

OPERATION AND MAINTENANCE AGREEMENT
EAST FORK ABOVE LAVON WATERSHED
COLLIN COUNTY, TEXAS
FOR REHABILITATED FLOODWATER RETARDING STRUCTURE 2A

This Agreement made on _____, 2014 is between the United States Department of Agriculture, Natural Resources Conservation Service, hereinafter referred to as NRCS, and the following organizations, hereinafter referred to as the Sponsors:

- The City of McKinney (City)
- Collin County Soil and Water Conservation District (District)

The Sponsors and NRCS agree to carry out the terms and conditions of this agreement for the operation and maintenance (O&M) of the following rehabilitated Floodwater Retarding Structures (FRS) in the East Fork Above Lavon Watershed in Collin County, Texas.

- FRS No. 2A, constructed on Stover Creek, about two miles from its confluence with Wilson Creek and about 1.5 miles east of the intersection of FM 2478 (Custer Road) and County Road 123/Bloomdale Road, at Latitude, decimal degree 33.25 and Longitude, decimal degree -96.71.

FRS No. 2A was originally constructed as part of the East Fork Above Lavon Watershed Plan that was approved September 12, 1956 under the authority of Public Law 78-534, and will be rehabilitated under the authority of the Small Watershed Rehabilitation Amendments of 2000 (Section 313, Public Law 106-472).

This O&M agreement supersedes the original O&M agreement executed in 1959 for the FRS described above. This agreement takes effect and the Sponsors responsibility for O&M begins when the rehabilitation of the structure is determined complete by NRCS. This responsibility shall include the replacement of any component of the structures as needed.

This agreement shall remain in effect until the structure identified in this agreement has reached the end of program life. The program life of FRS No. 2A is defined as 50 years from the date of completion of rehabilitation.

I. GENERAL

A. The Sponsors shall:

1. Operate, maintain and replace the structure in accordance with this O&M Agreement, the watershed program requirements, and all applicable Federal, State, local, and tribal laws and regulations;
2. Notify NRCS of any proposed agreement with other parties for the operation or maintenance of all or any part of the rehabilitated structure, and provide NRCS

with a copy of the executed agreement. Such agreements will not negate the sponsors' responsibilities as stated in this agreement;

3. Comply with the PROPERTY MANAGEMENT STANDARDS set forth in the NRCS Contracts, Grants, and Cooperative Agreements Manual, the National Watershed Manual, and all applicable Federal, State, local, and tribal laws and regulations;
4. Consider air and water quality, sediment control, cultural resources, and other environmental concerns in the operation and maintenance of the rehabilitated structures;
5. Obtain NRCS approval prior to altering or modifying the structure. Plans, designs, and specifications for proposed modifications shall be submitted to NRCS for concurrence prior to beginning work;
6. Prohibit the installation of any structure or facility that will interfere with the operation or maintenance of the rehabilitated structure;
7. Request NRCS assistance as needed for training, site-specific technical assistance, and O&M inspections of rehabilitated structure;
8. Notify authorities of emergency situations that may result in risks to public health and safety; and
9. Provide NRCS personnel or its agents the right of free access to the rehabilitated structure at any reasonable time for the purpose of carrying out the terms of the agreement.

B. NRCS shall:

1. Upon request of the sponsor(s), and to the extent that its resources permit, provide consultative assistance in the inspection, operation, maintenance and replacement of the rehabilitated structure.

II. OPERATION

Operation includes the administration, management, and performance of non-maintenance activities needed to keep a practice safe and functioning as planned. This includes being cognizant of changes in watershed conditions, both upstream and downstream from completed practices, which may alter the overall function of the project, so appropriate actions can be taken promptly.

A. The District Shall:

1. Assist the City in the operation of the rehabilitated structure;

2. Assist the City in performing annual inspections of the rehabilitated structure; and
3. Maintain in a centralized location a record of all inspections and significant actions taken with respect to operation. NRCS may inspect these records at any reasonable time during the term of the agreement.

B. The City Shall:

1. Be responsible for the operation of rehabilitated FRS No. 2A with assistance from the District;
2. Be responsible for scheduling and conducting annual inspections of rehabilitated structure with assistance from the District;
3. Perform the inspection of the rehabilitated structure as specified in the O&M plan with assistance from the District;
4. Maintain in a centralized location a record of all inspections and significant actions taken with respect to operation. NRCS may inspect these records at any reasonable time during the term of the agreement; and
5. Assure that an Emergency Action Plan is prepared prior to commencing rehabilitation activities for high hazard class (c) structures and that the plan is reviewed annually and updated as needed.

III. MAINTENANCE

Maintenance includes the routine work required to prevent deterioration of practices, to repair damage, or to replace practice components. It includes recurring needs, such as repainting, fertilizing and managing vegetation for the dam. Maintenance also includes repairing damages to completed practices caused by normal deterioration, drought, vandalism, or flooding from other than a catastrophic event.

A. The City Shall:

1. Be responsible for performing or having performed all needed maintenance of rehabilitated FRS No. 2A as described in the O&M Plan (Section IV);
2. Be responsible for the replacement of structure components that have a design life of less duration than the program life of the structure as specified in the O&M Plan;
3. Develop a financial plan to assure the District and NRCS that adequate funding will be available to cover all financial obligations of the O&M Agreement (See Section VII);

4. Complete all maintenance, repair, or replacement activities within a reasonable time after the identification of such need;
5. Maintain in a centralized location a record of all inspections and significant actions taken with respect to maintenance. NRCS may inspect these records at any reasonable time during the term of the agreement; and
6. Provide a report of each inspection to others as outlined in the O&M plan.

