

# HARRIS COUNTY

**ENGINEERING DEPARTMENT**  
**PERMIT OFFICE**

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May 5, 2021

Kyle J. Blank, P.E.  
Jones & Carter, Inc.  
6330 West Loop South, Suite 150  
Bellaire, TX. 77401

**SUBJECT: Drainage Impact Analysis for Kingland West Development; Unit  
G103-80-00; Key Maps 258-G, H, L, M, 259-E, J; Pct 2; Project No.  
1902120047**

Dear Kyle:

Harris County and the Harris County Flood Control District (HCFCD) have reviewed the above referenced report. Details of our understanding of the design are given on the attached review memo.

The report includes statements that the project will cause no adverse impact to the receiving waterways in storm events up to and including the 100-year event. The documentation within the report generally supports the conclusions stated by the engineer. Based on the stated conclusions, HCFCD interposes no objection to the referenced report. Please note, this acceptance does not necessarily mean that the entire report, including supporting data and calculations, has been completely checked and verified. However, the report is signed, dated, and sealed by a Professional Engineer licensed to practice in the State of Texas, which therefore conveys the licensed engineer's responsibility and accountability.

If you have any questions or need any additional information, please do not hesitate to contact the reviewers.

Sincerely,

Shawn Sturhan, P.E., CFM  
Manager of Permits

SS/fr  
Attachments



April 27, 2021

Mr. Shawn Sturhan, P.E.  
Permits Manager  
Harris County Permits Division  
10555 Northwest Freeway, Suite 120  
Houston, TX 77092  
shawn.sturhan@eng.hctx.net

9900 Northwest Freeway  
Houston, Texas 77092  
346-286-4000  
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SENT VIA ELECTRONIC MAIL: NO HARD COPY TO FOLLOW

RE: Project No. 1902120047  
Drainage Impact Analysis for Kingland West Development  
HCFCD Unit G103-80-00; Key Maps 258-G,H,L,M, 259-E,J; Pct. 2

Dear Mr. Sturhan:

The referenced report has been reviewed pursuant to the HCFCD Policy, Criteria, and Procedure Manual and Section 3.02 of the *“Regulations of Harris County, Texas for the Approval and Acceptance of Infrastructure.”* The goals of the review are to provide technical support to the Harris County Floodplain Administrator and to apply HCFCD policy and criteria where appropriate.

This review addresses issues regarding hydraulic and hydrologic drainage design criteria only. Design criteria regarding the site layout of the proposed development and drainage facilities will be reviewed upon submittal of site plans.

Our understanding of the report is described below. Please see the response contained within the *“Hydrologic & Hydraulic Technical Review”* section.

### **HCFCD Jurisdiction**

The project meets at least one of the following conditions; HCFCD criteria apply:

- The project directly affects HCFCD Infrastructure.
- The project proposes infrastructure to be maintained by HCFCD.
- The project is located within a watershed where HCFCD has a regional project adopted by Harris County Commissioners Court.
- A technical review has been requested by Harris County.

### **Submittal Information**

#### **Submitted Report**

Drainage Impact Analysis for Kingland West  
Development  
March 10, 2021

#### **Consulting Engineer**

Jones & Carter Inc.  
6330 West Loop South, Suite 150  
Bellaire, TX 77401  
TBPE Registration No. F-439  
Kyle J. Blank, P.E.  
TX P.E. # 98442

**Project Summary**

This drainage impact analysis identifies the stormwater detention and floodplain mitigation requirements for the Kingland West development (tract). The analysis is based on the Kingland West Concept Plan dated October 21, 2020. This analysis evaluates the proposed development and stormwater mitigation features such that there is no adverse impact created by the development in accordance with Montgomery County and Harris County Flood Control District (HCFCD) criteria. Kingland West consists of approximately 1,148 acres located in the northeast corner of Harris County, the southeast corner of Montgomery County, and along the west side of Liberty County, Texas. Approximately 629 acres of the 1,148-acre tract will be developed as primarily single-family as well as some commercial areas and stormwater mitigation features. This includes approximately 442 acres of development within Harris County.

**Detention Summary**

The following table identifies the detention summary provided within the report:

*Table 1 - Detention Summary Table*

PROJECT NAME: Kingland West Development						
Detention Basin Developed Service Area		629 acres				
Offsite Drainage Area (OS-1)		401.5 acres				
Storm Event		50%	10%	1%	0.20%	MC A14 1%
		(2-yr)	(10-yr)	(100-yr)	(500-yr)	(100-yr)
Flow (cfs)	Post Development Inflow (HEC-HMS)	2158.0	3102.9	4564.1	5813.7	5034.3
	Maximum Allowable Outflow (Harris County Criteria)	N/A*	N/A*	N/A*	N/A*	N/A*
	Maximum Outflow Provided (**Local Peak Flow From Basin through outfall culverts)	130.7	292.4	534.7	712.8	635.4
Elevations (1988 NAVD, 2001 Adj)	Finished Ground Elevation Estimate	Varies 91.0' to 82.65' Across Development; 1-ft above 500-yr WSE				
	Maximum Allowable Water Surface	Varies 90.04' to 81.66' Across Development				
	Based on:	Existing Max 500-Year WSE in East Fork of San Jacinto River				
	Design Detention Water Surface Elevation	71.29' for Pond 1; 71.30' for Pond 2; 72.95' for Pond 3 (Local Event Peak WSE)				
	Detention Water Surface Elevation Calculated - **Based on Local Peak (HEC-RAS)	Pond 1: 65.87' Pond 2: 65.87' Pond 3: 66.12'	Pond 1: 67.51' Pond 2: 67.51' Pond 3: 68.50'	Pond 1: 69.69' Pond 2: 69.77' Pond 3: 71.43'	Pond 1: 71.29' Pond 2: 71.30' Pond 3: 72.95'	Pond 1: 70.60' Pond 2: 70.63' Pond 3: 72.35'
	Minimum Detention Required (Method 3) (ac-ft)	899.8 for 500-Year event				
	Floodplain Fill Mitigation Required (ac-ft)	238.0 for 500-Year event				
Total Storage Provided (ac-ft) (Net Cut)	1,241.3					
Developed Detention Storage Rate Provided (ac-ft/acre) 500-Year	1.43					
Outflow Structure	Restrictor Size	N/A				
	Outflow Pipe Size	3 - 60" HDPEs				
	**Peak Outflow Velocity into Channel (ft/sec)	3.7	5.2	9.1	12.1	10.8
	Drain Time - 0.2% Event (hours)	47.5 Hours				
Emergency Overflow	100-foot wide broad crested weir on each pond; Crest Elev. - 73.0 ft					



\*Analysis was performed using Method 3 from the HCFCD PCPM  
 \*\*Flow, velocity, and WSE values are based on the local peak flow from the developed subbasin. A later watershed peak occurs approximately 2-days after the local peak due to flow from the upper watershed arriving in the East Fork of the San Jacinto River. See Figure 3 - Pond 1 Stage Timing for a visual representation of the timing difference between the local and watershed peaks.

### **Floodplain Related Information**

According to FEMA FIRM Panel Nos. 48291C0275C, revised May 2, 2008, 48339C0625G, revised August 18, 2014, and 48201C0140L, revised June 18, 2007, portions of the project area are located within the floodway, 100-year floodplain (Zone AE), and 500-year floodplain (shaded Zone X) of East Fork of San Jacinto River.

**Please also note that Montgomery County, Harris County and Liberty County are the Floodplain Administrators for the receiving waterways. All issues regarding local floodplain regulations must be coordinated through Montgomery County, Harris County and Liberty County .**

### **Report Findings**

The report states, *“The analysis demonstrates that the proposed project will cause no adverse impact to flood hazard conditions on the receiving waterways, including downstream properties within the City of Houston, for storm events up to and including the FEMA effective 500-year storm event as well as the Atlas 14 100-year storm event.”*

### **Hydrologic & Hydraulic Technical Review**

HCFCFCD offers the following:

The report includes statements that the project will cause no adverse impact to the receiving waterways in storm events up to and including the *FEMA effective 500-year storm event as well as the Atlas 14 100-year event*. The documentation within the report generally supports the conclusions stated by the engineer. Based on the stated conclusions, HCFCFCD interposes no objection to the referenced report. Please note, this acceptance does not necessarily mean that the entire report, including all supporting data and calculations, has been completely checked and verified. However, the report is signed, dated, and sealed by a Professional Engineer licensed to practice in the State of Texas, which therefore conveys the licensed engineer’s responsibility and accountability.

### **Additional HCFCFCD Criteria**

Site plans must be submitted to HCFCFCD for review and signature.

All work proposed within existing and future HCFCFCD right-of-way must be designed and constructed in accordance with the HCFCFCD Policy, Criteria, and Procedure Manual.

### **Environmental Review & Permitting**

The Harris County Flood Control District’s Regulatory Compliance Department requires that proposed projects impacting regulated waters of the U.S. obtain and document the required U.S. Army Corps of Engineers permit(s) for any portions of the project located within any existing or proposed HCFCFCD right-of-way. The type of permit required (if any) must be stated on the site plans even if written permit authorization from the Corps of Engineers is not required. If written permit authorization is required, copies of approved Corps of Engineers permits must be submitted with the HCFCFCD *Notification of Construction in Right-of-Way* and submitted to the HCFCFCD Development Coordination and Inspection Department at least 48 hours prior to construction along with the *48-hour Pre-Construction Notification*.

April 27, 2021  
Shawn Sturhan, P.E.  
Harris County Permits Division

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Thank you for coordinating this project with the Flood Control District. If you have any questions regarding the technical comments, please contact Mr. Wen Zhang, P.E., via email at *Wen.Zhang@hcfcd.hctx.net*. For any other questions, you may contact me at *david.saha@hcfcd.hctx.net*.

Sincerely,

David B. Saha, P.E.  
Watershed Coordinator

DBS:ag

## HARRIS COUNTY PERMITS DRAINAGE ANALYSIS REVIEW SUMMARY

PROJECT NO.: 1902120047  
REVIEWER: DAVID RANDOLPH  
DATE: 5/06/2021

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1. Will a CLOMR or LOMR, be appropriate for this project?

CLOMR     LOMR     N/A

2. Does this project have a bridge crossing a studied stream?

YES     NO

3. If completed will it have adjacent property issues they need to mitigate for...ie Offsite sheet flow, contours show drainage will significantly change for adjacent property owners etc.

Proposed grading plans must show offsite sheet flow directions to show no issues with adjacent properties. Drains to HCFCG G103-80-00.

**Comments of concern:**

None