Exemptions:

a. Building pads for slab on grade construction.

Fill mitigation is not required if the combined area of all buildings on the lot is no more than 3,500 square feet and the average height of fill is no more than 24 inches or the distance between natural grade and higher of the FEMA BFE and CD FE Base Flood Elevation.

b. Building pads for manufactured homes and pier/column construction.

Fill mitigation is not required if the average height of fill for the building pad is no more than 18 inches above natural grade under the elevated structure to facilitate drainage. The building pad shall be transitioned back to natural grade within five feet of the outside limits of the footprint of the elevated structure.

c. Fill restrictions shall not apply to improvement and reasonable transition grading on existing tracts or lots of five acres or less located within existing recognized subdivisions that have not experienced any reported inundation of structures constructed after July 2, 1979.

2. Transition of driveways into carports or garages.

The driveway from the street and driveway from the structure connections 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 shall be provided to prevent the redirection of runoff water onto adjacent properties or the blockage of surface sheet runoff.

Fill restrictions shall not apply to improvement and reasonable transition grading on existing tracts or lots of five acres or less located within existing recognized subdivisions that have not experienced any reported inundation of structures constructed after July 2, 1979.

3. No encroachments, including fill for development 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 reduce the ability of the floodplain to store or convey stormwater. Additionally, encroachment shall not increase the existing FEMA BFE and/or CD FE, whichever is higher.

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



- a. For developments with proposed on-site fill and excavation construction (no imported or off-site 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 FEMA BFE and/or the CD FE, whichever is higher along with the following restrictions.
- (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 that is lower than the existing channel.
  - (5) For cases in which an area or pond is utilized for both on-site stormwater detention and fill mitigation, no fill mitigation credit shall be given for that portion of the excavation required to detain the increase in runoff volume (e.g., cubic feet) from the existing to proposed development conditions for the 100-year event.
  - (6) For developments requiring imported or off-site fill in addition to the excavation, grading, and fill requirements outlined above, an Offsite Drainage Assessment (See Section 15.24.B, Designation of Floodplain Conveyance Zones) shall be performed to show no increase in the CD FE.
  - (7) Use of off-site fill mitigation credits. Sites that have been graded and stabilized in a manner that provides additional floodplain storage may be approved by the Department of Development to establish fill mitigation credits that may be used by developments where an Offsite Drainage Assessment (See 15.24.B) has been performed to show no decrease in the existing flood volume storage capacity below the FEMA BFE and/or the CD FE, whichever is higher. Floodplain storage volume used for mitigation purposes shall be considered as a three-dimensional space between ground elevation (or static water surface elevation for a wet pond) and the FEMA BFE and/or the CD FE, that can be filled and emptied during flood events and used to offset fill placement between pre-development ground elevation and the FEMA BFE and/or the CD FE. All sales of fill mitigation credits shall be recorded in the East Baton Rouge Clerk of Courts Office and disclosed to the Department of Development prior to the issuance of permits. The owner of the fill mitigation credits, through his licensed design professional, shall be responsible for tracking the balance of credits. All fill mitigation credit areas shall be dedicated within a servitude which shall not be developed and shall be perpetually maintained to provide floodplain storage volume. The maximum amount of time an excavated fill mitigation credit area established after March 1, 2018, may continue to sell credits shall be 10 years from the recordation of the sale of the initial credits, or until a new effective FIRM base flood elevation is established, whichever

occurs first.

- G. No building shall be constructed over an existing identified natural drain as determined by the Department of Development.
- H. The surface of parking lots and streets in subdivisions of more than five lots, shall not be constructed lower than two feet below the FEMA BFE and/or CD FE, whichever is higher. Street curb elevations shall be no lower than the hydraulic grade line of the ten percent storm. Parking spaces that are in excess of the required minimum spaces that do not provide emergency vehicle access to buildings can be built lower than the grade requirements herein.
- I. When the subsurface stormwater systems are available and designed to accommodate the flow of stormwater runoff:
  - 1. Except in single-family residential developments, all paved parking areas shall be graded and sloped so that the storm water runoff is conducted to trench drains or catch basins that are connected to the stormwater 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, shall be directed into a storm drain and catch basin system designed for this area which shall be connected to the existing stormwater system, or if the aforesaid system is inadequate, it shall be designed to include an on-site detention/retention area for stormwater runoff. The design of stormwater facilities shall be submitted to the Department of Development for approval.

