CITY OF HILSHIRE VILLAGE
DRAINAGE CHECKLIST

Address of Property:_____
Date:_____
Builder:_____
Builder's Contact Telephone Number:_____
Engineering Company:_____
Engineer:_____
Engineer's Contact Telephone Number:_____
Engineer's Mailing Address:_____

DRAINAGE PLAN REQUIREMENTS

CRITERIA	COMPLETE
1. The Drainage Plan shall demonstrate that positive drainage will occur on the lot.	
2. The Drainage Plan shall include all aspects of the anticipated development including but not limited to building foundation, patios, decks, swimming pools, drives, walks, landscaped areas, downspouts, drainage system, etc. The Drainage Plan shall show **existing and finished grade elevations** of all proposed paving and grading on the site and shall include existing and planned spot elevations at a maximum of **25-foot spacing covering the lot**, including shots on 25-foot spacing along the perimeter of the lot, grid across the lot, and along the perimeter of all structures (i.e., building slabs, sidewalks, patios, driveways, decks, etc.). If significant changes occur in the natural ground contour (i.e. depressed areas) and the 25-ft spacing does not adequately depict the lot surface condition, then spot elevations shall be taken at 10-ft spacing or less, in order to provide a clear profile of the site.	
3. All Existing Conditions Topographic Survey shall be prepared and submitted to the City for review and approval, prior to the start of demolition and/or construction activities. The topographic survey shall be prepared, signed, and sealed by a Registered Professional Land Surveyor (R.P.L.S) in the State of Texas. The topographic survey shall be tied to Floodplain Reference Mark Number 210215, in the City of Hilshire Village; no assumed elevations will be allowed; and shall indicate property floodplain location status based on the current or latest Flood Insurance Rate Map (FIRM) as published by FEMA.	
4. The topographical survey must also include **features in the right-of-way** in front of adjacent properties including ditch flow line and top of bank	

elevations and storm sewer elevations (driveway culvert flow lines, storm sewer flow lines, inlet top of grates).	
5. **No elevation changes** shall occur around and **within 3-ft of the perimeter** of the property which could become a physical barrier for the natural flow of water from adjacent properties into the property being developed or redeveloped.	
6. The drainage of the lot shall be such that **no person shall divert or impound the natural flow of surface water falling on the lot**, in accordance with the Texas Water Code, without producing evidence of appropriate agreements with the affected property owner.	
7. Engineer shall provide drainage area calculations using City of Houston 2-Year storm event on the submitted plans. The runoff coefficient (C-value) used must be calculated using the following equation: $C = 0.6Ia + 0.2$. (Ia = impervious area/total area) and must not be less than 0.40.	
8. All proposed drainage pipes shall be sloped to achieve a minimum velocity of 2.3ft/sec.	
9. Outfall flow line elevations and flow line of existing system shall be shown where proposed tie-in occurs.	
10. Driveway culverts shall be able to convey a City of Houston 2-Year Design Storm for all affected area. The minimum culvert size shall be 18 inches in diameter and shall be reinforced concrete pipe (RCP). Refer to Code of Ordinance Section 9.111 for additional information.	
11. Proposed landscaping/planting areas along the property perimeter shall not impede the storm water flow into and through swales or storm sewer inlets. No raised flower beds will be allowed along the perimeter of the property. No landscaping/planting will be permitted in the drainage swales.	
12. Drainage of the lot may be obtained by surface or sub-surface means, or a combination of the two, as is appropriate and necessary to ensure that all runoff produced in a City of Houston 2-year storm event will drain into the street, ditch, storm sewer system, or a recorded drainage easement.	
13. Proposed or existing rain gutter downspouts shall not be tied into existing or proposed underground storm sewer lines that drain directly into the City's ditches on the front and/or side of the owner's property, nor shall be extended into the City's ditches	
14. If storm sewer pipes are proposed in drainage plan, main pipes shall be 6-inch PVC SDR 35 with a minimum slope of 0.65%, and/or 8-inch diameter PVC SDR 35 with a minimum slope of 0.44%.	
15. If storm sewer pipes are proposed on drainage plan, all pipes shall be labeled indicating the proposed size, length, material, and flowline elevations. All proposed storm sewer inlets or junction boxes must be	

