

**To:** Harris County Commissioners Court  
*Russell A Poppe*  
**Through:** Russell A. Poppe, P.E., Executive Director, Harris County Flood Control District  
**Prepared By:** Matthew K. Zeve, P.E., Deputy Executive Director, Harris County Flood Control District

**Subject:** Agreement with Inverness Forest Improvement District

**Project ID (If applicable):** K600-01-00-Y005

**Purpose and Request:**

Authorization to execute an interlocal agreement with Inverness Forest Improvement District for recertification of the Inverness Forest Levee (HCFCD Unit K600-01-00) at a cost of \$164,000 to the District. (Cypress Creek Watershed, Bond ID Z-02, Project ID K600-01-00-Y005, Agreement No. 2021-121, Precinct 4).

**Background and Discussion:**

*The Flood Control District owns the Inverness Forest Levee and the Inverness Forest Improvement District maintains it. As part of the ongoing countywide floodplain remapping effort, FEMA requires that the levee be re-certified to verify that it will provide a 1% annual exceedance probability storm event level of protection. This re-certification was anticipated as part of the floodplain remapping effort. The Flood Control District will pay \$164,000 and the Inverness Forest Improvement District will pay \$110,000 for this work effort.*

**Fiscal Impact:**

*The Flood Control District will contribute \$164,000 towards this work effort. The funding will come from the Z-02 project in the Bond Program.*

Fiscal Summary			
Expenditures	FY 20-21	FY 21-22 Projected	Future Years Projected [3 additional years]
<b>Service Impacted:</b> <i>Engineering – 4.a.3</i>			
Existing Budget	\$0	\$0	\$0
Additional Appropriation Requested	\$0	\$0	\$0
<b>Total Expenditures</b>	\$0	\$0	\$0
<b>Funding Sources</b>	\$0	\$0	\$0
Existing Department Budget	\$0	\$0	\$0
Please Identify Funding Source (General Fund, PIC, Special Revenue, Grant, Etc.)	\$0	\$0	\$0
HCFCFCD 2018 Bond Program*	\$0	\$164,000	\$0
<b>Total Sources</b>	\$0	\$164,000	\$0

**Alternatives:**

*The alternative would be to not re-certify the levee. This would mean that the residents that are protected by the levee would not be able to pay a lower flood insurance premium.*

**Alignment with Strategic Objective:**

*SO1.1 - Continuously plan CIP projects to improve conveyance capabilities of Harris County through addition of assets to FCD infrastructure and improving existing assets within FCD's existing infrastructure.*

**Attachments:** Agreement

## INTERLOCAL AGREEMENT

THE STATE OF TEXAS     §  
                                       §  
 COUNTY OF HARRIS       §

THIS INTERLOCAL AGREEMENT is made and entered into pursuant to the Interlocal Cooperation Act, TEXAS GOV'T CODE ANN., Chapter 791, by and between the **Harris County Flood Control District**, a conservation and reclamation district authorized under Article XVI, Section 59 by the Texas Legislature, and a body corporate and politic under the laws of the State of Texas, hereinafter called ("HCFCD") and the **Inverness Forest Improvement District**, a water control and improvement district authorized by the Texas Legislature and a body corporate and politic under the laws of the State of Texas, hereinafter called ("Inverness"). HCFCD and Inverness are each a ("Party") to this Agreement and may collectively be referred to herein as the ("Parties"). This Agreement shall become effective as of the date on which it has been executed by all Parties.

### WITNESSETH

**WHEREAS**, HCFCD and Inverness entered into an Agreement for the construction, operation and maintenance ("Maintenance Agreement") of the Inverness Forest Levee and Pump Station ("Levee") on August 27, 1991, in a joint effort to provide flood relief to homeowners in the Inverness Forest subdivision and other homes in North Harris County between Interstate 45 North and Cypress Creek; and

**WHEREAS**, HCFCD owns the Levee and Inverness has a maintenance obligation under said Maintenance Agreement; and

**WHEREAS**, the Federal Emergency Management Agency ("FEMA") requires the Levee be certified as compliant with current federal structural and safety requirements and be recertified upon the occurrence of a qualifying event; and

