



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
FORT WORTH DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 17300  
FORT WORTH, TEXAS 76102-0300

CESWF-PM-C

13 JUL 2011

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, Southwestern Division,  
Brigadier General Thomas W. Kula, (CESWD-PDP/Ms. Lanora Wright), 1100 Commerce  
Street, Dallas, TX 75242-1317

SUBJECT: Review Plans for Little Fossil Creek, Farmers Branch and Pecan Creek Section 205  
Projects

1. Reference email and enclosures dated July 2011 regarding Review Plans for the above projects.
2. Fort Worth District Engineering Branch made an assessment that all three projects did not require a Type II Independent External Peer Review (IEPR) (Safety Assurance Review) in a Memo dated 28 Jan 2011. Concurrence from the Risk Management Center that a Type II IEPR was not needed was received on 1 July 2011.
3. The Agency Technical Review (ATR) for all three projects was conducted with an internal team of SWF Team Members from various disciplines with the ATR Team Leader being within the Fort Worth District.
4. Request approval of the Project Review Plan, concurrence with the assessment that a Type II IEPR is not necessary, and for an exception to the requirement for the ATR Team Leader to be from outside the home Major Subordinate Command.
5. The Point of Contact for this action is Mr. William W. Haferkamp, Program Manager, (817)886-1713.

- 4 Encls
1. Review Plan for Little Fossil Creek
  2. Review Plan for Farmers Branch
  3. Review Plan for Pecan Creek
  4. Email from Risk Management Center (RMC), concerning Type II IEPR

- ( ) Approve  
( ) Disapprove

RICHARD J. MURASKI, JR.  
Colonel, EN  
Commanding

# Review Plan for Farmer's Branch Flood Control Project, White Settlement, Texas

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Fort Worth District  
U.S. Army Corps of Engineers

06 July 11

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## **1. Introduction**

### **1.1. Project Information**

Project Title: Farmer's Branch Flood Damage Reduction Project, White Settlement, Texas.

Project Description: White Settlement is located in Tarrant County, Texas, about 8 miles west of downtown Fort Worth. Farmers Branch originates in the western part of the county and flows in an easterly direction through White Settlement. The Farmers Branch watershed encompasses an approximate area of 6.8 square miles.

The U.S. Army Corps of Engineers, Fort Worth District, acting at the request, and in coordination with White Settlement, conducted a Farmer's Branch, White Settlement, Texas, Local Flood Damage Reduction Feasibility Study under the authority of Section 205 of the 1948 Flood Control Act, as amended. The study objectives centered on measures to reduce flooding along Farmers Branch in White Settlement, Texas. The primary objective focused on identification of a Recommended Plan for implementation that met the criteria of being technically sound, economically feasible, environmentally acceptable, and supported by the city of White Settlement.

Damageable property within the study area includes approximately 303 residential and commercial structures lying within the 0.2-percent annual chance exceedence (ACE) flood event (500-year flood plain). The value of the floodplain investment is estimated at \$36.0 million. Residential structures make up 92 percent of the structures and 80 percent of the structure and contents value. Commercial structures make up 6 percent of the structures and six percent of the structure and contents value. Public structures make up 2 percent of the structures and 14 percent of the structure and contents value.

Significant flood damages begin to occur with the 50 percent ACE (2-year) flood event. A 1 percent ACE or 100-year flood would impact approximately 244 or 81 percent of the improved properties and result in flood damages of over \$3.6 million. Annual flood damages are estimated at over \$1.6 million, of which about 56 percent are associated with residential development.

The initial screening of measures identified permanent evacuation, detention, and channel and bridge modifications as alternatives warranting further investigation. Channelization measures met the majority of the Federal and non-Federal planning objectives. The National Economic Development (NED) plan included a 55-80 foot wide channelization and bridge modifications along the mainstem of Farmers Branch, from White Settlement Road to Las Vegas Trail, in addition to a permanent evacuation of 14 residential structures immediately upstream and downstream of the channel improvement. The total cost of the NED Plan was estimated at \$11,017,098 million with annual costs and benefits of \$640,504 and \$1,309,451, respectively. The project's net benefits were \$668,947 with a benefit to cost ratio of 2.0 to 1.0.