labeled with top of grate elevations and flow line elevations of pipes connected to the box.	
16. For a surface drainage system (i.e. swales), the Engineer shall design the system to handle a City of Houston 2-Year Design Storm. Swales shall have a minimum width of 3-ft, minimum side slope of 3:1 (horizontal: vertical), a minimum slope of 0.06%, and a maximum flow velocity of 3.0 ft/s.	
17. Drainage system must include a clean-out, inlet or junction box at every bend to provide access for maintenance; the only exception may be where roof drains tie into the main system.	
18. Drainage plans must show finished floor elevation, garage finished floor elevation, and the elevations on the driveway adjacent to the garage. Garage finished floor elevation must coordinate with adjacent proposed driveway elevations.	
19. As per City Ordinance 11:01.06; Maximum Lot Coverage, the maximum coverage of any lot with any non-permeable constructed surface shall not exceed fifty-five (55) percent of the lot area located behind the required front building line and shall not exceed fifty (50) percent of the lot area located in front of the required front building line; provided, however, the non-permeable constructed surface in front of the required front building line may be increased to fifty-five (55) percent if the non-permeable constructed surface behind the required front building line does not exceed fifty (50) percent of the lot area located behind the required front building line.	
20. **Note on plan** "No elevation changes shall occur around and within 3-ft of the perimeter of the property which could become a physical barrier for the natural flow of water from adjacent properties into the property being developed or redeveloped."	
21. **Note on plan** "Proposed landscaping/planting areas along the property perimeter shall not impede the storm water flow into and through swales or storm sewer inlets. No raised flower beds will be allowed along the perimeter of the property. No landscaping/planting will be permitted in the drainage swales."	
22. **Note on plan** "Existing drainage from other properties draining into and through the lot to be developed or re-developed shall be maintained during and after construction activities are completed. The proposed drainage system shall be designed to handle a City of Houston 2-Year Design Storm of additional flow from these adjacent properties".	
23. **Note on plan** "Reinforced Filter-Fabric Fences may not be taken down until the builder receives approval from the City".	
24. **Note on plan** "Any revisions to the originally approved drainage plans must be submitted to the City by the builder's Engineer that provided the	

original approved drainage plans. Resubmitted plans must be signed and sealed by the builder's Engineer".	
25. **Note on plan** "Proposed or existing rain gutter downspouts shall not be tied into existing or proposed underground storm sewer lines that drain directly into the City's ditches on the front and/or side of the owner's property, nor shall be extended into the City's ditches."	
26. A Drainage Plan shall be submitted to the City for review and approval, prior to start of demolition and/or construction activities. The Drainage Plan shall be prepared under the supervision of a Registered Professional Engineer of the State of Texas. The plans **shall be sealed and signed by Engineer.**	
26. The Contractor shall be responsible for implementation, maintenance, and inspection of storm water pollution prevention measurements including, but not limited to, erosion and sediment controls (reinforced filter-fabric fencing), waste collection and disposal, off-site vehicle trucking, and other practices consistent with state and local regulations.	
27. Any change(s) to the approved Drainage Plan shall be submitted to the City for review and approval. Contractor shall allow a minimum of **seven (7)** calendar days for review of drainage plan submittals and re-submittals, as applicable. The plan check fee includes **two (2)** reviews by City Engineer. Any additional reviews will be at cost to the Contractor/Homeowner.	
28. Submitted plans shall be drawn to an engineer's scale and not to an architect's scale.	
29. All plans need to be oriented with North directed to the top or right of the page.	
30. Drainage plans shall include a title block clearly indicating the engineering firm's contact information and scope of work (new house, house addition, new pool, etc.).	