The Department of Development may grant a waiver of the provisions of this subsection when it is demonstrated that the applicable existing streets have been designed to accommodate the stormwater runoff from paved parking areas and adequate catch basins and inlets are available.
- J. For new development or redevelopment which incorporates a perimeter drainage system that is designed to intercept and redirect storm water runoff away from adjacent properties, the perimeter drainage systems shall be completely constructed and functional prior to the construction of other improvements within the development or redevelopment. The perimeter drainage system shall be maintained to be fully functional for the duration of construction.
- K. All drainage systems that are designed to convey stormwater runoff from public rights-of-way or significant offsite areas (as determined by the Floodplain Administrator) shall be dedicated to the City-Parish for public maintenance. Proposed public drainage improvements shall be in the form of sub-surface storm drain pipe, built in accordance with City-Parish standard specifications and details. No open-channel conveyance systems shall be accepted for public maintenance.

- L. Detention ponds shall be designed and constructed for ease of public maintenance access. A public drainage servitude through the center of the pond shall be provided for the City-Parish to ensure positive drainage is maintained within the servitude. It shall be the responsibility of the person(s) or entity(ies) responsible for the development to keep all other portions of the ponds dredged, and the banks maintained, in accordance with the recommendations included in the Stormwater Management Plan approved by the Department of Development.
- M. All new development shall pose no adverse impact by redirecting or increasing pre-development storm water runoff into adjacent properties. No permits for development shall be issued until the Department of Development verifies the permit documents are accompanied by a grading plan that addresses post-development storm water runoff. Prior to issuance of a certificate of occupancy for a building, or approval of a final plat, the Department of Development shall verify the post-development stormwater runoff plan has been implemented.

**Section 15.22 Standards for Areas of Shallow Flooding (AO/AH Zones)**

Located within the FEMA SFHAs are areas expected to experience shallow flooding during the one percent storm event. These areas, which are designated as AO or AH on the FIRM, 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 shall apply:

- A. All new construction and substantial improvements of residential structures shall 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 FIRM (at least two feet if no depth number is specified).
- B. All new construction and substantial improvements of nonresidential structures:
  - 1. Shall 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, shall 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 and the effects of buoyancy.
- C. A registered professional engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this section are satisfied.
- D. Adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures shall be provided.

**Section 15.23 Floodways**

Floodways located within FEMA SFHAs, are designated as regulatory floodways. Since these are extremely hazardous areas due to the velocity of floodwaters, which carry debris, potential projectiles, and

erosion potential, the following provisions shall apply:

- A. Encroachments, including fill, new construction, substantial improvements, and other development, shall be prohibited within regulatory floodways, 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 15.23.A, above, is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Sections 15.18, Flood Prevention, through 15.23, Floodways.
- 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 uses may be 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 accessory structures 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 Section 15.21.F, Use of Fill Material Restricted, and the fill does not encroach into the channel area within the limits of mean annual high-water.

#### **Section 15.24 Floodplain Conveyance Zones**

In addition to regulatory floodways, the City-Parish shall establish Floodplain Conveyance Zones using

hydraulic and hydrologic modeling and analysis. The Floodplain Conveyance Zones are areas determined to be critical to the conveyance and storage of flood water discharges. As such, the following provisions shall apply:

A. Exemptions

1. The exemptions for the Use of Fill Materials Restrictions in Section 15.21.F shall also apply to this Section.
2. Preliminary plats, site plans or development plans approved prior to APRIL 1, 2023 may allow for improvements within the conveyance zone area, in accordance with documents approved by the governing authority;

B. Designation of Floodplain Conveyance Zones

Floodplain Conveyance Zones shall be established by the City-Parish and made available on the EBRGIS Open Data website: <https://data.brla.gov/>. The initial Floodplain Conveyance Zones map shall be dated APRIL 1, 2023 and have an effective date of APRIL 1, 2023. The Floodplain Conveyance Zones are identified using the Parish existing conditions 2D models as areas which are critical to the conveyance and storage of flood discharges and which, for the 100-year event, have a flood depth of at least 0.5 feet and/or a velocity of at least 0.5 feet per second with a depth of at least 0.25 feet.