**WHEREAS**, HCFCD is in the process of remapping the floodplains in Harris County because of the increase in annual rainfall frequencies as determined by the National Oceanic and Atmospheric Administration ("NOAA") Atlas 14 Study for the Harris County area, and FEMA may require the Levee be recertified because of this qualifying event; and

**WHEREAS**, HCFCD has hired an engineering firm that estimates it will cost \$274,000.00 to conduct a study ("Study") to determine if the Levee is deficient based on the flood hazards finding of the floodplain remapping and FEMA certification requirements; and

**WHEREAS**, Inverness provides drainage and other public benefits to residents and businesses within a 705-acre area from one mile east of FM 1960 and Interstate 45 North to east of Hardy Toll Road as shown on attached Exhibit B; and

**WHEREAS**, Inverness desires to pay the HCFCD \$110,000.00 toward the cost of the Study ("Inverness Contribution") and HCFCD will contribute \$164,000.00 ("HCFCD Contribution").

NOW, THEREFORE, in consideration of the mutual covenants, agreements and benefits to the parties, the parties agree as follows:

I.

Upon execution of this Agreement, Inverness shall pay HCFCD One Hundred Ten Thousand and No/100 Dollars (\$110,000.00) for the Inverness Contribution to the Study. HCFCD will fund One Hundred Sixty-Four Thousand and No/100 Dollars (\$164,000.00) for the HCFCD Contribution to the Study.

II.

It is expressly understood and agreed by the Parties, such understanding and agreement being of the absolute essence to this Agreement, that HCFCD has specifically allocated \$164,000.00 as the HCFCD Contribution to the Study and to fulfill an obligation created by the terms of this Agreement. If the cost of the Study should be more than the amount budgeted, the Parties can agree to either amend this Agreement to provide additional funding or terminate the Agreement and Inverness will be returned any unused portion of the Inverness Contribution.

III.

HCFCD will manage the professional services agreement with the Engineer to conduct the Study. The Scope of Services for the Study is attached as Exhibit A and has been approved by the Parties.

IV.

HCFCD will own the copyright on the Study and will send Inverness the Study when it is complete. HCFCD will periodically update Inverness on the progress of the Study and provide time for Inverness to comment on the Study drafts. Inverness shall have a perpetual license to use the Study for the operation, maintenance, repair or replacement of the Levee, as required under the Maintenance Agreement, and to satisfy any reporting obligations that it may have under the laws of the State of Texas and the United States of America..

V.

Contact with the news media, private citizens, or community organizations shall be the joint responsibility of Inverness and HCFCD and each Party will notify the other when it intends to release information regarding the Study to the public. To the extent practicable, Inverness and HCFCD shall confer and coordinate with each other in furnishing information, in accordance with applicable law and the stated missions of Inverness and the District.

VI.

When the Study findings are finalized, HCFCD will notify Inverness and provide a copy of the Study prior to sending any documentation to FEMA for a determination on whether it will require recertification of the Levee. HCFCD will coordinate with Inverness in a separate agreement on the construction and funding of any repairs to the Levee that may be required as a result of the Study findings.

VII.

This Agreement is not intended to and shall not create a joint enterprise between Inverness and HCFCD. It is understood and agreed that HCFCD and HCFCD's personnel shall not be considered employees, agents, partners, joint venturers, or servants of Inverness. It is also understood and agreed that the Inverness personnel shall not be considered employees, agents,

partners, joint venturers, or servants of HCFCD. The parties are undertaking governmental functions or services under this Agreement and the purpose hereof is solely to further the public good, rather than any pecuniary purpose. The party undertaking work under this Agreement shall have a superior right to control the direction and management of such work and the responsibility for day-to-day management and control of such work, except as may otherwise expressly be provided herein.

### VIII.

All notices and communications under this Agreement shall be mailed by certified mail, return receipt requested, or delivered to Inverness at the following address:

Inverness Forest Improvement District  
2929 Allen Parkway, Suite 3450  
Houston, Texas 77019-7120  
Attn: Jon Polley

All notices and communications under this Agreement shall be mailed by certified mail, return receipt requested, or delivered to HCFCD at the following address:

Harris County Flood Control District  
9900 Northwest Freeway  
Houston, Texas 77092  
Attn: Executive Director

### IX.

Either Party may terminate this Agreement upon 30-days-notice to the other Party. If Inverness terminates this Agreement, it forfeits any return of funds from the Inverness Contribution. If HCFCD terminates this Agreement, HCFCD will refund to Inverness 40% of the combined unused Contributions from Inverness and HCFCD.

