

20677.107

U.S. Department of Homeland Security  
FEMA Region 6  
800 North loop 288  
Denton, TX 76209-3698



**FEMA**

May 3, 2007

Mr. Mike Streeter, Operations Manager  
Dallas County Utility and Reclamation District  
P. O. Box 140035  
Irving, TX 75014-0035

RE: Levee Certification Acceptance

Dear Mr. Streeter:

On September 18, 2006, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) sent a letter to the City of Irving requesting data and supporting documentation from the owner of the levees within the city that are shown on the effective Flood Insurance Rate Map as providing protection from the base flood. This included the DCURD (Las Colinas) Levee. FEMA Region 6 received the documentation and data requested in a letter on October 18, 2006. The levee owned and operated by the Dallas County Utility and Reclamation District is located on the Elm Fork of the Trinity River and its extent is shown on the enclosed map.

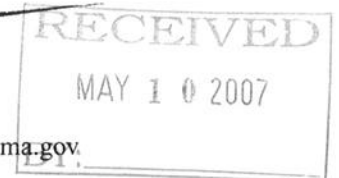
This documentation and data have been reviewed by FEMA Region 6, and based on receipt of this information; it appears that the minimum certification requirements outlined in Title 44 of the Code of Federal Regulations, Section 65.10 have been met. Therefore, this levee certification has been accepted and the levee system will be shown on the new Digital Flood Insurance Rate Maps as providing protection from the base flood. The areas provided protection from the base flood by the levees will be mapped as a shaded Zone X and a note will be placed in those areas warning of the risk that still exists.

This certification is recognized for this map update only. Map updates in the future will require the levee to be re-certified by the levee owner. In addition, the levee owner may be requested at any time to provide design, construction, operation, and maintenance documents to support any activity on the levee after the date of this certification. Any deviation from the documentation and data submitted to FEMA could result in the levee system no longer providing protection from the base flood on future maps.

The FEMA lead for this project is Jack Quarles, P.E. Mr. Quarles may be contacted at 940-898-5156. Please do not hesitate to contact us if you have any questions.

Sincerely,

William Peterson  
Regional Administrator



[www.fema.gov](http://www.fema.gov)

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cc: Jim Foster, Dallas County Judge  
Abel Sablana, County Floodplain Administrator  
Honorable Herbert Gears, City of Irving Mayor  
Garry Fennell, City of Irving Floodplain Administrator  
Michael Howard, State NFIP Coordinator  
Larry O. Rogers, P.E., Ft. Worth District, USACE  
Honorable Kay Bailey Hutchinson  
Honorable John Cornyn  
Honorable Pete Sessions  
Honorable Kenny Marchant  
Honorable Florence Shapiro  
Honorable Chris Harris  
Honorable Jim Jackson  
Honorable Linda Harper-Brown  
Honorable Rafael Anchia  
Walter Skipwith, P.E., Study Contractor  
David Patterson, P.E., FEMA Region VI Regional Management Center

20677.107



7950 Elmbrook Drive  
Dallas, TX 75247-4951  
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October 17, 2006

Mr. Jacky Knox  
Dallas County Utility and Reclamation District  
P. O. Box 140035  
Irving, Texas 75014

Reference: Certification of Dallas County Utility and Reclamation District Urban Center Levee

Dear Jacky:

Carter & Burgess, Inc. along with Freese and Nichols, Inc. and Rone Engineering have completed the work required to certify that the Urban Center Levee and associated structures operated by the Dallas County Utility and Reclamation District ("District") meets the requirements of 44 CFR Section 65.10, Mapping of Areas Protected by Levee Systems. The results of the work performed by each consultant are summarized below. The paragraph headings correspond to the paragraphs headings in 44 CFR Section 65.10.

- (a) General - No certification required in this paragraph.
- (b) Design criteria:
  - (1) Freeboard - Based on hydraulic studies used to develop the current Base Flood (100-year) levels along the Elm Fork, Hackberry Creek and Cottonwood Creek and recent field surveys conducted by Carter & Burgess, the Urban Center Levee meets the freeboard requirements of 44 CFR Section 65.10 (b) (1) except in the area of two small drainage swales. These swales are located along highway Spur 348 where it crosses the levee along Cottonwood Creek. This results in the levee having a freeboard which is 0.9 feet less than required in the area of the swales. The District has an operational plan to place sandbags in the area of the swales during a major flood event to provide the required freeboard. The operational plan is included in the attached District plan titled "Las Colinas Urban Center, Stormwater Management". The District currently has a flood monitoring system that will provide the necessary advance warning to install the sandbags before the 100-year flood peaks in the vicinity of the Urban Center Levee. We, therefore, believe that the freeboard requirements have been met.
  - (2) Closure - As stated in the attached Engineer's Certification prepared by J. Carlton Sherrer, P.E. with Freese and Nichols and dated October 16, 2006, all openings through the levee meet the minimum design and operation standards consistent with 100-year flood protection.
  - (3) Embankment protection – The Urban Center Levee is adjacent to three streams; the Elm Fork of the Trinity River, Hackberry Creek, and Cottonwood Creek. Along all three streams the levee has side slopes of 3:1 or flatter, is grassed and

is well maintained by the District. Significant floods along the three streams have occurred on several occasions since the levee was constructed in the early 1970's. There have been no signs of significant erosion during these flood events. Recent site visits revealed no signs of significant erosion of the levee or foundation areas.

