# City of Bunker Hill Village

# **Pre-Development Meeting**

# Summary of General Design Standards



Thank you for taking the time to learn about the building requirements of the City of Bunker Hill Village. Every requirement or guideline adopted by the City is the result of a need or desire of the citizens of the city or another governmental agency. We have taken great care to minimize the permit requirements while continuing our duty to provide for the needs of our residents.

# MISSION STATEMENT

The Mayor, City Council and Staff of Bunker Hill Village are committed to governing with integrity and fiscal responsibility. We are dedicated to creating a sense of community, ensuring the safety and well-being of our citizens, and preserving our unique character and quality of life so that we can pass on a greater and more beautiful city to future generations.

The Pre-Development Meeting is an effective way to present the building requirements to the building professionals and more importantly, the property owner, the person writing the check. We want you to understand why all of the city's requirements are in place. It is a time when you can ask questions and get answers.

#### **DRAINAGE OVERVIEW**

If your project requires that new drainage be installed, the design standards can be a challenge with your first encounter. There is much more detail on drainage later in this document but the following is an overview of the city's development of the drainage ordinance.

The City's drainage requirements are based on a concept called "No Net New". In order to fully understand this concept, some history of the city is required. Several years ago, our first Master Drainage Plan was created. This document was created as a result of more than 300 homes flooding in the city. The goal of our first plan was to create a global roadmap to construct new drainage from all areas of the city and deliver that water to Buffalo Bayou.

Our citizens have invested almost \$20 million to construct the projects of the first Master Drainage Plan. Since the completion of these first drainage projects, Harris County Flood Control, the entity which owns and operates Buffalo Bayou, has restricted any increase in drainage to that waterway. As the city redevelops with new homes and additional runoff generated from new lot coverage, a storage location for the water has to be created. This is why underground detention is required for a project when additional non-permeable coverage is created. The storage is required for the planned addition above what was previously existing, hence the name "No Net New" runoff.

After the first edition of our drainage ordinance was in place, we began seeing an issue with the application of the requirements to the medium and smaller lots of the city. Specifically, when a new home was planned and the required detention was constructed, a substantial cost was encountered later by home owners who wanted to add a new pool, outdoor kitchen or other non-permeable lot coverage project. The additional lot coverage meant that additional underground storm water detention would be required. For lots with an area of 25,000 sf or less, the majority were developing to the maximum allowable non-permeable lot coverage of 45%. So, for these size lots, the drainage ordinance was revised to require all of the detention to be in place at the time of the new home construction. This means that no additional underground detention would be required as new homeowner projects are added. The ultimate required detention would already be in place.

An update to the City's Master Drainage Plan was recently completed to map out future improvements to the City's drainage. As a result, several city storm water detention projects have been completed adding approximately \$4 million in additional drainage improvements. Our partnership with everyone who builds new homes allows us to improve the overall drainage of the city incrementally as each new home is constructed. Our goal is to allow redevelopment to occur without impacting the existing homes and properties.

#### A. GENERAL COMMENTS

Everything presented in the Pre-Development Meeting is available on the city's website of www.bunkerhilltx.gov. Under the "Contractor/Development" heading, choose "Permits and Regulations" to see general guidelines for specific types of projects.

Please pay particular attention to the first green link called "Project Spreadsheet". This is an Excel spreadsheet which provides you with all of the forms you will need to submit your project. These forms require that you complete the first two tabs in

order for the rest of the spreadsheet to calculate properly.



All of the other green links will provide you with details for each type of project including a check list of all of the documents needed for each kind of project.

SEE TABS FOR EACH FORM

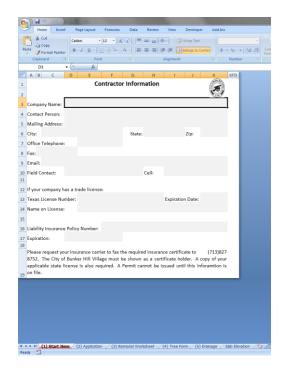
YOU MUST COMPLETE THE

"START HERE" AND

"APPLICATION" TABS FOR

THE REST OF THE FORMS

TO FUNCTION



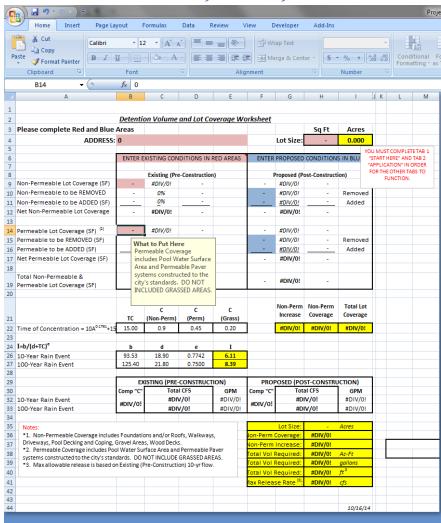
# B. Lot Coverage

#### 1. Permeable

- a) Swimming Pools (does not include infinity pools with no freeboard storage)
- b) Permeable System (see the permeable insert for details)
- c) Does NOT include grass or mulch or natural areas. Do not list these areas on the spreadsheet.