### X.

This instrument contains the entire Agreement between the parties relating to the rights herein granted and the obligations herein assumed. Any modifications concerning this instrument shall be of no force or effect, excepting a subsequent modification in writing, signed by both parties hereto.

EXECUTED on \_\_\_\_\_.

APPROVED AS TO FORM:

CHRISTIAN D. MENEFE  
Harris County Attorney

HARRIS COUNTY FLOOD CONTROL  
DISTRICT

DocuSigned by:  
  
By: D9FE318CE1BA4BE...  
LAURA FIORENTINO CAHILL  
Senior Assistant County Attorney

By: \_\_\_\_\_  
LINA HIDALGO  
County Judge

ATTEST:

DocuSigned by:  
  
By: 5A36F99A09C34E4...  
Gary Portzline  
Secretary of the Board

INVERNESS FOREST IMPROVEMENT  
DISTRICT

DocuSigned by:  
  
By: 5A36F99A09C34E4...  
Charles Pritchard  
President of the Board

## EXHIBIT "A" SCOPE OF SERVICES



January 5, 2021

Mr. Brian Edmondson, P.E., CFM  
Harris County Flood Control District  
9900 Northwest Freeway  
Houston, Texas 77092

Re: Proposal to Provide Engineering Services for Re-Certification of Inverness Forest Levee  
HCFCD Project No. Z100-00-00-P025; Harris County Precinct 4  
CI Job No.: 2020065-00-00

Costello, Inc. (CI) is pleased to present this proposal to provide professional engineering services to the Harris County Flood Control District (HCFCD) for the re-certification of the existing Inverness Forest Flood Protection Levee System within the Cypress Creek watershed of Harris County. The project area consists of approximately 230 acres of existing single-family subdivisions protected from flooding from Cypress Creek (HCFC Unit K100-00-00). The objective of this project is to provide the documentation necessary to allow the HCFCD to re-certify that the levee system provides reasonable protection from flooding from the Atlas 14 1% Annual Exceedance Probability (AEP) event to the Federal Emergency Management Agency (FEMA) in order to obtain accreditation of the levee on the floodplain maps currently being updated by the HCFCD and FEMA. This documentation will be that required in Title 44 of the Code of Federal Regulations Part 65.10 (44CFR 65.10).

The existing facilities were designed and constructed by the HCFCD between 1988 and 1991. The facilities are owned by the HCFCD, with the Inverness Forest Improvement District (IFID) providing operating and maintenance services of the facilities in accordance with an interlocal agreement.

Costello, Inc. (CI) will perform the following scope of services, as discussed in the pre-scoping meeting held on March 9, 2020.

### **BASIC SERVICES**

#### **Data Collection/Field Inspections**

Data collection will include obtaining existing construction plans of the subject facilities, including the levee and pump station, and the existing subdivision from existing HCFCD and IFID files. Additional information to be reviewed includes existing Houston-Galveston Area Council (H-GAC) aerial photography, 2018 LiDAR and field survey data provided by the HCFCD. Additionally, the HCFCD will provide, as available, the design reports and computer models for the original design and any subsequent updates, of the system.

The HCFCD and/or IFID will provide existing documents related to the operations and maintenance of the levee and pump station (O&M manual), at least one-year of inspection and maintenance records (field inspection reports, conduit inspection videos/photos, Megger test results, maintenance reports,

713.783.7788 | [www.costelloinc.com](http://www.costelloinc.com)  
2107 CityWest Blvd., 3rd Floor  
Houston, Texas 77042

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TBPE No. 280 TBPLS No. 100486



Mr. Brian Edmondson, P.E., CFM  
January 5, 2021  
Page 2

etc.), geotechnical reports used for the design and construction of the facilities, including materials testing (if available), documentation of existing emergency and/or flood warning systems relating to this system, and other existing documentation as may be determined to be applicable to the re-certification of the system.

