

**San Antonio Channel Improvement Project**  
**General Reevaluation Report**  
**Appendix M**  
**INDEPENDENT TECHNICAL REVIEW**

The philosophy of the Independent Technical Review (ITR) is to: 1) ensure the technical analyses meet appropriate standards; 2) ensure compliance with applicable laws and statutes, as well as Corps policy; 3) resolve issues prior to the release of the product to the higher authority, customer, and the public; 4) be a continual process commensurate with the scope and complexity of the product, and; 5) the ITR will be documented

In accordance with Fort Worth District's Quality Control Plan, critical technical components of the formulation and evaluation of the measures leading to the identification of the National Environmental Restoration (NER) plan and the recommended plan were undertaken. The most critical components were the development of the hydraulic model using the Geomorphic and Sediment Transport Technical (Memorandum) design guidelines and the formulation and evaluation of environmental restoration measures using cost effectiveness and incremental cost analyses (IWR plan).

Geomorphic and Sediment Transport Technical (Memorandum) design guidelines were completed under contract with Interfluve, Inc. The scopes of work was reviewed and approved by both the Fort Worth District (SWF) and the San Antonio River Authority (SARA) prior to contract award. SWF and SARA reviewed draft products and written comments were provided to Interfluve, Inc., who in turn provided written responses. Final products were reviewed for compliance with all comments. The geomorphic and sediment transport technical (Memorandum) design guidelines were provided to Carter-Burgess (under contract) to develop the hydraulic model for the pilot channel. Again the scopes of work was reviewed and approved by SWF and the SARA prior to contract award. SWF and SARA reviewed draft products and written comments were provided to Carter-Burgess, who in turn provided written responses. Final products were reviewed for compliance with all comments.

Parsons, Brinkerhoff, Quade and Douglas (AE) completed a second technical review of the geomorphic and sediment transport design guidelines and hydraulic model under contract to SWF. The purpose of this review was two-fold: 1) Review the Geomorphic and Sediment Transport Technical Memorandum (GSTTM), Mission Reach, San Antonio River Improvements Project (SARIP) completed by Interfluve in association with Carter-Burgess, Inc. The review focused on the reasonableness and appropriateness of the assumptions, method of analysis, findings and conclusions of the technical memorandum; 2) Review the hydraulic model and plans developed by Carter Burgess for Mission Reach. In addition to technical adequacy, this review also focused on; a) determining whether the plan as developed was accurately reflected in the hydraulic model (HEC-RAS), b) determined whether the hydraulic model and the plan as developed correctly and consistency reflects the design parameters as described in the GSTTM, c) determined whether the hydraulic model correctly and consistently incorporates the criteria established in the Carter-Burgess memorandum, SARIP – Assigning Manning's "n" Values for Vegetation Associations, and d) determined whether the plan complied with the constraint of not exceeding the existing

conditions 100-year water surface profile. The comments made by Parsons, Brinkerhoff, Quade, and Douglas, and responses by Interfluve and Carter-Burgess are part of this appendix.

The formulation and evaluation of environmental restoration measures using cost effectiveness and incremental cost analyses (IWR plan) was reviewed by specialists from the New Orleans District as part of Mississippi Valley Division's designation as the Corps' National Center of Expertise for Ecosystem Restoration. Project impacts and NEPA compliance was completed by Environmental Research Group under contract to SWF, and reviewed and approved by SWF.

Preliminary design, quantity, and cost estimates were developed by SWF and Carter-Burgess, and reviewed by SWF. Cultural and archeological investigations, geotechnical investigations, hazardous, toxic, and radioactive waste investigations were completed by contract. Scopes of work were reviewed and approved by both the Fort Worth District (SWF) and the San Antonio River Authority (SARA) prior to the award of such contracts. SWF and SARA reviewed draft products and written comments were provided to the contractors, who in turn provided written responses. Final products were reviewed for compliance with all comments. The real estate plan received an independent technical review within SWF. Comments made on these products did not have any impact on plan formulation or evaluation, identification of the NER plan, or selection of the recommended plan. Copies of the review documentation are on file with the respective technical elements within SWF.

The completion and independent technical review of the flood damage estimations (without and with project conditions) for Park Reach was completed within SWF. The preliminary design, quantities, and cost estimates for the Park Reach were completed by Halff Associates (AE) under contract with SWF with review and approval by respective technical elements. Copies of the review documentation are on file with the respective technical elements within SWF.

Copies of the review documentation are on file in the Fort Worth District. Copies will be provided to Southwestern Division under separate cover.

**CERTIFICATE OF TECHNICAL REVIEW**

The San Antonio River Channel Improvement Project, General Reevaluation Report has been thoroughly reviewed. The formulation and evaluation of alternatives is in accordance with applicable process, procedures, and guidelines. The analyses presented are correct, technically sound, and in sufficient detail to proceed with pre-construction engineering and design on the recommended plan.