The city of White Settlement, however, has elected to construct a locally preferred plan that provides a greater level of protection and reduces the risks to life, health, and safety during a flood event for the citizens of White Settlement. The design of the Locally Preferred Plan (LPP) mimics the NED Plan, but varies in width between 80 and 130 feet and includes the permanent evacuation of an additional 25 residential and 1 commercial structures over the NED within the project footprint. The proposed project was designed to a level of protection which reasonably maximized annual net benefits, i.e., the difference between project benefits (monetary reduction in flood damage) and project (implementation) costs when both are expressed in annualized terms. The proposed project generally provides for a 100-year level of protection meaning a flood event with a 1% annual chance exceedence will remain within the modified channel. For the 1% annual chance exceedence, no structures will be inundated. The life safety risk associated with the proposed project is low.

The LPP is the Recommended Plan. There is no recreation, ecosystem restoration features, or environmental mitigation lands as part of the recommended plan. The estimated total cost of the locally preferred plan is \$16,226,544 with annual costs and benefits of \$930,601 and \$1,421,262, respectively. The project's net benefits were about \$490,661 with a benefit-to-cost ratio of 1.53 to 1.0.

By the very nature of earthen, grass-lined, channel modification projects, safety risks will either remain static or otherwise be lowered with project implementation, since frequencies of flood inundation will be significantly reduced. Likewise, with respect to the non-structural buyout plan, safety risks will either remain static or otherwise be lowered, with project implementation, since the affected occupants are inherently removed from the area posing those safety risks. This project also provides reductions in safety risks associated with roadway crossings, since bridges will be overtopped significantly less frequently.

The additional costs associated with the LPP would be borne by the city of White Settlement. The costs to the Federal government would be limited to the cost share derived by the NED plan, as well as the statutory limit of \$7,000,000 Federal implementation costs (includes feasibility, design, and construction) for Section 205 projects. These Federal construction costs for the LPP are estimated at \$5,726,000 and non-Federal costs are estimated at \$10,500,544.

## **1.2. Review Team**

### **Review Management Office:**

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## **2. Requirement**

This Review Plan was developed in accordance with EC 1165-2-209, which established the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) documents through independent review. The EC's outline includes three levels of review: District Quality Control, Agency Technical Review, and Independent External Peer Review.

This project has a very low life safety risk because it is a channel improvement project where the designed flood capacity remains in the channel. Consequently, the Agency

This project has a very low life safety risk because it is a channel improvement project where the designed flood capacity remains in the channel. Consequently, the Agency Technical Review performed by the District on the AE design at 35 / 65 / 95 percent, and final design adequately addressed all life safety issues.

This Review Plan will be reviewed by the PDT and approved by the Southwestern Division Major Subordinate Command. After approval, this Review Plan will be posted on the Fort Worth District website at: [www.swf.usace.army.mil](http://www.swf.usace.army.mil).

### **3. References**

- EC 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
- ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
- WRDA 2007 H. R. 1495 Public Law 110-114, 8 Nov 2007
- EC 1105-2-410, Review of Decision Documents, 22 Aug 08
- Army Regulation 15-1, Committee Management, 27 November 1992 (Federal Advisory Committee Act Requirements)
- National Academy of Sciences, Background Information and Confidential Conflict Of Interest Disclosure, BI/COI FORM 3, May 2003

### **4. Summary of Required Level of Review**

#### **District Quality Control (DQC):**

- Purpose: Review of science and engineering work products
- Managed by: AE Project Manager
- Performed by: AE Technical Team Members
- Required for: All work products, reports, evaluations, and assessments
- Documentation: DrChecks