Costello will conduct field visits, in concert with the IFID District Engineer and Operator, of the subject facilities to ascertain the actual operating parameters and physical conditions of the facilities. The field visits will be used to both confirm the existing conditions of the facilities and to aid in the understanding of the functionality of the individual components for purpose of producing an updated hydraulic model of the ponds, pump station and outfall components.

It is assumed that the HCFCD will provide the latest elevation surveys, in profile drawing format, of the levee in order to determine the freeboard above the Base Flood Elevation (BFE). These elevations will be compared to the water surface elevations (WSEL) computed in the hydraulic model of Cypress Creek, currently being updated by the HCFCD. It is anticipated that the WSEL produced as part the MAAPnext project will be available at the time that the hydraulic models are completed, prior to the draft mapping of the new floodplain. Should the freeboard prove to be insufficient to meet the required minimum, preliminary design concepts will be developed as described in subsequent section of this proposal.

#### **Hydraulic Analysis of Interior Drainage System**

The interior drainage system, inclusive of **only** the three existing detention ponds, gravity outfall structure and the pump station, will be analyzed using the current HCFCD Policy, Criteria and Procedures Manual (PCPM) methodologies and rainfall data (Atlas 14). This methodology will assume that the runoff from the tributary subdivisions and streets are conveyed to the ponds without significant obstructions or street ponding within the internal storm sewers or streets. This analysis will only include the 1% AEP (100-year) storm event as required in 44CFR65.10(b)(6) *Interior drainage*. The joint probability requirement of this section will be satisfied by analyzing the ponding and pumping capabilities assuming a 1% AEP event over the interior drainage areas with no gravity outflows from the interior system for the duration of the event. This coincidental event is chosen since it is likely that the localized 1% rainfall event may occur at or near the same time that the upstream flood wave along Cypress Creek impacts this location. This analysis is not intended to be an impact analysis, rather the information derived from this analysis is intended to be included into the overall watershed update of Cypress Creek.

It can be assumed, based on the significant increase in rainfall to be used, that the interior flood elevations for the 1% AEP event will create a larger/deeper floodplain interior to the levee. In consultation with HCFCD staff, no proposed improvement alternatives will be evaluated at this time. Should it be determined that proposed improvements to the levee and/or interior drainage system be warranted a separate proposal addressing that work effort will be prepared for consideration.

**Costello** Engineering & Surveying

Mr. Brian Edmondson, P.E., CFM  
January 5, 2021  
Page 3

#### **Documentation**

A brief (letter) report, detailing the analysis methodologies and resulting interior ponding elevations will be prepared. Assuming that this analysis produces results which do not create a significant interior floodplain, the report will be submitted as part of the FEMA submittal package described in subsequent sections of this proposal.

#### **Geotechnical Engineering Components of 44CFR 65.10**

Sections 44CFR 65.10(b)(4) and (5) include geotechnical engineering evaluations, specifically, embankment stability, foundation stability, embankment/foundation seepage and settlement. These four aspects of geotechnical engineering will be addressed by a Texas Licensed Professional Engineer that specializes in such evaluations. A subconsultant proposal (attached) from Cibor was obtained to provide the necessary services and evaluations. The fees for that evaluation are not included in this proposal.

#### **FEMA Submittal**

Costello will collate the appropriate data provided or produced as part of this project into a submittal package in accordance with the requirements of 44CFR 65.10. A draft re-certification letter will also be prepared for inclusion into the package. This letter should be put onto HCFCF letterhead and should be signed by a Texas Licensed Professional Engineer in the employ of Harris County. The submittal package should be provided to FEMA at the time that draft maps from the ongoing MAAPnext project on Cypress Creek are submitted to FEMA for their review.