C. Offsite Drainage Assessment

For any proposed development within a Floodplain Conveyance Zone, the City-Parish shall perform or have performed an Offsite Drainage Assessment (ODA) to assess the proposed development's flood impacts outside of and beyond the proposed boundaries of the development. Proposed development shall demonstrate no increase the existing peak water surface elevations for the 2-, 10two-, ten-, 25-, and 100-year storm events. No increase shall be defined as an increase in water surface elevation of less than 0.00 feet in the post-construction simulations as compared to the pre-construction simulations.

**Section 15.25 Stream Setbacks**

The purpose of these regulations is to protect natural and overland drainage ways by establishing a barrier between stream corridors and development to: protect the physical integrity of stream ecosystems; preserve habitats; improve water quality; protect structures; control erosion and run-off; preserve the potential for recreational enhancements; and preserve space for future channel improvements, restoration, or naturalization activities.

A. Establishment of Stream Segments and Stream Setbacks

1. Major Stream Segments

Stream segments shall include all streams identified in the "Major Stream Segments" map on the EBRGIS Open Data website.

2. Stream Setbacks

Stream setbacks shall be established around all identified stream segments. Stream setback

widths shall be determined by taking one-half of the average width from top of bank to top of bank, for the length of the stream segment running through the property, or its abutting property line. The minimum setback shall be 35 feet or the existing drainage servitude, whichever is greater, and the maximum setback shall be 100 feet. Stream segments, dimensions, and setbacks shall be confirmed and formally designated on any subdivision plat or development plan.

**B. Applicability**

The provisions of this section shall be applicable to all new development located within the City of Baton Rouge and unincorporated East Baton Rouge Parish.

Exempt development types include any of the following:

1. Preliminary plats, site plans or development plans approved prior to APRIL 1, 2023 may allow for improvements within the stream setback area, in accordance with documents approved by the governing authority;
2. Minor or major utilities, as approved by Development Director; or
3. Activities associated with restoration and enhancement of a stream corridor, as approved by the Development Director.

**C. Development Standards**

**1. Allowable Improvements**

Development shall be limited to improvements that have No Adverse Impact on the stream corridor. Improvements shall be related to recreation, public enjoyment, and protection of the stream corridor, including but not limited to the following:

- a. Conservation uses, wildlife sanctuaries, nature preserves, forest preserves, fishing areas, and passive areas of parklands;
  - b. Bicycle and pedestrian trails, limited to a maximum width of 12 feet;
  - c. Crossings (paved and unpaved) for pedestrian, bicycle, golf cart, and other similar uses, limited to a maximum width of 12 feet;
  - d. Recreational fields, parkland areas, and golf course fairways;
  - e. Non-habitable accessory structures, such as decks, gazebos, picnic tables, play equipment, and small concrete slabs no larger than 100 square feet and 4 inches thick to accommodate such structures;
  - f. Fill mitigation, as defined by Section 15.21.F, and as approved by Development Director in accordance with Department of Development policy; and
  - g. Other improvements approved by the Development Director that meet the intent of this section.
2. Crossing the Stream Setback shall be minimized, crossing at skewed angles shall be avoided, and the length and area disturbed shall be restricted to the maximum extent feasible.

3. Any portion of the Stream Setback shall count towards open space requirements in the Unified Development Code.

D. Maintenance

Unless otherwise accepted by the City-Parish, any maintenance of the Stream Setback shall be the responsibility of the property owner.

**Section 15.26 Acronyms**

- A. Annual Exceedance Probability (AEP)
- B. Base Flood Elevation (BFE)
- C. Best Management Practices (BMPs)
- D. Code of Federal Regulations (CFR)
- E. Community Defined Special Flood Hazard Areas (CD SFHAs)
- F. Community Defined Flood Elevation (CD FE)
- G. Drainage Impact Study (DIS)
- H. Environmental Protection Agency (EPA)
- I. Federal Emergency Management Agency (FEMA)
- J. First Floor (FF)
- K. Flood Insurance Rate Maps (FIRMs)
- L. Flood Insurance Study (FIS)
- M. Louisiana Department of Environmental Quality (LDEQ)
- N. National Flood Insurance Program (NFIP)
- O. North American Vertical Datum (NAVD)
- P. Offsite Drainage Assessment (ODA)
- Q. Special Flood Hazard Areas (SFHAs)
- R. Stormwater Management Plan (SMP)

- S. Stormwater Pollution Prevention Plan (SWPPP)
- T. Total Maximum Daily Loads (TMDLs)
- U. United States Code (USC)
- V. United States Geological Survey (USGS)
- W. Water Quality Impact Study (WQIS)