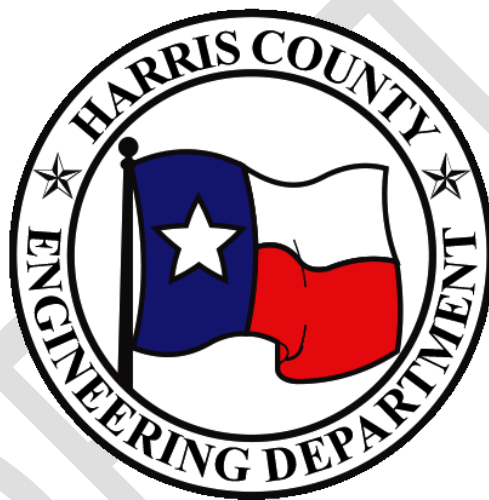


REGULATIONS OF HARRIS COUNTY, TEXAS

FOR

FLOODPLAIN MANAGEMENT



AS

ADOPTED 5 JUNE 2007

EFFECTIVE 18 JUNE 2007

AMENDED 8 NOVEMBER 2011

AMENDED _____ 2017

**HARRIS COUNTY
ENGINEERING DEPARTMENT**

**PERMIT OFFICE
10555 NORTHWEST FRWY, STE 120
HOUSTON, TEXAS 77092
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**REGULATIONS OF HARRIS COUNTY, TEXAS
FOR FLOOD PLAIN MANAGEMENT**

PART 1 - PRELIMINARY PROVISIONS

SECTION 1.01 - AUTHORITY

These Regulations are adopted by the Commissioners' Court of Harris County, Texas, acting in its capacity as the governing body of Harris County and the Harris County Flood Control District. The authority of Harris County to adopt these Regulations and for the contents hereof is derived from the following statutes: Texas Local Government Code Section 240.901, as amended; Texas Transportation Code Sections 251.001 - 251.059 and Sections 254.001 - 254.019, as amended; the Harris County Road Law, as amended; and the Flood Control and Insurance Act, Subchapter I of Chapter 16 of the Texas Water Code, as amended. These Regulations may be amended at any time by a majority of Commissioners' Court as approved by the appropriate federal authorities.

SECTION 1.02 - AREA COVERED BY REGULATIONS

These Regulations apply in all unincorporated areas of Harris County, Texas.

SECTION 1.03 - PURPOSE

The purpose of these Regulations is to provide land use controls necessary to qualify unincorporated areas of Harris County for flood insurance under requirements of the National Flood Insurance Act of 1968, as amended, to protect human life and health; to avoid increasing flood levels or flood hazards or creating new flood hazard areas; to minimize public and private losses due to flooding; to reduce the need for expenditures of public money for flood control projects; to reduce the need for rescue and relief efforts associated with flooding; to prevent or minimize damage to public facilities and utilities and to aid the public in determining if a property is in a potential flood area.

SECTION 1.04 - CONSTRUCTION OF REGULATIONS

These Regulations are to be construed liberally to accomplish their purpose and to assure that Harris County complies with all State and Federal Laws.

SECTION 1.05 - ABROGATION AND GREATER RESTRICTIONS

The Regulations of Harris County, Texas for Flood Plain Management heretofore existing are repealed. However, such prior Regulations shall continue to apply to construction pursuant to permits issued prior to the effective date of the Regulations. Except as herein above expressly provided, these Regulations are not intended to repeal, abrogate, or impair any existing laws, regulations, easements, covenants, or deed restrictions. Where these Regulations and other legal requirements conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

SECTION 1.06 - WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by these Regulations is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On occasion greater floods might occur, and flood heights could be increased by man-made or natural causes. These Regulations do not imply that any area or the uses permitted within any area will be free from flooding and flood damage. These Regulations shall not create liability on the part of Harris County or any officer or employee thereof for any flood damages that result from reliance on these Regulations or any administrative decision lawfully made thereunder. The granting of a permit does not imply that the development can be insured by Federal Flood Insurance.

SECTION 1.07 - FINDINGS OF FACT

It is hereby found by the Commissioners' Court of Harris County that severe flooding has occurred in the past within its jurisdiction and is likely to occur in the future, and that damage to property occurs for many reasons including flooding from the tidal waters of the Gulf of Mexico and that the entire area within its jurisdiction is a rising-water prone area.

SECTION 1.08 - BASIS FOR REGULATION

Harris County hereby adopts as the basis for Regulation the Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) adopted on June 18, 2007, by the Federal Emergency Management Agency (FEMA) and any subsequent amendments or revisions thereto. Harris County hereby adopts as its regulatory floodways the floodways shown on the said FIRM.

PART 2 - USE OF TERMS

SECTION 2.01 - ACCESSORY BUILDING

“Accessory building” means a structure which is subordinate to, and the use of which is incidental to, that of the principal structure or use on the same property.

SECTION 2.02 - ADMINISTRATOR

“Administrator” means the Federal Emergency Management Agency Director.

SECTION 2.03 - BASE FLOOD

“Base flood” means a flood having a one percent chance of being equaled or exceeded in any one year. This flood is sometimes called a “1%” flood or “100-year flood”.

SECTION 2.04 - BASE FLOOD ELEVATION

“Base flood elevation” means the elevation or level above mean sea level that flood waters shall reach during the base flood.

SECTION 2.05 - BREAKAWAY WALL

“Breakaway wall” means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation systems.

SECTION 2.06 - CERTIFICATE OF COMPLIANCE

“Certificate of Compliance” means a document issued by the County Engineer indicating a site is in compliance with the Regulations of Harris County, Texas for Flood Plain Management as of a specific date. The certificate may be filed in the Real Property Records as outlined in Section 7.01 of these Regulations.

SECTION 2.07 - CERTIFICATE OF NON-COMPLIANCE

“Certificate of Non-Compliance” means a document issued by the County Engineer indicating a site is not in compliance with the Regulations of Harris County, Texas for Flood Plain Management as of a specific date. The certificate also advises that legal action may be taken against the property owner and that a request for denial of flood insurance may be processed with the Federal Emergency Management Agency (FEMA). This certificate may be filed in the Real Property Records as outlined in Section 7.01 of these Regulations.

SECTION 2.08 - COASTAL AREAS

“Coastal Areas” mean areas which border on bays or estuaries or other waterways subject to tidal action which are subject to possible flooding or increased flood levels because of tidal action, hurricane surge or rising water due to storms, hurricanes or tsunamis. A “coastal area” is not necessarily in a “V” Zone. In cases where there is a question as to whether an area is a coastal area the County Engineer shall refer to the Flood Insurance Study.

SECTION 2.09 – CONFORMING SUBDIVISION

“Conforming Subdivision” means a subdivision where the lots are above the 1% or 100 year flood elevation and the infrastructure (streets, building pads etc.) meet the requirements of the “Regulations of Harris County, Texas for the Approval and Acceptance of Infrastructure” as adopted August 11, 2009 or previous additions where the subdivisions meets the criteria for Extreme Event Analysis, Relationship of Structures to Street, and Calculation of Flow provisions of the 2009 regulations.

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SECTION 2.0910 - CONVEYANCE

“Conveyance” means the flow of water during the base flood with a velocity that is greater than one foot per second or a depth that is greater than one foot.

SECTION 2.1011 - COUNTY ENGINEER

“County Engineer” means the holder of the statutory office of County Engineer for Harris County or the employee designated by the County Engineer to perform a task required by these Regulations.

SECTION 2.112 - CRITICAL FACILITIES

“Critical Facilities” means those facilities essential to the preservation of life and property, including, but not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, facilities used for the storage of critical records, and commercial installations which produce, use or store hazardous materials or hazardous waste as referenced in the Harris County Fire Code’s High-Hazard Group (Group H) of the 2006 International Fire Code.

SECTION 2.1213 - DEVELOPMENT

“Development” means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials. Fences or fence-type walls located within the flood plain are included within this definition.

“Development” shall not include (1) routine maintenance and repairs to existing structures; (2) residential accessory buildings or structures not located in A or V Zones with floor areas of less than one hundred fifty (150) square feet; and (3) other insignificant activities including the temporary storage of equipment or materials in the “X” Zones.

SECTION 2.1314 – DFIRM

“DFIRM” means a digital version of the Flood Insurance Rate Map. DFIRMs may contain additional information not normally available on the paper map.

SECTION 2.1415 - DRAINAGE

“Drainage” means runoff which flows over land as a result of precipitation. This shall include sheet flow, flow in streets and flows which may concentrate in local drainage systems with or without defined channels.

SECTION 2.1516 - ELEVATION

“Elevation” means height above mean sea level. The North American Vertical Datum (NAVD) of 1988 (2001 Adjusted) shall be used. Any future studies changing the FIRM which is referenced to a later re-leveling of the vertical control system shall be used whenever a revised FIRM becomes effective.