The fees for the Basic Services will be invoiced monthly as a percentage of the lump sum fees, based on the work completed to date, and the fees for the Additional Services will be invoiced monthly on a Time and Materials Expended Basis, as shown below:

#### **BASIC SERVICES**

Data Collection/Field Inspections	\$60,950.00
Documentation	\$27,850.00
Geotechnical Investigation & Coordination	\$131,950.00
<b>SUBTOTAL</b>	<b>\$220,750.00</b>

#### **ADDITIONAL SERVICES**

Existing Condition Hydraulic Analysis of Interior Drainage System	\$42,150.00
FEMA Submittal	\$9,400.00
Reimbursable Expenses	\$1,500.00
<b>SUBTOTAL</b>	<b>\$53,050.00</b>
<b>TOTAL</b>	<b>\$273,800.00</b>


**Costello** Engineering & Surveying



Mr. Brian Edmondson, P.E., CFM  
January 5, 2021  
Page 4

The above services do not include any amounts for field surveys, environmental, electrical or mechanical engineering or other sub-consultant services. We appreciate this opportunity to provide these services to the HCFCF. Please feel free to contact me at the above numbers or by email at [gfrank@costelloinc.com](mailto:gfrank@costelloinc.com).

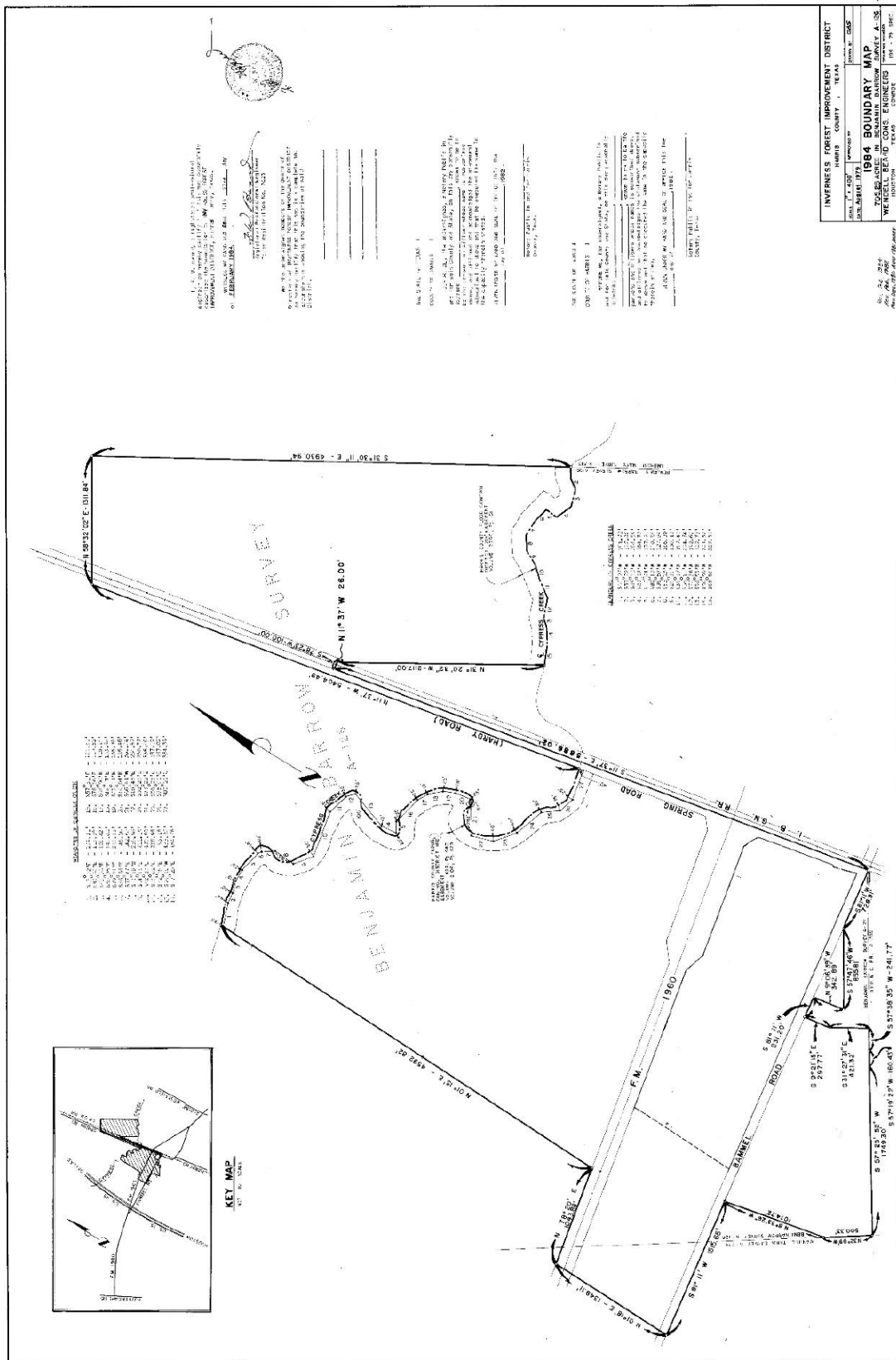
Sincerely,  
**Costello, Inc.**  
TBPELS Firm No. 280