Hydraulic models of the streams indicate that stream velocities in the overbank area adjacent to the levee along the Elm Fork will not exceed 2.0 feet per second. Velocities along Hackberry Creek will not exceed 4.4 feet per second and velocities along Cottonwood Creek will not exceed 5.6 feet per second except in areas where bridges and dams are located and are protected by concrete slope protection.

Wind and wave action have not caused significant erosion of the levee due to the relatively small area of water along the levee which results in limited wind fetch.

The levee alignment generally consists of straight segments with gentle bends and transitions. Historic floods have had very little impact on the levee slopes.

- (4) Embankment and foundation – The attached report titled “Geotechnical Engineering Report, Lake Carolyn Levee Evaluation, Dallas County Utility and Reclamation District, Irving, Texas” dated August 2006 presents the results of foundation and stability analyses for the Urban Center Levee. The report represents that the Urban Center levee meets the embankment and stability requirements of 44 CFR 65.10.
  - (5) Settlement - The attached report titled “Geotechnical Engineering Report, Lake Carolyn Levee Evaluation, Dallas County Utility and Reclamation District, Irving, Texas” dated August 2006 presents the results of settlement analyses for the Urban Center Levee. The report represents that the Urban Center levee meets the settlement requirements of 44 CFR 65.10.
  - (6) Interior drainage – As stated in the attached Engineer’s Certification prepared by John Rutledge, P.E. and J. Carleton Sherrer, P.E., both with Freese and Nichols, and dated October 16, 2006, the interior drainage facilities meet the minimum design and operation standards consistent with the 100-year level of flood protection. A copy of a 1983 report prepared by Freese and Nichols titled “Report on Flood Control Feasibility Study of Lake Carolyn” is attached.
  - (7) Other design criteria – No other design criteria has been identified.
- (c) Operation plans and criteria – The District has adopted an operation and maintenance plan for the Urban Center Levee and associated structures. A copy of the plan titled “Las Colinas Urban Center, Stormwater Management” is attached.

Mr. Jacky Know  
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- (d) Maintenance plans and criteria - The District has adopted an operation and maintenance plan for the Urban Center Levee and associated structures. A copy of the plan titled "Las Colinas Urban Center, Stormwater Management" is attached.
- (e) Certification requirements - Based on the information provided herein and studies, reports and certifications prepared by Freese and Nichols, Inc. and Rone Engineering, we certify that the Dallas County Utility and Reclamation District Urban Center Levee complies with the requirements set forth in paragraphs (b)(1) through (7) of CFR Section 65.10, Mapping of Areas Protected by Levee Systems. A copy of the as-built plans for the Urban Center Levee and outlet structure are attached.

If you have any questions or need additional assistance, please do not hesitate to call me.

CARTER & BURGESS, INC.

Sincerely,



Phil Deaton, P.E.  
Chairman of the Board



### ENGINEER'S CERTIFICATION

#### 44 CFR 65.10(b)(2) – Closures

By my seal and signature below, I hereby certify that on May 23, 2006, the date of my site visit to the Dallas County Utility and Reclamation District's facilities located in Irving, Texas, the closures for the facility as described below meet the minimum design and operation standards consistent with the 100-year level of flood protection.

- Gravity Discharge – 90" sluice gates and redundant, 90" square flap gates at the discharge of parallel 90" box culverts.
- Pumped Discharge - 108" flap gates at the discharge of parallel 108" discharge pipelines and redundant wafer-type check valves at each pump.



  
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J. Carleton Sherrer, P.E. 10.16.06

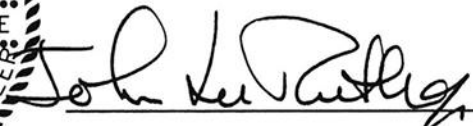
## ENGINEER'S CERTIFICATION

### 44 CFR 65.10(b)(6) – Interior Drainage

By seal and signature below, we hereby certify that based on Mr. Rutledge's review of the 1983 Hydrologic Study prepared by Freese and Nichols, Inc., and Mr. Sherrer's May 23, 2006, site visit to the Dallas County Utility and Reclamation District's facilities located in Irving, Texas, the interior drainage facilities described below meet the minimum design and operation standards consistent with the 100-year level of flood protection.

- Gravity Discharge – 16' x 10' leaf-type control gate with parallel 90" box culverts.
- Pumped Discharge – Maximum pumping rate of 550,000 gpm with seven vertical turbine pumps and parallel 108" discharge pipelines.



  
\_\_\_\_\_  
John Rutledge, P.E. 10-16-06



  
\_\_\_\_\_  
J. Carleton Sherrer, P.E. 10-16-06