**PLANNING, ENVIRONMENTAL, AND REGULATORY DIVISION**

**Planning Branch - Plan Formulation Section**

Eli Kangas 23 JULY 04  
Eli Kangas, Project Manager Date

Julie P Gibbs 7/23/04  
Julie Gibbs, Economist Date

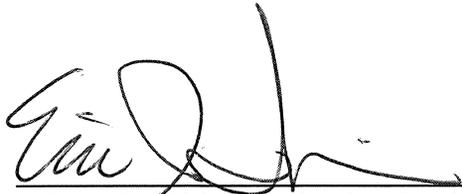
Arden K. Sansom 7/23/04  
Arden Sansom, Economist (independent technical reviewer) Date

Kevin Craig 8/19/2004  
Kevin Craig, Chief, Plan Formulation Section Date

**Planning Branch - Evaluation Section**

Michael Franks 7/23/04  
Michael Franks, Recreation Planner (independent technical reviewer) Date

Kelly Longfellow 7/23/04  
Kelly Longfellow, GIS Specialist Date

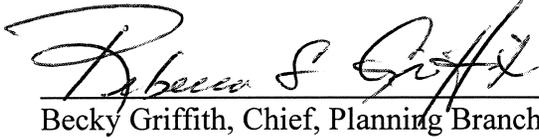


Eric Irwin, Chief, Evaluation Section

7/23/04

Date

**Planning Branch**

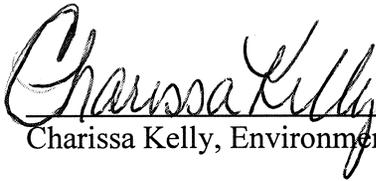


Becky Griffith, Chief, Planning Branch

19 Aug 04

Date

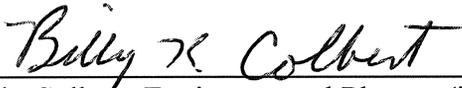
**Environmental Resources Branch - Environmental Planning Section**



Charissa Kelly, Environmental Planner

7/23/04

Date



Billy Colbert, Environmental Planner (independent technical reviewer) Date

7-23-2004

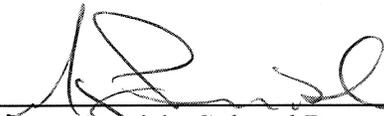


Joe Paxton, Chief, Environmental Planning Section

19 Aug 04

Date

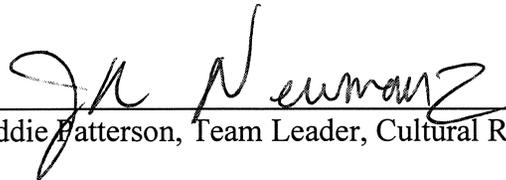
**Environmental Resources Branch - Cultural Resources Section**



Nancy Parrish, Cultural Resources Specialist

8-19-04

Date



*for* Paddie Patterson, Team Leader, Cultural Resources Section

Date

**Environmental Resources Branch**



Mead Sams, Chief, Environmental Resources Branch

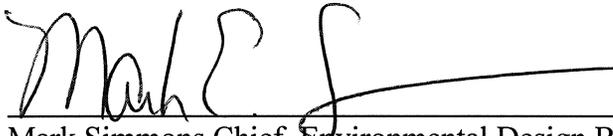
19 Aug 2004  
Date

**Environmental Design Branch**



Roxanne Welch, HTRW Specialist

23 July 2004  
Date



Mark Simmons Chief, Environmental Design Branch

20 Aug 04  
Date

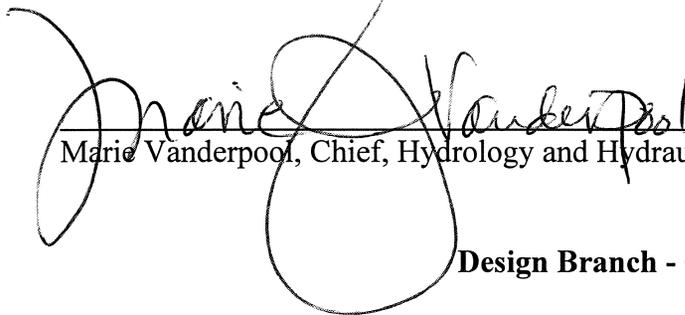
**ENGINEERING AND CONSTRUCTION DIVISION**

**Design Branch - Hydrology and Hydraulics Section**



David Wilson, Hydraulic Engineer

23 JULY 2004  
Date



Marie Vanderpool, Chief, Hydrology and Hydraulics Section

19 Aug 2004  
Date

**Design Branch - Civil Section**

Steve Armstrong, Civil Engineer

Date



Steve Comer, Civil Engineer (independent technical review)  
JEFF

23 JULY 04  
Date

*Mark L. Hill*

Mark Black, Chief, Civil Section

8/19/04

Date

**Design Branch - Structural Section**

*William O. Sanner*

William Sanner, Structural Engineer

7-23-04

Date

Warren Shaver, Structural Engineer

Date

*John Van Leeuwen*

John VanLeeuwen, Chief, Structural Section

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Date

**Design Branch - Geotechnical Section**

Doug Massoth, Geotechnical Engineer

Date

*Les Perrin*

Les Perrin, Chief, Geotechnical Section

8/20/04

Date

**Design Branch**

*Terry Nolen*

Terry Nolen, Chief, Design Branch

8/20/04

Date

Contract Administration Branch - Cost Engineering and Specifications Section

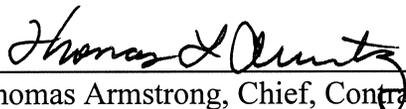
  
\_\_\_\_\_  
Jim Sears, Cost Engineer

23 JULY '04  
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Date

  
\_\_\_\_\_  
Lee Osbourne Chief, Cost Engineering and Specifications Section

19 AUG 04  
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Date

**Contract Administration Branch**

  
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Thomas Armstrong, Chief, Contract Administration Branch

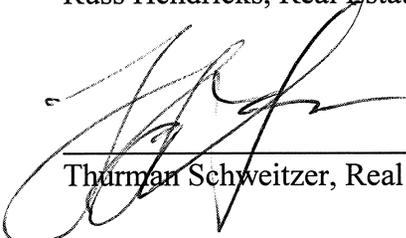
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REAL ESTATE DIVISION

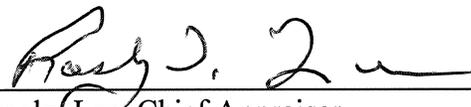
**Technical Resources Branch**

  
\_\_\_\_\_  
Russ Hendricks, Real Estate Specialist

8/20/04  
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Date

  
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Thurman Schweitzer, Real Estate Appraiser

8/19/04  
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Date

  
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Rocky Lee, Chief Appraiser

8/20/04  
\_\_\_\_\_  
Date

  
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Bobby Camp, Chief, Technical Resources Branch

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Date



8-19-04

ZANDY ROBERTS, INDEPENDENT TECHNICAL REVIEW

**OPERATIONS DIVISION**

**Maintenance Branch**

Douglas R Perrin 23 July 04  
Doug Perrin, Chief, Maintenance Date

**PROGRAMS AND PROJECT MANAGEMENT DIVISION**

**Civil Branch**

Tom Vogt 27 Jun 04  
Tom Vogt, Account Manager Date

Stephen Brooks 20 Aug 04  
Stephen Brooks, Chief, Civil Branch Date

San Antonio Channel Improvement Project  
General Reevaluation Report

Certificate of Review

We have reviewed the San Antonio Channel Improvement Project, General Reevaluation Report. The recommended plan was formulated in accordance with applicable laws, policies, and guidelines. Further, all technical analyses were completed in accordance with Corps of Engineers standards. We support the selection of recommended plan.



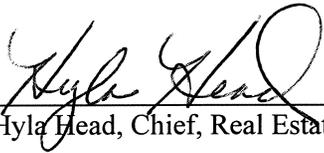
William Fickel, Chief, Planning, Environmental, and Regulatory Division

8/20/04  
Date



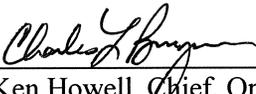
Larry Rogers, Chief, Engineering and Construction Division

8/20/04  
Date



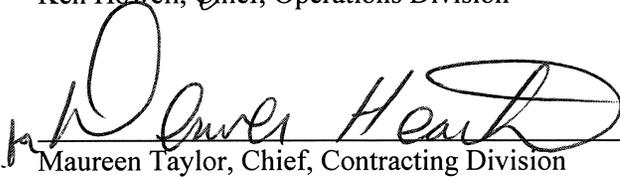
Hyla Head, Chief, Real Estate Division

8/20/04  
Date



for Ken Howell, Chief, Operations Division

8/20/04  
Date



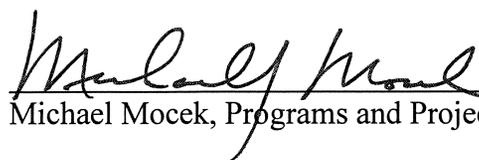
Maureen Taylor, Chief, Contracting Division

8/20/04  
Date



Al Proctor, Chief Counsel

8/20/04  
Date



Michael Mocek, Programs and Project Management Division

8/20/04  
Date



John Minahan, District Engineer

8/20/04  
Date