#### **Agency Technical Review (ATR):**

- Purpose: Ensure the quality and credibility of the government's scientific information and verify compliance with National Environmental Policy Act (NEPA) and other environmental compliance documents
- Managed by: District Project Manager
- Performed by: District Senior Technical Team Members, preferably recognized subject matter experts
- Required for: Design Documentation Reports and Plans & Specifications
- Documentation: DrChecks and Review Report
- Review Management Organization: Southwestern Division MSC

#### **Type II IEPR (Safety Assurance Review):**

- Purpose: Ensure that the project as designed and constructed does not represent a significant life safety risk to the community
- Managed by: Risk Management Center (RMC)

- Performed by: SWF Engineering Branch's assessment of the project concluded that a Type II IEPR was not required for the Farmer's Branch Project. This was documented in a Memo dated 28 Jan 2011. All documentation was sent to the RMC for concurrence. In an email dated 1 Jul 2011 the RMC agreed with the assessment and concurred that a Type II IEPR was not required.

## **5. Execution Plan**

### **5.1 District Quality Control**

Given the relatively simple nature of the project and the low life safety risk, the AE's Quality Control provided the appropriate level of technical review ensuring the project design provides the stated protection and will function as designed. The independent technical review conducted during the feasibility phase and the value engineering study conducted during the plans and specifications phase greatly assisted this process with the early identification of topics addressed during design. More importantly, the design and plans and specifications were completed using a highly qualified AE firm with significant experience resolving local flooding and drainage issues and solutions in White Settlement. The AE's Quality Control team was highly qualified, experienced in flood risk management projects, and were involved in every facet of the design process from contractor scope development, technical review of submittals, and back-checks. Their reviews were critical and comprehensive.

### **5.2 Agency Technical Review**

The Farmer's Branch Project was designed by an AE firm and reviewed by District staff members who are considered USACE technical experts. Reviews were conducted at 35 / 65 / 95 percent, and final design. Quality checks and reviews occurred during the project development process, and was performed by technical experts within the District but not engaged in the original work. The internal review process was focused on fulfilling project quality requirements as defined in the Project Management Plan (PMP). DrChecks was the application of choice to satisfy documentation requirements and record maintenance in accordance with MSC and district quality manuals. This project has a very low life safety risk because it is a channel improvement project where the designed flood capacity remains in the channel.

### **5.3 Value Engineering Study**

A Value Engineering Study was conducted by Olympic Associates Company on the Pecan Creek Project in March of 2008. Findings are documented in a VE Study Summary Report on file at SWF. Four different cost saving proposals were documented and discussed including raising the u-channel above grade at the Las Vegas Trail Tributary, deepening the entire channel bed, using soldier piles instead of u-channel and reducing the channel skew at the Las Vegas Trail bridge.



## 6. Cost Estimate:

- **DQC:** The DQC review is complete and was paid for as part of the design costs. The quality control reviews were conducted by the AE and documented in DrChecks.
- **ATR:** The ATR reviews are complete and were paid for as part of the design costs. Reviews were conducted by USACE technical experts and documented in DrChecks.
- **Type II IEPR:** Since the project is a channel modification/permanent evacuation project where it is anticipated the designed flood control capacity will remain within the modified channel, the project has received a determination that there is no life safety risk; therefore no additional IEPR reviews will be required. Reference Memo from SWF Engineering Branch and concurrence email from RMC.

## 7. Project Schedule:

### Significant Items Completed to Date:

Feasibility Phase:	Jan 2003
VE Study:	Mar 2008
DQC, ATR:	Dec 2010
Corrected Final Plans and Specifications:	10 Jun 2011

### Remaining Project Tasks and Expected Completion Dates:

BCOE Certification:	15 Jul 2011
Request for Proposal to 8A Contractor:	20 Jul 2011
Award Construction Contract:	13 Sep 2011