#### 2. Non-Permeable

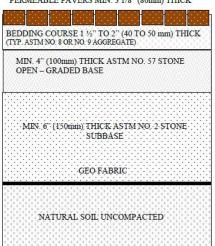
- a) Everything else placed on the lot. Includes gravel, wood decks, concrete, bricks.
- b) Maximum Non-Permeable coverage is 45.0% of the lot.
- c) Total Lot Coverage Maximum (Permeable + Non-Permeable) is 55.0% of the lot.



(2) Application (3) Remodel Worksheet (4) Tree Form (5) Drainage Slab Elevation



PERMEABLE PAVERS MIN. 3 1/8" (80mm) THICK



#### C. **Drainage**

- All projects with an increase in non-permeable foot print will be required to address drainage. Particularly any project which has lot grading within 20 feet of a property line.
- **Detention** is required for any project in which the net non-permeable lot coverage increase is 200 square feet or more. A Texas Registered Civil Engineer is required to design your system.

Lot Size:	0.552 Acres
Non-Perm Coverage:	36%
Non-Perm Increase:	2%
Total Vol Required:	0.008 Ac-Ft
Total Vol Required:	<b>2,691.518</b> gallons
Total Vol Required:	359.829 ft <sup>3</sup>
Max Release Rate (3):	1.242 cfs

- For engineered drainage systems, a 3. \$1,000 review fee is required to be paid at the time the project is submitted for permit review. The City uses an outside engineer to review your drainage design. A \$500 re-submittal fee is required for each additional review required for a drainage project.
- A Drainage Criteria Manual is available to help your engineer understand how to design your project. **Important Design Points**

- Minimum Pipe Size is 6".
- If you choose to design detention as part of the pipe system, you must allocate a portion of the pipe for conveyance that cannot be counted toward any required detention. In other words, you must calculate what amount of the pipe is necessary to meet the 10-year event level of service and then any additional capacity may be used as detention.
- Your collection system design should minimize the lengths of any swales directing water to your planned inlets.
- Inlets and pipe should be designed to empty completely after the rain event. No remaining standing water.
- All required Detention must be below ground.
- Collection system design should be based on a 10-year rain event. Meaning that a 10-year event should be totally enclosed in the collection/detention system. Pools do not count towards detention.
- No overland sheet flow to city ditches, inlets or drainage systems.
- For systems which empty into a ditch, please connect your system to the back of a driveway or sidewalk culvert. This minimizes erosion and allows unobstructed future ditch maintenance.

City of Bunker Hill Village Drainage Criteria Manual (Amended 02/16/2016)

#### Section 1. Purpose and Applicability

It is the purpose of this Criteria Manual to preserve and enhance the desirability of our City by requiring careful planning of our City's redevelopment which includes the management of our darinage facilities and storm water while sensuring the owner; rights to sutilize and develop their property. In accordance with the City's drainage ordinance, the runoff shall be limited to existing conditions for the 10 and 100 year frequency storm events.

PROPERTY OWNERS RESPONSIBILITY: It shall be the responsibility of each property owner or developer of property whether an individual lot, multiple lots, block or development to design and miniatin the drainage of such property without adversely affecting the existing drainage patterns of adjacent property owners or developers, and the Cip's drainage system The purpose is to prevent durange by overflow or water orto adjacent Indoorness caused either by direct diversion of water on the adjoining land or by the failure to adequately accommodate existing drainage patterns.

The attached Drainage / Detention Analysis Flow Chart provides the outline of the le drainage and/or detention evaluations necessary for all construction activity within the City development with an increase in imprevious cover will negative proparation of a Det Summary Worksheer to determine the need for onsite detention volume, and all develop that includes re-grading of the existing natural ground within 20-fect of the property is shall require preparation of an Impact Analysis.

