

PA-06-TX-4223-PW-00639(0) <u>P</u>	
Applicant Name: WILLIAMSON (COUNTY)	Application Title: WIL004C - San Gabriel Road Dam Failure
Period of Performance Start: 05-29-2015	Period of Performance End: 11-29-2016

Bundle Reference # (Amendment #)	Date Awarded

Subgrant Application - FEMA Form 90-91

Note: The Effective Cost Share for this application is 75%

FEDERAL EMERGENCY MANAGEMENT AGENCY PROJECT WORKSHEET						
DISASTER			PROJECT NO.	PA ID NO.	DATE	CATEGORY
FEMA	4223	- DR -TX	WIL004C	491-99491-00	11-17-2015	C
APPLICANT: WILLIAMSON (COUNTY)					WORK COMPLETE AS OF: 10-12-2015 : 0 %	
Site 1 of 1						
DAMAGED FACILITY: San Gabriel Ranch Lake Dam Embankment				COUNTY: Williamson		
LOCATION: Current Version: The Site is approximately (125) feet southeast from the Intersection of San Gabriel Ranch Road and Remuda Drive. The Road is situated on top of the San Gabriel River Lake Dam Embankment, and is just north of the original location of the Lackey Creek.					LATITUDE: 30.719257	LONGITUDE: -97.907907
DAMAGE DESCRIPTION AND DIMENSIONS: Current Version: Due to the heavy continuous rains and subsequent flooding as a result of the Incident Storm, the Incident Period of May 4 to June 22, 2015, the Applicant, Williamson County, sustained damages to facilities throughout its jurisdiction, including this two lane bituminous surfaced roadway (17) foot wide by approximately (101) foot long Roadway/Dam Facility on San Gabriel Ranch Road in Liberty Hill, Texas (GPS: 30.719257, -97.907907), that sustained wash-out damages of the roadway shoulder/dam support system. This Facility was originally built as a combination of the re-alignment of the Lackey Creek and the earthen dam to retain storm water during heavy rains and to carry the roadway known as San Gabriel Ranch Road: the Facility was in poor condition. The northeastern side of the Facility, which is the "down-stream" side, consisted of a concrete slab "spill-way" of approximately (6) feet wide adjacent to the (17) foot wide roadway which was supported on compacted level at (-3.5) feet below the roadway surface and resting on large rocks and soil down to the base of the stream to a level of approximately (-13.5) feet below the roadway surface. To carry the normal flow of Lackey Creek, a single (48) inch diameter RCP was installed at the lower level of the earthen embankment (but not within the damaged facility area). Additionally, (2) storm-water RCP emergency overflow culverts (30) inches in diameter run across the top of the roadway/dam approximately (4) to (6) inches below the road surface and terminate on this northeast side of the dam. At the base of the earthen embankment, a Rip-Rap Rock "toe" of approximately (6) feet by (8) feet by (101) linear feet was installed. Contained within the earthen embankment were (3) public utility conduits/pipes buried in a trench below the surface of the roadway. It should be noted that this Facility has no vehicular or pedestrian traffic protection controls such as curbs, sidewalks or guard rails. The flooding from the Incident Storm caused a dam retention system to overflow and send a large flow of water to run over top of the roadway surface/dam support system which washed out an initial area of approximately (75) linear feet along the shoulder: the continued flooding caused an increase in damages in the length of the shoulder to approximately (101) feet in length as the soils on either end became exposed to further erosion from the flooding and excessive amounts of storm water overflow. The damages consisted of the following: (see Sketch of Damages): 1). the (2) inch thick bituminous roadway surface of approximately (17) feet by (275) feet in length or						

(4,675) square feet or (519.50) square yards was damaged;

2. the top of the embankment adjacent to the roadway surface consisting of a concrete "slab" spillway of approximately (6) inches thick by (6) feet wide by (3.5) feet deep by (101) feet in length with a (7) foot face on an approximate angle/slope of 2.5:1 or (7) by (101) or (707) square feet by (0.5) feet thick or (13.09) cubic yards, was undermined and damaged;

3. The embankment soil support system consisted of an approximate (6) foot by (8) foot by (101) linear foot Rip-Rap Rock "toe" at the base of the embankment or (180) cubic yards was destroyed;

4. the embankment system, which at the time of the disaster was approximately (14) feet by (101) feet by (13.5) feet deep or (707) cubic yards consisting of large rocks and soil, Sustained damages to approximately (66) percent of the (707) cubic yards or (466) cubic yards were washed away and destroyed, leaving (241) cubic yards in-place. However, according to the Applicant the original bank* was designed and constructed as a sloping earthen bank approximate dimensions of (17) feet high by (42.5) feet wide by (101) feet in length with a slope of a minimum (2.5:1) which totaled (1,351.35) cubic yards less (180) cubic yards of Rip-Rap Rock Toe, or (1,171.35) cubic yards, was in-place as designed. With (241) cubic yards still remaining, then (930.35) cubic yards of soil, consisting of (867.68) cubic yards of compacted fill soil and (62.66) cubic yards of top soil and seed, was destroyed. The sloped face of seeding of (101) feet by (29) feet along the sloping face or (325.44) square yards was destroyed;

5. The (2) each (30) inch diameter by (8) linear feet each emergency RCP culverts were destroyed;

6. The (10) foot wide by (23) foot long by (1.5) feet deep or (12.77) cubic yards of Rip-Rap Rock embankment protection at the (2) - (30) inch RCP culverts was destroyed;

7. the public service lines running along the northeast edge of the roadway surface and concealed in this dam support system consisting of (101) linear feet of:
 (1) public water pipe; and (2) public telephone conduits, were damaged.

(* For Pre-Storm Design information, refer to:
 1. Exhibit No 03 - Cross Section Earth Dam Detail and
 2. Exhibit No 04 - How to Build Small Dams

End of Damage Description and Dimensions

SCOPE OF WORK:

Current Version:
 Work Completed to Restore the Facility to Pre-Storm Condition: This roadway was closed to traffic.
 Work to be Completed to Restore the Facility to Pre-Storm Condition:
 Prepare the site for all necessary repairs: removing the site area of damaged materials including concrete, roadway-surface base materials, displaced soil and rocks; and protective measures;

1. Replace (519.44) square yards per (1) inch thickness by (2) inch thick or (1,038.88) square yards of bituminous roadway surface that was damaged;

2. Replace the (13.09) cubic yards of the concrete "slab" on top of the shoulder that was damaged;

3. Replace the embankment soil support system of Rip-Rap Rock "toe" at the base of the embankment or (180) cubic yards that was destroyed;

4. Replace the (930.35) cubic yards of the shoulder support system consisting of (867.68) cubic yards of compacted fill soil, (62.66) cubic yards of top soil, and (325.44) square yards of seed that was destroyed;

5. Replace the (2) each (30) inch diameter by (8) linear feet each emergency RCP culvert extensions that were destroyed;

6. Replace the (12.77) cubic yards of Rip-Rap Rock embankment protection at the (2) RCP culverts that was destroyed;

7. Remove and Replace as required the (101) linear feet each of the public service lines consisting of:
 (1) public water pipe by (101) linear feet or (101) linear feet; and
 (2) public telephone conduits by (101) linear feet each or (202) linear feet
 For a total of (303) linear feet that were damaged;

8. Prepare as required to re-open the roadway to all traffic.

Refer to:
 1. Exhibit No 01 - Schematic Section Thru Dam Post Storm;
 2. Exhibit No 02 - Schematic Section thru Dam Original Design Repairs;
 3. Exhibit No 03 - Cross Section Earth Dam Detail and
 4. Exhibit No 04 - How to Build Small Dams

End of Scope of Work

Does the Scope of Work change the pre-disaster conditions at the site? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Special Considerations included? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hazard Mitigation proposal included? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is there insurance coverage on this facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

PROJECT COST					
ITEM	CODE	NARRATIVE	QUANTITY/UNIT	UNIT PRICE	COST

*** Version 0 ***					
Work Completed					
1	9999	NONE	1/LS	\$ 0.00	\$ 0.00
Work To Be Completed					
2	9999	Embankment Repairs (excluding Road Surface)	1/LS	\$ 67,611.59	\$ 67,611.59
3	9999	Repairs to Road Surface (only)	1/LS	\$ 13,252.17	\$ 13,252.17
Direct Subgrantee Admin Cost					
4	9901	Direct Administrative Costs (Subgrantee)	1/LS	\$ 2,596.39	\$ 2,596.39
5	0909	Hazard Mitigation Proposal	1/LS	\$ 25,733.36	\$ 25,733.36
<i>FCR</i>				TOTAL COST	\$ 109,193.51
PREPARED BY PATRICK J MCFADDEN			TITLE Technical Specialist	SIGNATURE <i>Patrick J McFadden</i>	
APPLICANT REP. Dan Gattis			TITLE County Judge	SIGNATURE <i>Dan Gattis</i>	