SECTION 2.1617 - ELEVATION CERTIFICATE

“Elevation Certificate” means FEMA Form 81-31, February 13, 2006 or subsequent revisions used to show elevations of real property in relation to base flood elevations.

SECTION 2.1718 - EXISTING MANUFACTURED HOME PARK OR SUBDIVISION

“Existing manufactured home park or subdivision” means a manufactured home park for which the construction of facilities for servicing the lot on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, either final site grading or the pouring of concrete pads, and the construction of streets) are completed before the effective date of flood plain management regulations adopted by Harris County on September 16, 1976.

SECTION 2.1819 - EXPANSION

“Expansion” means an addition to an existing development. Different types of “expansions” are treated differently by these Regulations.

- (a) “Expansion of a structure” means an addition attached to, but outside of, either the vertical or horizontal confines of the existing structure or below the first floor level of a building elevated on posts or piers, but which is not a “substantial improvement” as defined by these Regulations.
- (b) “Expansion of a manufactured home park or subdivision” means the making of any additional manufactured home lots or spaces within an existing manufactured home park, or on land adjoining an existing manufactured home park.
- (c) “Expansion to an existing manufactured home park or subdivision” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, either final site grading or pouring of concrete pads, and the construction of streets).

SECTION 2.1920 - FILLING

“Filling” means the placement of natural sands, dirt, soil or rock above the natural grade to raise the elevation of the ground. Fill may also include concrete, cement, soil cement, brick or similar material as approved on a case-by-case basis.

SECTION 2.2021 - FLOOD INSURANCE RATE MAP

“Flood Insurance Rate Map” or “FIRM” means an official map of a community on which the Federal Emergency Management Agency has delineated the appropriate areas of flood hazards, the *base 1 percent or 100-year* flood elevations, and the risk premium zones applicable to the County. In these regulations this map shall be called “FIRM”. The map is divided into zones which are used for setting *rates for flood insurance regulatory requirements. Insurance rates;* The type of permit, and the requirements of the permit will vary depending on the zone in which a property is located.

SECTION 2.2122 - FLOOD INSURANCE STUDY

"Flood Insurance Study" means the official report provided by the Federal Emergency Management Agency. The report contains

flood profiles and the water surface elevation of the ~~base flood~~ *1 percent and 0.2 percent or 100-year and 500-year flood.*

SECTION 2.~~2223~~ – FLOODPLAIN MITIGATION

“Floodplain Mitigation” means a hydraulically equivalent volume of floodplain storage sufficient to offset a reduction in floodplain storage or conveyance capacity *of the 1 percent or 100-year floodplain located outside a coastal area.*

SECTION 2.~~2324~~ - FLOODPROOFING

“Floodproofing” means any structural and non-structural additions, changes, or adjustments to properties and structures which reduces or eliminates flood damages to lands, water and sanitary facilities, other utilities, structures, and contents of buildings.

SECTION 2.~~2425~~ - FLOODWAY

“Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved to carry and discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

SECTION 2.2526 - HABITABLE FLOOR

“Habitable Floor” means any floor of a building or structure usable for sleeping, living, cooking, working, recreation or any combination thereof. Bathrooms and utility rooms are included in this definition, as are storage areas greater than one hundred fifty (150) square feet in size.

SECTION 2.2627 - HIGHEST ADJACENT GRADE

“Highest Adjacent Grade”, as it applies to an elevation certificate, means the highest natural elevation of the ground prior to construction next to the proposed walls of a structure.

SECTION 2.2728 - LANDSCAPING

“Landscaping” means the placement of trees, shrubs, or plants for the purpose of beautification.

SECTION 2.2829 - LEVEE

“Levee” means a man-made or natural condition, usually an earthen embankment or berm, that contains, controls, restricts or diverts the flow of water.

SECTION 2.2930 - LOWEST ADJACENT GRADE

”Lowest Adjacent Grade”, as it applies to an elevation certificate, means the lowest elevation of the finished grade immediately next to the structure.

SECTION 2.3031 - MANUFACTURED HOME

“Manufactured home” means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed

for use with or without a permanent foundation when connected to the required utilities. For flood plain management purposes the term “manufactured home” also includes recreational vehicles and other similar vehicles placed on a site for greater than 180 consecutive days.

SECTION 2.3132 MANUFACTURED HOME PARK OR SUBDIVISION

“Manufactured home park or subdivision” means the entire parcel (or contiguous parcels) of land, including the appurtenant improvements, which has been improved so that it contains two or more manufactured home lots available for the placement thereon of manufactured homes for occupancy, whether the sites are sold (subdivision) or rented (park).

SECTION 2.3233 - MEAN SEA LEVEL

“Mean Sea Level” means the average height of the surface of the sea for all states of the tide as was established by the United States Coastal and Geodetic Survey in 1929.

SECTION 2.3334 - NATURAL GROUND

“Natural Ground” means the grade unaffected by construction techniques such as fill, landscaping, or berms.

SECTION 2.35 – NON-CONFORMING SUBDIVISION

A “Non-conforming Subdivision” means a subdivision or parcel that does not meet the Extreme Event Analysis, Relationship of Structures to Street, and Calculations of Flow provisions found in the “Regulations of Harris County, Texas for the Approval and Acceptance of Infrastructure” as adopted August 11, 2009.

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SECTION 2.3436 - NORTH AMERICAN VERTICAL DATUM (NAVD)

"North American Vertical Datum (NAVD)", as corrected in 1988 (2001 adjusted), is a vertical control used as a reference for establishing varying elevations within the floodplain. If a datum other than NAVD 88 is used then the datum must be listed as the reference datum on the applicable FIRM panel. If a datum other

than NAVD 88 is used, a conversion to NAVD 88 must be provided on the Elevation Certificate.

SECTION 2.3537 - PERMITS

“Permits” shall mean a permit as required by these Regulations. A Class “I” Permit is issued for any development that is located on a property where the elevation of the ground is above the *base flood 1 percent or 100-year* elevation. A Class “II” Permit is issued for any development that is located on a property where the ground elevation is below the *base 1 percent or 100-year* flood elevation or subject to flooding as determined by these Regulations.

All County *and Harris County Flood Control District* projects shall have a signature block on the drawing, which verifies compliance with these regulations. The executed signature block acts as a permit for County *and Harris County Flood Control* projects for the purpose of these regulations.

SECTION 2.3638 - PERSON

“Person” includes any individual or group of individuals, corporation, partnership, association, or any other organized group of persons, including State and Local governments and agencies thereof.

SECTION 2.3739 - RECREATIONAL VEHICLE

“Recreational vehicle” means a vehicle that is: (1) Built on a single chassis; (2) Four hundred square feet or less when measured at the largest horizontal projections; (3) Designed to be self propelled or permanently towable and (4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

SECTION 2.3840 - START OF DEVELOPMENT

“Start of Development” means either the first placement of permanent construction of a structure on a site, such as the pouring of a slab or footings, the installation of piles, or the placement of a manufactured home on a foundation. Included within this definition is grading and filling, installation of streets or

underground utilities and other such development. A permit is required prior to the start of any development.

SECTION 2.3941 - STRUCTURE

“Structure” means a walled and/or roofed building or a gas or liquid storage tank which is principally above ground. A manufactured home on a permanent foundation is a structure. The term includes a building which is in the course of construction, alteration or repair.

SECTION 2.4042 - SUBDIVISION

“Subdivision” means a division of any tract of land into two (2) or more parts for the purpose of laying out any subdivision or any tract of land or any addition to the city, or for laying out suburban lots or building lots, or any lots, and streets, alleys or parts of other portions intended for public use or the use of the purchasers or owners of lots fronting thereon or adjacent thereto. A subdivision includes re-subdivision (replat), but it does not include the division of land for agricultural purposes in parcels or tracts of five (5) acres or more and not involving any new streets, alleys or easements of access. This

definition is based on current state statutes and should the statutes be changed its new definition would govern.

SECTION 2.4143 - SUBSTANTIAL IMPROVEMENT AND SUBSTANTIAL DAMAGE

A “Substantial Improvement” is the repair, reconstruction, or improvement of a structure, where the cost of the said improvement equals or exceeds 50% of the value of the structure either before the improvement is started or, if the structure has been damaged and is being restored, before the damage occurred. An improvement is started when the first alteration of any wall, ceiling, floor or other structural part of the building commences, whether or not the alteration affects the external dimensions of the structure. For purposes of determining if an improvement is a substantial improvement, the applicant for a permit must submit data reflecting the value of the structure prior to being damaged, improved or modified and the cost of the restoration, improvement or modification. Costs shall include the value of all labor and materials.

For the purpose of determining the value of the structure before being repaired, reconstructed or improved, the Harris County

Appraisal District's assessed value for the structure will be used. If the applicant wishes to contest this value an independent certified appraisal may be submitted. Upon review and concurrence by the Harris County Appraisal District, this appraised value for the structure will be used for determining if the improvement is substantial.

The County Engineer may require the submittal of an independent certified damage assessment in cases where the structure has suffered other than minor damage. In cases where the structure is covered by insurance and the insured losses for damage to the structure (excluding contents) amount to over 95% of the value of the structure, the structure shall be deemed substantially damaged regardless of any other data submitted.

For the purpose of rebuilding after a flood event, any single family residence that received flood damage, but the finished floor is at or above the 1 percent or 100-year flood level, can not be substantially damaged, if they meet the minimum federal elevation requirement for rebuilding. This does not apply to enlargements/expansions or any other work, except flood damage repairs.

~~SECTION 2.42 – TEN-YEAR FLOODPLAIN~~

~~“Ten-year floodplain” or 10% floodplain means the floodplain that is at or below the ten-year flood elevation, that is, the area which has a minimum statistical probability of one in ten of being flooded in any given year. The ten-year floodplain will be regulated as reflected by the ten-year inundation data and maps as promulgated by the County Engineer.~~

SECTION 2.4344 - UNINCORPORATED AREA

“Unincorporated area” means the area in Harris County, Texas, that is not within an incorporated area of a city, town, village or within the jurisdiction of the Port of Houston Navigation District.

SECTION 2.445 - ZONES

Zones on the Flood Insurance Rate Map have the following meanings:

ZONE A: Areas of the base (1% or 100-year) flood where base flood elevations have not been determined.

ZONE AE: Areas of the base (1% or 100-year) flood where base flood elevations have been determined.

ZONE AH: Areas of the base (1% or 100-year) flood where depths are between 1.0 and 3.0 feet; and base flood elevations are shown.

ZONE AO: Areas of the base (1% or 100-year) flood where depths are between 1.0 and 3.0 feet; average depths of inundation are determined.

ZONE A99: Areas inundated by the base (1% or 100-year) flood to be protected by a Federal flood protection system under construction; no base flood elevations are determined.

ZONE V: Areas of coastal flooding with velocity (wave action); base (1% or 100-year) flood elevations not determined.

ZONE VE: Areas of coastal flooding with velocity (wave action); base (1% or 100-year) flood elevations determined.

ZONE X: **(Shaded)**: Areas of the 0.2% flood or 500-year flood, areas of the base (1% or 100-year) flood with average depths of less than 1.0 foot or with drainage areas less than one (1) square mile, and areas protected by levees from the 1% or 100-year flood.

ZONE X: **(Unshaded)**: Areas determined to be outside both the 1% (100-year) and 0.2% (500-year) floodplains.

For purposes of these Regulations, the term “Any V Zone” includes Zone V and Zones VE and the term “Any A Zone” includes Zone A, AE, AH, AO and A99, but not the floodway within these zones.

PART 3 - GENERAL PROVISIONS

SECTION 3.01 - ADMINISTRATION BY THE COUNTY ENGINEER

The County Engineer or his designee is responsible for the administration of these Regulations, issuance of permits required by these Regulations, and enforcement of these Regulations and maintaining proper records.

SECTION 3.02 - USE OF MAPS

The County Engineer shall use the *base 1 percent or 100-year* flood elevations and floodway shown on the FIRM referred to in Section 1.08 of these Regulations to determine which class of permit may be issued. If the ground elevation of a specific piece of land is lower than the *base 1 percent or 100-year* flood elevation, the ground elevation shall serve as the basis for regulation even if the map indicates that the property is in a Zone which does not require regulation. The County Engineer shall forward any discrepancy he finds in the FIRM to the Administrator via the process described in Section 3.05.

SECTION 3.03 - MAPS TO BE AVAILABLE

Copies of the Flood Insurance Rate Map (FIRM) will be maintained in the offices of the County Engineer.

SECTION 3.04 - NOTIFICATION OF ADJACENT COMMUNITIES AND THE STATE WHEN ALTERING A WATER COURSE

Prior to any alteration or relocation of a water course, the County Engineer or the Harris County Flood Control District, whichever is altering or allowing said alteration or relocation, shall notify adjacent communities when such alteration or relocation affects base flood elevations within the adjacent community. A copy of such notification shall be submitted to the Texas Commission on Environmental Quality (TCEQ) and the Federal Emergency Management Agency (FEMA).

SECTION 3.05 - CHANGES IN MAPS

All requests for letters of map amendment (LOMA), letters of map revision (LOMR) and conditional letters of map revision (CLOMR) initiated by any person must first be reviewed by the County Engineer. The County Engineer may require the submission of any data he deems relevant to determining if such approval shall be granted. If the topographic data was prepared using a digital format it is requested that a copy of the data be included with the submittal. The Harris County Flood Control District shall be consulted for its review and approval of any hydrologic or hydraulic studies accompanying the said request. The County Engineer shall delay the submittal of the requests to the Federal Emergency Management Agency until after he is in receipt of the aforementioned approvals from the Harris County Flood Control District. The Commissioners' Court may set a fee to cover the cost of reviewing and processing the said requests.

SECTION 3.06 - USE OF NEW *BASE 1 PERCENT OR 100-YEAR* FLOOD ELEVATIONS ON THE BASIS OF CONDITIONAL LETTER OF MAP REVISION

In the administration of these Regulations the County Engineer may use new *base 1 percent or 100-year and 0.2 percent or 500-year* flood elevations that are based on pending channel modifications or other structural projects, such as retention ponds, that would decrease *base* flood levels only after the following steps are followed:

- (a) The flood study is forwarded to the Federal Emergency Management Agency (FEMA) and a conditional letter of Map Revision of the study is obtained from FEMA.
- (b) Documentation is presented to the County Engineer indicating the channel modifications will be completed within two (2) years of the issuance of permits.
- (c) Prospective buyers will be advised of the transitional aspects of the *base* flood elevations and prevailing flood insurance rates. The developer and/or builder in his written statement to the prospective buyer will recite the *base* flood elevations prior to and after the completion of said channel or other structural modifications. A copy of this statement will accompany the submittal of each building permit application.

SECTION 3.07 - RESPONSIBILITY OF OTHER OFFICIALS

Under these regulations the County Engineer is responsible for all administrative decisions, determinations and duties. The County Engineer may seek and secure the assistance of other officials of Harris County and of the Harris County Flood Control District in making his decisions, determinations and in performing his duties but is not required to conform to the recommendations of others, provided however, any decision by the County Engineer may be appealed by the process in Section 6.01 et seq. of these Regulations.

PART 4 - PERMITS

SECTION 4.01 - PERMITS REQUIRED

All development within the unincorporated areas of Harris County without first securing a permit is prohibited.

SECTION 4.02 - APPLICATION FOR PERMIT

The application for a permit will be on a form prescribed by the County Engineer and must be supported by the following:

- (a) Two copies of a site plan detailing the dimensions of the property to be developed and showing the position of the development on the property along with a sufficient description to locate the property. The site plan shall be to scale or have sufficient dimensioning to clearly detail the location of the development. The County Engineer may require submittal of a survey map and metes and bounds description of the property to be developed.
- (b) One copy of a drawing generally detailing the shape and size of the development proposed.
- (c) Proof in the form of drawing approval or other written notification that all requirements of the Harris County Flood Control District and Harris County have been met. (The construction of a single family dwelling and accessory structures on an existing pre-developed tract of land is exempted).

(d) In Non-conforming Subdivisions where the property is geographically in the 0.2 percent or 500-year floodplain and not above the 0.2 percent or 500 year flood level, two sets of drawings clearly indicating the finished floor elevation of a proposed structure will be at or above the 0.2 percent or 500-year flood level.

(e) On developments where a Class “II” permit is to be issued the following must be submitted:

1. Three (3) sets of detailed drawings for the proposed development. Drawings must clearly indicate that all provisions of these regulations will be met. On developments other than residential accessory buildings less than one hundred fifty (150) square feet or other insignificant developments, (i.e. – carports, well houses, gazebos, etc.) drawings must be sealed by a registered professional engineer or registered architect certifying that all provisions of these regulations will be met if the development is completed in accordance with the sealed drawings.

2. A topography survey of the property to be developed. The survey must be on one-foot contour intervals and based on the same datum as the flood study of the adjacent stream. On single-family, residential, one-lot developments, an elevation certificate will satisfy this requirement. This requirement may be waived for fences or other insignificant types of development.
3. In cases where a determination must be made as to whether the construction is a substantial improvement, the information in Section 2.41 is required.