B. The District Shall:

1. Assist the City in developing a reasonable time schedule for completing maintenance, repairs, and replacement of components to rehabilitated structure; and
2. Maintain in a centralized location a record of all inspections and significant actions taken with respect to maintenance. NRCS may inspect these records at any reasonable time during the term of the agreement.

IV. OPERATION AND MAINTENANCE PLAN (O & M PLAN)

A. General

This O&M plan defines responsibilities for inspecting, operating, and maintaining rehabilitated FRS No. 2A.

Rehabilitated FRS No.2A is located on privately owned land within the city limits of the City of McKinney and is constructed on Stover Creek, approximately two miles from its confluence with Wilson Creek, a tributary of the East Fork of the Trinity River. FRS No. 2A was designed and originally constructed in 1958 as a low hazard dam but recently has been reclassified as a high hazard dam. FRS No. 2A is being rehabilitated under the authority of the Small Watershed Rehabilitation Amendments of 2000 (Section 313, Public Law 106-472). The dam is constructed as a homogenous earth fill embankment with a vegetated auxiliary spillway underlain with an articulating concrete block (ACB) mat. The rehabilitated structure is approximately 1,600 feet long and has a maximum height of 57 feet. FRS No. 2A has a single principal spillway inlet consisting of a standard drop inlet, with a 54 inch concrete conduit outlet pipe. The principal spillway discharges into an impact basin and outlet channel. The auxiliary spillway has a bottom width of 352 feet which is vegetated with Bermuda grass, excluding the crest section. In this area the ACB remains exposed and the cells are filled with pea gravel. As-Built plans for Rehabilitated FRS No. 2A should be utilized to identify specific components for which operation and maintenance are required.

B. Operation:

The Collin County Soil and Water Conservation District and the City of McKinney will be responsible for all operation activities as specified in Section II of this agreement.

C. Maintenance:

It is the responsibility of the City of McKinney to ensure that the following operation and maintenance items, as a minimum, are inspected and addressed annually. The Collin County Soil and Water Conservation District will assist in the coordination of O&M activities and will participate in the inspections.

(1) **Vegetation** - The dam, earthen auxiliary spillway, and earthen dikes will be established to a permanent grass cover. Reshape, if necessary, and reseed all bare areas or areas of poor stand, including areas damaged by erosion, freezing, or drought using the original seed mixture. Lime, fertilize and perform weed control as necessary to maintain a vigorous stand.

(2) **Trees, Brush, Woody Growth** - Control weeds, brush, and woody vegetation on the dam and auxiliary spillway. Woody vegetation, trees, and large shrubs on the embankment, in and around the impact basin, in the outlet channel flow area, and within 10 feet of all concrete structures shall be controlled by spraying or removal. This vegetation shall be killed or removed before it reaches 1 foot in height, or 1 inch in diameter (stalks of woody growth). All pesticide application shall be done in accordance with applicable Federal, State, local, and tribal laws and regulations.

(3) **Debris Removal** - The auxiliary spillway, principal spillway, impact basin and both slopes of the dam shall be kept clear of trees, logs, debris, trash, and other obstacles, which will interfere with the proper functioning of the structure.

(4) **Embankment and Earth Fill Areas** - All soil removed from the embankment, auxiliary spillway, and other earthen appurtenances by erosion, vandalism, rodents, vehicles or other causes shall be replaced to the original slopes and grades. Replacement of earth fill when making repairs shall be accomplished in a satisfactory, workman like manner. The entire length of the dam (crown, berms and slopes) shall be visually inspected for abnormal cracking (longitudinal and transverse), for excessive or irregular settlements, for slippage of slopes and rilling. If and when encountered, the dimensions and locations of major eroded areas shall be recorded and promptly submitted to NRCS for evaluation and recommendations for repair. Downstream slopes of embankment and area immediately downstream of the embankment will be inspected for evidence of excessive seepage pressure, i.e. sand boils or seepage waters that are "murky". Any evidence of seepage should be cause for notification of dam safety officials.

(5) **Metalwork** - All metalwork shall be visually inspected and repaired or replaced if it is damaged or improperly removed. All painted surfaces shall be cleaned and painted when rust starts to appear or the paint system shows signs of peeling or heavy oxidation. Trash racks should be checked for loose or missing attachment bolts.

(6) **Concrete** - Concrete shall be visually inspected for deterioration of concrete surfaces, spalls, cracks, misalignment, or structural breakage. Spalls deeper than 1-inch and cracks less than 0.25 inch shall be repaired with cement mortar and sealing compound respectively. Cracks greater than 0.25 inch, misalignments of more than 0.5 inch, and any structural breakage shall be measured and repaired in accordance with NRCS recommendations. Exposed joints shall be visually inspected. Any joints where the sealing compound or joint filler is missing shall be repaired with materials similar to that used in the original construction. Any joints found to have opened

more than 1-inch shall be measured and promptly repaired in accordance with NRCS recommendations.

(7) **Fences** - Inspect all fences and gates at least once each year. Replace posts, wires, fasteners and missing or damaged components as needed.

(8) **Slide gates/Gate valves** - The principal spillway slide gate/gate valve assembly will be kept in working order. As a minimum, each gate shall be operated at each annual inspection. Excessive force shall not be used when operating gates. Repair or replace all nonfunctional hardware such as stem guides, anchors, and anchor bolts. Maintain protective coatings and lubricate as needed. The gate is to operate easily.

(9) **Auxiliary Spillway** - The auxiliary spillway shall be visually inspected both annually and after severe storm events. If auxiliary spillway flows occur and damage occurs, the dimensions and locations of damaged areas shall be recorded and repaired in the manner as described above for the embankment and earth fill areas. Inspect for erosion of earthen surfaces in and adjacent to the spillway. Inspect for adequacy of protective vegetative cover. Inspect articulating concrete block structure for soil cover and adequacy of protective vegetative cover. