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Of Agriculture

**Natural
Resources
Conservation
Service**

FINAL
SUPPLEMENTAL WATERSHED PLAN NO. II
and
Environmental Evaluation
for the
Rehabilitation of Floodwater Retarding Structure No. 10
of the
Calaveras Creek Watershed
Bexar and Wilson Counties, Texas

Prepared By:
U.S. Department of Agriculture
Natural Resources Conservation Service

In Cooperation With:
San Antonio River Authority
Alamo Soil and Water Conservation District
Wilson County Soil and Water Conservation District

January 2013

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AUTHORITY

The original watershed work plan was prepared, and works of improvement have been installed, under the authority of the Soil Conservation Act of 1935 (Public Law No. 46, 74th Congress) as implemented by the Watershed Protection item in the Department of Agriculture appropriation Act, 1954 (Pilot Watershed Program). The rehabilitation of floodwater retarding structure No. 10 is authorized under Public Law 83-566 (as amended), and as further amended by Section 313 of Public Law 106-472.

ABSTRACT

Residential development has occurred downstream of Calaveras Creek Floodwater Retarding Structure No. 10 along with a significant increase in traffic on Loop 1604. These factors have caused concerns regarding the hydraulic capacity of the dam and human health and safety. As a result, the dam has been reclassified as a high hazard dam which does not comply with current dam safety and performance criteria. Local project sponsors have chosen to rehabilitate the dam to address the identified safety deficiencies. The purposes of the proposed rehabilitation of FRS No. 10 are to maintain present level of flood control benefits and comply with current performance and safety standards. Rehabilitation of the dam will require lowering the crest of the principal spillway by 1.8 feet and installing a 42-inch diameter principal spillway pipe with an intake riser and an impact basin at the outlet. Also, the auxiliary spillway crest elevation will be raised 1.1 feet and armored with articulating blocks. In addition, the top of the dam will be raised 3.8 feet and the dam lengthened by 430 feet. Project installation cost is estimated to be $3,442,800 of which $2,438,400 will be paid from the Small Watershed Rehabilitation funds and $1,004,400 from local funds.

COMMENTS AND INQUIRIES

Comments and inquires must be received by January 18, 2013. Submit comments and inquiries to: Steven Bednarz, Assistant State Conservationist, Water Resources, USDA/NRCS, 101 South Main, Temple, Texas 76501 (254-742-9871).

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SUPPLEMENTAL WATERSHED AGREEMENT NO. II

Between the

San Antonio River Authority (SARA)
Local Organization

Alamo Soil and Water Conservation District (Alamo SWCD)
Local Organization

Wilson County Soil and Water Conservation District (Wilson County SWCD)
Local Organization

(Hereinafter referred to as the Sponsoring Local Organizations)

and the

Natural Resources Conservation Service
United States Department of Agriculture
(Hereinafter referred to as the NRCS)

Whereas, The Watershed Protection Amendment to the SUPPLEMENTAL MEMORANDUM OF UNDERSTANDING for the Calaveras Creek Watershed, State of Texas, executed by the Sponsoring Local Organizations (SLO) named therein and the NRCS (formerly the Soil Conservation Service), became effective on the 8th day of February, 1954; and

Whereas, in order to carry out the watershed work plan for said watershed, the Watershed Protection Amendment to the Supplemental Memorandum of Understanding was replaced with a new Watershed Agreement which became effective on the 14th day of September, 2009; and

Whereas, the Supplemental Watershed Work Plan Agreement No. I for Calaveras Creek Watershed, State of Texas, executed by the SLO named therein and the NRCS, became effective on the 14th day of September, 2009; and

Whereas, in order to extend the watershed plan for said Floodwater Retarding Structure (FRS) No. 10 beyond its current evaluated life, it has become necessary to modify said watershed agreement; and

Whereas, the rehabilitation of said FRS No. 10 has been authorized under the authority of the Watershed Protection and Flood Prevention Act (PL 83-566) as amended by the Watershed Rehabilitation Amendments (PL 106-472) provides the authority for rehabilitation; and

Whereas, it has become necessary to modify said watershed work plan by modifying FRS No. 10 to bring it up to current performance and safety standards and to extend the service life of the dam for an additional 50 years; and

Whereas, the responsibility for administration of the Watershed Protection and Flood Prevention Act, as amended, has been assigned by the Secretary of Agriculture to the NRCS; and

Whereas, a Supplemental Watershed Plan/Environmental Evaluation which modifies the Watershed Work Plan for said watershed has been developed through the cooperative efforts of the SLO and the NRCS, which plan is annexed to and made a part of this agreement; and

Now, therefore, the Secretary of Agriculture through the NRCS and the SLO hereby agree upon the following modifications of the terms, conditions, and stipulations of said watershed agreement:

(1) Paragraph No. 1 Regarding **Term** is modified to read as follows:

The term of this agreement is for the installation period and evaluated life of the project (50 years) and does not commit NRCS to assistance of any kind beyond the end of the evaluated life unless agreed to by all parties. The 50-year term of this supplemental watershed agreement applies only to the specific portions of the agreement directly related to the rehabilitation of FRS No. 10.

(2) Paragraph No. 3 regarding **Real Property** is modified to read as follows:

The SLO will acquire such real property as will be needed in connection with the works of improvement. In Texas, the minimum requirements for landrights upstream from the dam will be all the area below the higher elevation of either (1) two feet vertically above the crest of the auxiliary spillway, or (2) the maximum elevation of the water surface attained during passage of the 100-year, 24-hour storm flow through the structure. The SLO currently hold easements for Calaveras Creek FRS No. 10 that meet minimum Public Law 83-566 requirements (existing auxiliary spillway crest elevation plus 2.0 feet). However, these easements are at an elevation below top of dam. Although any future upstream development must adhere to current easement restrictions, development could occur outside current easements and below top of dam elevation. Landrights above the currently required auxiliary spillway plus 2.0 feet elevation would be desirable but would address storms far in excess of what should reasonably be expected to occur. The SLO has determined that land rights for the auxiliary spillway plus 2.0 feet requirement are adequate based on current local, state, and federal guidelines. This determination is consistent with criteria for other structures in the state, such as road embankments at culvert crossings, bridges, and other similar structures. All land rights must be identified by metes and bounds surveys conducted by a professional land surveyor. The amounts and percentages of the real property acquisition costs to be borne by the SLO and NRCS are as shown in the Cost Share table in paragraph No. 5 hereof.

(3) Paragraph No. 5 regarding the **Cost Share Table for Rehabilitation of FRS No. 10** is modified to show cost-share percentages and estimated amounts for Watershed Project Plan implementation:

Cost Share Table for Calaveras Creek FRS No. 10					
Works of Improvement	**NRCS**		**SLO**		**Total**
Cost-Sharable Items	Percent	Cost	Percent	Cost	Cost
Construction Costs	72%	$1,865,300	28%	740,000	$2,605,300
SLO Project Administration Costs	NA	NA	100%	$65,100	$65,100
Land Rights Acquisition Cost	NA	NA	100%	$199,300	$199,300
Subtotal: Cost-Sharable Costs [1/]	65%	$1,865,300	35%	$1,004,400	$2,869,700
Non Cost-Sharable Items [2/]	X	X	X	X	X

Cost Share Table for Calaveras Creek FRS No. 10 – (Continued)					
Works of Improvement	**NRCS**		**SLO**		**Total**
NRCS Engineering Cost	100%	$260,500	NA	NA	$260,500
NRCS Project Administration Cost	100%	$312,600	NA	NA	$312,600
Subtotal: Non Cost-Share Costs	100%	$573,100	NA	NA	$573,100
Total All Costs:	NA	$2,438,400	NA	$1,004,400	$3,442,800

[1/] Maximum NRCS cost share is 65% of Cost-Sharable items not to exceed 100% of construction cost.
[2/] If actual Non Cost-Sharable item expenditures vary from these figures, the responsible party will bear the change.

(4) Paragraph No. 13 regarding **Operation and Maintenance (O&M)** is modified to read:

The SLO will be responsible for the operation, maintenance, and any needed replacement of the works of improvement by actually performing the work or arranging for such work, in accordance with an O&M Agreement. Specifically, the San Antonio River Authority (SARA) will be responsible for the maintenance of FRS No. 10. An O&M agreement will be entered into before federal funds are obligated and continue for the project life (50 years). Although the SLO responsibility to the Federal Government for O&M ends when the O&M agreement expires, the SLO acknowledge that continued liabilities and responsibilities associated with works of improvement may exist beyond the evaluated life.

(5) Paragraph No. 14 regarding the **Emergency Action Plan** is modified to read:

Prior to construction, the SLO shall prepare an Emergency Action Plan (EAP) for FRS No. 10. The EAP shall meet the minimum content specified in Part 500.52 of the NRCS National Operation and Maintenance Manual, and meet applicable State agency dam safety requirements. The NRCS will determine that an adequate EAP is prepared prior to the execution of fund obligating documents of the structure. EAPs shall be reviewed and updated by the SLO annually.

(6) Paragraph No. 15 regarding **Nondiscrimination Provisions** is modified to read:

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Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender.

Persons with disabilities who require alternative means for communication of program information (e.g., Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

(7) Paragraph No. 19 regarding **Clean Air and Water Certificatio**n is added to read as follows: (Applicable if this agreement exceeds $100,000, or a facility to be used has been subject of a conviction under the Clean Air Act (42 U.S.C. Section 7413(c)) or the Federal Water Pollution Control Act (33 U.S.C. Section 1319(c)) and is listed by EPA, or is not otherwise exempt.)

A. The project Sponsor(s) signatory to this agreement certifies as follows:

(1) Any facility to be utilized in the performance of this proposed agreement is (____), is not (X) listed on the Environmental Protection Agency List of Violating Facilities.

(2) To promptly notify the NRCS-State Administrative Officer prior to the signing of this agreement by NRCS, of the receipt of any communication from the Director, Office of Federal Activities, U.S. Environmental Protection Agency, indicating that any facility which is proposed for use under this agreement is under consideration to be listed on the Environmental Protection Agency List of Violating Facilities.

(3) To include substantially this certification, including this subparagraph, in every nonexempt sub-agreement.

B. The project Sponsor(s) signatory to this agreement agrees as follows:

(1) To comply with all the requirements of section 114 of the Clean Air Act as amended (42 U.S.C. Section 7414) and section 308 of the Federal Water Pollution Control Act (33 U.S.C. Section 1318), respectively, relating to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, issued there under before the signing of this agreement by NRCS.

(2) That no portion of the work required by this agreement will be performed in facilities listed on the EPA List of Violating Facilities on the date when this agreement was signed by NRCS unless and until the EPA eliminates the name of such facility or facilities from such listing.

(3) To use their best efforts to comply with clean air standards and clean water standards at the facilities in which the agreement is being performed.

(4) To insert the substance of the provisions of this clause in any nonexempt sub-agreement.

C. The terms used in this clause have the following meanings:

(1) The term “Air Act” means the Clean Air Act, as amended (42 U.S.C. Section 7401 et seq.).

(2) The term “Water Act” means Federal Water Pollution Control Act, as amended (33 U.S.C. Section 1251 et seq.).

(3) The term “clean air standards” means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110 of the Air Act (42 U.S.C. Section 7414) or an approved implementation procedure under section 112 of the Air Act (42 U.S.C. Section 7412).

(4) The term "clean water standards" means any enforceable limitation, control, condition, prohibition, standards, or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. Section 1342), or by a local government to assure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. Section 1317).

(5) The term "facility" means any building, plant, installation, structure, mine, vessel, or other floating craft, location or site of operations, owned, leased, or supervised by the SLO, to be utilized in the performance of an agreement or sub-agreement. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

(8) Paragraph No. 20 regarding **Assurances and Compliance** is added to read as follows:

As a condition of the grant or cooperative agreement, the SLO assures and certifies that it is in compliance with and will comply in the course of the agreement with all applicable laws, regulations, Executive Orders and other generally applicable requirements, including those set out below which are hereby incorporated in this agreement by reference, and such other statutory provisions as are specifically set forth herein.

State, Local, and Indian Tribal Governments: OMB Circular Nos. A-87, A-102, A-129, and A-133; and 7 CFR Parts 3015, 3016, 3017, 3018, 3021, and 3052.

Non-Profit Organizations, Hospitals, Institutions of Higher Learning: OMB Circular Nos. A-110, A-122, A-129, and A-133; and 7 CFR Parts 3015, 3017, 3018, 3019, 3021 and 3052.

(9) Paragraph No. 21 regarding **Examination of Records** is added to read as follows:

The SLO shall give the NRCS or the Comptroller General, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to this agreement and to retain all records related to this agreement for a period of three years after completion of the terms of this agreement in accordance with the applicable OMB Circular.

The SLO and the NRCS further agree to all other terms, conditions, and stipulations of said watershed agreement not modified herein.

San Antonio River Authority
Local Organization

By _____

Title General Manager

Date 4/3/13

The signing of this agreement was authorized by a resolution of the governing body of the San Antonio River Authority adopted at a meeting held on 3/20/13.

_____
(Secretary, Local Organization)
Assist.

Alamo Soil and Water Conservation District
Local Organization

By _____

Title Chairman

Date Feb. 5, 2013

The signing of this agreement was authorized by a resolution of the governing body of the Alamo SWCD adopted at a meeting held on Feb. 5, 2013.

_____
(Secretary, Local Organization)

Wilson County Soil and Water Conservation District
Local Organization

By _____

Title Chairman

Date Feb. 1, 2013

The signing of this agreement was authorized by a resolution of the governing body of the Wilson County SWCD adopted at a meeting held on Feb. 1, 2013.

_____
(Secretary, Local Organization)

Natural Resources Conservation Service
United States Department of Agriculture

Approved By Salvador Salinas
NRCS State Conservationist

Date APR 10 2013

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Summary-Office of Management and Budget (OMB) Fact Sheet
Supplemental Watershed Plan No. II – Environmental Evaluation

For

Calaveras Creek Watershed

Bexar and Wilson Counties, Texas

Texas 28th Congressional District – Henry Roberto Cuellar

Authorization:

- The original watershed work plan was prepared, and works of improvement have been installed, under the authority of the Soil Conservation Act of 1935 (Public Law No. 46, 74th Congress) as implemented by the Watershed Protection item in the Department of Agriculture appropriation Act, 1954 (Pilot Watershed Program). The rehabilitation of floodwater retarding structure No. 10 is authorized under Public Law 83-566 (as amended), and as further amended by Section 313 of Public Law 106-472.

Sponsors:

- San Antonio River Authority (SARA) (Lead sponsor with primary responsibilities)
- Alamo Soil and Water Conservation District (Alamo SWCD)
- Wilson County Soil and Water Conservation District (Wilson County SWCD)

Proposed Action:

- Upgrade Floodwater Retarding Structure (FRS) No. 10 to meet current safety and performance standards for a high hazard dam.

Purpose and Need for Action:

- There is a need for continued flood protection in the Calaveras Creek Watershed and to meet current safety standards. The original purpose of the Calaveras Creek Watershed Plan was flood prevention. The purpose of this supplemental watershed plan is to meet current safety and performance standards for a high hazard dam and maintain flood protection for downstream properties with the current performance and safety standards for a high hazard dam.
- While Calaveras FRS 10 was designed as a high hazard dam, it does not meet the current safety and performance standards. The dam needs to be rehabilitated and upgraded to meet current criteria for a high hazard dam.

Description of the Preferred Alternative:

- The preferred alternative is to rehabilitate FRS No. 10 and bring the dam into compliance with current state and federal safety and performance standards for a high hazard dam, provide sediment storage for an additional 50 years, and maintain the current level of flood protection downstream. This would include raising the top of dam by 3.8 feet with fill acquired from the existing sediment pool and lengthening the dam by approximately 215 feet on each end of the dam in the abutment areas; lowering the crest of the principal spillway by 1.8 feet and installing a 42-inch principal spillway pipe with an intake riser and an impact basin at the outlet; and raising the crest of the auxiliary spillway 1.1 feet and armoring it with articulating blocks. The evaluated life of the rehabilitated structure will be extended for an additional 50 years.

Resource Information:
• FRS No. 10 is located at Latitude, decimal degree 29.3033 and Longitude, decimal degree -98.2833.
• The Eight Digit Hydrologic Unit Number for Calaveras Creek Watershed is 12100301.
• Bexar County has a modified subtropical climate, predominately continental in winter and marine in summer. Average annual rainfall is slightly less than 28 inches. Normal temperatures range from an average daily high of 94 degrees Fahrenheit in July and August to an average daily low of 42 degrees in January. The normal freeze-free period of 279 days extends from February 24 to November 30.
• The project area for FRS No. 10 is comprised of 4,948 acres.
• Land uses within the project area are: cropland 416 acres, grassland 3,569 acres, woodland 802 acres, and urban area (including roads/highways) 161 acres.
• Land ownership within the project area is: Private 98.7%, State-Local 1.3%.
• The population of the project area is about 596. Demographic population estimates of the area reflect 87.0% white, 4.0% African American, 7.0% Other Race, and 2.0% Multiracial. Ethnicity population is about 28% Hispanic or Latino. Per capita income (2010 data) for the project area is about $23,831 which is 103% of Bexar County ($23,225) but 96 % of the state of Texas ($24,870). It is estimated that the number of persons below the poverty level within the project area is comparable to that of Bexar County, which is 17.0%.
• Relevant Resource Concerns identified during the scoping process
▪ Air Quality
▪ Environmental Justice
▪ Fish & Wildlife Resources
▪ Floodplain Management
▪ Flood Damages
▪ Land Values
▪ National Economic Development (NED)
▪ Public Health and Safety
▪ Riparian Area
▪ Sedimentation and Erosion
▪ Water Bodies (Including Waters of the U.S.)
▪ Water Quality
▪ Wetlands
▪ Wildlife Community (Including Migratory Birds)
Alternative plans considered:
• Alt. #1 – Future without project: Alternative #1, which does not involve federal action, consists of excavating a breach in the dam of sufficient size to safely pass the 100-year, 24-hour frequency flood event. This breach would be a minimum size opening in the dam from top of dam down to the valley floor, which would eliminate the structure's ability to store water. In order not to impede flows through the breached embankment and to remove potential safety hazards, the principal spillway components would also be removed. Downstream flooding conditions would be similar to those that existed prior to the construction of the dam. The 100-year floodplain downstream would be enlarged from 151 acres to 219 acres. Exposed areas would be vegetated for erosion and sediment control.

- Alt. #2 – Decommission FRS No. 10: Alternative #2 removes the storage function of the dam and reconnects, restores, and stabilizes the stream and floodplain functions. The 100-year floodplain downstream would be enlarged from 151 acres to 219 acres. Downstream flooding conditions would be similar to those that existed prior to the construction of the dam. Therefore, all properties within the 100-year floodplain would be relocated (15 residences), and barricades with warning lights would need to be installed at stream crossings on Bernhardt Road, Kosub Lane, Elmendorf/Lavernia Road, and Stuart Road. Partial removal of the embankment would consist of excavating a breach in the dam of sufficient size to safely pass the 100-year, 24-hour frequency flood event, thus eliminating the structure's ability to store water. In order not to impede flows through the breached embankment and to remove potential safety hazards, the principal spillway components would also be removed. Channel work would be performed to reconnect the stream channel through the sediment pool, and vegetation would be established along the stream channel. A grade stabilization structure would be installed to prevent head cutting and sediment movement to downstream areas. Exposed areas would be vegetated for erosion and sediment control.
- Alt. #3 – Rehabilitation of FRS No. 10: Alternative #3 consists lowering the crest of the principal spillway by 1.8 feet and installing a 42-inch diameter principal spillway pipe with an intake riser and an impact basin at the outlet end. The auxiliary spillway crest will be raised by 1.1 feet and armored with articulating blocks. The top of the dam will be raised 3.8 feet using fill material from the existing sediment pool, and the dam will be lengthened by approximately 215 feet on each end of the dam in the abutment areas. All disturbed areas will be re-vegetated using adapted and/or native species.
- Mitigation Measures: No compensatory mitigation will be required as a result of implementing any of the alternatives.

Project costs:	**PL 83-566 funds**	**Other funds**	**Total**
• Construction	$1,865,300	$740,000	$2,605,300
• Engineering	$260,500	$0	$260,500
• Real Property Rights	$0	$199,300	$199,300
• Project Admin.	$312,600	$65,100	$377,700
TOTAL INSTALLATION COSTS	$2,438,400	$1,004,400	$3,442,800
Annual O&M (non-Fed)	$0	$9,000	$9,000

Project Benefits:

- Description of Monetary Benefits: Project benefits are derived from assuring the continued performance of FRS No. 10 by meeting current safety and performance standards. Benefits are based on continuing flood protection (damage reduction benefits) to the downstream area and avoiding costs associated with implementing Alternative No. 1. Total average annual flood damage reduction benefits are estimated to be $138,900, which include benefits to cropland and grassland ($3,800), other agricultural properties like fences and barns ($11,400), roads and bridges ($37,000), and urban properties ($82,900). Damage reduction benefits also include reduction in sediment ($200) and erosion ($3,600). Also, the Sponsors would not incur costs of breaching the dam, equating to an annual savings (benefit) of $27,200. Summing all of the benefits provides a total of $166,100 average annual benefits.

- Number of Direct Beneficiaries: Onsite – 72 Offsite – NA
  Beneficiaries include population at risk from a breach of FRS No. 10 and agricultural property owners. Due to the nature of the at-risk properties downstream, it is difficult to predict population at risk. However, it was estimated that 66 residents in 22 homes would be at risk during a breach. Also, approximately 6 motorists traveling on roads within the urban area (Loop 1604, Bernhardt Road, Kosub Lane, Elmendorf/Lavernia Road, and Stuart Road) would be in harm's way. Other beneficiaries include property owners (i.e. urban properties, agricultural land, etc.) benefitting from reduced flood damages.
- Description of Other Beneficial Physical Effects: Debris clean-up following major storm events could be accomplished easier, faster, and cheaper.
- Benefit to Cost Ratio (authorized rate): 1.02: 1.0
- Benefit to Cost Ratio (current rate): 1.02: 1.0
- Net Beneficial Effects (NED): $3,700

Funding Schedule:

- Funding Schedule (budget year + 1):
  Federal Funds (budget year): $260,500
  Federal Funds (year after budget year): $2,177,900
  Non-Federal Funds (budget year): $1,004,400
  Non-Federal Funds (year after budget year): $9,000 annually
- Period of Analysis – 50 years
- Project Life – 50 years

Environmental Effects:

- Environmental Effects, Impacts - Installation of the preferred alternative will result in the disturbance of approximately 10 acres of shrub/scrub and grass vegetation in or adjacent to the existing embankment, auxiliary spillway, and sediment pool. All disturbed areas will be replanted with adapted native and/or introduced grasses or articulated blocks in the auxiliary spillway. Installation of the preferred alternative will have only minor adverse impacts to wildlife habitat. Only minor temporary impacts on water quality (turbidity and sedimentation if a rain event takes place during construction, SWP3 in place) associated with construction are anticipated. The sediment pool would be reduced from 43 to 36 acres; however, the size of the sediment pool is directly related to the elevation of the principal spillway inlet and does not determine the size and/or area of the water surface upstream of the dam. Water levels in FRS 10 fluctuate and are only at the principal spillway inlet during and immediately following storm events; therefore reducing the size of the sediment pool would have no impact on the existing impoundment and/or wetlands. The abutment areas where the dam will be extended are currently covered in grasses and will be re-vegetated with grasses after the dam extensions are completed. The extensions would impact approximately 0.2 acre on each end of the dam (0.4 acre total). The U.S. Army Corps of Engineers was invited to a site visit on 8 August 2013, but did not respond to that invitation; therefore the sponsor is assuming authorization under Section 404 of the Clean Water Act by Nationwide Permit 3 for maintenance without preconstruction notification with no compensatory mitigation required.

Major Conclusions:
• Rehabilitation of FRS No. 10 will minimize the risk of loss of life within the breach area, will have only a very minor temporary impact to the environment, and will allow the continuance of flood prevention benefits.
Areas of Controversy:
• There are no known areas of controversy.
Issues to be resolved:
• A new Operation and Maintenance (O&M) Agreement will be developed with SARA, Alamo SWCD, and Wilson County SWCD for FRS No. 10 for the 50-year program life of the structure. The new O&M Agreement will be signed before the Project Agreement is signed.
• For projects with disturbances equal to or greater than five acres it is necessary to have a Storm Water Pollution Prevention Plan (SWP3) in place at least 48 hours prior to and during construction of the proposed project and filing a Notice of Intent with the Texas Commission on Environmental Quality (TCEQ) is required. A Notice of Termination (NOT) must be filed once the site has reached final stabilization.
• The Sponsors will be responsible for developing an Emergency Action Plan (EAP) prior to construction and will review and update the EAP annually with local emergency response officials.
Evidence of Unusual Congressional or Local Interest: The local Sponsors have taken a proactive role to upgrade FRS No. 10 to meet current performance and safety standards.
Is this report in compliance with executive orders, public laws, and other statutes governing the formulation of water resource projects? Yes ____X_____ No _____

PURPOSE AND NEED FOR ACTION

CHANGES REQUIRING PREPARATION OF A SUPPLEMENT

Major changes in land use from a rural setting to an urban setting have occurred in large portions of the Calaveras Creek Watershed (Appendix B – Watershed Project Map). These land use changes have occurred downstream of several of the floodwater retarding structures (FRS) in the Calaveras Creek Watershed. While Calaveras Creek Watershed FRS No. 10 was constructed as a high hazard dam in 1958, the Texas Commission on Environmental Quality and the United States Department of Agriculture/Natural Resources Conservation Service (NRCS) both concur that Calaveras Creek Watershed FRS No. 10 no longer meets the current criteria for a high hazard structure. Even though there is no knowledge (local or otherwise) that the auxiliary spillway has ever functioned, there are human health and safety concerns about the performance of this dam. FRS No. 10 does not comply with the current performance and safety standards for a dam of this classification.

When the Calaveras Creek Watershed was planned over 50 years ago, the original intent of the FRS was to protect downstream agricultural areas of the watershed and prevent adverse economic and physical effect of flooding throughout the entire watershed community. The economy in the Calaveras Creek Watershed area was almost entirely agricultural (cropland and grassland) when the original planning was completed. However, in the last 40 years, the population growth of Bexar County, which contains all 7 of the remaining FRS built in the Calaveras Creek Watershed, has grown from 830,460 in 1970 to 1,714,773 in 2010 (Bureau of Census), an increase of over 100 percent. Changes in the economy, land use, and population growth within the watershed have been especially noticeable in the vicinity of Calaveras Lake, which is located southwest of FRS No. 10 (see vicinity map). Table B contains demographic information of the project areas.

PURPOSE AND NEED FOR THE PROJECT

This Supplemental Watershed Plan was prepared and an Environmental Evaluation was performed to evaluate alternatives to bring FRS No. 10 into compliance with current performance and safety standards. FRS No. 10 was originally installed under the authority of the Soil Conservation Act of 1935 (Public Law No. 46, 74th Congress) as implemented by the Watershed Protection item in the Department of Agriculture appropriation Act, 1954 (Pilot Watershed Program). The proposed rehabilitation of FRS No. 10 is authorized under Public Law 83-566 (as amended), and as further amended by Section 313 of Public Law 106-472.

There is a need for continued flood protection in the Calaveras Creek Watershed and to meet current safety standards. The purposes of the FRS No. 10 rehabilitation project are to provide continued flood protection and comply with the current performance and safety standards. FRS No. 10 was built in 1958 in a rural setting and is now strongly influenced by population growth and land development. In particular, there are 22 residences, one State Highway, and four County roads downstream that would be impacted by a dam failure of FRS No. 10.

The risk of loss of life and the dam not meeting current performance and safety standards are the reasons that FRS No. 10 needs to be rehabilitated. Rehabilitation of FRS No. 10 is needed to protect downstream properties and infrastructure and reduce the risk of loss of life. The

rehabilitation of FRS No. 10 will allow for the service life of the dam to be extended for a minimum of 50 additional years.

The primary concerns are the safety of FRS No. 10 and the potential problems that failure of the dam would cause. Seventy-two people located downstream of FRS No. 10 are at risk should the dam fail including approximately 6 motorists that might be traveling on roadways below FRS No. 10 at the time of failure.

Currently, FRS No. 10 is functioning as originally planned and providing downstream flood damage protection. However, there is a possibility of the dam failing from overtopping if a storm produces runoff that is greater than the structure's current capacity. Total estimated damages from a catastrophic breach of FRS No. 10 would exceed $4.2 million, and the risk of loss of human life would be significant.

Following is a list of opportunities that will be realized through the implementation of this watershed rehabilitation plan:

- Comply with current dam safety criteria
- Protect human health and safety
- Protect infrastructure and transportation system
- Maintain flood control benefits and prevent increased flooding in the floodplain
- Maintain or improve water quality
- Protect fish and wildlife habitats
- Prevent Sponsors and others from costly consequences of a controlled breach

SCOPE OF THE PLAN

A scoping process was used to determine the issues significant in defining the problems and formulating and evaluating alternatives. Scoping included a public meeting, a written request for input from Federal, State, and local agencies, and the formation of a steering committee of Sponsors and local citizens to solicit input. The NRCS convened a group of interdisciplinary agency experts to review the actions of the alternatives being evaluated. The environmental evaluation conducted was fully documented on form NRCS-CPA-52 Environmental Evaluation Worksheet (see pages 31-36 of this document). NRCS has determined that the activities to be undertaken under this project fall within a category of NRCS actions that have been excluded from further NEPA evaluation (Categorical Exclusions). Table A presents a summary of the scoping process:

Table A – Summary of Scoping

ITEM/CONCERN	Relevant to the Proposed action?		RATIONALE
	YES	NO	
Aesthetics		X	No change in aesthetics
Air Quality	X		Minor temporary impacts, BMP's in use
Coastal Zone Mgmt. Area		X	None present in project area
Coral Reefs		X	None present in project area
Ecological Critical Areas		X	None present in project area
Environmental Justice	X		Compliance with E.O. 12898
Essential Fish Habitat		X	None present in project area
Fish & Wildlife Resources	X		Temporary impacts to vegetation
Floodplain Management	X		Compliance with E.O. 11988
Forest Resources		X	None present in project area
Flood Damages	X		Concern for flood damages from breach
Historic and Cultural Resources		X	No properties eligible for National Register in project area; monitor during construction
Invasive Species		X	Presence, introduction or spread of invasive species not anticipated
Land use		X	No change in land use
Land Values	X		Concern land values could be negatively affected
National Parks, Monuments, and Historic Sites		X	None present in project area
National Economic Development Plan (NED)	X		Federally assisted plan will maximize net economic benefits
Natural Areas		X	No designated areas in project area
Parklands		X	None present in project area
Prime Farmland (Farmland Protection Policy Act)		X	No prime farmland present in project area
Public Health and Safety	X		Concern for safety if dam breaches
Recreation		X	Recreation limited to private landowners
Regional Water Resource Plans		X	None present in project area
Riparian Area	X		Minor Temporary impacts, BMP's in use
Scenic Areas		X	None identified in project area

Table A –(continued) Summary of Scoping			
ITEM/CONCERN	Relevant to the Proposed action?		RATIONALE
	YES	NO	
Scientific Resources		X	None identified in project area
Sedimentation and Erosion	X		50-yr sediment storage available
Sole Source Aquifers		X	None identified in project area
Threatened and Endangered Species		X	No T & E species or habitat identified in project area
Water Bodies (Including waters of the U.S.)	X		No impaired watersheds in APE. Project meets the terms and conditions of NWP 3 for maintenance without PCN.
Water Quality	X		Minor temporary impacts, dry pool, SWP3 in place
Wetlands	X		Wetlands in and around the pool (Cowardin classification)
Wild and Scenic Rivers		X	None present in or near the project area
Wildlife Community (Including Migratory Birds)	X		Temporary effects – construction activities, re-vegetated after construction

AFFECTED ENVIRONMENT

This Supplemental Plan and Environmental Evaluation is for the watershed (drainage area) upstream of FRS No. 10 and the downstream area affected by a breach of the existing dam (Appendix C – Breach Inundation Map). FRS No. 10 was constructed on Parita Creek approximately 15 miles southeast of downtown San Antonio. The Calaveras Creek Watershed is located in the San Antonio River Basin. A description of the Calaveras Creek Watershed can be found in the Calaveras Creek Watershed Work Plan dated June 1954.

The rehabilitation project area is 4,948 acres that consists of the drainage area of FRS No. 10 (4,608 acres) plus the area downstream that would be inundated by a breach of the dam (340 acres). All of the project area is located outside of any city limits and extraterritorial jurisdictions (ETJ). Land uses within the rehabilitation project area include urban, grazing lands, cropland, woodland, highways/roads, and utility right-of-ways. Twenty-two houses and a number of associated garages, workshops, etc. are located within the breach zone. Although Bexar County is currently a participant in the National Flood Insurance Program (NFIP), in the past, the County either did not rigorously enforce development regulations within the 100-year floodplain or development occurred before the County participated in the NFIP. Consequently, some of the properties at risk from a breach of FRS No. 10 are also located within the 100-year floodplain.

EXISTING CONDITIONS

Original Project

The Calaveras Creek Watershed Plan was designated as a project eligible for Federal assistance in August 1953 under the authority of the Soil Conservation Act of 1935 (Public Law No. 46, 74th Congress) as implemented by the Watershed Protection item in the Department of Agriculture appropriation Act, 1954 (Pilot Watershed Program). The plan provides for application of conservation practices for watershed protection and flood prevention. The local Sponsors are SARA, the Alamo SWCD and the Wilson County SWCD. Federal assistance was provided by the United States Department of Agriculture (USDA), Soil Conservation Service (now the Natural Resources Conservation Service or NRCS). A total of nine FRS were planned and constructed during 1954 through 1958. Two of the constructed sites were later decommissioned due to being inundated when Calaveras Lake was constructed. There has been one previous supplement to the original 1954 work plan.

Description of Existing Dam

FRS No. 10 was originally designed and constructed in 1958 as a high hazard (class “c”) dam, a hazard classification given to dams that pose a threat to loss of life. FRS No. 10 was constructed as a homogenous earth fill embankment with one vegetated auxiliary spillway and a principal spillway consisting of an inlet tower with a 22-inch concrete outlet pipe that discharges into an unlined plunge basin. The embankment is in good condition with a good vegetative cover. The effective top of dam elevation is 509.4 MSL (509.2 MSL as built). The front slope of the embankment was constructed to a 2:1 slope, and the back slope was constructed to a 3:1 slope. The upstream slope contains a 10-foot wave berm. The auxiliary spillway has a 350 foot bottom width, and the crest elevation is 504.5 MSL. The principal spillway inlet structure is a 30-inch by 30-inch by 14-foot tower with the crest elevation of 492.3 MSL (491.3 MSL as built). The

tower has a 10-inch by 22-inch porthole in the back face of the tower at elevation 489.1. There is an 8-inch sluice gate located at the bottom of the tower with an invert elevation of 477.8 MSL to facilitate lowering the permanent water level for repairs and maintenance. The principal spillway outlet pipe consists of 240 feet of 22-inch diameter reinforced concrete pipe connected to the back side of the inlet tower.

The NRCS conducted a field survey in 2012 to determine current elevations of FRS No. 10. The 2012 field survey and the 1958 "As-Built" drawings all indicate consistency within the vertical datum (elevations) and the horizontal datum (surface areas and capacities). At the principal spillway crest elevation of 492.3 MSL, the sediment pool contains approximately 43 surface acres and 223 acre-feet of sediment storage. The current flood storage at auxiliary spillway crest elevation of 504.5 MSL is 1,322 acre-feet. The maximum height of the dam is 35 feet.

Physical Features and Environmental Factors

Project location: The Calaveras Creek Watershed, located in Bexar and Wilson Counties, Texas, is comprised of 61,440 acres (about 96 square miles). Of this total, the drainage area for FRS No. 10 is 4,608 acres or about 7.2 square miles. FRS No. 10 is constructed on Parita Creek which is a main tributary of Calaveras Creek. Calaveras Creek Watershed FRS No. 10 is located at Latitude, decimal degree 29.3033 and Longitude, decimal degree -98.2833. The watershed is located within the San Antonio River Basin as delineated by the United States Water Resources Council, hydrologic unit number 12100301.

Topography: The project area lies within the rolling prairie of the Upper Coastal Plain Physiographic Area. The topography of the watershed ranges from rolling along the watershed divides to gently rolling to flat in the central section. Calaveras Creek Watershed has an average gradient of 12 feet per mile.

Geology and Soils: Calaveras FRS No. 10 is located on the sandstone and claystone of the Lower Eocene, Wilcox Group (Ewi). The site is positioned in the upper portion of the Wilcox Group. The upper section of the Wilcox contains a greater proportion of sand. The sandstone and claystone underlie the entire site. All the sandstone is silty and is very fine to fine grained. A large majority of the sandstone on site is hardness 1-2. Varying amounts of claystone is present in the sandstone. The claystone has a hardness of 1-2.

Subsurface water was encountered throughout the site during the geologic investigation. The site is located within the Carrizo-Wilcox Aquifer recharge zone. Even though the site is not listed as a recharge structure, it has performed as one.

On the surface the site is made up of mostly fine sandy loams and loamy fine sands on the uplands and frequently flooded soils along the creek. The gently to moderately sloping soils adjacent to FRS No. 10 consist of Miguel fine sandy loam and Wilco loamy fine sand on the uplands and Tinn and Frio soils along the stream (Web Soil Survey 2.2, National Cooperative Soil Survey 2007).

Climate: Bexar County has a modified subtropical climate, predominately continental in winter and marine in summer. Average annual rainfall is slightly less than 28 inches. Normal temperatures range from an average daily high of 94 degrees Fahrenheit in July and August to an average daily low of 42 degrees in January. The normal freeze-free period of 279 days extends from February 24 to November 30.

Air Quality: The Clean Air Act as Amended (CAAA) is the underlying Federal environmental law for air quality in the U.S. Regulatory agencies, such as the U.S. EPA and other state and local regulatory agencies must promulgate specific regulations to implement the CAAA. The CAAA requires the EPA to establish National Ambient Air Quality Standards (NAAQS) for specific pollutants. If a construction operation is found to cause or contribute to an exceedance of the NAAQS or is located in a non-attainment area, additional regulatory controls may be mandated for the agricultural source. During construction activities best management practices will be utilized to alleviate minor temporary impacts. Bexar County is not in a non-attainment area.

Environmental Justice: An effort was undertaken to identify low-income and minority populations potentially affected by the proposed project action to meet requirements of Executive Order (E.O.) 12898 dated February 11, 1994 ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations", USDA Departmental Regulation #5600-002). This was accomplished by using a tool available online from the US Environmental Protection Agency (EJView, formerly known as the Environmental Justice Geographic Assessment Tool). EJView is a mapping tool that allows users to create maps and generate detailed reports based on the geographic areas and data sets they choose.

By taking into consideration the area that includes the drainage area of FRS No. 10 and the downstream breach area, 217 households were identified representing about 596 people in the project area. The following table depicts the results of utilizing EJView regarding the demographics of the affected population compared to Bexar County and the State of Texas.

Table B – Demographics of Project Area, Bexar County, and State of Texas

Category	Affected Population [1/]			Bexar County	State of Texas
	Upstream	Down-stream	Total		
Total Area (acres)	4,608	340	4,948	-	-
Population (#)	525	71	596	1,714,773	25,145,661
Households in Area (#)	195	22	217	-	-
Race [1/]					
White (%)	87.0	87.0	87.0	72.9	70.4
African-American (%)	4.0	4.0	4.0	7.5	11.8
Asian/Pacific Islander (%)	0.0	0.0	0.0	2.6	3.9
American Indian (%)	0.0	0.0	0.0	0.8	0.7
Other Race (%)	7.0	7.0	7.0	12.7	10.5
Multiracial (%)	2.0	2.0	2.0	3.5	2.7
Gender [1/]					
Males (%)	50.0	50.0	50.0	49.0	49.6
Females (%)	50.0	50.0	50.0	51.0	50.4
Ethnicity [1/]					
Hispanic (%)	28.0	28.0	28.0	58.7	37.6
Per Capita Income ($)	$23,850	$23,693	$23,831	$23,225	$24,870
Percent of Bexar County	-	-	103.0	-	-
Percent of Texas	-	-	96.0	-	-

Table B – (continued) Demographics of Project Area, Bexar County, and State of Texas					
Category	Affected Population [1/]			Bexar County	State of Texas
	Upstream	Down-stream	Total		
Education Level					
Less Than 9th grade (%)	3.0	3.0	3.0	8.9	9.7
9th – 12th grade (%)	11.0	11.0	11.0	9.1	9.6
HS Diploma and Some College (%)	36.0	36.0	36.0	24.9	25.6
Some College/No Degree (%)	31.0	31.0	31.0	24.1	22.8
Associate Degree (%)	6.0	6.0	6.0	7.4	6.3
BS/BA or more (%)	19.0	19.0	19.0	25.8	25.9

[1/] For project area, the data are weighted based on population.

As expected, race is consistent within the project area, but the percentage of Whites is well above the County and State averages, whereas the percentage of African-Americans is well below both County and State levels. Surprisingly, the Hispanic population for the project area is less than half of Bexar County's average but just 74% of the Texas average. Whereas the number of persons in the project area with a high school diploma is higher to Bexar County and Texas figures, the post high school completed degree levels are lower. Although more people in then project area pursue advanced degrees, fewer complete them as compared to County and State levels. One would expect that per capita income would suffer because of this, but this apparently is not the case. Per capita income within the project area is 103 percent of Bexar County. But when compared to the state of Texas, per capita income falls to 96.0 percent. One needs to keep in mind, though, that EJView results are affected by the size of the area analyzed, which in this case is less than 8 square miles.

Fish and Wildlife Resources: Land immediately surrounding FRS No. 10 is currently used for livestock grazing and hunting; however, urban development is encroaching on the structure. This area is a shrub-scrub vegetative community typical of Bexar County with mostly fine sandy loams and loamy fine sands on the uplands and frequently flooded soils along the creek. FRS No. 10 is located in a loamy bottomland ecological site, and typical vegetation in and around the sediment pool and immediately downstream of the structure consists of, but is not limited to, black willow (*Salix nigra*), pecan, (*Carya illinoinensis*), hackberry (*Celtis occidentalis*), sumac (*Rhus spp.*), red mulberry (*Morus rubra*), ratama (*Parkinsonia aculeate*), mesquite (*Prosopis glandulosa*), live oak (*Quercus virginiana*), and huisache (*Acacia farnesiana*). Herbaceous vegetation on and surrounding the site consists of, but is not limited to, bermuda grass (*Cynodon dactylon*), giant ragweed (*Ambrosia trifida*), poison ivy (*Toxicodendron radicans*), Johnson grass (*Sorghum halepense*), K R bluestem (*Bothriochloa ischaemum*), barnyard grass (*Echinochloa crus-galli*), golden rod (*Solidago spp.*), croton (*Croton spp.*), careless weed (*Amaranthus palmeri*), broom weed(*Amphiachyris spp.*), cactus (*Opuntia engelmannii*), sunflower (*Helianthus maximiliani)*, common reed grass (*Phragmites australis*), and smart weed (*Polygonum punctatum*). Vegetation in the sediment pool itself is mostly a mixture of retama, smart weed, and common reed grass but varies greatly depending on the frequency, duration, and intensity of storm events (length of time water is retained in the pool). Vegetation across the rest of the site is fairly uniform.

Land north of the site is currently used by SARA as a grass farm (hay production). In addition to the grasses found in the project area, klein grass (*Panicum coloratum*) and spangle grass (*Chasmanthium latifolium*) are also part of the vegetative community. The remaining area

surrounding the project site is composed of pastureland, both abandoned and improved, with limited areas used for cultivated crops. Huisache and mesquite are invading the abandoned pastures.

The stream is ephemeral with no pools that retain water except in storm events; therefore, during all of the site visits, there were no fisheries either above or below the structure. Currently, FRS 10 sequesters sediment from the upstream pasture land and prevents it from entering Calaveras Creek.

The site is used by various avian species, such as Rio Grande turkey (*Meleagris gallopavo intermedia)* and bob white quail (*Colinus virginianus*). Migratory birds might use the site, but only if there is water in the sediment pool during their migration. FRS No. 10 possibly provides habitat for white-tailed deer (*Odocoileus virginianus*) as well as other smaller mammals. There are various species of reptiles on the site, and while the site is dry for long periods of time, it probably supports amphibian species such as various toads and frogs.

Floodplain Management: As a condition of federal assistance, participation in and compliance of applicable Federal floodplain management (Executive Order 11988) and flood insurance programs will be required. Rehabilitation activities will also ensure that the 100-year floodplain downstream of the dam within the project area will remain at 151 acres.

Flood Damages: Should a breach of FRS No. 10 occur, there would be damage to 22 residential properties including various garages, carports, workshops, etc., as well as damage to four County roads and a State highway. Flooding of these transportation systems would also put some motorists at risk to loss of life. Additionally, damage would occur to the agricultural land downstream of the structure.

Historic and Cultural Resources: No prior cultural resources identification activities have taken place in association with the original FRS No. 10 project. The dam and reservoir was constructed in 1958, prior to passage and implementation of the National Historic Preservation Act and other historic preservation laws that now require NRCS (Soil Conservation Service at that time) to consider effects to significant cultural resources.

A search of the Native American Consultation Database was conducted to determine if there were any Indian tribes that might attach religious or cultural significance to historic properties that could be located in the proposed project area. This was done in accordance with 36 CFR 800.2 (c) (i) of the Advisory Council on Historic Preservation Regulations. The Mescalero Apache Tribe of the Mescalero Reservation, New Mexico has a claim to a land area that includes Bexar County, Texas (NPS 2012). NRCS has contacted the Tribal Historic Preservation Officer to determine if the tribes have an interest in the project area, and no interest has been indicated.

A search of the Texas Archeological Sites Atlas completed in September 2012, did not reveal any recorded archeological or historic sites in the vicinity of the proposed project (THC 2012). NRCS and the Texas State Historic Preservation Officer (SHPO) have agreed that a cultural resources survey should be completed on all areas of new disturbance associated with potential rehabilitation measures. Accordingly, the NRCS cultural resources specialist conducted a survey of areas of potential new disturbance associated with the prospective rehabilitation alternative at FRS No. 10 in October 2012. The areas have been subject to various disturbances associated with original construction and other activities including farming/ranching practices, roads and trails.

No cultural resources were found in the areas of potential new disturbance associated with rehabilitation measures at FRS No. 10, and overall there appears to be low potential for intact subsurface cultural deposits in these areas.

The NRCS has determined pursuant to 36 CFR 800.4(d) that there are no properties included in or eligible for the National Register of Historic Places within the area of potential effect of the alternative resulting in rehabilitation of FRS No. 10. This determination was reported to the SHPO in October 2012 for review and concurrence, and the SHPO concurred in the determinations on November 26, 2012 (both letters are available in the administrative record).

It should be noted that additional cultural resources investigations would be necessary should the no action, decommissioning, or relocation alternatives be selected. At this time areas of potential effect for alternatives other than rehabilitation have not been specifically identified.

Land Use and Values: The rehabilitation project area is 4,948 acres that consists of the drainage area of FRS No. 10 (4,608 acres) plus the area downstream that would be inundated by a breach of the dam (340 acres). Land use upstream of the reservoir is a mixture of cropland, grassland, and woodland with urban areas in the upper reaches. Land uses downstream are similar with the urban area more concentrated near Parita creek and its tributaries. Land uses within the project area are: cropland 416 acres, grassland 3,569 acres, woodland 802 acres, and urban (including roads and highways) 161 acres.

Land values vary within each project area based upon use. According to Bexar Appraisal District (2012), agricultural land values in the area range from $3,800 - $4,700 per acre. As expected, urban land values in the area vary significantly based on location with most lots ranging from $7,000 – $9,000 each. Conditions described for the future without project and the decommissioning alternatives would probably lower the fair market values of the urban lots. However, rehabilitation activities are not expected to affect land use or values within the project area.

National Economic Development Plan: For water and related land resources implementation studies, standards and procedures have been established in formulating alternative plans. These standards and procedures are found in *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G)*. According to P&G, an alternative that reasonably maximizes net national economic development benefits is to be formulated. This alternative is to be identified as the national economic development (NED) plan.

Prime Farmland: Soils in the project work area were evaluated by the USDA-NRCS in accordance with requirements of the Farmland Protection Policy Act (FPPA). There are four soils within the project area (specifically within the breach area) that are considered prime farmland only if irrigated. None of these areas are irrigated, and thus are not classified as prime farmland.

Public Health and Safety: Public health and safety is a concern if a catastrophic breach occurs. A breach would endanger the lives of the population downstream, as well as result in extreme damage to property.

Riparian Area: Federal law does not specifically regulate riparian areas. However, portions of riparian areas, such as wetlands and other waters of the U.S., may be subject to federal regulation

under provisions of The Food Security Act, The Clean Water Act, The National Environmental Policy Act and state and local legislation. Riparian areas are limited within the project area due to limited rainfall and limited stream flows. However, during construction activities best management practices will be utilized to alleviate minor temporary impacts affecting associated riparian areas.

Sedimentation and Erosion: The structure must have enough sediment storage as needed for the 50-year evaluated life of the rehabilitated structure. The structure currently has enough sediment storage for 50 years.

Threatened and Endangered Species: The U.S. Fish and Wildlife Service (USFWS) lists one amphibian species as threatened and one amphibian species as endangered, six arachnids as endangered, one bird species as proposed for listing as threatened, one bird species as an experimental population, two bird species as endangered, one crustacean as endangered, one fish as endangered, one flowering plant as endangered, and five insects as endangered (USFWS). The Texas Parks and Wildlife Department (TPWD), Wildlife Division, Diversity and Habitat Assessment Programs lists 18 species as threatened and 6 species as endangered. See Table C for a complete listing of state listed species.

NRCS biologists conducted threatened and endangered species surveys on the 3rd and 4th of October 2012. NRCS personnel did not identify any individuals or any suitable habitat for any species federally or state listed as threatened or endangered during either survey of the project site. The proposed project will have no effect on threatened or endangered species. Table C shows Federally and State Listed Threatened and Endangered Species for Bexar County:

Table C – Federally and State Listed T & E Species for Bexar County, Texas.

Common Name	**Scientific Name**	**Species Group**	**Federal Status**	**State Status**
Cascade Caverns Salamander	*Eurycea latitans complex*	Amphibians		T
Comal Blind Salamander	*Eurycea tridentifera*	Amphibians		T
San Marcos Salamander	*Eurycea nana*	Amphibians	T	
Texas Blind Salamander	*Typhlomolge rathbuni*	Amphibians	E	
Braken Bat Cave Meshweaver	*Cicurina venii*	Arachnids	E	
Cokendolpher Cave Harvestman	*Texella cokendolpheri*	Arachnids	E	
Government Canyon Bat Cave Meshweaver	*Cicurina vespera*	Arachnids	E	
Government Canyon Bat Cave Spider	*Neoleptoneta microps*	Arachnids	E	
Madla's Cave Meshweaver	*Cicurina madla*	Arachnids	E	
Robber Baron Cave Meshweaver	*Cicurina baronia*	Arachnids	E	
American peregrine falcon	*Falco peregrinus anatum*	Birds		T
Black-capped Vireo	*Vireo atricapilla*	Birds	E	E
Golden Cheeked Warbler	*Dendroica chrysoparia*	Birds	E	E
Interior least tern	*Sterna antillarum*	Birds		E
Mountain plover	*Charadrius montanus*	Birds	PT	
Peregrine falcon	*Falco peregrinus*	Birds		T

Table C – (Continued) Federally and State Listed T & E Species for Bexar County, Texas.				
Common Name	**Scientific Name**	**Species Group**	**Federal Status**	**State Status**
White-faced Ibis	*Plegadis chihi*	Birds		T
Whooping Crane	*Grus americana*	Birds	E, EXPN	E
Wood stork	*Mycteria americana*	Birds		T
Zone-tailed hawk	*Buteo albonotatus*	Birds		T
Peck's Cave Amphipod	*Stygobromus pecki*	Crustaceans	E	
Fountain Darter	*Etheostoma fonticola*	Fishes	E	
Toothless Blindcat	*Trogloglanis pattersoni*	Fishes		T
Widemouth Blindcat	*Satan eurystomus*	Fishes		T
Texas Wild-rice	*Zizania texana*	Flowering Plants	E	
(Unnamed) Ground Beetle	*Rhadine infernalis*	Insects	E	
(Unnamed) Ground Beetle	*Rhadine exillis*	Insects	E	
Comal Springs Dryopid Beetle	*Stygoparnus comalensis*	Insects	E	
Comal Springs Riffle Beetle	*Heterelmis comalensis*	Insects	E	
Helotes Mold Beetle	*Batrisodes venyivi*	Insects	E	
Black Bear	*Ursus americanus*	Mammals		T
Grey Wolf	*Canis lupus*	Mammals		E
Red Wolf	*Canis rufus*	Mammals		E
False spike mussel	*Quadrula mitchelli*	Mollusks		T
Golden Orb	*Quadrula aurea*	Mollusks		T
Texas Fatmucket	*Lampsilis bracteata*	Mollusks		T
Texas Pimpleback	*Quadrula petrina*	Mollusks		T
Texas horned lizard	*Phrynosoma cornutum*	Reptiles		T
Texas indigo snake	*Drymarchon melanurus erebennus*	Reptiles		T
Texas tortoise	*Gopherus berlandieri*	Reptiles		T
Timber/Canebrake Rattlesnake	*Crotalus horridus*	Reptiles		T

E – Endangered
EXPN -- Experimental Population, Non-essential
PT -- Proposed Threatened
T -- Threatened

Water Bodies (Including Waters of the U.S.): Section 404 of the Clean Water Act (Federal Water Pollution Control Act of 1972) established a permit program to regulate the discharge of dredged and fill material into waters of the U.S. Any discharge of dredged or fill material into waters of the U.S. is prohibited unless the action is exempted or is authorized by a permit issued by the U.S. Army Corps of Engineers or by the State in a few cases. Section 402 of the CWA

established the National Pollutant Discharge Elimination System (NPDES) program, which the States administers, that requires a permit for projects involving point-source pollution. The U.S. Army Corps of Engineers was invited to a site visit on 8 August 2012, but did not respond to that invitation; therefore the sponsor is assuming all Federally-assisted activities would be authorized under Section 404 of the Clean Water Act by Nationwide Permit 3 for maintenance without preconstruction notification (PCN) with no compensatory mitigation required. No NPDES would be required.

Water Quality: Only minor temporary impacts on water quality (turbidity and sedimentation) associated with construction are anticipated, and then only if a rain event occurs during construction. For projects with disturbances equal to or greater than five acres, it is necessary to have a Storm Water Pollution Prevention Plan (SWP3) in place prior to construction of the proposed project. Construction activities associated with the rehabilitation of FRS No. 10 will require a SWP3.

Wetlands: The sediment pool for FRS. No. 10 is currently dry and only impounds water during and immediately following storm events; therefore the preferred alternative's reduction of the sediment pool from 43 acres to 36 acres would have no effect on wetlands. When water is at the top of the principal spillway riser, the sediment pool inundates 43 acres. When water is at the crest of the auxiliary spillway, the detention pool inundates 176.5 acres. The section of the sediment pool located closest to the dam (18.8 acres) is classified as a palustrine, unconsolidated bottom, permanently flooded, diked/impounded wetland (PUBHh, Classification of Wetlands and Deepwater Habitats of the United States, 1979, by Cowardin, Lewis M. et al.). The 22.3-acre section located in the upper end of the sediment pool is classified as a palustrine, unconsolidated shore, temporary flooded, diked/impounded wetland (PUSAh). Located upstream of the sediment pool is a 3.0-acre palustrine, unconsolidated bottom, semipermanently flooded, diked/impounded weland (PUBFh) connected to the sediment pool by 0.05 mile of riverine, intermittent, streambed, temporary flooded wetland (R4SBA). Since the structure does not permanently impound water, all construction activities will be conducted in the dry with only temporary impacts to wetlands.

Wildlife Community (Includes Migratory Birds): Executive Order 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds" requires NRCS to consider the impacts of planned actions on migratory bird populations and habitats for all planning activities. The sediment pool for FRS 10 is dry except during storm events, and all rehabilitation activities will be conducted in the dry. If a storm event occurs during rehabilitation, there might be minor temporary adverse impacts due to increased turbidity downstream of the site; however, a SWP3 will be in place to lessen or eliminate these effects. After the maintenance activities and the rehabilitation project are completed, all disturbed areas will be returned to pre-construction conditions and re-vegetated.

STATUS OF OPERATION AND MAINTENANCE

The San Antonio River Authority is currently responsible for the operation and maintenance of FRS No. 10. Inspections of the dam indicated that the dam is being operated and maintained properly. The dam is in good condition and has a good vegetative cover. The inlet structure and conduit of the principal spillway were visually inspected, and no deficiencies were observed. Investigations indicate that the dam, including the principal spillway, is structurally sound and is being properly maintained.

SEDIMENTATION AND EROSION

The original planned total sediment volume was 338 ac-ft or 6.76 ac-ft/yr. This volume was broken down as follows: 200 ac-ft below 489.1 (lowest ungated outlet) and 138 ac-ft of sediment reserve below the principal spillway crest elevation of 491.3. The "As Built" plans do not account for any aerated sediment reserve planned in the detention pool above the principal spillway elevation of 491.3.

The sediment survey and predictive soil loss equations, completed in 2012, indicates that approximately 156 ac-ft of sediment storage are needed for the 50 year evaluated life of the rehabilitated structure (3.12 ac-ft/yr). Therefore, the new principal spillway elevation will be planned for 490.5 which will allow for 156 ac-ft of sediment storage below the principal spillway crest. Aerated sediment in the detention pool was not planned for in the rehabilitation of FRS 10. The accumulated sediment in the sediment and detention storage areas was not tested as it will not be disturbed during the rehabilitation of the FRS No. 10.

BREACH ANALYSIS AND HAZARD CLASSIFICATION

Calaveras Creek FRS No. 10 does not meet current dam design and safety requirements. The dam was originally constructed in 1958 as a high hazard structure for the purpose of protecting downstream agricultural lands from flooding. The NRCS and the TCEQ - Dam Safety Program both agreed on the classification of the structure as "high hazard". The high hazard classification is based on the risk of loss of life concerning at-risk properties located in the downstream dam breach inundation area.

As a result of population growth and rural development, 22 residences, Loop 1604, and four County roads are now at risk from a catastrophic breach of FRS No. 10. Residences would experience floodwater depths from first floor elevation to over 15 feet.

Breach studies indicate that Loop 1604 would be overtopped by approximately 0.9 feet of floodwaters if the dam failed. Bernhardt Road would be overtopped by approximately 10 feet of water; Kosub Lane by 13.1 feet; Elmendorf/Lavernia Road by 13.8 feet; and Stuart Road by 10.4 feet of water. According to the Texas Department of Transportation (TXDOT), about 4,150 vehicles utilize Loop 1604 daily and around 100 (Bernhardt), 200 (Kosub), 200 (Elmendorf/Lavernia), and 1,380 (Stuart) vehicles use the four County roads on a daily basis (Average daily traffic count, 2010).

Although the structure is presently sound, there is always the risk of failure. The most likely cause of FRS No. 10 failing is by overtopping. In the unlikely event that the structure was overtopped and failed, the most serious failure would be a breach in the highest point. This would result in a breach hydrograph that has a peak discharge of 45,300 cubic feet per second (cfs). Fair weather conditions were assumed to develop the breach hydrograph. The reservoir pool elevation was static at top of dam with non-storm conditions downstream. See Appendix C, Breach Inundation Map and Appendix D, Investigation and Analysis, Hydrology.

POTENTIAL MODES OF DAM FAILURE

Both NRCS and the TCEQ - Dam Safety Program, recognize that Calaveras Creek FRS No. 10 is a high hazard dam. Several potential modes of failure were examined as follows:

Sedimentation – Sediment can be deposited in both the sediment pool (the area below the principal spillway crest) and flood detention pool (the area between the principal spillway crest and the auxiliary spillway crest). When the sediment pool has filled to the elevation of the principal spillway inlet, the pool no longer has water storage. As the detention pool loses storage due to sediment deposition, the auxiliary spillway operates, or has flowage, more often and is therefore subject to erosion. A potential mode of failure exists as the auxiliary spillway continues to degrade, and depth and frequency of flow increases. The dam will ultimately breach.

FRS No. 10 was designed with a 50-year sediment storage life. The sediment survey and predictive soil loss equations indicate that while some sediment has accumulated, FRS No. 10 has sufficient storage capacity remaining for at least another 50 years. With the change in upstream land use, the actual sediment rates were dramatically lower than originally planned. Future sediment load is expected to remain at a low rate as the land use remains range land. Therefore, in the near future, sedimentation presents a low potential mode of failure for FRS No. 10.

Hydrologic Capacity – Hydrologic failure of a dam can occur by breaching the auxiliary spillway or overtopping the dam during a storm event. The integrity and stability of the auxiliary spillway is dependent on the depth, velocity, and duration of flow; the vegetative cover; and the spillway's resistance to erosion. The integrity and stability of the embankment during overtopping is dependent on the depth, velocity, and duration of flow; the vegetative cover; and the embankment's resistance to erosion.

FRS No. 10 was originally designed with a capacity of 1732 ac-ft of detention storage and an additional 6.6 feet of freeboard. Current criteria require FRS No. 10 to temporarily store the Probable Maximum Precipitation (PMP) storm of 30.8" in 6 hours without overtopping the embankment. The PMP storm is the maximum design storm required by the State of Texas Dam Safety Office. The possibility of a storm of this magnitude occurring is very low, but if it does, flow will occur in the current auxiliary spillway at a depth that exceeds capacity for a long duration, and the dam will be overtopped. These conditions could lead to the possible breaching of the auxiliary spillway, the embankment, or both. FRS No. 10 is currently performing as originally designed and is expected to continue to perform into the future; however, it does not meet current dam safety design criteria for a high hazard dam. Therefore, FRS No. 10 is categorized as having high potential to fail due to deficiency in required hydrologic capacity.

Seepage – Embankment and foundation seepage can contribute to failure of an embankment by removing (piping) soil material through the embankment or foundation. As the soil material is removed, voids can be created, allowing ever increasing amounts of water to flow through the embankment or foundation until the dam collapses due to the internal erosion. Seepage that increases with an increase in pool elevation is an indication of a potential problem as is stained or muddy water. Foundation and embankment drainage systems can alleviate the seepage problem by removing the water without allowing soil particles to be transported away from the dam.

FRS No. 10 shows no visible signs of seepage along the back toe of the dam. Geologic investigation does not indicate this to be a concern; however, if seepage is identified as a concern later in the planning process, a new foundation drain system will be added at that time. No sloughing or any other indications of embankment instability were noticed, and trees and brush are controlled on the embankment and in the auxiliary spillway. Therefore, in the near future, seepage presents a low potential mode of failure for FRS No. 10.

Seismic – The integrity and stability of an earthen embankment are dependent on the presence of a stable foundation. Foundation movement through consolidation, compression, or lateral movement can create weak zones or voids within an embankment, separation of the principal spillway conduit joints, or in extreme cases, complete collapse of the embankment.

FRS No. 10 is located in the Algermissen Seismic Zone 0. There are no indications that any foundation movement has occurred in the past that would weaken the integrity of the embankment or any of the components of the structure, and none is anticipated in the future. Seismic activity creates only a small potential for failure of FRS No. 10.

Embankment Slope Failure - An embankment slope failure allows increased saturation and weakens the integrity of the dam during the PMP and could result in a catastrophic failure. Slope failure can also create slides and sloughing that lower the top of dam elevation so that overtopping may occur during the PMP.

FRS No. 10 shows no visible signs of slope failure, sloughing, or any other noticeable indications of instability on the embankment. Embankment slope failure presents a low potential mode of failure for FRS No. 10, but it should continue to be monitored in the future**.**

Material Deterioration - Material used in the principal spillway system and fences are normal, common construction materials, but they are subject to weathering and chemical reaction due to natural elements within the soil, water, and atmosphere. Concrete components can deteriorate and crack, metal components can rust and corrode, and leaks can develop. Embankment failure can occur from internal erosion caused by these leaks.

Based on available information and field observations, the structure appears to be in extremely good condition with no evidence of deterioration on any of the materials that would require structural repair at this time. Several metal components on the inlet tower and the original wooden deck anti-vortex baffle have been replaced and/or painted. The conduit appears to be in excellent condition. As a result, the potential failure of the existing dam due to deteriorating components is judged to be low. However, due to the age of the existing structural components, FRS No. 10 should continue to be monitored annually and after significant storm events.

CONSEQUENCES OF DAM FAILURE

All of the structural components of the dam are in good condition. However, the dam does not meet current performance and safety standards for a dam in this location, and there is a risk of the dam failing from overtopping. An analysis of the dam indicated that a storm of PMP magnitude would overtop the dam. The risk of dam failure is low, but the consequences of such a failure, if it were to occur, would likely be catastrophic.

Twenty-two residences as well as motorists on Loop 1604 and four County roads would be at-risk in the event of a breach. Due to the estimated depth combined with the velocity of the breach floodwaters, there could be many other people (i.e. farm workers downstream) at risk of serious injuries. Given the depth and velocity of the floodwaters, it is estimated that 12 properties would be completely destroyed or, at minimum, damaged beyond repair. All of the road crossings would be severely damaged as a result of a breach. About 6,000 vehicles utilize the roadways daily (TXDOT). Based on the traffic speed limits and using an estimated length of roadways affected by floodwaters from a breach event, it was estimated that about 3 vehicles would be in harm's way. Considering an average of 2 occupants per vehicle, 6 motorists would be exposed to risk. Vehicles on the roads would be washed downstream, and the road surfaces would be damaged and impassable. Traffic would be disrupted for an extended time while the roadways were being repaired. Given the number of properties and vehicles located within the breach zone, it is estimated that at a minimum the number of people at risk due to a breach of FRS No. 10 would be 72. Table D shows the effects of a breach of FRS No. 10 on downstream properties and crossings.

Table D – Effects of Breach of FRS No. 10 to Downstream Properties and Crossings

Downstream Properties/Crossings	**Depth Above First Floor Elevation (ft)**	**Depth Over X-ing (ft)**	**Daily Traffic Count (#)**	**Maximum Velocity [1/]**
22 Residences	0.5 – 15.4	–	–	–
Bernhardt Road	–	10.0	100	7
Loop 1604	–	0.9	4,150	5
Kosub Lane	–	13.1	200	7
Elmendorf/Lavernia Road	–	13.8	200	10
Stuart Road	–	10.4	1,380	7

[1/] Maximum velocity for identified crossings in feet per second.

Total damages from a catastrophic breach of FRS No. 10 are estimated to be about $4.2 million: $3.6 million for urban properties (includes contents and vehicles), $605,000 for the road crossings and other infrastructure, and $21,500 for affected agricultural lands. As a result of a breach, approximately 7,200 cubic yards of fill material from the dam would move downstream, clogging culverts and increasing flooding on roads and bridges.

The yellow arrow indicates the depth of water (10.0 feet) that would cover Bernhardt Road crossing in a breach of FRS No. 10.

The yellow arrow in this photo illustrates the 0.9 foot of water that would cover the Loop 1604 crossing during a breach of Calaveras Creek FRS No. 10.

About 13.1 feet of floodwaters (yellow arrow) would inundate Kosub Lane crossing during a breach of Calaveras Creek FRS No. 10.

A breach of Calaveras Creek FRS No. 10 would flood Elmendorf/Lavernia Road crossing at a depth of about 13.8 feet (yellow arrow).

The yellow arrow represents depth of floodwaters of about 10.4 feet at Stuart Road crossing if Calaveras Creek FRS No. 10 were to breach.

ALTERNATIVES

FORMULATION PROCESS

A 50-year evaluated life was established as well as a 50-year period of analysis. All alternatives were planned to function for a minimum of 50-years with proper maintenance. Alternatives are eligible for financial assistance under the Watershed Protection and Flood Prevention Act (PL 83-566) as amended by the Watershed Rehabilitation Amendments of 2000 (Public Law 106-472). To be eligible for federal assistance, an alternative must meet the requirements as contained in the Watershed Rehabilitation Amendments of 2000.

The Future Without Project alternative serves as a baseline to evaluate the other alternatives. It depicts the most probable future conditions in the absence of a federally assisted project. SARA is the entity that owns the easements for the dam and is responsible for determining what action to take if the dam is not brought up to current performance and safety standards. Additional information on land rights requirements and current easements can be found in footnote 3 of Table G, Comparison of Structural Data on page 51 of this document.

Based on conditions set forth by the Future Without Project baseline, present conditions were developed. The dam does not meet current safety standards for a dam in this location, and there is a risk of the dam failing from overtopping. An analysis of the dam indicated that the PMP would overtop the dam. Appendix C (Breach Inundation Map) shows the area that will be flooded if the dam breached under fair weather conditions.

Failure of the dam would result in significant damage and risk of loss of life. SARA considered the following options in deciding the most likely course of action:

Modify the dam to comply with current safety standards with Federal assistance.

Modify the dam to comply with current safety standards without Federal assistance.

Take no action and accept the risk of the dam failing sometime in the future.

Breach the dam to eliminate the risk of failure from a catastrophic storm event.

After considering the options, SARA decided that their best option in the absence of Federal assistance is to breach the dam and eliminate the risk of the damages from a failure. Accepting the risk of the dam failure was deemed unacceptable, and no entity was identified which would accept the responsibility of the present dam.

Alternatives eligible for financial assistance under The Watershed Protection and Flood Prevention Act (PL 83-566) as amended by the Watershed Rehabilitation Amendments of 2000 and alternatives ineligible for financial assistance were developed. To be eligible for federal assistance, an alternative must meet the requirement as contained in Public Law 106-472.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

A wide range of non-structural and structural measures were considered singly and in combination during the planning process. Considered alternatives included floodplain management, liability insurance, zoning, flood warning systems, flood proofing of properties, and installation of storm water detention structures. These alternatives were either eliminated due to exorbitant costs, or because they did not meet the purpose and/or need of the project.

Another non-structural alternative considered was the purchase of deed restrictions of all land outside of the current 100-year floodplain but within the breach area, relocating residences within the breach area, and modify the roadways downstream to ensure traffic would not be at risk from a breach. Enacting this alternative would cause the dam being re-classified as a low hazard dam, resulting in no population at risk within the breach area of the dam. However, this alternative was rejected due to extreme cost and potential disruption of community cohesion. The estimated cost of this alternative ($8–10 million) was based on complying with all of the policies and procedures of the NRCS and the Uniform Relocation Assistance and Real Property Acquisition Policies Act (42 U.S.C. Section 4601 et. seq. as implemented by 7 C.F.R. Part 21) and ensuring that traffic along Loop 1604 and the four affected County roads would not be in peril.

DESCRIPTION OF REASONABLE ALTERNATIVES

Alternative No. 1 – No Action or Future Without Project

Under this alternative, no additional federal funds would be expended on the project. This alternative consists of excavating a breach in the dam of sufficient size to safely pass the 100-year, 24-hour frequency flood event with no influence on the water surface profile. This breach would be a minimum size opening in the dam from top of dam down to the valley floor which would eliminate the structure's ability to store water. The principal spillway components would also be removed. Downstream flooding conditions would be similar to those that existed prior to the construction of the dam. This course of action would minimize the Sponsor’s dam safety liability but would not eliminate all liability. The excavated material (about 39,000 cu yd) would be placed in the present easement area. The remaining portion of the embankment and the land currently covered by the sediment pool would be maintained as a greenbelt area. All exposed areas would have vegetation established for erosion control (approximately 31 acres). Construction activities would require that a Storm Water Pollution Prevention Plan (SWP3) be in effect.

Since the 100-year floodplain would be enlarged from 151 acres to 219 acres due to the absence of flood protection, potential future downstream development would be restricted. Floodwaters from a 100-year storm event would overtop Bernhardt Road by approximately 4.9 feet of water; Kosub Lane by 9.1 feet; Elmendorf/Lavernia Road by 10.4 feet; and Stuart Road by 7.6 feet of water (the crossing at Loop 1604 would not be overtopped). Fifteen residences would be subjected to flooding from a 100-year event. The estimated cost of this alternative is $588,000.

Alternative No. 2 - Decommission FRS No. 10

This alternative removes the storage function of the dam and reconnects, restores, and stabilizes the stream and floodplain functions. Although complete removal of the embankment is sometimes required for decommissioning, a partial removal of the

embankment would take place. Partial removal of the embankment would consist of excavating a breach in the dam of sufficient size to safely pass the 100-year, 24-hour frequency flood event with no influence on the water surface profile. This would eliminate the structure's ability to store water.

The remaining portion of the embankment and land currently covered by the sediment pool would be maintained as a greenbelt area. Excavated material (approximately 39,000 cu yd) would be placed in the sediment and detention pool areas and all exposed areas would be vegetated as needed for erosion control (approximately 31 acres). Due to the lack of a defined bed and bank, channel work would not be required to reconnect the stream channel through the sediment pool. Riparian vegetation would be established along the swale (approximately 7.8 acres). A grade stabilization structure (GSS) would be installed to prevent head cutting and movement of sediment to downstream areas. In order not to impede flows through the breached embankment, the principal spillway components would be removed. Construction activities will require that a SWP3 be in effect.

Downstream flooding conditions from a 100-year storm would be similar to those described for Alternative No. 1. Barricades with warning lights would need to be installed at the stream crossings on the four County roads. The fifteen residences affected by a 100-year storm would need to be relocated. The urban areas where relocation would occur would need to be converted to a greenbelt area and development restricted. The estimated cost of this alternative is about $3,520,800.

Alternative No. 3 – Rehabilitation of FRS No. 10

This alternative consists of lowering the crest of the principal spillway by 1.8 feet and installing a 42-inch diameter principal spillway pipe with an intake riser and an impact basin at the outlet end. The auxiliary spillway crest will be raised 1.1 feet, and armored with articulating blocks. The top of the dam will be raised 3.8 feet using fill material from the existing sediment pool and the dam lengthened by approximately 215 feet on each end of the dam in the existing abutment areas. All disturbed areas in or adjacent to the existing embankment, abutment areas, auxiliary spillway, and sediment pool (10 acres) will be re-vegetated using adapted and/or native species, and construction activities will require that a Storm Water Pollution Prevention Plan be in effect.

Modifications to FRS No. 10 will insure compliance with current safety and performance standards. The evaluated life of the structure will be extended for an additional 50 years. The 100-year floodplain downstream of FRS No. 10 will be unchanged. The level of flood protection will be maintained (i.e. no induced damages). The dam will continue to provide flood damage reduction benefits downstream. Estimated cost is about $3,442,800.

National Economic Development Alternative

For water and related land resources implementation studies, standards and procedures have been established in formulating alternative plans. These standards and procedures are found in *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G)*. According to P&G, an alternative that reasonably maximizes net national economic development benefits is to be formulated. This alternative is to be identified as the national economic development (NED) plan. During the process of formulating alternatives, the NED alternative was determined to be Alternative No. 3.

COMPARSION OF ALTERNATIVES

Table E – Summary and Comparison of Alternative Plans			
Resource Concerns	**Alternative No. 1 Future Without Project**	**Alternative No. 2 Decommission FRS No. 10**	**Alternative No. 3 Rehabilitation of FRS No. 10**
NED Account [1]			
Project Investment	$588,000	$3,520,800	$3,442,800
Annual Benefits	$0	$27,200	$166,100
Annual Costs	$0	$159,400	$162,400
Net Benefits	$0	($132,200)	$3,700
EQ Account [2]			
Air Quality	Only temporary minor impacts due to construction activities.	Only temporary minor impacts due to construction activities.	Only temporary minor impacts due to construction activities.
Fish and Wildlife Resources	Converts the 43 ac. sediment pool to greenbelt – riparian area.	Converts the 43 ac. sediment pool to greenbelt - riparian area. Riparian vegetation established.	Fish & wildlife habitat maintained, 43-acre sediment pool reduced to 36 acres, pool would continue to capture sediment and attenuate flood waters.
Prime Farmland (FPPA)	No irrigated prime farmlands in project area.	No irrigated prime farmlands in project area.	No irrigated prime farmlands in project area.
Riparian Area	Same as Fish & Wildlife Resources above, increases riparian area.	Same as Fish & Wildlife Resources above, increases riparian area.	Minor temporary impacts, riparian area returned to pre-construction condition.
Water Bodies (Including waters of the U.S.)	Converts sediment pool to ephemeral stream, not a Federal Action.	Converts sediment pool to ephemeral stream, most likely authorized by NWP 27.	Sediment pool retained. Authorized by NWP 3 without PCN.
Wetlands	Reduction in wetlands due to conversion of sediment pool to unimproved stream.	Change in wetland types. Re-establish riparian areas with associated wetlands.	Minor temporary impacts; wetlands return to pre-existing conditions after construction.
Wildlife Community (Incl. Migratory birds)	Decreases open water habitat during and after storm events and increases unimproved riparian area.	Decreases open water habitat during and after storm events and increases riparian area.	Temporary effects, maintains 43-acre sediment pool and attenuates flows in downstream ephemeral stream.
Water Quality	Increased sediment loads could occur downstream. SWP3 in effect.	Efforts would be made to stabilize existing sediment and to prevent headcutting. SWP3 in effect.	Minor temporary impacts during construction. SWP3 in effect.
Sedimentation and Erosion	Minor erosion during & after construction. Loss of sediment pool.	Minor erosion during construction. Loss of sediment pool.	Minor erosion during construction. Sediment pool has additional 50 years of storage after construction.
RED Account [3]			
Land Values	Negative impact to properties currently in floodplain due to induced flood damages.	Negative impact to properties currently in floodplain due to induced flood damages.	No impact.
OSE Account [4]			
Public Health & Safety	Reduced threat to loss of life from breach, but more frequent flooding.	Reduced threat to loss of life from breach, but more frequent flooding.	Reduced threat to loss of life. Level of flood protection maintained.
Flood Damages	Downstream flood damages would increase.	Downstream flood damages would increase.	Level of flood protection maintained.
Environmental Justice	Loss of flood protection for affected population below dam regardless of economic status.	Loss of flood protection for affected population below dam regardless of economic status. Relocation would also cause loss of cohesive community spirit.	Flood protection maintained for affected population.
Floodplain Management	No flood protection provided for any storm events	No flood protection provided for any storm events	Level of flood protection maintained.

[1] NED – National Economic Development: Sponsors would incur $588,000 cost in the absence of federal action. This annualized cost ($27,200) is included instead as a benefit for Alternatives 2 and 3 since it would not be incurred if any alternative except number one were adopted.
[2] EQ – Environmental Quality
[3] RED – Regional Economic Development
[4] OSE – Other Social Effects

Table F compares the monetary effects and associated impacts of the alternatives.

Table F – Monetary Effects of Alternatives [1/]

Item	**Alternative No. 1 Future Without Project**	**Alternative No. 2 Decommission FRS No. 10**		**Alternative No. 3 Rehabilitation of FRS No. 10**	
	Benefits	Benefits	Change in Benefits	Benefits	Change in Benefits
Flood Damage Reduction Benefits	$0	$0	$0	$138,900	$138,900
Avoidance of Cost of Sponsors Breach	$0	$27,200	$27,200	$27,200	$27,200
Total	$0	$27,200	$27,200	$166,100	$166,100

[1/] 2012 prices.

ENVIRONMENTAL EVALUATION WORKSHEET
NRCS-CPA-52

The following NRCS-CPA-52 form documents the environmental evaluation conducted for the Calaveras Creek FRS No. 10 Rehabilitation Project. The Environmental Evaluation Worksheet, NRCS-CPA-52, replaces the Environmental Consequences section of the Watershed Work Plan since the Calaveras Creek FRS No. 10 Rehabilitation Project is covered by categorical exclusions (NWPM Part 501.38(A)).

U.S. Department of Agriculture Natural Resources Conservation Service NRCS-CPA-52 6/2010 **ENVIRONMENTAL EVALUATION WORKSHEET**	**A. Client Name:** San Antonio River Athority **B. Conservation Plan ID #** (as applicable): Sup WS Plan **Program Authority** (optional): Watershed Rehabilitation
D. Client's Objective(s) (purpose): Sponsors want to comply with current safety and performance standards and maintain present level of flood protection for downstream properties. Dam needs to be rehabilitated to meet current performance and safety criteria.	**C. Identification #** (farm, tract, field #, etc as required): Calaveras FRS 10 is located on Panta Creek about 14.5 miles southeast of downtown San Antonio, Texas. National Inventory of Dams Number TX01452.

E. Need for Action:	**G. Alternatives**		
	No Action √ if RMS ☐	***Alternative 1*** √ if RMS ☐	***Alternative 2*** √ if RMS ☐
Calaveras 10 is a high hazard dam but does not meet the current minimum criteria for safety and performance standards.	Future without project: Controlled breach by creating a minimum size opening in the dam to eliminate hazard of a catastrophic breach (No Federal assistance).	Decommission dam: Controlled breach to eliminate the hazard of a catastrophic breach. Re-establish floodplain functions and vegetation.	Raise the top of dam 3.8 ft, lengthen the dam 430 ft, replace the 22-inch pipe with a 42-inch pipe with an impact basin at the outlet, lower the crest of the principal spillway by 1.8 feet, raise the crest of the auxiliary spillway 1.1 feet, and armor the crest with articulating blocks.

Resource Concerns

In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process. (See FOTG Section III - Resource Quality Criteria for guidance).

F. Resource Concerns and Existing / Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	**H. Effects of Alternatives**					
	No Action		***Alternative 1***		***Alternative 2***	
	Amount, Status, Description (short and long term)	√ if does NOT meet QC	Amount, Status, Description (short and long term)	√ if does NOT meet QC	Amount, Status, Description (short and long term)	√ if does NOT meet QC
SOIL						
No resouce concern identified Little if any erosion in the proposed construction area, but sediment from upstream erosion washes into the sediment pool.	Probable increase in erosion in the 28-acre 200 ac-ft ported pool area due to elevation difference below dam (Increased flow velocities). Some increase in erosion in the breach area. No a federal action.	NOT meet ☐ QC	Only minor increase in erosion in 28-acre 200 ac-ft ported pool area until vegetation re-establishes due to grade stabilization structure. Minor increase in erosion in breach area due to increase in flow velocity. SW3P in place.	NOT meet ☐ QC	Minor increase in erosion in the construction area until vegetation re-establishes. 28-acre 200 ac-ft ported pool replaced by 38-acre sediment pool. SW3P in place.	NOT meet ☐ QC
Sediment reduction Calaveras 10 safely stores sediment from the upstream watershed.	Sediment from the upstream watershed would not be sequestered and would be deposited downstream.	NOT meet ☐ QC	Sediment from the upstream watershed would not be sequestered and would be deposited downstream.	NOT meet ☐ QC	Sediment storage remains plus an additional 50 years of sediment storage planned in the rehabilitation design.	NOT meet ☐ QC
		NOT meet ☐ QC		NOT meet ☐ QC		NOT meet ☐ QC
WATER						
Quality During and after storm events, sediment and turbidity from upstream are confined in the sediment pool.	Water quality downstream decreases due to suspended sediment from the upstream watershed washing downstream and increased erosion.	NOT meet ☐ QC	Water quality downstream decreases due to suspended sediment from the upstream watershed washing downstream and increased erosion.	NOT meet ☐ QC	Slight improvement due to increased sediment storage and installation of impact basin.	NOT meet ☐ QC
Quantity Forty-three-acre sediment pool with 28-acre 200-ac-ft ported pool.	No water is retained in the sediment pool, and downstream flows are not attenuated. Forty-three-acre sediment pool converted to riparian areas with grassland buffer.	NOT meet ☐ QC	No water is retained in the sediment pool, and downstream flows are not attenuated. Forty-three-acre sediment pool converted to riparian areas with improved riparian arear.	NOT meet ☐ QC	Water is retained in sediment pool during and after storm events and downstream flows are attenuated. Forty-three-acre sediment pool reduced to 38 acres.	NOT meet ☐ QC
		NOT meet ☐ QC		NOT meet ☐ QC		NOT meet ☐ QC

F. Resouce Concerns and Existing / Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	H. (continued)					
	No Action		*Alternative 1*		*Alternative 2*	
	Amount, Status, Description (short and long term)	√ if does NOT meet QC	Amount, Status, Description (short and long term)	√ if does NOT meet QC	Amount, Status, Description (short and long term)	√ if does NOT meet QC
AIR						
Quality No current problems with air quality. Bexar County is not in non-attainment (EPA Air Pollution website, http://www.epa.gov/oaqps001/greenbk/ancl.html).	Only minor dust during construction activities.	NOT meet ☐ QC	Only minor dust during construction activities.	NOT meet ☐ QC	Only minor dust during construction activities.	NOT meet ☐ QC
		NOT meet ☐ QC		NOT meet ☐ QC		NOT meet ☐ QC
		NOT meet ☐ QC		NOT meet ☐ QC		NOT meet ☐ QC
PLANTS						
No resouce concern identified	No invasive species identified. All areas re-vegetated after construction.	NOT meet ☐ QC	No invasive species identified. All areas re-vegetated after construction.	NOT meet ☐ QC	No invasive species identified. All areas re-vegetated after construction.	NOT meet ☐ QC
		NOT meet ☐ QC		NOT meet ☐ QC		NOT meet ☐ QC
		NOT meet ☐ QC		NOT meet ☐ QC		NOT meet ☐ QC
ANIMALS						
Fish and wildlife Limited water for fish, stream dry most of year. Good vegetative cover on the dam, around the sediment pool, and downstream of the structure.	Reduced fish habitat and available water for terrestrial species. No water retained in the 43-acre sediment pool and no downstream attenuated flows. Reduced quality of habitat downstream due to aggradation.	NOT meet ☐ QC	Reduced fish habitat and available water for terrestrial species. No water retained in the 43-acre sediment pool and no downstream attenuated flows. Reduced quality of habitat downstream due to aggradation.	NOT meet ☐ QC	Forty-three-acre sediment pool reduced to 36 acres; water would be retained in the sediment pool and downstream flows would be attenuated. Water quality downstream inproved, most likely a decrease in downstream aggradation.	NOT meet ☐ QC
		NOT meet ☐ QC		NOT meet ☐ QC		NOT meet ☐ QC
		NOT meet		NOT meet		NOT meet
HUMAN - Economic and Social Considerations						
Land Use Currently a floodwater retarding structure surrounded by grassland.	Floodwater retarding structure converted to stream with riparian area and grassland buffer.		Floodwater retarding structure converted to stream with improved riparian area.		Returned to preconstruction condition: no change in land use.	
Public Health and Safety Calaveras 10 currently provides downstream flood protection.	Flood protection for all storm events removed.		Flood protection for all storm events removed.		Current flood protection retained with 10-day draw down time.	

Special Environmental Concerns: Environmental Laws, Executive Orders, policies, etc.

In Section "I" complete and attach applicable Environmental Procedures Guide Sheets for documentation. Items with a "•" may require a federal permit or consultation/coordination between the lead agency and another government agency. In these cases, effects may need to be determined in consultation with another agency. Planning and practice implementation may proceed for practices not involved in consultation.

I. Special Environmental Concerns (Document compliance with Environmental Laws, Executive Orders, policies, etc.)	J. Impacts to Special Environmental Concerns					
	No Action		*Alternative 1*		*Alternative 2*	
	Status and progress of compliance. (Complete and attach Guide Sheets as applicable)	√ if needs further action	Status and progress of compliance. (Complete and attach Guide Sheets as applicable)	√ if needs further action	Status and progress of compliance. (Complete and attach Guide Sheets as applicable)	√ if needs further action
•Clean Air Act Not in non-attainment.	Upon Review, No Action Needed	☐	Upon Review, No Action Needed	☐	Upon Review, No Action Needed	☐
•Clean Water Act / Waters of the U.S. Waters of the US present on site.	Unknown, not a federal action. Most likely, no permit required; excavation only and not in a Section 10 Water.	☐	Converts open water to stream with riparian area. Most likely authorized by Nationwide Permit 27 for Stream restoration.	☐	Only temporary impacts to Waters of the US. Rehabilitation authorized by Nationwide Permit 3 for Maintenance without PCN.	☐
•Coastal Zone Management Not present in APE.	Upon Review, Not Applicable	☐	Upon Review, Not Applicable	☐	Upon Review, Not Applicable	☐
Coral Reefs Not present in APE.	Upon Review, Not Applicable	☐	Upon Review, Not Applicable	☐	Upon Review, Not Applicable	☐
•Cultural Resources / Historic Properties No NRHP listings/known sites. (re: NRCS CRS and SHPO)	Cultural resources survey will be required on all areas of new disturbance.	☑	Cultural resources survey will be required on all areas of new disturbance.	☑	CR survey completed; no NRHP eligible properties present; monitor construction.	☑
•Endangered and Threatened Species Not present in APE.	Upon Review, No Effect	☐	Upon Review, No Effect	☐	Upon Review, No Effect	☐
Environmental Justice Compared to Bexar Cty and TX, lower percent minority population, but comparable per capita income.	Loss of flood protection for affected population below dam regardless of economic status.	☐	Loss of flood protection below dam regardless of economic statue. Relocation would cause loss of cohesive community spirit.	☐	Flood protection maintained for affected population.	☐
•Essential Fish Habitat Not present in APE.	Upon Review, Not Present	☐	Upon Review, Not Present	☐	Upon Review, Not Present	☐
Floodplain Management 100-year floodplain downstream currently protected by FRS 10.	Floodplain protection for all storm events removed.	☐	Floodplain protection for all storm events removed.	☐	100-year floodplain protection maintained, and drawdown time reduced to 10 days.	☐
Invasive Species Not present in APE.	Unknown, not a federal action. All disturbed areas re-vegetated.	☐	All disturbed areas replanted with native species.	☐	Dam and spillway replanted with bermuda, all other areas replanted with native species.	☐
•Migratory Birds/Bald and Golden Eagle Protection Act Eagle habitat not present.	Upon Review, No Effect	☐	Upon Review, No Effect	☐	Upon Review, No Effect	☐
Prime and Unique Farmlands In breach area, 160 acres only if irrigated.	Upon Review, Not Present No irrigation.	☐	Upon Review, Not Present No irrigation.	☐	Upon Review, Not Present No irrigation.	☐
Riparian Area Riparian Areas located above the sediment pool and below the plunge basin are in fair condition.	43-acre sediment pool converted to riparian area with grassland buffer. Water quality decreases due to loss of sediment pool and increase in erosion.	☐	43-acre sediment pool converted to stream with improved riparian area. Water quality decreases due to loss of sediment pool.	☐	Upon Review, No Effect 43 acre sediment pool reduced to 36 acres, existing riparian areas would not be impacted by rehabilitation construction.	☐
•Wetlands Wetlands present in APE.	Reduction in wetlands due to conversion of sediment pool to unimproved stream.	☐	Change in wetland types. Re-establish riparian areas with associated wetlands.	☐	Minor temporary impacts; wetlands return to pre-existing conditions after construction.	☐
•Wild and Scenic Rivers Not present in APE.	Upon Review, Not Present	☐	Upon Review, Not Present	☐	Upon Review, Not Present	☐

K. Other Agencies and Broad Public Concerns	*No Action*	*Alternative 1*	*Alternative 2*
Easements, Permissions, Public Review, or Permits Required and Agencies Consulted.	All easements, permissions, public review, permits, and consultations would be the resposibility of the sponsors. Not a federal action.	All necessary easements and permits are the responsibility of the sponsors. Clean Water Act permit would most likely be NWP 27 for stream restoration; requires verification from USACE.	All necessary easements and permits are the responsibility of the sponsors. Clean Water Act permit would most likely be NWP 3 for maintenance without PCN. Action is an EE; no interagency review required under NEPA. No effect on T&E species; no consultation with FWS required under ESA.

K. (continued) Other Agencies and Broad Public Concerns		No Action	Alternative 1	Alternative 2
Cumulative Effects Narrative (Describe the cumulative impacts considered, including past, present and known future actions regardless of who performed the actions)		Scoping meeting held on August 2, 2012, and all resource agencies invited to a site visit on August 8, 2012. No resource agencies attended the site visit or the public meeting. No past, present, or future actions were identified by individuals or agencies.	Scoping meeting held on August 2, 2012, and all resource agencies invited to a site visit on August 8, 2012. No resource agencies attended the site visit or the public meeting. No past, present, or future actions were identified by individuals or agencies.	Scoping meeting held on August 2, 2012, and all resource agencies invited to a site visit on August 8, 2012. No resource agencies attended the site visit or the public meeting. No past, present, or future actions were identified by individuals or agencies.
L. Mitigation		Unknown; not a federal action. Most likely no permit required for excavation only, therefore no mitigation would be required.	No mitigation required. Most likely authorized by NWP 27 for stream restoration; no adverse impacts to the aquatic environment.	No mitigation required. Most likely authorized by NWP 3 for maintenance; no adverse impacts to the aquatic environment.
M. Preferred Alternative	√ preferred alternative	☐	☐	☑
	Supporting reason			This is the least environmentally damaging alternative that meets the objectives and purposes of the project.

N. Context (Record context of alternatives analysis)	local	local	local

The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.

O. Determination of Significance or Extraordinay Circumstances

Intensity: Refers to the severity of impact. Impacts may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

If you answer ANY of the below questions "yes" then contact the State Environmental Liaison as there may be extraordinary circumstances and significance issues to consider and a site specific NEPA analysis may be required.

Yes	No	
☐	☑	• Is the preferred alternative expected to cause significant effects on public health or safety?
☐	☑	• Is the preferred alternative expected to significantly effect unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?
☐	☑	• Are the effects of the preferred alternative on the quality of the human environment likely to be highly controversial?
☐	☑	• Does the preferred alternative have highly uncertain effects or involve unique or unknown risks on the human environment?
☐	☑	• Does the preferred alternative establish a precedent for future actions with significant impacts or represent a decision in principle about a future consideration?
☐	☑	• Is the preferred alternative known or reasonably expected to have potentially significant environment impacts to the quality of the human environment either individually or cumulatively over time?
☐	☑	• Will the preferred alternative likely have a significant adverse effect on ANY of the special environmental concerns? Use the Evaluation Procedure Guide Sheets to assist in this determination. This includes, but is not limited to, concerns such as cultural or historical resources, endangered and threatened species, environmental justice, wetlands, floodplains, coastal zones, coral reefs, essential fish habitat, wild and scenic rivers, clean air, riparian areas, natural areas, and invasive species.
☐	☑	• Will the preferred alternative threaten a violation of Federal, State, or local law or requirements for the protection of the environment?

P. The information recorded above is based on the best available information:

In the case where a non-NRCS person (i.e. a TSP) assists with planning they are to sign the first signature block and then NRCS is to sign the second block as the responsible federal agency for the planning action.

Signature (TSP if applicable)	**Title**	**Date**
Jim Kelly	**Wildlife Biologist**	**10/19/2012**
Signature (NRCS)	**Title**	**Date**

The following sections are to be completed by the Responsible Federal Official (RFO)

Q. NEPA Compliance Finding (check one)

The preferred alternative:		Action required
☐	1) is **not a federal action** where the agency has control or responsibility.	Document in "R.1" below. No additional analysis is required
☑	2) is a federal action that is **categorically excluded** from further environmental analysis **and** there are no extraordinary circumstances.	Document in "R.2" below. No additional analysis is required
☐	3) is a federal action that has been **sufficiently analyzed** in an existing Agency state, regional, or national NEPA document **and** there are no predicted significant adverse environmental effects or extraordinary circumstances.	Document in "R.1" below. No additional analysis is required.
☐	4) is a federal action that has been sufficiently analyzed in another Federal agency's NEPA document (EA or EIS) that addresses the proposed NRCS action and its' effects **and has been formally adopted by NRCS**. NRCS is required to prepare and publish the agency's own Finding of No Significant Impact for an EA or Record of Decision for an EIS when adopting another agency's EA or EIS document. **Note: This box is not applicable to FSA.**	Contact the State Environmental Liaison for list of NEPA documents formally adopted and available for tiering. Document in "R.1" below. No additional analysis is required
☐	5) is a federal action that has **NOT** been sufficiently analyzed or may involve predicted significant adverse environmental effects or extraordinary circumstances and may require an EA or EIS.	Contact the State Environmental Liaison. Further NEPA analysis required.

R. Rationale Supporting the Finding

R.1 Findings Documentation	
R.2 Applicable Categorical Exclusion(s) (more than one may apply)	As a result of this environmental evaluation, it is concluded that the preferred alternative is covered by categorical exclusions numbers 14, 15, 16, and/or 17 dealing with the rehabilitation of a floodwater retarding structure to meet current safety and performance standards. No extraordinary circumstances or significant impacts were discovered during the evaluation or will result from the preferred alternative.

I have considered the effects of the alternatives on the Resource Concerns, Economic and Social Considerations, Special Environmental Concerns, and Extraordinary Circumstances as defined by Agency regulation and policy.

S. Signature of Responsible Federal Official:

Signature	Title	Date
Steven Bednarz	Assistant State Conservationist	10/29/2012

Additional notes

CONSULTATION, COORDINATION, & PUBLIC PARTICIPATION

SPONSORING LOCAL ORGANIZATION:

Sponsors of the Calaveras Creek Watershed FRS No. 10 rehabilitation project are the San Antonio River Authority (SARA), the Alamo Soil and Water Conservation District, and the Wilson County Soil and Water Conservation District. SARA is the "lead Sponsor" being responsible for leading the planning process, providing assurances for landrights, and providing coordination of the project with assistance from NRCS.

PLANNING TEAM:

An Interdisciplinary Planning Team provided for the "technical" administration of this project. Technical administration includes tasks pursuant to the NRCS nine-step planning process and planning procedures outlined in the NRCS-National Planning Procedures Handbook. Some of the tasks undertaken by the Interdisciplinary Planning Team include but are not limited to: Preliminary Investigations, Hydrologic and Engineering Analysis, Reservoir Sedimentation Surveys, Economic Analysis, Evaluating Environmental Concerns, Formulating and Evaluating Alternatives, Performing an Environmental Evaluation (EE), and writing the Supplemental Plan/EE. Informal discussions amongst the planning team, Sponsors, NRCS, and landowners were conducted throughout the planning period.

On April 26, 2011, an application for participation in the rehabilitation program on FRS No. 10 was submitted by the Sponsors. The Texas State Soil and Water Conservation Board (TSSWCB) approved the application for federal assistance on July 21, 2011. On November 2, 2011, a Memorandum of Understanding was signed by the NRCS and the SARA outlining parameters to be utilized for the Sponsors to earn in-kind-credit to satisfy a portion of the financial requirements of the rehabilitation project.

A search of the Native American Consultation Database was conducted to determine if there were any Indian tribes that might attach religious or cultural significance to historic properties that could be located in the proposed project area. This was done in accordance with 36 CFR 800.2 (c) (i) of the Advisory Council on Historic Preservation Regulations. The Mescalero Apache Tribe of the Mescalero Reservation, New Mexico has a claim to a land area that includes Bexar County, Texas (NPS 2012). NRCS has contacted the Tribal Historic Preservation Officer to determine if the tribes have an interest in the project area, and no interest has been indicated.

A search of the Texas Archeological Sites Atlas, completed in September 2012 did not reveal any recorded archeological or historic sites in the vicinity of the proposed project (THC 2012). NRCS and the Texas State Historic Preservation Officer (SHPO) have agreed that a cultural resources survey should be completed on all areas of new disturbance associated with potential rehabilitation measures. Accordingly, the NRCS cultural resources specialist conducted a survey of areas of potential new disturbance associated with the prospective rehabilitation alternative at FRS No. 10 in October 2012. The areas have been subject to various disturbances associated with original construction and other activities including farming/ranching practices, roads and trails.

No cultural resources were found in the areas of potential new disturbance associated with rehabilitation measures at FRS No. 10 and overall there appears to be low potential for intact subsurface cultural deposits in these areas.

Members of the NRCS Interdisciplinary Planning Team conducted field investigations on May 8, 2012, August 8, 2012, October 3, 2012, and October 4, 2012. The U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers (USACE), Texas Commission on Environmental Quality, and the Texas Parks & Wildlife Department were contacted and invited to attend a field review on August 8, 2012, to provide input concerning the project. None of the agencies responded, probably due to the minor, temporary nature of the impacts of the project and the similarity of this project to other rehabilitation projects that the agencies have reviewed in the past.

A review of NEPA concerns was initiated early in the planning process by the planning team. Identified NEPA concerns were reviewed and documented on form NRCS-CPA-52 (Environmental Evaluation). As a result of performing the Environmental Evaluation, it was determined that the preferred alternative is a federal action that is categorically excluded from further environmental analysis by categorical exclusion Nos. 14, 15, 16, and 17. The NRCS Interdisciplinary Planning Team determined that the actions of the preferred alternative will not individually or cumulatively have a significant effect on the environment, and there are no extraordinary circumstances present. Additional supporting documentation and information on the use of categorical exclusions are more fully explained in Appendix E (Other Supporting Information).

PUBLIC PARTICIPATION:

Integral to the planning process is the solicitation of public comments to identify, understand, and address the issues and concerns of the relevant agencies and the public. The Sponsors' intent during the scoping process was to inform local, state, and federal agencies and the public about the planning process and solicit their comments in order to identify issues and questions to consider when preparing the Supplemental Watershed Plan and Environmental Evaluation. During the scoping period, the Sponsors announced the commencement of the planning process through various means, invited written comments, and held a public scoping meeting. Opportunities for the public to participate in the planning process occurred at key milestones throughout the process. The scoping process was continuous and comments were solicited and received for consideration throughout the entire planning procedure.

On August 2, 2012 a public scoping meeting was held in the Administration Building of the Martinez II Wastewater Treatment Plant project area to explain the Watershed Rehabilitation Program and to discuss resource problems, issues, and concerns of local residents associated with the FRS No. 10 project area. Invitations to participate in the public meeting were made to potentially affected landowners and interested parties around and below FRS No. 10 and reservoir area. A PowerPoint Presentation and handout materials were utilized to provide information to the group. Potential alternative solutions to bring Calaveras Creek FRS No. 10 into compliance with current dam safety criteria were presented at the initial scoping committee meeting.

The U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers (USACE), Texas Commission on Environmental Quality, and the Texas Parks &

Wildlife Department were contacted and invited to attend a field review on August 8, 2012, to provide input concerning the project. None of the agencies responded. USFWS and the TPWD furnished information concerning federally and state listed endangered and threatened species in Bexar County, Texas, through their respective web sites. The findings are shown in Table C on page 16 of this document. Federal, State, and local agencies were all invited and encouraged to participate in the scoping planning process. Environmental, cultural, and economic concerns were evaluated by NRCS personnel to determine effects of potential rehabilitation alternatives. The USACE did not respond to an invitation to a site visit; therefore the sponsor is assuming authorization under the Clean Water Act by Nationwide Permit 3 for Maintenance without preconstruction notification with no compensatory mitigation required.

A steering committee made up of local, interested individuals was formed. Comments and concerns were solicited from this committee during the planning process. A list of the steering committee members and contact information can be found on page 55.

A second advertised public meeting was held on December 6, 2012, to review the first draft of the Supplemental Plan and Environmental Evaluation, summarize planning accomplishments, present various structural and non-structural alternatives and solicit comments regarding the preferred alternative.

THE PREFERRED ALTERNATIVE

Alternative No. 3 is the preferred alternative. The dam will be modified to meet current performance and safety standards for a high hazard dam and the service life of FRS No. 10 will be extended for an additional 50 years. The modification will consist of rehabilitation of FRS No. 10 by lowering the principal spillway crest by 1.8 feet and installing a 42-inch diameter principal spillway pipe with an intake riser and an impact basin at the outlet end. The auxiliary spillway crest will be raised by 1.1 feet, and the spillway will be armored with articulating blocks. The top of the dam will be raised 3.8 feet and the dam lengthened by 430 feet. All disturbed areas will be re-vegetated using adapted species. Estimated cost is $3,442,800.

Construction activities will result in the disturbance of approximately 10 acres and will require that a Storm Water Pollution Prevention Plan be in effect. The removal of vegetation will only be that necessary to allow rehabilitation of the structure. Disturbed areas will be reestablished to adapted and/or native vegetation to reduce erosion. Established precautionary procedures will be followed to prevent the establishment or spread of invasive species during the vegetation establishment process. Preventive activities may include the use of certified seed, cleaning of planting equipment, the use of recommended pest management procedures, and other Best Management Practices to insure that invasive species are not introduced onto the project site.

The Sponsors will develop an Emergency Action Plan (EAP) before any rehabilitation construction activities begin that establishes the responsibilities for the development, implementation, and review of actions necessary to provide safety to individuals downstream of the structure should extreme flooding occur.

RATIONALE FOR ALTERNATIVE PREFERENCE

Alternative plans were formulated as required by NRCS policy and *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (*P&G*) (USWRC, 1983). According to P&G, an alternative that reasonably maximizes net national economic development benefits is to be formulated. This alternative is to be identified as the National Economic Development (NED) Plan. Alternative No. 3 (Rehabilitation of FRS No. 10) is the NED plan and the preferred alternative. A local sponsor has agreed to fund the local share of the cost.

Alternative plans were formulated in consideration of the purposes of the project and concerns expressed during the public scoping process. Formulation of the alternative plans gave consideration to four criteria: completeness, effectiveness, efficiency, and acceptability. Alternative Nos. 1, 2, and 3 all meet the criteria for completeness. Alternative Nos. 1 and 2 remove the safety hazard of the dam from failing, but they do not address the primary problem of assuring that downstream flood protection would continue to be provided; however, alternative No. 3 effectively reduces the risk of dam failure by overtopping and maintains the current level of flood protection downstream.

MEASURES TO BE INSTALLED

The recommended plan consists of structural modifications to FRS No. 10 as follows:

- Raise top of dam 3.8 feet and lengthen the dam 215 feet in each abutment area;
- Lower the crest of the principal spillway by 1.8 feet and install a 42-inch diameter principal spillway pipe with an intake riser and an impact basin at the outlet end;
- Raise the auxiliary spillway by 1.1 feet and armor it with articulating blocks.

PERMITS AND COMPLIANCE

Potential Permits Needed

U.S. Army Corps of Engineers (USACE) guidelines indicate that any discharge of dredged or fill material into "Waters of the United States" require authorization under Section 404 of the Clean Water Act of 1972. Based on previous consultations with USACE, it appears that any discharges into Waters of the U.S. associated with the rehabilitation of FRS No. 10 would be authorized by a general permit such as Nationwide General Permit 3 for Maintenance without a Preconstruction Notification.

For projects with disturbances equal to or greater than five acres, it is necessary to have a Storm Water Pollution Prevention Plan (SWP3) in place prior to construction of the proposed project and filing a Notice of Intent with the TCEQ is required. A Notice of Termination (NOT) must be filed once the site has reached final stabilization. Construction activities associated with the rehabilitation of FRS No. 10 will require a SWP3.

Compliance with Local, State, and Federal Laws

All applicable local, state, and federal laws will be complied with in the installation of this project.

Efforts to identify cultural resources have been conducted in compliance with Section 106 and Section 110 (f) and (k) of the National Historic Preservation Act. No historic properties were identified in the areas of Alternative 3, and no known sites are recorded in the vicinity. Ensuing disturbances associated with rehabilitation measures will be monitored for the presence of undiscovered sites. In the event of such discovery, appropriate actions will be taken in accordance with the State Level Agreement among NRCS and the Texas State Historic Preservation Officer, the National Programmatic Agreement among NRCS, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation, and NRCS General Manual 420, Part 401 guidance.

MITIGATION

An environmental evaluation was performed early in the planning process to determine the potential effects of alternative solutions for meeting the Sponsors objectives to comply with safety and performance standards concerning FRS No. 10. No extraordinary circumstances or significant impacts will result from actions of the preferred alternative. The project would avoid adverse impacts by working while the sediment pool is dry to complete the required rehabilitation measures. Adverse impacts would be minimized by using appropriate erosion control measures in accordance with the SWP3 as filed with TCEQ and posted on site. The U. S. Army Corps of Engineers was invited to a site visit on 8 August 2012, but did not respond to that invitation; therefore the sponsor is assuming that the preferred alternative would be authorized

under Section 404 of the Clean Water Act by Nationwide Permit 3 for maintenance without preconstruction notification. Due to the minor, temporary nature of the impacts, no other appropriate mitigation measures were identified, and no compensatory mitigation would be required as part of the preferred alternative.

COSTS AND COST SHARING

The percentages of the eligible project costs including construction, engineering, project administration, and land rights to be paid by SARA and the NRCS are as follows:

	SARA	NRCS	Estimated Eligible Project Cost
Rehabilitation of FRS No.10	35 %	65 %	$2,869,700

An amount up to the percentage rate specified may be satisfied by SARA for cost of an element such as engineering, real property acquisition, or construction. The decision to, and arrangements for, such action will be negotiated between SARA and NRCS and will be included in a project agreement executed immediately before implementation. NRCS costs will not exceed 100 percent of the construction cost.

NRCS is responsible for the engineering services and project administration costs ($573,100) it incurs. These costs are not used in the calculation of the federal cost share; however, the costs are included in Table 1 - Estimated Installation Cost. Also, costs of water, mineral, and other resource rights, as well as federal, state and local permits, are the responsibility of SARA and are not counted toward local cost share. See Table 2 for a complete distribution of total rehabilitation costs.

INSTALLATION AND FINANCING

The installation of the project will be financed jointly by SARA and the NRCS. NRCS will use funds appropriated for this purpose. The installation schedule indicates that real property rights will be secured during the 2013 fiscal year and construction funding will be requested for fiscal year 2014. SARA has the power of eminent domain to secure the real property rights and will serve as the local contracting agent.

Memorandum of Understanding

SARA and NRCS have entered into a Memorandum of Understanding (MOU) to establish a framework under which SARA may proceed with work on specific aspects of the proposed rehabilitation project. Accordingly, that specified work might then contribute towards the Sponsor's 35 percent cost-share obligation.

Project Agreement

The Sponsoring Local Organization responsible for the 35 percent non-federal cost share (SARA) and the NRCS will enter into a Project Agreement in accordance with the National Contract Grants and Agreement Manual before any work is initiated by either SARA or the NRCS.

OPERATION, MAINTENANCE, AND REPLACEMENT

Operation and Maintenance Agreement

The project will be operated and maintained by the Sponsors. Once FRS No. 10 is rehabilitated, SARA will have the primary responsibilities for maintenance of FRS No. 10. A new Operation and Maintenance (O&M) Agreement will be developed with the Sponsors for FRS No. 10 for the 50-year program life of the structure. The new O&M Agreement will be based on the National Operation and Maintenance Manual (NOMM) and will be signed before the Project Agreement is signed. O&M activities include but are not limited to inspections, maintenance, replacement of inoperable components, and repairs of the principal spillways, dam, vegetation, and the auxiliary spillways. It is estimated that O&M activities will cost about $9,000 per year.

Emergency Action Plan

The Sponsors will provide leadership in developing an Emergency Action Plan (EAP) prior to the commencement of construction and will review and update the EAP annually with local emergency response officials. As required by the National Engineering Manual, Part 520, Subpart C, Section 520.27 and the NOMM, Part 500, Subpart F, the NRCS State Conservationist is to determine that an EAP is prepared for FRS No. 10 prior to the execution of fund obligating documents for construction of the structure. NRCS will provide technical assistance in preparation and updating of the EAP. The breach inundation map of the final design and its data will be the basis for potential areas to be affected and citizens to be notified. The purpose of the EAP is to identify areas at risk, outline appropriate actions, and to designate parties responsible for those actions in the event of a potential failure of FRS No. 10.

ECONOMIC AND STRUCTURAL TABLES

Table 1 - Estimated Installation Cost
Table 2 - Estimated Cost Distribution – Water Resource Project Measures
Table 3 - Structural Data – Dams with Planned Storage Capacity
Table 4 - Estimated Average Annual NED Costs
Table 5 - Estimated Average Annual Flood Damage Reduction Benefits
Table 6 - Comparison of NED Benefits and Costs
Table G – Comparison of Structural Data

Table 1 - Estimated Installation Cost

FRS No. 10

Calaveras Creek Watershed, Texas

(Dollars) [1/]

Works of Improvement	Unit	Number	Estimated Costs [2/]		
			Public Law 83-566 Funds	Other Funds	Total
Rehabilitation of FRS No. 10	No.	1	$2,438,400	$1,004,400	$3,442,800
Total Project			**$2,438,400**	**$1,004,400**	**$3,442,800**

Dec/2012

[1/] Price base: 2012

[2/] Public Law 83-566 Funds include NRCS Engineering and Project Administration ($573,100), which are not included when calculating eligible federal cost share. Therefore, federal cost share is based on Total Eligible Project Cost of $2,869,700

Table 2 - Estimated Cost Distribution – Water Resource Project Measures
FRS No. 10

Calaveras Creek Watershed, Texas
(Dollars) [1/]

Works of Improvement	Installation Cost – Public Law 83-566 [2/]				Installation Cost – Other Funds					Total Installation Cost
	Construction	Engineering	Project Administration	Total Public Law 566	Construction	Engineering	Real Property Rights	Project Administration	Total Other	
Rehabilitation of FRS No. 10	$1,865,300	$260,500	$312,600	$2,438,400	$740,000	$0	$199,300	$65,100	$1,004,400	$3,442,800
TOTAL	**$1,865,300**	**$260,500**	**$312,600**	**$2,438,400**	**$740,000**	**$0**	**$199,300**	**$65,100**	**$1,004,400**	**$3,442,800**

Dec/2012

[1/] Price base: 2012
[2/] Federal Engineering and Project Administration costs ($573,100) are not included when calculating eligible federal cost share. Therefore, federal cost share is based on Total Eligible Project Cost of $2,869,700.

Table 3 - Structural Data – Dams with Planned Storage Capacity
Calaveras Creek Watershed, Texas

Item	Unit	FRS No.10
Class of structure		High
Seismic zone		0
Location	Dec. deg.	Lat. 29.30, Long. –98.28
Uncontrolled drainage area	Sq-mi	7.28
Runoff curve number (1-day) (Avg. AMC)		60
Time of concentration (T_c)	Hrs	2.4
Elevation top of dam	Ft	513.2
Elevation crest of auxiliary spillway	Ft	505.6
Elevation crest principal spillway	Ft	490.5
Maximum height of dam	Ft	39
Volume of fill	Yd^3	73,946 1/
Total capacity (auxiliary spillway crest)	Ac-ft	1,776
Sediment pool	Ac-ft	156
Aerated sediment	Ac-ft	-
Floodwater retarding pool	Ac-ft	1,620
Surface area		
Sediment pool	Acres	36
Floodwater retarding pool	Acres	209
Principal spillway		
Rainfall volume (1-day)	In	10.0
Rainfall volume (10-day)	In	16.1
Runoff volume (10-day)	In	6.33
Type - existing (standard drop inlet)		Concrete
Diameter	In	42
Capacity	Ft^3/s	246
Auxiliary spillway (Structural)		
Bottom width	Ft	350
Exit slope	%	4
Frequency of operation	% chance	1.0
Auxiliary spillway hydrograph		
Rainfall volume	In	13.30
Runoff volume	In	7.69
Storm duration	Hrs	6
Velocity of flow (V_e)	Ft/s	13.0
Maximum reservoir water surface elevation	Ft	508.0
Freeboard hydrograph		
Rainfall volume	In	30.80
Runoff volume	In	23.93
Storm duration	Hrs	6
Maximum reservoir water surface elevation	Ft	513.2
Storage capacity equivalents		
Sediment volume	In	0.40
Floodwater retarding volume	In	4.20

1/ Total volume of fill in dam 73,946 CY (includes additional 32,600 CY needed in rehabilitation project). Dec 2012

Table 4 - Estimated Average Annual NED Costs
FRS No. 10
Calaveras Creek Watershed, Texas
(Dollars) [1/]

Evaluation Unit	---------- Project Outlays ----------		Total
	Amortization of Installation Cost [2/]	Operation, Maintenance and Replacement Cost	
FRS No.10	$153,400	$9,000	$162,400
Grand Total	**$153,400**	**$9,000**	**$162,400**

Dec/2012

[1/] Price base: 2012
[2/] Amortized over 50 years at a discount rate of 3.75 percent

Table 5 - Estimated Average Annual Flood Damage Reduction Benefits
FRS No. 10
Calaveras Creek Watershed, Texas
(Dollars) [1/ 2/]

Item	Estimated Average Annual Damages Without the Project [3/]	Estimated Average Annual Damages With the Project [3/]	Estimated Average Annual Benefits
Floodwater			
Crop and Pasture	$29,500	$25,700	$3,800
Other Agricultural	$83,000	$71,600	$11,400
Road and Bridge	$119,800	$82,800	$37,000
Urban	$101,400	$18,500	$82,900
Subtotal	$333,700	$198,600	$135,100
Sediment			
Overbank Deposition	$1,200	$1,000	$200
Erosion			
Streambank, Scour	$27,200	$23,600	$3,600
Grand Total	**$362,100**	**$223,200**	**$138,900**

Dec/2012

[1/] Price base: 2012
[2/] All figures reflect agriculture-related damages and benefits, including damages and benefits to rural communities.
[3/] Damages and benefits will accrue from floods of greater magnitude than the 500-year frequency event, but these were not evaluated.

Table 6 - Comparison of NED Benefits and Costs
FRS No. 10
Calaveras Creek Watershed, Texas
(Dollars) [1/]

Works of Improvement	Average Annual Benefits			Average Annual Cost [3/]	Benefit/Cost Ratio
	Agriculture-Related	Nonagricultural	Total		
	Damage Reduction [2/]	Avoidance of Cost of Sponsor's Breach			
Rehabilitation of Floodwater Retarding Structure No. 10	$138,900	$27,200	$166,100	$162,400	1.02:1.00

Dec/2012

[1/] Price base: 2012
[2/] From Table 5
[3/] From Table 4

Table G shows comparison of structural data between original as-built, existing conditions and planned rehabilitation:

Table G Comparison of Structural Data				
FRS No. 10	**Unit**	**As Built**[1/]	**Existing Conditions**[2/]	**Planned**[2/]
Surface Area (Principal Spillway Crest)	Acres	51	43	36
Elevation, Top of Dam (effective)	Ft MSL	509.2	509.4	513.2
Principal Spillway	Type	Std. drop inlet, 2 stage	Std. drop inlet, 2 stage	Std. drop inlet
Length of Dam	Ft.	2,168	2,168	2,598
Elevation, Principal Spillway Crest	Ft MSL	491.3	492.3	490.5
Pipe Diameter, Principal Spillway	In	22	22	42
Auxiliary Spillways	Type	Veg.	Veg.	Structural
Elevation, Auxiliary Spillway[3/]	Ft MSL	504.4	504.5	505.6
Bottom Width, Auxiliary Spillway	Ft.	350	350	350
Submerged Sediment Storage	Acre-feet	309	223	156
Sediment Reserve Below Riser	Acre-feet	200	-	-
Aerated Sediment Storage	Acre-feet	60	-	-
Flood Storage	Acre-feet	1,427	1,322	1,620
Total Storage at Auxiliary Spillway Crest	Acre-feet	1,736	1,555	1,776

[1/] As built data based on 1957 Record Drawings using National Geodetic Vertical Datum of 1929 (NGVD29). Stage/storage from "As-Built" Drawings.
[2/] Existing and Planned conditions data based on Bexar County, TX LiDAR data using North American Verticla Datum of 1988 (NAVD88) and ground survey 2012.
[3/] In Texas, the minimum requirements for landrights upstream from the dam will be all the area below the higher elevation of either (1) two feet vertically above the crest of the auxiliary spillway, or (2) the maximum elevation of the water surface attained during passage of the 100-year, 24-hour storm flow through the structure. The Sponsors currently hold easements for Calaveras Creek FRS No. 10 that meet minimum Public Law 83-566 requirements (existing auxiliary spillway crest elevation plus 2.0 feet). However, these easements are at an elevation below top of dam. Although any future upstream development must adhere to current easement restrictions, development could occur outside current easements and below top of dam elevation. Landrights above the currently required auxiliary spillway plus 2.0 feet elevation would be desirable but would address storms far in excess of what should reasonably be expected to occur. The sponsors have determined that land rights for the auxiliary spillway plus 2.0 feet requirement are adequate based on current local, state, and federal guidelines. This determination is consistent with criteria for other structures in the state, such as road embankments at culvert crossings, bridges, and other similar structures. All land rights must be identified by metes and bounds surveys conducted by a professional land surveyor.

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STEERING COMMITTEE MEMBERS

The local steering committee provided invaluable information, helped identify local concerns, and provided reviews during the development of the environmental evaluation.

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DISTRIBUTION LIST

The Responsible Federal Official has determined that the activities to be undertaken under this project fall within a category of NRCS actions that have been excluded from further NEPA evaluation (Categorical Exclusions). Therefore, distribution of the plan/EE was limited to the following list of agencies, organizations, and persons. Those listed on this distribution list were invited to participate in the public meetings and provide input, comments, and recommendations.

San Antonio River Authority
Commissioners Court of Bexar County
Alamo Soil and Water Conservation District
Wilson County Soil and Water Conservation District
Local Steering Committee members

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APPENDICES

APPENDIX A: Comments and Responses

APPENDIX B: Watershed Project Map

APPENDIX C: Support Maps (Vicinity and Breach Inundation)

APPENDIX D: Investigation and Analysis Report

APPENDIX E: Other Supporting Information

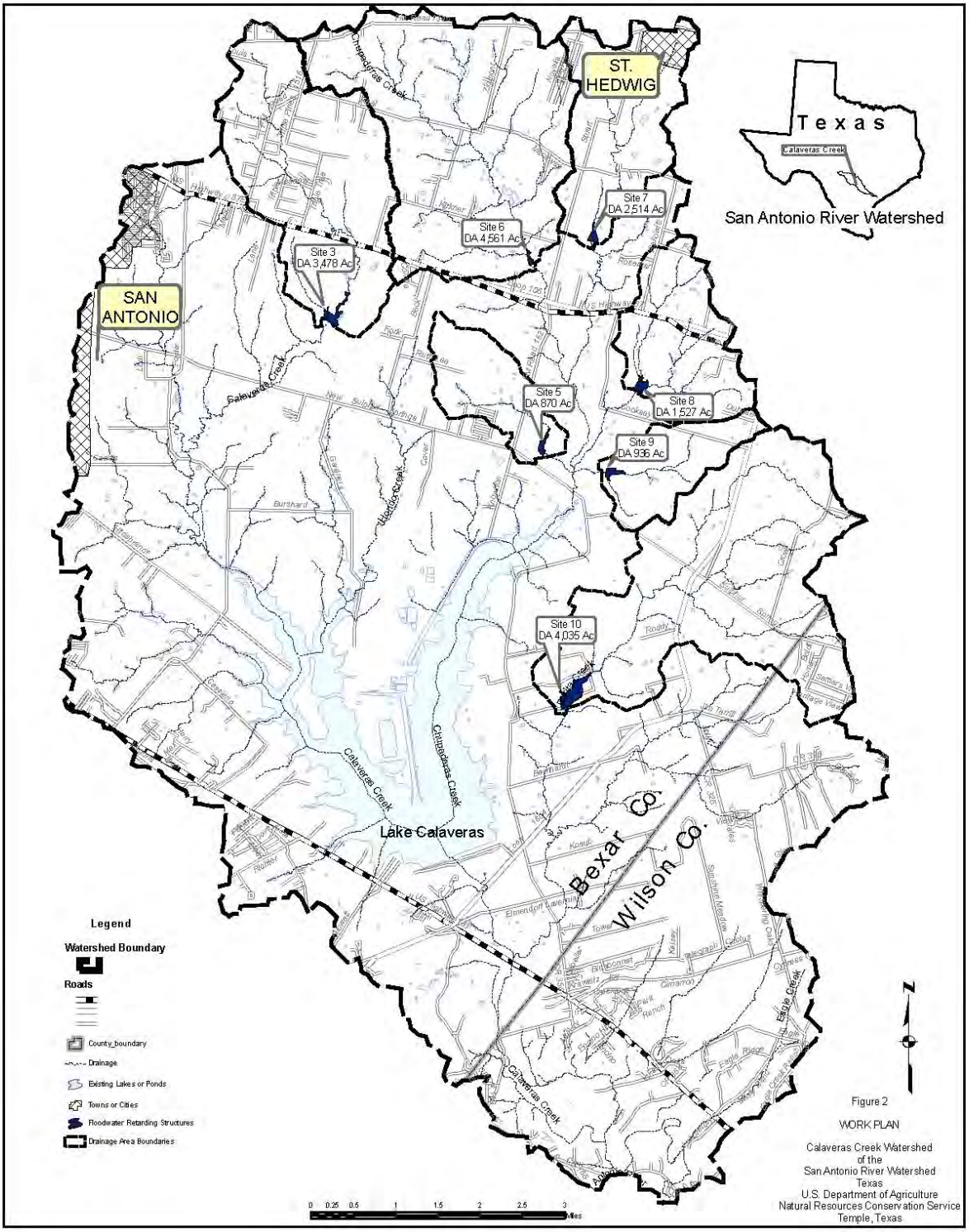
APPENDIX A

Comments and Responses

Since this project falls within a category of NRCS actions that have been excluded from further NEPA evaluation (Categorical Exclusions), an interagency review was not required, and thus no comments were received except for those made during the public meetings.

APPENDIX B

Watershed Project Map



Drainage areas are from original work plan and do not represent existing conditions.

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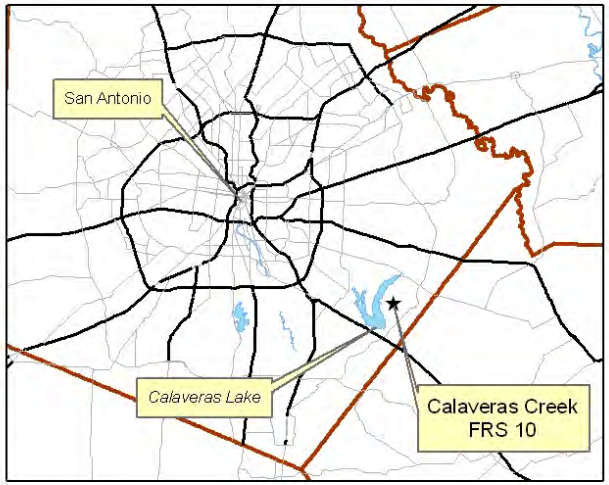
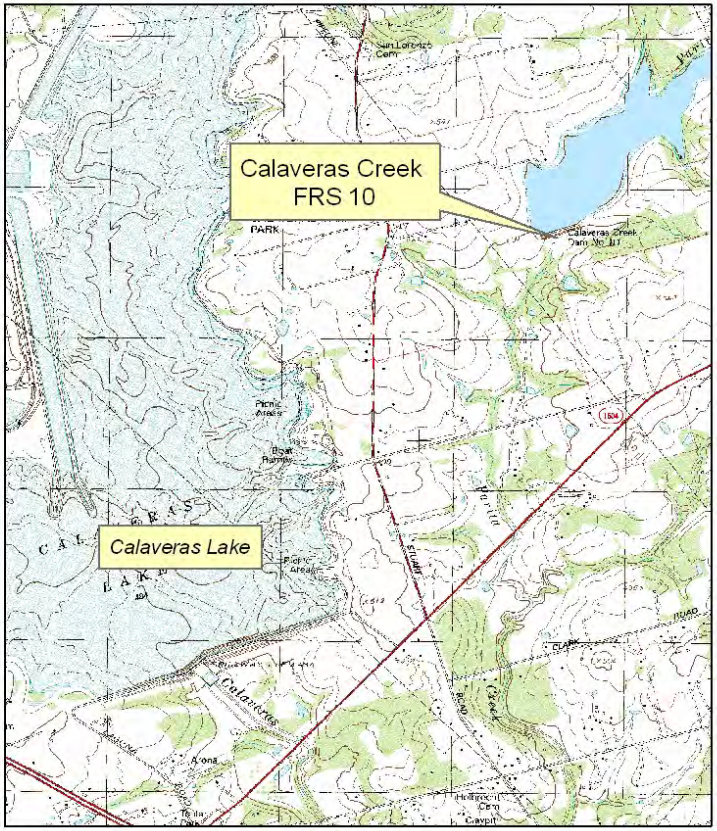
Support Maps



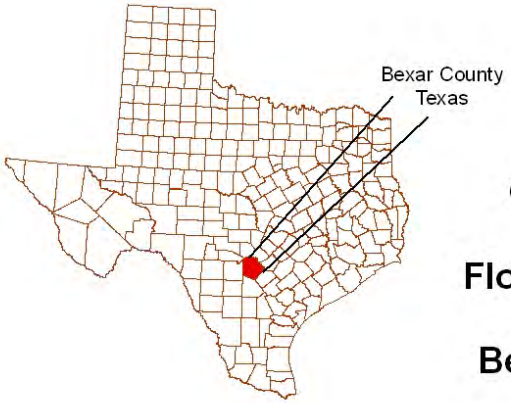
Vicinity Map



Location Map

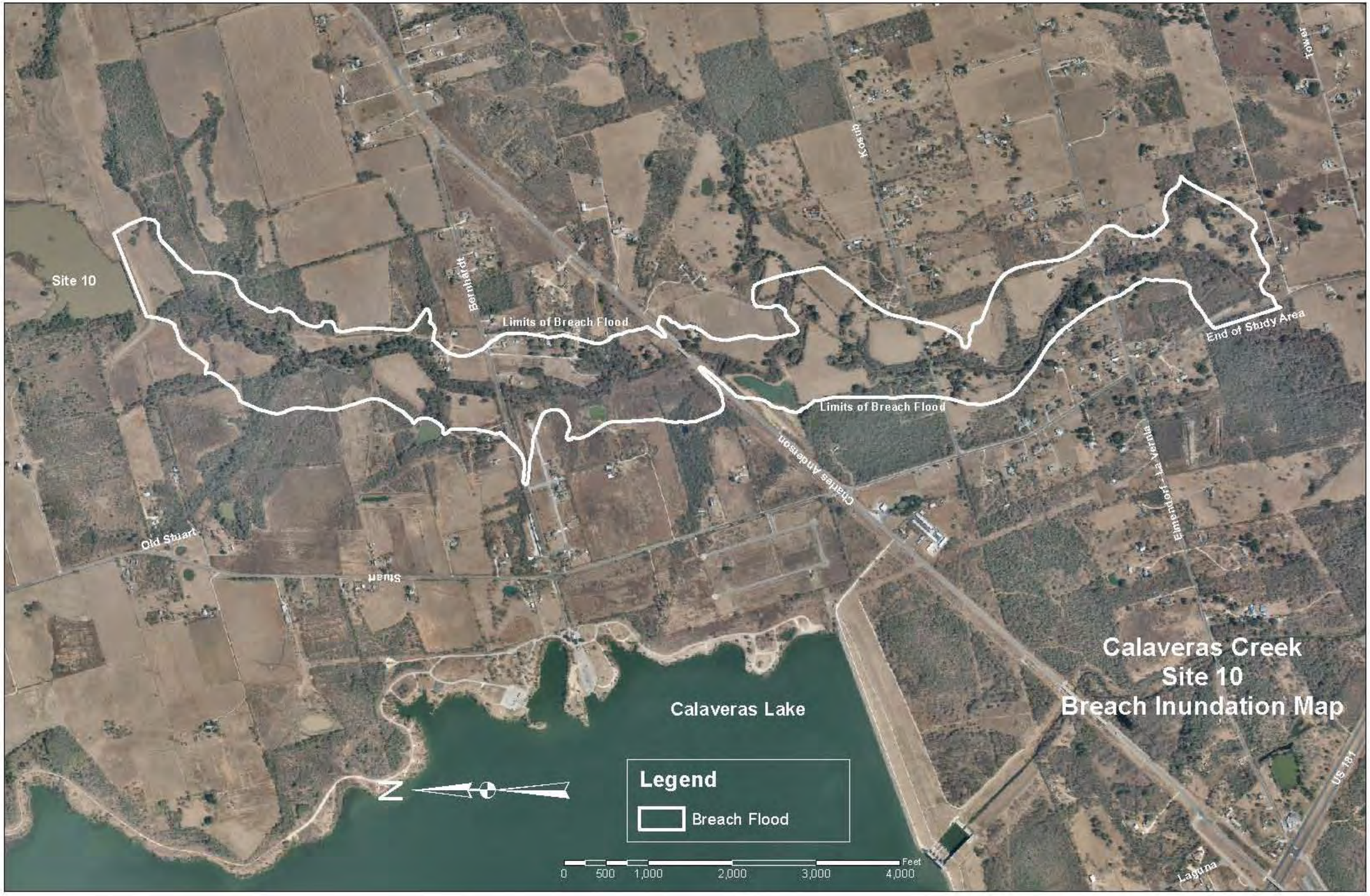
Approx. Scale
1" = 1/2 Mile

N



Calaveras Creek Watershed Floodwater Retarding Structure 10 Bexar County, Texas

NRCS
Natural Resources Conservation Service
Water Resources
Temple, Texas
November 2012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Breach Inundation Map
Site 10
Limits of Breach Flood
Limits of Breach Flood
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Bernhardt
Kosub
Tower
Charles Anderson
Elmendorf - La Vernia
Old Stuart
Stuart
Calaveras Lake
US 181
Laguna
Legend
Breach Flood
N
0
500
1,000
2,000
3,000
4,000
Feet

APPENDIX D
Investigation and Analysis Report

Economics:

In general, the NED benefits presented in this supplemental plan were developed based on Principles and Guidelines utilizing methods of (1) updating agricultural downstream benefits, sediment, and erosion benefits; (2) updating rural community (urban area, road and bridge) flood reduction benefits; and (3) saving the Sponsors the cost of a controlled breach.

For analytical purposes, all alternatives are compared to the future without project (FWOP) conditions (also referred to as alternative #1 or no federal action), which has zero-based benefits and costs (see Comparison of Alternatives tables, page29). This allows the reader to see what the PL-566 contribution to each alternative would be. The economic analysis includes comparing the effects of the decommissioning alternative (#2) and the rehabilitation alternative (#3) to the FWOP. Since the decommissioning alternative removes the function of the dam as does the FWOP, benefits are limited to cost savings the Sponsors would realize by not performing a controlled breach.

Agricultural downstream flood damage reduction benefits are basically split into two categories: crop and pasture, and other agricultural. Crop and pasture benefits reflect reduced damages from floodwaters to lands utilized for grain, hay, and fiber crops as well as forage grazed by livestock. Other agricultural benefits refer to reduced floodwater damages to fences, corrals, farm/ranch equipment, barns, shops, etc.

A reconnaissance of the affected area was completed, with local NRCS field employees providing input as needed. Crop damage factors by storm frequency and depth of flooding were updated from previous watershed studies in the area. Current crop budget data (i.e. yields, field operations, etc.) was obtained from a combination of local sources and the Texas AgriLife Extension website. Composite damageable values (CDV) were calculated using 2012 current normalized prices. By applying the crop damage factors to the CDV, damages by storm frequency by depth of flooding were estimated for each crop and then aggregated to represent annual damages. This method was done for the FWOP and alternative #3. Annual damages (primarily to pastureland) incurred with alternative #1 are $29,500; by installing alternative #3, damages are reduced to $25,700. Benefits are realized by the amount damages are reduced, which would be $3,800. Flood damages to other agricultural properties were also estimated for each alternative: $83,000 for alternative #1 and $71,600 for alternative #3, the difference resulting in $11,400 in annual benefits.

The 1954 work plan included annual benefits for sediment and erosion reduction. An appropriate index was used to update the work plan benefits attributed to sediment and erosion reduction to current dollars. Updated sediment benefits are $200, and erosion benefits are $3,600.

There are four county road crossings (Bernhardt Road, Kosub Lane, Elmendorf /Lavernia Road, and Stuart Road), and one state highway (Loop 1604) below FRS No. 10 within the project area. The following table records the depth of floodwaters under alternative #1 condition and the Texas Department of Transportation (TXDOT) 2010 average daily traffic count.

Road/Highway Crossing	Depth – 100-yr storm (ft)	Average Daily Traffic Count
Bernhardt Road	4.9	100
Loop 1604	0.0	4,150
Kosub Lane	9.1	200
Elmendorf/Lavernia Road	10.4	200
Stuart Road	7.6	1,380

Using current construction costs (repairs and clean-up) for the crossings, average annual floodwater damages were calculated for alternatives #1 and #3 project conditions. The difference is damage reduction benefits, which amount to: Bernhardt Road - $32,300, Kosub Road - $2,600, Elmendorf/Lavernia Road - $1,000, and Stuart Road - $1,100 for a total of $37,000 annual benefits.

Other benefits of the project were floodwater damage reduction benefits to the developed areas located downstream of the dams. Local tax appraisal district records were utilized in order to obtain values of properties (structures and land) that would possibly be affected by project activities. By utilizing the Urban Floodwater Damage Economic Evaluation (URB1) program, damages with and without project were calculated. Annual flood damages would be about $92,100 for the FWOP, and about $17,600 for alternative #3, resulting in $74,500 in benefits. Alternative #3 would maintain the current level of flood protection within the developed area.

Within the developed areas are a number of vehicles parked at residences and commercial properties. At any given time, it was estimated that there would be about 2 vehicles per building within the project area. Using a very conservative value of $5,000 per vehicle, depth of floodwaters by storm event, and vehicle damage factors obtained from the NRCS West National Technical Service Center, average annual damages were calculated for the FWOP and alternative #3. The difference results in annual benefits, which amount to about $8,400.

By including benefits from the aforementioned sections dealing with the developed areas and vehicles, total urban annual flood damage reduction benefits would be $82,900.

The cost of breaching the dam under the FWOP Alternative was considered a cost avoided benefit for the Decommissioning and Rehabilitation Alternatives. A breach by the Sponsors of FRS No. 10 was estimated to cost $588,000. Amortized over 50 years at 3.75%, annual cost is $27,200 which equates to a cost savings (benefit).

The following table reflects summation of all flood damage reduction benefits plus cost savings (avoidance of Sponsor's breach) for the project.

Benefit Item	FRS No. 10
Crop and Pasture	$3,800
Other Agricultural	$11,400
Sediment Reduction	$200
Erosion Reduction	$3,600
Road and Bridge	$37,000
Urban	$74,500
Vehicles	$8,400
Avoidance of Sponsor's Breach	$27,200
Total	**$166,100**

Population At Risk: Due to the potential catastrophic nature of a breach of FRS No. 10, population at risk (PAR) was estimated. It should be noted that estimating a number for population at risk is based on professional judgment coupled with empirical data. However, conservative means were utilized in order to hopefully avoid misconceptions of the PAR leading to unwarranted fear. PAR estimates were provided for motorists, residents, and other people located downstream within the breach area. These include people in cars (motorists) traveling on roads downstream of the dam and people within the breach area who are living in homes (there are currently no commercial or public properties within the breach area).

To estimate motorists at risk the following calculations were used. First, using posted speed limits, the time (in a fraction of a minute) it takes for a vehicle to traverse the area along each roadway affected by a breach (provided by the Hydraulic Engineer) was calculated. Second, using the most available average daily traffic counts from the Texas Department of Transportation (TXDOT), the number of vehicles per minute on each roadway was estimated. Finally, multiplying the travel time factor by the number of vehicles per minute provides an estimate of the number of vehicles at risk during a breach (located along each affected roadway). This resulted in three vehicles at risk below FRS No. 10. Using an average of two people per vehicle produces a PAR of six motorists.

Below FRS No. 10 there are twenty-two residences at risk from a breach. Using three people per residence (EJView estimated 71 people living in the breach area, or 3.2 people per residence), there would be 66 residents at risk if FRS No. 10 were to breach. Summing the number of motorists and the number of residents gives a total PAR of seventy-two. This does not include anyone that could be working in agricultural fields downstream if a breach were to occur.

Hydrology:

Dam breach modeling performed for this project demonstrated that loss of life could occur as a result of dam failure and, as a result, the hazard classification for the dam is high hazard. This classification requires that the PMP does not overtop the dam. For Calaveras FRS 10, the 100-year, 10-day Principal Spillway Hydrograph (PSH) storm event will not overtop the auxiliary spillway crest.

The design to meet this criteria required determining event flow rates for the watersheds above and immediately below the structure. This was accomplished by the use of a TR-20 model. The dam hydraulic and hydrologic site computer analysis program SITES was used to develop storage-discharge relationships, set the top of dam, auxiliary and principal spillway crests, and

conduit dimensions for the FRS No. 10 rehabilitation alternatives. The two alternatives studied were the 6-hour PMP with a rainfall of 30.8 inches and the 24-hour rainfall, 5 point distribution of 45.0 inches. The 6-hour storm proved to be the most conservative design of the stability and integrity of the dam and auxiliary spillway. Simplified Dam Breach Routing Procedures (TR-66) were used to develop a breach hydrograph of FRS No. 10. Fair weather conditions were assumed to develop the breach hydrograph. The reservoir pool elevation was static at top of dam with non-storm conditions downstream. Event flow rates from the TR-20 model and the breach hydrograph were used in a HEC-RAS model to define impacts and benefits associated with project alternatives. These models are available as part of the supporting documentation developed for this planning study.

The subtasks performed are summarized as follows:

- Assembly of existing relevant geographic information system (GIS) data into a project database;
- Delineation of FRS No. 10 Watershed
- Estimation of rainfall depths for event and design storms
- Estimation of watershed time of concentration, Tc
- Estimation and calibration of watershed curve numbers
- Estimation of channel loss factors
- Use SITES program to evaluate FRS No. 10 rehabilitation alternatives
- Estimation of flow rates using the computer model TR-20
- Development of FRS No. 10 breach hydrograph
- Estimation of downstream water surface elevations using the computer model HEC-RAS

Engineering:

Engineering planning efforts were completed to meet the following rehabilitation project purposes:

- Maintain present level of flood control benefits.
- Comply with the current performance and safety standards.

The preferred alternative which best meets the purposes and need for the project is rehabilitation of the dam by construction of dam safety modifications developed to address dam safety deficiencies consistent with the dam's high hazard classification. Designed dam safety modifications include raising the top of dam by 3.8 feet and lengthening the dam by about 430 feet, adding a new 42-inch diameter principal spillway and a new impact basin. The earthen auxiliary spillway will be structurally hardened.

Engineering work items completed as part of the development of this planning study include:

- Gathering and reviewing existing site data.
- Identifying problems, opportunities, and concerns.
- Conducting planning studies, including:
    - Analyzing existing data
    - Conducting field investigations to evaluate the condition of existing structures and obtain additional data (e.g., survey and geotechnical data)
    - Developing topographic mapping for the watershed
    - Conducting and assisting engineering, environmental, geologic, hydrologic, hydraulic, social, and economic analyses in accordance with the requirements of NRCS design criteria (e.g., national engineering handbook, technical releases, technical notes, design notes, SITES software, TR20 software)

- Developing design layouts and cost estimates for evaluation of design alternatives including:
    - No Action or Future Without Project
    - Decommission of dam
    - Rehabilitation of dam:
        Raising top of dam
        Increasing principal spillway capacity
        Upgrading auxiliary spillway
- Developing inundation maps for impact comparisons associated with the proposed design modifications.
- Providing public involvement support services, including coordinating with local NRCS offices, site landowners, Sponsors, and the public; preparing presentations to the public; and attending public meetings.
- Preparing a Supplemental Watershed Plan and Environmental Evaluation for the project Sponsors.

Environmental – Wetlands and Fish/Wildlife Habitat:

During the planning process, an evaluation was undertaken to determine what effects or consequences the selected alternatives would have on the environment. NRCS biologists, environmental coordinators and hydraulic engineers conducted multiple field reviews and determined that best professional judgment was appropriate to make fish and wildlife habitat determinations (Economics and Environmental Principles and Guidelines for Water and Related Resources Implementation Studies (P&G) 1983, section 3.4.7d(3)). While technically the Nominal Group method was used, there was no reason to rank the solutions (alternatives) because all planning team members were in agreement on the alternatives, the adverse impacts, and the benefits due to the minor, temporary nature of the impacts.

The sediment pool is currently dry, but the structure will inundate approximately 43 acres when water is at the top of the principal spillway. When water is at the crest of the auxiliary spillway, the detention pool inundates 209 acres. The section of the sediment pool located closest to the dam (19 acres) is classified as a palustrine, unconsolidated bottom, permanently flooded, diked/impounded wetland (PUBHh). The 22-acre section located in the upper end of the sediment pool is classified as a palustrine, unconsolidated shore, temporary flooded, diked/impounded wetland (PUSAh). Located upstream of the sediment pool is a 3.0-acre palustrine, unconsolidated bottom, semipermanently flooded, diked/impounded weland (PUBFh) connected to the sediment pool by 0.05 mile of riverine, intermittent, streambed, temporary flooded wetland (R4SBA). The combined area of the sediment pool wetlands (41 acres) is virtually the same size as the sediment pool at top of riser (43 acres). Since the structure is not currently impounding water, all construction activities will be conducted in the dry with only temporary impacts to wetlands, and when maintenance activities are completed, the pool will be returned to preconstruction conditions with only temporary impacts to the wetlands.

● Increased flows from Alternatives 1 and 2 would flow out of the current swale during minor storm events and would overtop Bernhardt Road, Loop 1604, Kosub Lane, Elmendorf/Lavernia Road, and Stuart Road during a 100-year storm event. These flows could increase erosion downstream of FRS No. 10, add to downstream aggradation, and increase sedimentation in Calaveras Creek,

● Alternatives 1 and 2 would convert the current dry sediment pool to pasture land and a greenbelt area, respectively with an ephemeral swale,

● Even with the 42-inch pipe in Alternative 3, flooding would be the same as present conditions with no induced damages,

● Alternative 3 will have only minor temporary adverse impacts to existing wildlife habitat on the project site, and

●Through conducting field investigations, no threatened or endangered species or suitable habitat for threatened or endangered species is present on the project site. All NRCS personnel involved in the survey agreed there would be effect on a listed species or its habitat.

APPENDIX E

Other Supporting Information

Compliance with NEPA

The Natural Resources Conservation Service (NRCS) published an interim final rule on July 13, 2009, that identified 21 additional categorical exclusions, which are actions that NRCS has determined do not individually or cumulatively have a significant effect on the human environment and, thus, should not require preparation of an environmental assessment (EA) or environmental impact statement (EIS) under the National Environmental Policy Act (NEPA). NRCS' categorical exclusions encompass actions that promote restoration and conservation activities related to past natural or human induced damage, or alteration of floodplains and watershed areas. Following a 60 day comment period and providing responses to comments, Dave White, Chief, Natural Resources Conservation Service, signed the final rule and it became effective February 10, 2010.

This final rule amends the procedures for implementing NEPA at 7 CFR part 650 and will not directly impact the environment. An agency's NEPA procedures are guidance to assist the agency in its fulfillment of responsibilities under NEPA but are not the agency's final determination of what level of NEPA analysis is required for a particular action. The Council for Environmental Quality (CEQ) set forth the requirements for establishing agency NEPA procedures in its regulations at 40 CFR 1505.1 and 1507.3. The CEQ regulations do not require agencies to conduct NEPA analyses or prepare NEPA documentation when establishing their NEPA procedures.

The following four categorical exclusions (Nos. 14, 15, 16, and 17) are part of the 21 categorical exclusions that were recently added to the procedures at 7 CFR part 650 and are available for application to proposed actions described in this document provided that extraordinary circumstances do not exist. Upon completion of the environmental evaluation and in the absence of any extraordinary circumstances as determined through NRCS' EE review process, the preferred alternative will be able to proceed without preparation of an EA or EIS.

CATEGORICAL EXCLUSIONS

(14) Repairing or maintaining principal spillways and appurtenances associated with existing serviceable dams, originally constructed to NRCS standards, in order to meet current safety standards. Work will be confined to the existing footprint of the dam, and no major change in reservoir or downstream operations will result;
(15) Repairing or improving (deepening/widening/armoring) existing auxiliary/emergency spillways associated with dams, originally constructed to NRCS standards, in order to meet current safety standards. Work will be confined to the dam or abutment areas, and no major change in reservoir or downstream operation will result;
(16) Repairing embankment slope failures on structures, originally built to NRCS standards, where the work is confined to the embankment or abutment areas;
(17) Increasing the freeboard (which is the height from the auxiliary (emergency) spillway crest to the top of embankment) of an existing dam or dike, originally built to NRCS standards, by raising the top elevation in order to meet current safety and performance standards. The purpose of the safety standard and associated work is to ensure that during extreme rainfall events, flows are confined to the auxiliary/emergency spillway so that the existing structure is not overtopped

which may result in a catastrophic failure. Elevating the top of the dam will not result in an increase to lake or stream levels. Work will be confined to the existing dam and abutment areas, and no major change in reservoir operations will result. Examples of work may include the addition of fill material such as earth or gravel or placement of parapet walls.