



Fort Bend County Levee Improvement Dist. No. 2
3200 Southwest Freeway, Suite 2600
Houston, TX 77027

Presort Std.
US Postage
Paid
Sugar Land, Tx
Permit # 206



Fort Bend County Levee Improvement District No. 2

A Record Year on the Brazos River

Steep Bank Creek Outfall Replacement



The project to replace the Steep Bank Creek Outfall located in the East Levee of Fort Bend County Levee Improvement District No. 2 (the District) is complete. The outfall structure is designed to allow storm water to drain out of the District after it rains, but also prevents rising flood waters in Steep Bank Creek from backing up into the District and inside the levee during emergency situations. The project replaced the 60-inch corrugated metal pipes that are near the end of their useful life with a new concrete box culvert. The new outfall structure is closed by gravity with a flap gate on the downstream side when the water level in Steep Bank Creek rises. A vertical sluice gate provides additional protection on the upstream side of the structure. Both new gates will also include motorized operators so they can quickly and easily be operated or cleaned during an emergency situation.



Additional information on levee safety can be found at the American Society of Civil Engineers web site: www.asce.org.

A complete ASCE analysis of levees can be found at: www.asce.org/Content.aspx?id=2147488910



To find the potential cost of flood insurance for your residence or business, go to the National Flood Insurance Program web site at: www.floodsmart.gov/floodsmart/ and enter the requested information. For information about FBC LID #2, please email: board@fbclid2.com

2016 Memorial Day Flood



Fort Bend County Levee Improvement District No. 2 (the District), which protects most of First Colony and a large portion of Sugar Land, recently endured more than a year of exceptionally high Brazos River water levels while successfully preventing any impact to lives and property within the District. The United States Geological Survey (USGS) has calculated flood elevation levels for the Brazos River, beginning with an Action Stage elevation of 20 ft. up to a Major Flood Stage of 50 ft. Locally, these Brazos River levels are monitored by a river gauge in

Richmond, Texas. During the 14 months from May 2015 to June 2016 the Brazos River was at or above the Action Stage for 262 days (61% of the time) and above Flood Stage for 37 days, ending with a modern record river crest elevation of 54.74 ft. The attached chart tells the story of the Brazos River during this time period, including 4 of the 10 highest river crests ever reported at the current gauge in Richmond.

In May 2015, following the Memorial Day Flood, the Brazos river rose to 49.97' in elevation, at the time the highest level since the early 1990's. Continued rains around Texas during late-2015 and early-2016 inundated the Brazos River watershed and continued to fill the upstream lakes and reservoirs. Following heavy rains in March 2016 and several record local rainfalls during the April Tax Day Flood, the Brazos River experienced crests of 44.46 ft. and 49.67 ft., almost the same high levels experienced only 11 months earlier. Unfortunately, the worst was yet to come. Following massive rains around the region over the 2016 Memorial Day weekend, the Brazos River swelled to a modern record flood level of 54.74 feet.

Throughout each high water event, the District was completely protected from the rising Brazos River, and life continued as normal for residents inside the District. Waters of the Brazos did not touch or damage any property inside the District's

- cont'd inside

A Record Year on the Brazos River

- cont'd from cover



2015 Memorial Day Flood



2016 Memorial Day Flood



Normal Conditions

levees. The same is true for residents and property within all 20 Levees Districts inside Fort Bend County which are built to some of the highest standards in the nation. During the event, District Management routinely coordinated response efforts with the Fort Bend County Office of Emergency Management, National Weather Service, City of Sugar Land, and other area Levee Districts.

Within the District all levees, flood protection structures and pump stations operated as designed without problems or failures. Even during the peak of the high water event the District levees still experienced 8+ feet of freeboard that could provide additional protection had river levels increased further. Over the past several years the District has developed and refined a successful Emergency Preparedness Plan (EPP) that is also routinely practiced (see attached article). As specified in the EPP, the District Operator performed routine levee patrols and operated the District Pump Stations. Another contributing factor to the District's successful emergency response is a pro-active maintenance and capital improvement program that ensures the District's flood protection systems are always prepared to protect the community from any Brazos River threats.

EMERGENCY PREPAREDNESS PLAN

The Fort Bend County Levee Improvement District #2 (District) has developed an Emergency Preparedness Plan (EPP). Fulfillment of the plan requires the District to conduct a tabletop exercise with the Board, key consultants, and regional response agencies. The most recent District tabletop was conducted in March 2016.

Participating organizations included: District Board, Costello Engineering, Inc., First Colony Levee Improvement District Board, Mike Stone and Associates, National Weather Service, Storm Water Solutions, Beyer Construction, City of Sugar Land Office of Emergency Management, Fort Bend County Office of Emergency Management, Fort Bend County Drainage District and Tech3.

The exercise was designed to test the District's ability to respond to a potential flood scenario according to the EPP and Standard Operational Guidelines. Additionally, the District was required to coordinate with regional and local response agencies.

The scenario was built on the accomplishments of previous tabletops as well as lessons learned during the 2015 flood events. The scenario required implementation of the plan due to heavy rainfall and riverine flooding. The District has implemented a plan of action triggered by forecasted readings of the Brazos River gage at Richmond; the scenario presented a rising river with actions determined by gage readings and consultation with outside agencies including Offices of Emergency Management and the National Weather Service.

During a tabletop exercise, a scenario is presented with situations added throughout the event. At each development, the group discusses the options and compares the agreed upon "best action" with the actions dictated by the plan and operational guidelines. Several options may be discussed and the action is determined by consensus of the group.

The group successfully responded to rising water, existing high water in the ditches, safety considerations and equipment issues. The National Weather Service, Fort Bend County Office of Emergency Management and Drainage District and City of Sugar Land Office of Emergency Management provided insight and resources for the District.

The tabletop exercise is part of a planned approach to emergency preparedness developed by the District. The plan includes a Notification Flowchart indicated who to call at what point during an emergency situation. This chart is updated twice a year to ensure contact information remains current. Also included in the plan are hydrologic studies and standard operational guidelines for the on-site operator. The plan is exercised and reviewed annually and was critical to District preparedness for both the 2015 and 2016 flood event.