Gregory P. Frank, P.E., CFM  
Vice President

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**Costello** Engineering & Surveying



THE STATE OF TEXAS     §  
   §  
 COUNTY OF HARRIS       §

The Commissioners Court of Harris County, Texas, convened at a meeting of said Court at the Harris County Administration Building in the City of Houston, Texas, on \_\_\_\_\_, with the following members present, to-wit:

Lina Hidalgo	County Judge
Rodney Ellis	Commissioner, Precinct No. 1
Adrian Garcia	Commissioner, Precinct No. 2
Tom S. Ramsey, P.E.	Commissioner, Precinct No. 3
R. Jack Cagle	Commissioner, Precinct No. 4

and the following members absent, to-wit: \_\_\_\_\_, constituting a quorum, when among other business, the following was transacted:

**ORDER AUTHORIZING EXECUTION OF AN INTERLOCAL AGREEMENT  
 BETWEEN THE HARRIS COUNTY FLOOD CONTROL DISTRICT AND THE INVERNESS  
 FOREST IMPROVEMENT DISTRICT**

Commissioner \_\_\_\_\_ introduced an order and made a motion that the same be adopted. Commissioner \_\_\_\_\_ seconded the motion for adoption of the order. The motion, carrying with it the adoption of the order, prevailed by the following vote:

		Yes	No	Abstain
AYES:	Judge Lina Hidalgo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NAYS:	Comm. Rodney Ellis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ABSTENTIONS:	Comm. Adrian Garcia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Comm. Tom S. Ramsey, P.E.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Comm. R. Jack Cagle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The County Judge thereupon announced that the motion had duly and lawfully carried and that the order had been duly and lawfully adopted. The order thus adopted follows:

**WHEREAS**, HCFCD and Inverness entered into an Agreement for the construction, operation and maintenance ("Maintenance Agreement") of the Inverness Forest Levee and Pump Station ("Levee") on August 27, 1991, in a joint effort to provide flood relief to homeowners in the Inverness Forest subdivision and other homes in North Harris County between Interstate 45 North and Cypress Creek; and

**WHEREAS**, HCFCD owns the Levee and Inverness has a maintenance obligation under said Maintenance Agreement; and

**WHEREAS**, the Federal Emergency Management Agency ("FEMA") requires the Levee be certified as compliant with current federal structural and safety requirements and be recertified upon the occurrence of a qualifying event; and

**WHEREAS**, HCFCD is in the process of remapping the floodplains in Harris County because of the increase in annual rainfall frequencies as determined by the National Oceanic and Atmospheric Administration ("NOAA") Atlas 14 Study for the Harris County area, and FEMA may require the Levee be recertified because of this qualifying event; and

**WHEREAS**, HCFCF has hired an engineering firm that estimates it will cost \$274,000.00 to conduct a study ("Study") to determine if the Levee is deficient based on the flood hazards finding of the floodplain remapping and FEMA certification requirements; and

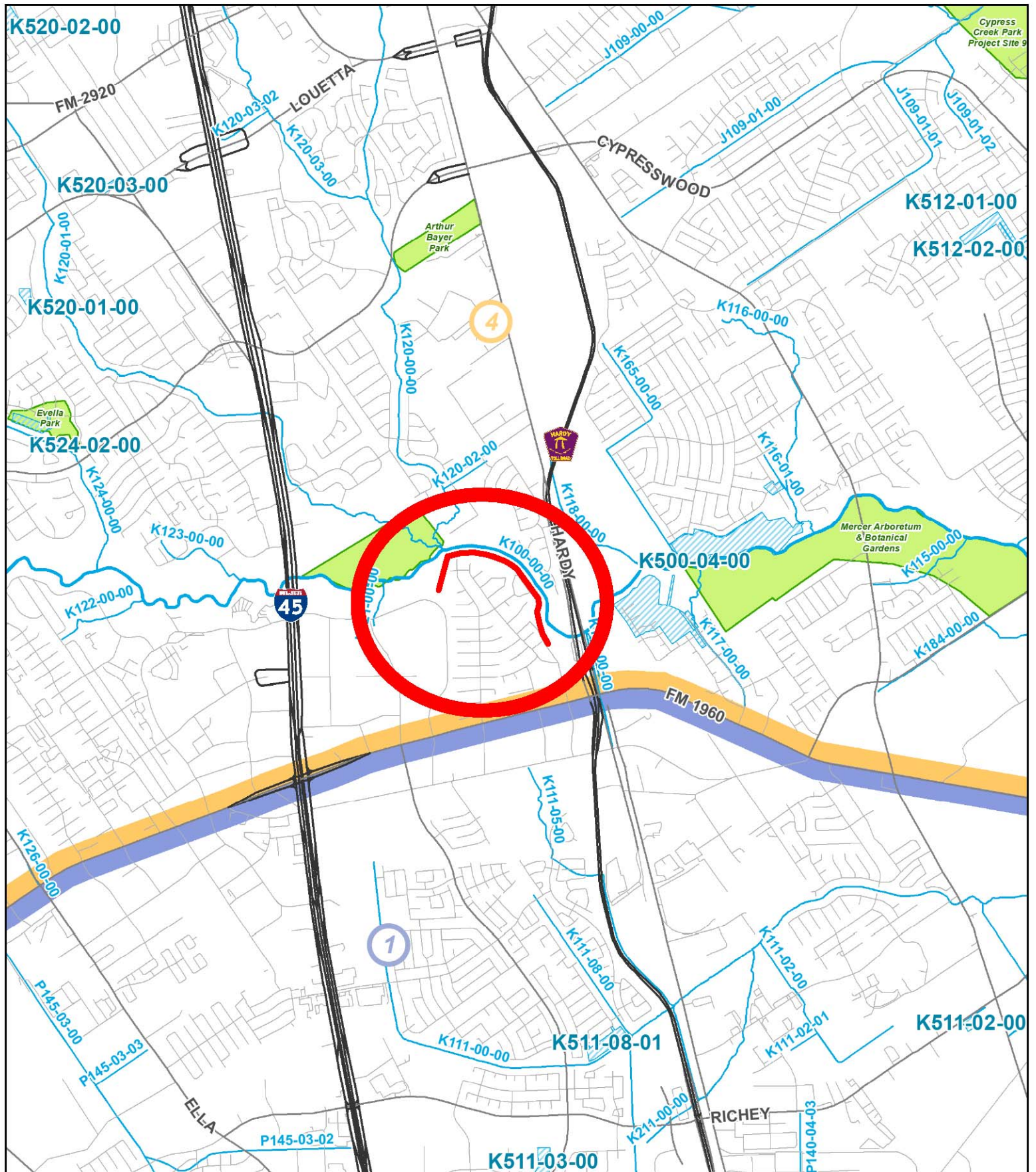
**WHEREAS**, Inverness provides drainage and other public benefits to residents and businesses within a 705-acre area from one mile east of FM 1960 and Interstate 45 North to east of Hardy Toll Road as shown on attached Exhibit B; and

**WHEREAS**, Inverness desires to pay the HCFCF \$110,000.00 toward the cost of the Study ("Inverness Contribution") and HCFCF will contribute \$164,000.00 ("HCFCF Contribution").

NOW, THEREFORE, BE IT ORDERED BY THE COMMISSIONERS COURT OF HARRIS COUNTY, TEXAS THAT:

Section 1: The recitals set forth in this order are true and correct.

Section 2: County Judge Lina Hidalgo is hereby authorized to execute for and on behalf of the Harris County Flood Control District, an Agreement by and between the Harris County Flood Control District and the Inverness Forest Improvement District, said Agreement being incorporated herein by reference for all purposes as though fully set forth verbatim herein.



**Project ID: K600-01-00-Y005**  
**Watershed: Cypress Creek**  
**Precinct: 4**

**Pct No**

- 1
- 2
- 3
- 4