#### Section 2. Drainage Calculations

unoff Calculations

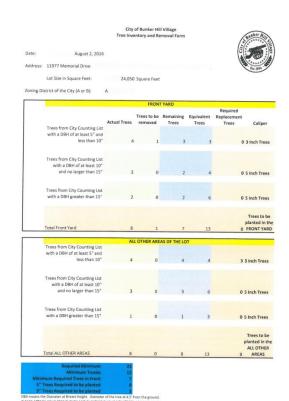
he rate of storm water runoff (peak discharge) shall be determined for each inlet, pipe, roa

itch, culvert, outfall, or other designated design point by using the following standards:

• For systems which discharge through a curb, please see the city's design criteria for pipe transition.

## D. Trees

- 1. What is a tree?
  - A tree is defined as a self-supporting woody plant with a single trunk, un-branched for several feet above the ground, supporting a definitely formed crown.
  - A tree is NOT a bush, shrub or a grass (palm trees are grasses)
- 2. Measuring a tree.
  - Trees to be planted are measured using the Caliper method. Caliper is the Diameter of the tree, 4 to 6 inches from the dirt.
  - Existing trees are measured using Diameter at Breast Height (DBH). This method is typically measured 4  $\frac{1}{2}$  feet from the ground.
  - Only trees 5" and larger DBH count.
- 3. Tree Inventory Form
  - A tree inventory form is required for any project which has a change in exterior footprint. Interior remodel projects are not required to provide a Tree Inventory Form.
  - City requirement is for there to be one tree for every 1,000 square feet of lot area, rounded up. This is a requirement even if you do not plan to remove any trees.
  - At least 25% of the trees must be in the front vard.
  - Use this form to request tree removal as well.
- 4. Existing Trees Equivalent Chart
- Existing Trees 5"up to 10" DBH Count as 1
- Existing Trees 10" up to 15" DBH Count as 2
- Existing Trees 15" and larger DBH Count as 3
- The Tree Spreadsheet calculates these for you.
  - 5. Documents required
- A Tree Survey which shows all trees 5" and larger with diameter and species (Oak, pine ...) shown. (11" X 17")
- Indicate on the survey all trees to be removed.



- A planting plan showing the location of all required replacement trees. (11" X 17")
- Tree Inventory and Removal form
- A re-evaluation of the number of required replacement trees is possible after the permitted structure is "dried in". This evaluation is to determine if there is sufficient canopy space for required replacement trees. A written request (email) to the Building Official is required to begin the re-evaluation. The re-evaluation does not guarantee that the number of required trees will be reduced.

#### E. Remodel Worksheet

A REMODEL project classification is only good for a project in which less than 50% of the structure (either value or square feet) is touched. Projects which meet or exceed the 50% threshold are considered to be structure REBUILDS and must meet new construction standards. This requirement is on a 24-month rolling basis. All building permits (for the main structure) issued within the last 24 months of your remodel application will be counted toward your 50% calculation.

Typical additional REBUILD requirements include adding a fire sprinkler system to the entire structure. Adding a drainage system which meets current city standards. Replacing the incoming electrical service to meet current city standards and resolving any other health and safety deficiency.

A REMODEL WORKSHEET is required to determine if your project is a Remodel/Addition or a Rebuild.

## City of Bunker Hill Village Remodel/Addition Worksheet

Date: October 11, 2016 Project Address: 11977 Memorial Drive Contractor: Acme Builders Property Owner: Mr. and Mrs. Smith A. CURRENT SQUARE FEET OF TOTAL LIVING AREA: 6,250 SQUARE FEET B. CURRENT AVERAGE CONSTRUCTION COST 240.00 C. STRUCTURE REPLACEMENT VALUE (A X B) \$ 1,500,000.00 D. YOUR CONTRACT AMOUNT FOR ITEMS WHICH REQUIRE A PERMIT 228,000.00 E. PERCENT OF IMPROVEMENT (D/CX100) 15.20% F. SQUARE FEET OF ROOM IN WHICH REMODELING WITH TAKE PLACE 935 SQUARE FEET G. SQUARE FEET OF ANY NEW AIR CONDITIONED SPACE ADDED TO THE STRUCTURE 935 SQUARE FEET H. SQUARE FEET OF ANY NEW NON-AIR CONDITONED SPACE UNDER ROOF. **300** SQUARE FEET I. PERCENT OF IMPROVEMENT 29.92%

If either "E" or "I" is 50.0% or more, your project is considered a reconstruction project and must meet the requirements of New Home construction. An exemption is available for substandard foundation elevations. Please see the permit requirements for New Home design and Construction. The undersigned agree that information provided above is accurate and further agree that any changes to the information will be provided to the city as soon as possible.

ontractor:	Acme Builders	Date	10/11/2016	
Property Owner:	Mr. and Mrs. Smith	Date	10/11/2016	

Much of the information on this page is taken from the Permit Application and the Contractor information pages of the Project Spreadsheet. Please make sure you complete those sections first.

When determining the square feet of rooms remodeled in Item "F", please use the following guidelines:

- a) Any room in which wall, ceiling or floor space is opened must be counted.
- b) The entire area of the room must be counted.
- c) In large open concept areas in which multiple spaces are in the same room, divisions of the space may be used based on beams and fur downs.
- d) Kitchen and bath remodels almost always have wall cavities opened when tile is removed from back splash and showers.
- e) New walls and wall removal spaces should be included.
- f) If you are creating a new opening in a wall, both spaces do not have to be counted unless other work is being done in both spaces. Choose the smaller of the two spaces that are the most advantageous to you.

## F. Slab Elevation

The Slab Elevation Certificate is required for any New Home or Rebuild project. Current FEMA

flood standards require that the MINIMUM slab elevation be at least 12" above the center line of the street on which the structure faces. The City calculates a known flood level for 100 year flood events or Hydraulic Gradient Level (HGL) for your property area. Your slab elevation should be at least 12" above this elevation as well.

The City also requires that you set your minimum slab elevation at least 12" above the nearest sanitary sewer manhole to prevent sewer intrusion into the

	Building Slab Elevation Certificate	(3)	
Date: March 2		(4)	
Project Address:	11977 MEMORIAL DRIVE	12	*****
Contractor:	ACME BUILDERS	,	Est. 1954
Property Owner:	MR. & MRS. SMITH	Proposed	Constructed
Project:	New Home Construction	Proposed	Constructed
A. Elevation	of lowest finished floor.	77.00	
B. Elevation of top of nearest sanitary sewer manhole on same system.		76.00	
C. Height of	lowest finished floor above sanitary manhole (min 12")	1.00	0.0
	nt of the lot is on a curb and gutter street (Elevation of the center of the street in		
D. front of t	nt of the lot is on a street served by ditches (Elevation of the top of the grate of	74.90	
E. the near	est storm inlet. If no inlet, use the center of the street)		
	finished floor above drainage.	2.10	0.0
CLI	CK HERE TO REQUEST THE 100 YEAR HGL		
G. Calculate	d Hydraulic Gradient Line (HGL) Request this number from the City.	75.10	
H. Height of	finished floor above the HGL (Minimum of 12")	1.90	0.0
Contractor:		Date_	
		Date	

house in the event of a surcharge sewer system. Please contact the city if you are unable to locate the nearest sanitary sewer manhole.

# **G.** Swimming Pools

#### **Pool Remodels**

A swimming pool remodel consists of replacing the surfaces of the pool structure with NO modifications. If you plan to add to or reconfigure the pool, the project is considered to be a NEW POOL project and must be permitted as such. The City does require a permit for Pool Remodels.

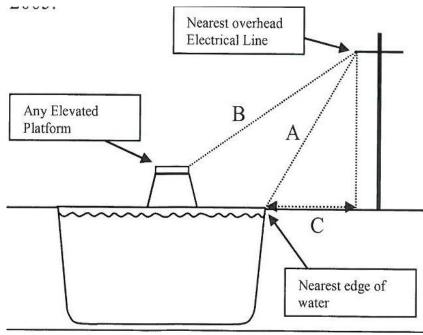
All safety related items for a Pool Remodel must be updated to current code requirements. These items should include:

- 1) Replacement of any lighting in the pool to current requirement which is low voltage LED.
- 2) Pump suction screens to current code.
- 3) If the pool decking is removed, a 360-degree bond wire must be installed per current standards.
- 4) If the pool decking is removed and put back in the exact same location, this is considered an "in kind same kind" maintenance. A permit is required but drainage ordinance detention requirements do not apply.

#### **New Pool**

Swimming Pools are considered as an Accessory Structure and must meet the setbacks as an Accessory Structure. Swimming pools must also be located in the back yard (rear 1/3 of a lot), in other words, a pool cannot be located on the side of a house unless is meets the main structure setbacks.

When considering the impact to lot coverage, the water surface area of a non-infinity pool is considered to be a permeable surface. This is due to the temporary rain storage capacity of a non-infinity pool. Infinity pools (pools with no water free board) do not store water and are therefore counted as NON-permeable surfaces.



Pool coping on either type of pool is counted as non-permeable.

National Electric Code minimum clearances are as follows:

- A) 22.5 feet
- B) 14.5 feet
- C) 10.0 feet

# ALL MINIMUM CLEARANCES APPLY!

When submitting a pool project, please include an electrical load calculation prepared by a licensed master electrician. The calculation

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should include the size of the incoming service in amperage rating to the property, the portion of the service that is already allocated for the existing use and the proposed amperage calculated for the new pool.

A sanitary sewer p-trap within 6 feet of the pump equipment is required for all non-remodel pool permits; even if a non-backwash filter is used. The USEPA currently requires that all pool discharges go to the sanitary sewer system. The Pool overflow should be connected to the lot drainage system.

#### **Pool Barrier**

The City of Bunker Hill Village has adopted the pool barrier requirements of the International Residential Code (IRC). Any body of water that is at least 24" in depth must comply with the requirements of the IRC. Here are a few of the requirements of this code:

- An approved pool or spa cover may be used to meet the barrier requirements.
- If a fence is used as your pool barrier, the fence must be at least 48" high.
- All gates must open away from the pool and be self-closing and self-latching.
- Gate latches must be at least 53" above the ground (see code for exceptions)
- Driveway gates do not qualify as a pool barrier.
- If a wooden fence is used as your pool barrier, horizontal fence rails may not be on the outside of the fence exposed to a different non-pool area. The horizontal rails can be used as a step for children to gain entrance into the pool area. (See the code for exceptions)
- If a pool cover is not used, any door leading out of the living space must have a pool door alarm installed. (Most home security systems do not qualify as a pool alarm)

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## H. Gas Meters

Many projects, particularly pool projects, require a gas meter upgrade or addition. You need to know when you submit your project if a change in gas service is needed. The City creates your project plumbing permit based on that information. IF YOU DO NOT REQUEST A GAS METER CHANGE, CENTERPOINT WILL NOT PERFORM THE NECESSARY WORK WITHOUT THE CITY'S PROPER PERMIT IN PLACE. Should you decide to upgrade your gas service after the initial plumbing permit has been issued, a separate new permit and fee will be required.

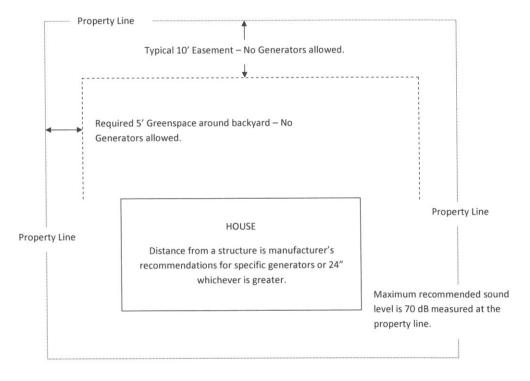
# I. Electric Service

The City has adopted an ordinance requiring all new construction to have underground utility service. No overhead lines of any kind will be allowed, including telecommunications. This requirement also applies to existing homes that change out load centers or breaker panels.

#### I. Generators

- Standby and emergency generators shall be installed in accordance with the National Electrical Code, 2020 and the following restrictions:
- All wiring shall meet all requirements outlined in this code.
- Maximum sound level at anytime shall be 70db or less measured at the property line.
- Generator shall be positioned so that no structure, roof or overhang is over any portion of the generator enclosure.
- Minimum clearance between generator foundation and other structures shall be 24 inches or greater as determined by manufacturers' specifications. At no time shall the clearance be less than 24 inches.
- No portion of the generator or wiring may be located in an easement or Right of Way.
- Generator may not be located in any restricted area or required green space.
- Generator may not be located within the required front yard of a lot.
- A generator cannot be visible from view from a public or private street.
- A typical generator permit will consist of three parts:
  - o Electrical
  - Plumbing gas installation
  - Foundation if a slab is to be constructed for the generator.

Please indicate if you will need all three permits when you apply as some generators use a prefabricated foundation. Also, YOU NEED TO INDICATE ON THE APPLICATION IF A GAS **METER UPGRADE IS** REQUIRED. If you do not, an additional plumbing permit may be required in order to get the gas meter upgrade. If an additional gas meter is requested, the city will assign the new gas meter address for your application to CenterPoint Energy.



#### K. Water Meters

New Homes are required to install a new water meter. The City offers meters in the following sizes:

- 1"
- 1 ½"
- 2"

You may list your desired size on the New Home permit application. Generally, the water meter is sized by your fire sprinkler contractor. The materials cost of your desired meter will be incorporated into your permit fees. THE CITY DOES NOT INSTALL THE WATER METER. You will need to have your own plumbing company purchase the installation permit and complete the meter installation. You are limited to one meter per address.

# L. Water Utility Account

A water- sewer-garbage account is required to be active for all New Home and Demolition projects. A \$500 deposit is required for all Builder/Contractor accounts and rental property. After a demolition or a building permit has been purchased for your project, you may request in writing that garbage collection be removed from your bill effective on the next billing cycle. The City does not prorate Garbage. The City does not provide solid waste disposal for construction sites.