The County Engineer may require the submission of additional information, drawings, specifications or documents if he is unable to determine whether a permit should be issued from the information submitted. Approved applications will be held for one hundred eighty (180) days. If the approved applications remain unpaid after one hundred eighty (180) days, the application and submitted documents will be destroyed.

Developments may require permits from other Local, State and Federal agencies. The applicant is responsible for compliance with all applicable regulations and permit requirements.

SECTION 4.03 - DETERMINATION OF PERMIT ELIGIBILITY

After the application is filed, the County Engineer shall:

- (a) Determine the Zone on the FIRM in which the land on which the development is to be made is located, the *base 1 percent or 100-year* flood elevation where the development is located and whether the development is located within the floodway.
 1. If the County Engineer determines that the development is within any “X” Zone and all other necessary reviews and approvals have been issued, he may issue a Class “I” Permit.
 2. If a conditional letter of map amendment (CLOMA) or a conditional letter of map revision (CLOMR) has

been issued which will place the development in an “X” Zone and all other necessary reviews and approvals have been issued, he may issue a Class “I” permit. Elevation certificates must be submitted to verify the development is above the required elevation.

3. If the development is in, or partially in, any “A” Zone, below the *base 1 percent or 100-year* flood elevation in any Zone, any floodway, or any “V” Zone, the County Engineer shall determine if a Class “II” Permit should be issued.

- (b) Review the proposed construction or development to assure that all reviews or approvals required by other County regulations are obtained. This includes all requirements of the Harris County Flood Control District’s “Policy Criteria and Procedure Manual”.

SECTION 4.04 - CONDITIONS OF A CLASS “I” PERMIT

A Class “I” Permit will be issued when the County Engineer determines that the development will be made on land that is located entirely outside the mapped 1% floodplain or 100-year *regulatory* floodplain and that all other necessary reviews and approvals required by County regulations have been obtained. *Structures on lots in Conforming Subdivisions mapped outside of the 1 percent or 100-year floodplain shall be issued a Class I Permit.*

(a) Location above base flood elevation.

1. In the absence of evidence to the contrary, the County Engineer shall presume that the property shown in any “X” Zone on the FIRM is above the *base 1 percent or 100-year* flood elevation.-
2. In the “Shaded X” Zone it must be determined that the ~~ground level~~ *lowest adjacent grade (LAG)* is above the *base 1 percent or 100-year* flood elevation before a Class “I” Permit may be issued. The County Engineer may rely on data in his possession to make such a determination or require the submittal of topographical information by the applicant.

(b) Where a conditional letter of map change has *been obtained or will be obtained* from the Federal Emergency Management Agency for property which has been elevated by the use of fill above the elevation of the *base 1 percent or 100-year flood, and detailed plans have been approved by Harris County a Class I permit will be issued. The inspections required in Sections 5.02 (ba) (1 & 2) must be made. The lowest floor of any structure shall be at least eighteen (18) inches above the base flood elevation.*

(c) *Regardless of the class of permit issued (I or II), all Non-Conforming Subdivisions must show, in addition to any other requirements, the following elevations are met:*

1. *If the structure is a single family residence the finished floor shall be a minimum of 12 inches above the highest adjacent natural grade when measured 10 feet from the edge of the slab or 12 inches above the crown of the adjacent street which ever results in the highest elevation. (an exception may be granted on sloping properties where the crown requirement is not achievable).*

2. *If the structure is other than a single family residence the slab shall have a minimum of 6 inches*

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of exposure to adjacent grade and be at least 12 inches above the crown of the adjacent street (an exception may be granted on slopping properties where the crown requirements can not be achieved).

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- 3. In cases where the structure is located geographically in the 0.2 percent or 500-year floodplain and the ground is lower than the 0.2 percent or 500-year level but higher than the 1 percent or 100-year level, the finished floor elevation shall be elevated at or above the 0.2 percent or 500-year level.*

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SECTION 4.05 - CONDITIONS OF A CLASS “II” PERMIT

A Class “II” Permit will be issued when the County Engineer determines that the development will be made on land that is located in any “A” Zone, below the *base 1 percent or 100-year* flood elevation in any Zone, in a floodway, or in a “V” Zone and that all other necessary reviews and approvals required by County regulations have been obtained. The following conditions must be met:

- (a) Notwithstanding anything below to the contrary, no development or other encroachment, including fill, is allowed in a floodway which will result in any increase in the base flood elevations within the floodway during discharge of water of a base flood.
- (b) The following conditions must be met for new construction or substantial improvement of a structure:
1. The top of the ~~slab~~*subfloor* of the lowest habitable floor must be elevated to ~~eighteen (18)~~ *twenty-four (24)* or more inches above the ~~base 0.2 percent or 500-year~~ flood elevation or ~~to 12 inches above~~ the level of the crown of the nearest public street, whichever is higher, except in a floodway where the bottom of the lowest supporting member of the structure shall be elevated ~~eighteen (18)~~ *thirty-six (36)* or more inches above ~~base 0.2 percent or 500-year~~ flood elevation.

If the land is located in an “AO” Zone, the top of the slab of the lowest habitable floor (including basement) shall be elevated to ~~eighteen (18)~~ *thirty-*

six (36) or more inches above the depth number in feet specified on the FIRM. There must be a determination by the County Engineer, after consultation with the Harris County Flood Control District, that the development will not adversely affect the flood plain, if the development in excess of a single family residence on a single lot within the “AO” zone.

If the land is located in an “A” Zone ~~or “AO” Zone,~~ and no depth number is specified, the top of the slab of the lowest habitable floor (including basement) shall be elevated to at least ~~three (3)~~ *six (6)* feet above highest adjacent grade (natural ground).

2. All structures will be constructed and anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effect of buoyancy.
3. Construction shall use methods and practices that will minimize flood damage and construction materials and utility equipment that are resistant to

flood damage. FEMA Bulletins 1-93, 2-93 and 3-93 or subsequent revisions will serve as the guideline for this requirement.

4. Unless dry-floodproofed, enclosed areas below the base flood elevation must be equipped with flood openings or vents capable of equalizing water levels and hydrostatic loads. Covers for these openings must not interfere with the equalization of water levels in the event of a flood and should minimize potential blockage by debris. FEMA Bulletin 1-93 or subsequent revisions shall serve as the guideline for this requirement. A licensed architect or registered professional engineer shall certify the flood openings.
5. Thermal insulation used below the base flood elevation shall be of a type that does not absorb water. *See FEMA's "Flood Damage-Resistant Material Requirements" Technical bulletin 2 or subsequent updates and additions.*

6. Water heaters, furnaces, air conditioning systems, electrical distribution panels and any other mechanical or electrical equipment must be elevated to at least ~~eighteen (18)~~ *twenty-four (24)* inches above the ~~base 0.2 percent or 500-year~~ flood elevation. Separate electrical circuits shall serve any level below the ~~base 0.2 percent or 500-year~~ flood elevation and shall be dropped from above.

7. Basements may be constructed only in nonresidential structures, and only on land which is not in a floodway or “V” Zone, and must, together with attendant utility and sanitary facilities, be designed so that below the base flood elevation 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 ~~licensed architect or~~ registered professional engineer shall certify that the floodproofing methods used in the construction of the basement are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces

and other factors associated with the base flood. A record of such certification indicating the specific elevation to which such structures are floodproofed shall be maintained with the County Engineer.

8. All air ducts, loose pipes, propane tanks and storage tanks located at or below the base flood level shall be firmly anchored to prevent flotation. Tanks and ducts shall be vented to at least ~~eighteen (18)~~ *twenty-four (24)* inches above the ~~base~~ *0.2 percent or 500-year* flood elevation.
9. ~~If the structure will be built on fill, the land must not be within a floodway or "V" Zone and the application must contain a fill plan, accurate existing ground elevations, and a grading plan that provides proper surface drainage. The fill must be inspected according to the provisions of Section 5.01 and 5.02 to determine that the fill has been constructed in accordance with drawings and that the soil density of the fill will support a structure before any construction begins. A maximum of three (3) feet of fill may be used to elevate a residential structure~~

~~proposed for construction in a subdivision developed prior to September 16, 1976. Any fill material proposed to elevate the structure shall not be greater than is necessary to achieve the purpose for which it is intended. Any excess fill material shall be properly mitigated on a one for one basis and shall not interfere with existing drainage patterns. No fill may be used to elevate structures in the 1 percent or 100-year floodplain. Structures may be constructed on an open foundation, such as piers, or on continuous foundation walls with properly sized and located openings. All foundations are required to be designed by a registered professional engineer. The drawings shall clearly show compliance with all provisions of these regulations. Fill may be used in coastal surge zones where floodplain fill mitigation is not an issue, however the standard for foundations remain the same.~~

10. *All structures shall be designed to withstand a three second gust basic wind speed of 120 miles per hour. This will ensure structural rigidity, should design flood elevations be exceeded, or the structure requires elevation in the future.*

- (c) The lowest floor of recreational buildings proposed for construction with public funds on publicly owned recreational property may be exempted from the requirement to elevate the lowest floor ~~to the base flood elevation~~—provided floodproofing measures are incorporated, and after applicable requirements of this section are met.
- (d) Construction of critical facilities shall be, to the extent possible, located outside the limits of the 0.2% floodplain or 500-year floodplain (Shaded Zone X) and any “A” Zone. Construction of new critical facilities shall be permissible within the base floodplain if no feasible alternative site is available.
1. Construction of critical facilities on land located ~~below the base flood elevation~~ in the 0.2% (500-year) floodplain or within the ~~base 1 percent or 100-year~~ floodplain shall have the lowest floor elevated to three feet or more above the ~~base flood 0.2 percent or 500-year~~ elevation, ~~at the site or twenty-four (24) inches~~

above the crown of the adjacent road, which ever results in a higher elevation.

2. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.
 3. Access routes elevated to or above the level of the base flood shall be provided to all critical facilities to the extent possible.
- (e) Any reduction in floodplain storage or conveyance capacity *within the 1 percent or 100-year floodplain* must be offset with a hydraulically equivalent (one-to-one) volume of mitigation sufficient to offset the reduction. The reduction may result from development or the placement of fill within the 1% floodplain or 100-year floodplain. Such mitigation shall be within the same watershed and shall be provided on the same property or within the same hydrologic sub-watershed or at an alternate site meeting the approval of the County Engineer. A full hydrological and hydraulic analysis must be submitted to support a request for mitigation

outside the boundaries of the property being developed.
This requirement does not apply to Coastal Areas where floodplain fill mitigation is not an issue.

In areas of combined coastal and riverine flood hazard, this requirement only applies for the portion of fill placed below the riverine flood hazard elevation as provided in the FIS or an approved hydraulic model.

- (f) A levee or berm may not be used to reclaim a property from any flood plain. The removal of a levee or berm shall not be permitted absent a determination by the County Engineer, after consultation with the Harris County Flood Control District, that the action will not adversely affect the flood plain.
- (g) In addition to the requirements of Section 4.05 (i) the following conditions must be met by a manufactured home park or manufactured home subdivision that seeks a Class “II” Permit:
 - 1. ~~Stands or lots must be elevated on a maximum of eighteen (18) inches of compacted fill or on pilings so~~

~~that~~ The lowest floor of the manufactured homes will be at least ~~eighteen (18)~~ *twenty-four (24)* inches above the ~~base~~ *0.2 percent or 500-year* flood elevation;

2. Adequate surface drainage and access for a hauler must be provided;
3. ~~If the homes will be elevated on pilings,~~ Lots must be large enough to permit steps. Piling foundations must be placed in stable soil no more than ten feet apart, and reinforcement must be provided for piers more than six feet above the ground level;
4. Each manufactured home within the park shall be placed on a permanent foundation and anchored to resist flotation, collapse or lateral movement by providing an anchoring system installed in accordance with the Texas Department of Housing and Community Affairs and the Housing and Urban Development (HUD) standards for manufactured housing. Any additions to the manufactured home must be similarly anchored. (This paragraph applies

to manufactured homes to be placed or substantially improved in an expansion to an existing manufactured home park or subdivision. This paragraph does not apply to manufactured homes to be placed or substantially improved in an existing manufactured home park or subdivision except where the repair, reconstruction, or improvement of the streets, utilities and pads equals or exceeds fifty (50) percent of the value of the streets, utilities and pads before the repair, reconstruction or improvement has commenced).

5. All utilities and common facilities including gas, electrical systems, sewage systems and water supply systems, must be located and elevated or constructed to avoid or minimize flood damage.
6. The fact that the manufactured home park or subdivision is located below the *base 0.2 percent or 500-year* flood elevation must be disclosed on a form furnished by the County Engineer and completed by the owner of the manufactured home park or subdivision and provided to the

manufactured home lot purchaser or lessee. The owner of the manufactured home park or subdivision shall forward a copy of each notice to the County Engineer.

7. The manufactured home park or subdivision may not be in a floodway or a “V” Zone.
8. An evacuation plan must be developed for evacuation of all residents of all new, substantially improved or substantially damaged manufactured home parks or manufactured home subdivisions located within the area of special flood hazard. This plan shall be filed with and approved by the County Engineer and the Emergency Management Coordinator prior to permit issuance.

Note: Manufactured Home Parks or Subdivisions which received a permit and were constructed prior to September 16, 1976 are governed by the Regulations in effect when their permit was issued except that all manufactured homes placed or substantially improved in said park or subdivision

after April 1, 1987 must comply with this section. Any manufactured home park or subdivision that did not hold a permit before September 16, 1976 and expansions or substantial improvements of existing and permitted manufactured home parks or subdivisions must comply with this section.

(h) The following conditions must be met if the proposed development for which a Class “II” Permit is sought includes a water or sanitary sewer system:

1. The proposed system must be designed and constructed to minimize or eliminate infiltration of flood water into the system and to eliminate discharge of untreated waste from the system into the flood waters.
2. All joints must be watertight.
3. On-site sewage disposal systems, if they meet the Revised Rules of Harris County for On-Site Sewerage Facilities, are allowed.

4. Individual water wells or wastewater disposal systems must be located to avoid impairment to them or contamination from them during flooding.
- (i) The following conditions must be met if the proposed development for which a Class “II” Permit is sought is a subdivision, including a manufactured home park or subdivision.
1. The subdivision must be planned to provide adequate drainage so as to reduce flood hazards.
 2. If water and sanitary sewer systems are planned, the drawings must be reviewed to determine if they meet the requirements of these regulations.
 3. The drawings for development of the subdivision must be adequate to assure that all public utilities and facilities (including gas, electrical systems, sewage systems and water supply systems) are located and elevated or constructed to avoid or minimize flood damage.

4. If a subdivision proposal includes 50 or more lots or is on an area larger than 5 acres the proposal (plat and/or plans) must include *base 1 percent or 100-year and 0.2 percent or 500-year* flood elevations for each lot.
- (j) The following conditions must be met if the proposed development for which a Class “II” Permit is sought is an expansion of a structure, as the term is defined by these Regulations, located in any “A” Zone but not within a floodway or below the base flood level in any Zone:
1. The expansion must be constructed of materials resistant to water damage below the base flood elevation and the expansion must be designed to minimize flood damage in accordance with the FEMA approved flood-resistant materials list (Technical Bulletin 2-93).
 2. The expansion shall be inspected to determine that the drawings and specifications for the construction have been followed before the roof and the outer wall coverings are in place and again when the expansion

is complete. Inspections will be performed in the same manner as the inspection required by Section 5.02 of these Regulations.

(k) Notwithstanding any other provision of these regulations, no permit will be issued if the County Engineer determines that the development will increase flood hazards.

(l) ~~The following additional requirements for development in the 10% floodplain or ten-year floodplain must be met:~~

~~1. All construction within the 10% floodplain or ten-year floodplain up to twenty-four (24) inches above the base flood elevation must use masonry, concrete or steel. These materials must be used for piers, columns and foundation walls.~~

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~~2. The finished floor of the structure must be twenty-four (24) inches above the base flood elevation.~~

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~~3. Structures may be constructed on an open foundation or on continuous foundation walls below the base flood~~

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~~elevation. If continuous walls are used below the base flood elevation, they must be equipped with openings that allow flood waters to flow into or out of the area enclosed by the walls.~~

~~4. For elevation certificates, the lowest adjacent grade is finished grade.~~

(m) The following additional requirements must be met for development in the floodway:

1. The bottom of the lowest horizontal sill, beam or member supporting the structure in the floodway shall be at least ~~eighteen (18)~~ *thirty-six (36)* inches above the ~~base~~ *0.2 percent or 500-year* flood elevation.
2. An engineering report sealed by a Texas registered professional engineer containing as a minimum the following information:

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- a. A soils report which includes the results of a soil boring(s) to a depth of five (5) feet below the depth of any proposed piles and the geotechnical engineer's recommendations for the proposed structure signed and sealed by a Texas registered professional engineer; and
 - b. A hydraulic analysis of pre- and proposed development conditions showing that no increase in the elevation of the base flood will occur as a result of the development. *Signed and sealed by a Texas registered professional engineer.*
3. Structures shall be elevated on posts or pilings so that the entire structure, exclusive of the posts or pilings, is ~~eighteen (18)~~ *thirty-six (36)* inches above the ~~base~~ *0.2 percent or 500-year* flood elevation. Fill may not be used to elevate the structure. The drawings and specifications for said posts or pilings shall be prepared by a Texas registered professional engineer qualified in structural design and he or she shall certify thereon that the posts or pilings have

been designed to prevent undermining and structural damage resulting from erosive velocities of the base flood. Minimum pile depth shall be established using historical scour depth, stream velocity and soil conditions. As a minimum piles shall be embedded ten (10) feet below the historical scour depth. Pile design must take into account hydraulic and debris loading imposed by the base flood. If no historical data is available a Texas registered professional engineer shall perform a scour analysis using the “Texas Secondary Evaluation and Analysis for Scour” methodology. After the placement or installation of the posts or pilings, or during or prior to the final inspection or approval of the structure, the permittee shall furnish to the County Engineer a certificate from the said engineer that the posts or pilings have been constructed in the manner set forth in the drawings and specifications attached to the application for a permit. All other requirements must be met, but must not increase the base flood elevation.

~~4. The following are additional design requirements for construction of structures within the San Jacinto River floodway.~~

~~4. Foundations of structures within the San Jacinto River Floodway have been determined to be prone to scour.~~—The foundation design requirements presented herein assume that potential scour around a foundation system could extend to a depth as great as ten (10) feet below natural grade. The foundation system must extend to a depth below the maximum potential scour that is adequate to prevent excessive vertical and horizontal movement of the foundation system due to design axial and lateral loads imposed during base flood conditions.

These foundation design requirements present minimum foundation design requirements. Foundations must meet or exceed these minimum design requirements, regardless of the type of scour protection provided for the foundation.

- a. Design Loads: The structural system of the building shall be designed, connected and anchored to the foundation system to prevent flotation, collapse and permanent lateral movement resulting from wind loads, impact loads, hydrodynamic loads and hydrostatic loads, including the effects of buoyancy from flooding equal to the base flood elevation.

- b. Foundation Type: The foundation system shall consist of a driven pile or a drilled pier foundation system.
 - 1. Driven Piles: Driven piles may extend above natural grade and act as the columns supporting the elevated portion of the building above the base flood elevation, or the piles may be terminated near natural grade and a reinforced concrete cap shall be cast on top of the pile.

2. Drilled Piers: Drilled piers shall be terminated below natural grade, and a reinforced concrete cap shall be cast on top of each pier. Columns for the building may consist of cast-in-place concrete connected by dowels to the pier cap.
- c. Type and Size of Driven Pile: Driven piles shall consist of either twelve (12) inch (minimum) square pre-stressed concrete piles or fourteen (14) inch (minimum) diameter steel pipe piles with a closed end.
1. Closure Plate: The tip of pipe piles shall be closed prior to driving by welding a circular steel plate over the tip of the pile. The closure plate shall be flush with the outside of the pile, i.e. the diameter of the closure plate shall not be greater than the outside dimensions of the pipe pile. The minimum thickness of the closure plate shall be 3/8 inch. The weld shall be

continuous, and the closure shall be waterproof.

2. Minimum Wall Thickness: The minimum wall thickness of the pipe pile shall be 1/4 inch.
- d. Type and Size of Drilled Pier: Drilled piers shall be eighteen (18) inch diameter (minimum) and straight-sided (no belled or underreamed base) and shall be installed using the slurry displacement technique in accordance with the ACI Standard Specification for the Construction of Drilled Piers (ACI 336.1-94).
 - e. Minimum Pile and Drilled Pier Embedment: The minimum embedment below natural grade for driven piles and drilled piers shall be ~~twenty five (25) feet if a geotechnical investigation is not performed at the building site. If a site specific geotechnical investigation is performed for the building, the minimum embedment may be reduced to~~ twenty (20) feet

if the computed allowable axial capacity of the driven pile or drilled pier (factor of safety of at least 2.0 with respect to ultimate axial capacity) is equal to or greater than the design axial load transmitted to the pile.

- f. Lateral Restraint of Foundations at Groundline: The individual piles or piers shall be braced horizontally with reinforced concrete tie beams connecting the pier/pile caps each way (not diagonally). For piles that extend above natural grade and act as column supports for the structure, a reinforced concrete collar shall be cast around each pile at the groundline, and the collars shall be connected each way with reinforced concrete tie beams. The purpose of the horizontal bracing at the groundline is to enhance the lateral restraint of the individual piles or piers when scour around a pile or pier reduces the lateral stiffness of the pile or pier.

- g. Anchorage of Timber Building Columns to Concrete Pile/Pier Cap: The timber column to concrete pile/pier cap connection should develop the full moment capacity of the timber column. The timber column shall be bolted into a steel sleeve with a welded steel base plate that is bolted to the concrete pile/pier cap using anchor bolts cast into the cap. The steel sleeve shall be oversized with the inside sleeve dimension at least 1 1/2 inch greater than the column dimension. The gap between the sleeve and column should be filled with a high strength non-shrink grout. The bolt(s) connecting the column to the sleeve should be designed for uplift forces and shall be 3/4 inch diameter minimum. The sleeve assembly and bolts shall be galvanized.
- h. Driven Pile Installation Techniques: Driven piles shall be installed by driving alone. Jetting with water or air to create a pilot hole or to loosen the foundation soils before or during driving to aid driving will not be permitted.

Piles may be driven with a vibratory hammer, a drop hammer, or a diesel or compressed air-operated pile driving hammer. To aid in stabbing and aligning piles, pilot holes may be drilled with a dry auger to a maximum depth of ten (10) feet. The pilot hole diameter shall not exceed the pile diameter or width.

- i. Drilled Pier Reinforcement and Concrete: Reinforcement and concrete for drilled piers shall be in accordance with ACI Standard Specification for the Construction of Drilled Piers (ACI 336.1-94).
 1. Minimum Reinforcement: The minimum steel area shall be one (1) percent which is equivalent to six (6) No. 6 reinforcing bars for an eighteen (18) inch diameter pier.
 2. Concrete: The minimum twenty-eight (28) day compressive strength of the concrete shall be 3000 psi. The maximum nominal course aggregate size shall be 3/4

inch and the minimum concrete slump shall be seven (7) inch.

3. Inspection and Testing: The Texas registered professional engineer who designed the foundation shall observe the installation of each pier or pile foundation element and shall furnish the Permit Division of the Harris County Engineering Department a certificate that the piers or piles have been constructed per the design plans and specifications submitted with the permit application. Testing in connection with drilled pier installation shall be in accordance with ACI 336.1-94.

5. The area below the base flood elevation shall not be enclosed. A storage area less than 150 square feet may be allowed, provided the walls perpendicular to the flood flow are constructed of materials allowing the free flow of water and that these walls are no greater than twelve (12) feet wide. All other provisions of these regulations must be met.

6. Fences or fence-type walls may be allowed in the floodway provided it can be demonstrated the flow of the base flood will not be impaired and that base flood elevations will not be increased during the discharge of the base flood.
- (n) The following conditions must be met if the proposed development is for the construction of a bridge or the repair or replacement of an existing bridge:
1. The construction of a bridge or the repair or replacement of an existing bridge must be in accordance with the criteria for bridges as found in the Criteria Manual for the Design of Flood Control and Drainage Facilities in Harris County, Texas and the Regulations of Harris County, Texas for the Approval and Acceptance of Infrastructure.
 2. *Unless otherwise directed by the County Engineer,* a conditional letter of map revision (CLOMR) and a letter of map revision (LOMR) must be submitted for

all bridge projects that modify the base flood elevation or modify the geometry of the channel or bridge.

(o) The following additional requirements must be met for development in “V” Zones:

1. The bottom of the lowest horizontal structural member of the structure (excluding the pilings or columns) must be elevated to or above a level ~~eighteen (18)~~ *thirty-six (36)* inches above the ~~base~~ *0.2 percent or 500-year* flood elevation. Fill may not be used ~~to support the structure, only to elevate the lot.~~

2. Structures shall be elevated on posts or pilings *and meet all the requirements of construction in the floodway.* ~~so that the entire structure, exclusive of posts or pilings, is eighteen (18) inches above the base flood elevation. Fill may not be used to elevate the structure. The drawings and specifications for said posts or pilings shall be prepared by a Texas registered professional engineer and he or she shall certify thereon that the posts or pilings have been~~

~~designed to prevent undermining and structural damage resulting from erosive velocities of the base flood. After the placement or installation of the posts or pilings, or during or prior to the final inspection or approval of the structure, the permittee shall furnish to the County Engineer a certificate from the said structural engineer that the posts or pilings have been constructed in a manner set forth in the drawings and specifications attached to the application for a permit. Piling depth shall be as outlined in Section 4.05 (m)(4) above.~~

3. Development must be located landward of the reach of mean high tides.
4. Sand dunes or mangrove stands may not be altered.
5. The space below base flood elevation must be either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage

to the elevated portion of the building or supporting foundation system. For purposes of this section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or State codes) may be permitted only if a qualified registered professional engineer or architect certifies that the designs proposed meet the following conditions:

- a. Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and,
- b. The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Maximum wind and water

loading values to be used in this determination shall each have a one percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval). Such enclosed space shall not be used for habitable purposes. *The structure shall be certified to withstand a three second gust basic wind speed of one hundred-thirty (130) miles per hour.*

SECTION 4.06 - ISSUANCE OF PERMITS

When the County Engineer determines which, if any, permit shall be issued, he shall issue the permit after obtaining the signature of the permittee or the permittee's agent or attorney on a Certificate of Compliance.

SECTION 4.07 - TERM OF PERMITS

Construction must be started within 180 days of the date the permit is issued or the permit shall be null and void. Upon written request

made prior to the permit becoming null and void, two six-month extensions may be obtained. However, if construction has not started at the time of the issuance of a revised or amended FIRM, LOMA, or LOMR, a new permit must be obtained regardless of time span from the issuance of the latest permit.

PART 5 - PERMITTEE

SECTION 5.01 - RESPONSIBILITIES OF ALL PERMITTEES

All permit holders, regardless of the type of permit held, must:

- (a) Remove all soil deposits resulting from runoff and/or from vehicular construction traffic and/or from site operations from the road or drainage facility on a daily or more frequent basis in accordance with the Regulations of Harris County, Texas for Storm Water Quality Management.
- (b) Post the permit on the jobsite in a place visible from the nearest road or street.

- (c) Allow the County Engineer to inspect the work pursuant to a Permit. The County Engineer may make as many scheduled or unscheduled inspections as he may deem necessary to enforce these Regulations. If no specific inspection standards are set by any part of these Regulations, the inspection shall only be to determine that the drawings and specifications furnished with the permit application are met.
- (d) All holders of a Class "II" Permit, or persons holding a Class "I" Permit issued pursuant to a conditional letter of map amendment or revision who wish to make a change to the development, must submit supplemental drawings and/or specifications to the County Engineer for his review. If the changes do not comply with these Regulations the County Engineer shall not approve the change. If a change complies with these Regulations and is approved, a copy of the supplemental drawings and/or specifications shall be added to the permittee's file, and the permit shall be amended by the County Engineer.

SECTION 5.02 - INSPECTIONS

(a) Class “T” Permit holders in Non-conforming subdivisions shall have the following inspection conducted by a registered public land surveyor, or registered professional engineer and results of said inspection submitted to the County Engineer in one or both of the following forms:

- 1. An Elevation Certificate clearly indicating that the requirements of Section 4.04 C of these regulations have been met.*
- 2. A Harris County Foundation Certificate Form CE1226 indicating that the requirements of Section 4.04 C of these regulations have been met*

OR

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If these elevation documents are not supplied or if the finished floor elevation fails to meet the required height, the permittee has two options.

- 1. Raise the structure and bring into compliance or;*
- 2. Have a certificate of non-compliance filed in the Real Property Records notifying future purchasers that the structure failed to meet these requirements and is subject additional flooding risks.*

For structures built on lots geographically located in the 0.2 percent or 500-year floodplain and on ground below the 0.2 percent or 500-year floodplain the following shall be submitted.

- 1. An Elevation Certificate must be completed, signed and sealed by a registered surveyor or registered engineer indicating the required minimum elevation of the regulations have been met.*

(ab) Class “II” Permit holders or persons holding a Class “I” permit pursuant to a conditional letter of map amendment or a Class “I” permit issued for a stormwater detention or retention system shall have the following inspections conducted by a registered professional engineer, registered public land surveyor or registered architect as applicable and the results of said inspections submitted to the County Engineer.

- ~~1. When the slab of a structure with an established minimum elevation is poured or for a~~ *Prior to framing or wall construction, a structure with an established minimum finished floor elevation on posts when the posts are placed and the lowest horizontal supporting member is installed, shall*

have an elevation certificate ~~must be~~ completed, signed and sealed by a registered surveyor, *or* registered engineer ~~or licensed architect~~, and submitted indicating the required minimum elevation of these Regulations has been met.

2. When the structure is complete and ready for habitation, a final elevation certificate must be completed, signed and sealed by a registered surveyor, *or* registered engineer ~~or licensed architect~~, indicating that the finished floor of the structure, pier and beams or posts are placed or the lowest horizontal supporting member *is* installed, *and all elevation requirements are met. is eighteen (18) inches above the base flood elevation.* All elevations must be referenced to the datum on the applicable FIRM.
3. When the structure is complete and ready for habitation, an as-built certification form supplied by the County Engineer must be completed, signed and sealed by a registered engineer or a registered

architect indicating that all the minimum requirements of these Regulations have been met.

4. When the development is other than structural in nature, an as-built certification form supplied by the County Engineer must be completed, signed and sealed by a registered engineer or a *registered licensed* architect indicating that the project has been completed in accordance with drawings approved by the County Engineer.
- (b) Inspections will not be made if the permit is not posted on site.
 - (c) The permittee will be responsible for determining whether inspections have been made prior to proceeding with work.
 - (d) Once all applicable certifications have been submitted to the County Engineer's office, a final inspection will be conducted. A certificate of compliance will be issued by the County Engineer or his representative if all provisions of the permit have been met. Should the County Engineer

determine that the applicable certifications have not been provided and the provisions of Section 5.02 of these regulations were not followed, then enforcement procedures as outlined in Section 7.01 shall commence.

- (e) Should the County Engineer have to make additional inspections or conduct survey work due to non-compliance with these Regulations, additional fees may be assessed as outlined in Section 8.04 hereof.

SECTION 5.03 - SUSPENSION OF PERMITS

Permit suspensions are handled in accordance with the following provisions:

- (a) A permit is suspended when the County Engineer or his inspector advises the permittee or some responsible person on the job that the permit is suspended and posts a written suspension notice over the Permit at the jobsite.
- (b) The following actions by the permittee are grounds for suspension of a permit:

1. Non-compliance with Section 5.02 of these regulations.
 2. Deviating from drawings and specifications filed with the County Engineer and refusing to make corrections required by the County Engineer.
 3. Any grounds for revocation of a permit as outlined in Section 5.04.
- (c) When the suspension notice is posted, the permittee must immediately suspend all work on the job except that work necessary to abate the suspension. The suspension will be abated when the corrective work is performed and has passed inspection. The abatement will be evidenced by the removal of the suspension notice by the County Engineer or his inspector, and the notation on the Permit Notice by the County Engineer or his inspector that the work has now been re-inspected and passed. The suspension notice may not be removed by any person other than the County Engineer or his inspector and removal by any other person will be ineffective.

SECTION 5.04 - PERMIT REVOCATION

Grounds for permit revocation are as follows:

- (a) Material deviation from the drawings and specifications on file with the County Engineer, or a pattern of consistent deviation from such drawings and specifications which would demonstrate an intention to avoid conformity with the requirements of the permit.
- (b) Refusal to uncover work for a mandatory inspection.
- (c) Removal of a building permit suspension notice.
- (d) Proceeding with work while a building permit is suspended, other than such work necessary to abate a suspension.
- (e) An act or acts of violence, or threat or threats of violence against the County Engineer or his inspector either on or off the job for the purpose of intimidating the County

Engineer or his inspector, so that he will not perform his inspection duties.

- (f) Falsifying information in the permit application.
- (g) Failing to submit all required certifications as outlined in Section 5.02.

SECTION 5.05 - PERMIT REVOCATION PROCEDURES

Permits shall be revoked in the following manner:

- (a) The County Engineer must file a complaint stating the reason for permit revocation with the Hearing Examiner.
 1. The Examiner will set a hearing as soon as practicable, but within 15 days of receiving the complaint.
 2. The Examiner will deliver the original Complaint, Certificate to Commissioners' Court and Hearing Notice to the Clerk of Commissioners' Court to be

filed, give one copy to the County Engineer, and designate an appropriate person as Serving Agent and give two copies to him or her.

3. The Serving Agent will take the two copies of the Complaint and Hearing Notice to the site where he will:
 - a. Hand one copy of the Complaint and Hearing Notice to the permittee, or
 - b. if the permittee is not an individual or cannot be found on the site, the Serving Agent will hand one copy of the Complaint and Hearing Notice to the person on the site who appears to be in charge, or
 - c. if no person can be found on the site, the Serving Agent will post the Complaint and Hearing Notice over the Permit and/or Notice of Suspension posted at the job.

d. Upon posting of the Complaint and Hearing Notice the permit shall be suspended.

4. The Serving Agent will fill in the return on the remaining copy, noting on it the date, time and manner in which he perfected service, and sign the return and return the remaining copy to the Hearing Examiner.

5. At the time set for hearing, if the return copy of the Complaint has been returned to the Hearing Examiner by the serving agent, and reflects that service has been perfected, the Examiner may proceed with the hearing.

6. Hearings will be conducted in the manner provided for by Section 6.02 of these Regulations before the Hearing Examiner appointed by Commissioners' Court and the Examiner may delegate responsibilities of Hearing Examiner to his Assistant.

PART 6 - APPEALS AND HEARING PROCEDURES

SECTION 6.01 - APPEALS

If a permit applicant is denied a permit, or has his permit suspended he may appeal the denial or suspension as provided in this Section. The term “appellant” is used to refer to the appealing party. An appellant must seek his remedy under this procedure before seeking his remedy in court. Application for a permit is deemed to be a waiver of the right to challenge these Regulations before exhausting remedies herein provided.

- (a) Appeals are initiated by the making of complaint with or by requesting an exception to the Regulations from the Hearing Examiner in writing.
- (b) The Hearing Examiner will set a time for a hearing, which will be scheduled as soon as practicable but within 15 days of the receipt of the written complaint or request, and shall prepare a Notice of Public Hearing naming the time and date of the Hearing. Copies shall be distributed as follows:

1. The original copy and the Certificate to Commissioners' Court will be filed with the Clerk of Commissioners' Court and the Clerk will prepare a file for the Hearing Notice.
 2. The Examiner will set up his own working or hearing file, in which he will keep one copy.
 3. The Examiner will give one copy to the Appellant.
 4. The Examiner will deliver one copy to the County Engineer. The Hearing will be conducted as provided in Section 6.02, below.
- (c) Appeal of a suspension will not abate the suspension pending the decision of the Hearing Examiner.

SECTION 6.02 - HEARING BEFORE THE EXAMINER

At Hearings before the Examiner, the Examiner will hear the testimony of the County Engineer and any witnesses called by the

County Engineer. The Examiner will hear the testimony of the appellant and any witnesses called by the appellant. The Examiner will review all documents and exhibits submitted to him by the parties. The Examiner will not be bound by formal rules of evidence and will control the evidence, reserving to himself the power to exclude testimony or exhibits he does not consider relevant. The Hearing Examiner will maintain an accurate record of the evidence adduced at the Hearing.

SECTION 6.03 - FILING OF EXAMINER'S DECISION

The Examiner will prepare a written decision within three working days of the Hearing. A copy of his decision will be filed with the Clerk of Commissioners' Court, the members of the Commissioners' Court, the Regional Director of the Federal Emergency Management Agency and with the County Engineer. The original will be sent to the appellant's address shown on the permit or permit application. If a variance is granted, the County Engineer shall prepare the appropriate permit with any special requirements that may be required by the conditions of the variance.

SECTION 6.04 - REVIEW BY COMMISSIONERS' COURT

If the County Engineer, or the appellant wishes to appeal the Examiner's decision, a written objection must be filed with the Clerk of Commissioners' Court within ten (10) days of the date the Examiner's decision is filed. The Clerk will notify the Hearing Examiner who will place the matter on the Agenda of Commissioners' Court for review at the next meeting of Commissioners' Court. If the objection is filed by the County Engineer, notice that the matter is on the agenda will be sent to the appellant by mail at the appellant's address shown on the permit or application. Commissioners' Court will review the matter. The Commissioners' Court may either affirm or reverse the decision of the Hearing Examiner. A suspension of a permit upheld by the Hearing Examiner will not be abated pending the review of Commissioner's Court.

SECTION 6.05 - VARIANCES

If any person wishes an exception to any provision of these Regulations, he shall request a variance in the manner prescribed for the filing of an appeal by 6.01 and 6.02 with the Hearing Examiner.

The Hearing Examiner shall hold a hearing, and deny or grant the variance. Variances will be granted only if the conditions of Section 60.6 of the Title 44 of C.F.R. are met. Specifically:

- (a) The applicant has shown good and sufficient cause.
- (b) It has been determined that failure to grant the variance would result in an exceptional hardship to the applicant.
- (c) The granting of a variance will not result in an increased flood height, additional threats to public safety, extraordinary public expense, or create nuisances, cause fraud or victimization of the public.
- (d) Variances shall only be issued upon a determination that a variance is the minimum necessary considering the flood hazard to afford relief.

Economic hardship shall not constitute the sole basis for granting a variance. A hearing before Commissioners' Court regarding variances shall be requested in the manner provided in Section 6.04 of these Regulations. If a variance is granted a permit shall be issued

and the permittee shall conform to all applicable provisions of these Regulations except the Sections for which a variance is granted.

PART 7 - ENFORCEMENT

SECTION 7.01 - ENFORCEMENT

If any person violates any provisions of these Regulations the County Engineer may notify the County Attorney and direct him to take whatever action is necessary to remedy the violation, including but not limited to filing suit to enjoin the violation and submitting a request to FEMA for denial of flood insurance. If a violation continues, Harris County may file a Certificate of Non-Compliance in the Real Property Records of Harris County. Once the violation has been resolved any individual may request a Certificate of Compliance be filed in the Real Property Records of Harris County. A fee for this action will be charged in accordance with Section 8.04 of these Regulations. The violator shall bear this and all other costs of effecting compliance.

SECTION 7.02 - VIOLATION OF CONDITIONS OF REGULATIONS

Any person having knowledge of a violation of these Regulations may file a complaint with Commissioners' Court. If the Complaint is filed by the County Engineer or another county official, the County Attorney will prosecute the Complaint.

SECTION 7.03 - CONTEMPT OF COMMISSIONERS' COURT

Commissioners' Court may punish contempts by fine or imprisonment in accord with the provisions of Section 81.024, Texas Local Government Code, as amended. Any person securing a permit under these Regulations does so on the representation to Commissioners' Court that he will comply with the terms of the permit and with these requirements and other County regulations. Violations of such representations to Commissioners' Court constitutes contempt of Commissioners' Court. Additionally, Commissioners' Court has the power to enforce its Orders by civil contempt. If the Commissioners' Court finds the defendant to be guilty of contempt, it will enter such Orders consistent with general

law as it deems appropriate to punish the person guilty of contempt, and will enter such other and further Orders enforceable by civil and criminal contempt, and consistent with its authority under general laws, as Commissioners' Court deems necessary to enforce and protect its jurisdiction over the matter, and to uphold the integrity of these Regulations. Procedures for contempt proceedings before Commissioners' Court will be consistent with procedures in actions before other courts in this State for enforcement of Court Orders, and for the protection of the jurisdiction of Courts by the process of contempt.

PART 8 - FORMS AND RECORDS

SECTION 8.01 - FORMS

Forms to be used in the administration of these Regulations shall be promulgated by the County Engineer.

SECTION 8.02 - MAINTENANCE OF RECORDS

All applications for, and file copies of, permits must be maintained by the County Engineer for a retention period of three (3) years. Drawings and specifications on file with the County Engineer may be destroyed after completion of the structure.

SECTION 8.03 - ELEVATION AND FLOOD PROOFING RECORDS

For the duration of the records' retention period, the County Engineer shall maintain for public inspection and furnish upon request any certificates of flood-proofing, information on the elevation of the level of the lowest habitable floor of all new or substantially improved structures, and, for a structure which has been flood-proofed.

SECTION 8.04 - FEES

Fees for permits and inspections are to be set by Commissioners' Court. Fees shall be paid by cash, cashiers check, money order, or personal check. Checks shall be made payable to the "Harris County Treasurer." Should the check be returned for insufficient funds the

permit(s) may be suspended. If the returned check is not resolved in ninety (90) days, the permit(s) shall become null and void. Fees shall be paid at the time permit is delivered to the permittee unless other arrangements have been made and approved by the County Auditor. Refer to the fee schedule for the appropriate fee.

All permit fees are to be doubled for all construction starting prior to obtaining a permit including minimum and maximum fees.

Charge per square foot shall also include the floors of attached and detached garages and all building floors of multiple story buildings.

Permit fees are not refundable.

Inspection fees are charged for each visit to the jobsite.

PART 9 - SEVERABILITY

The provisions of these Regulations are severable. If any word, phrase, clause, sentence, section, provision, or part of these Regulations should be invalid or unconstitutional, it shall not affect

the validity of the remaining portions and it is hereby declared to be the intent of the Commissioner's Court that these Regulations would have been adopted as to the remaining portions, regardless of the invalidity of any part.

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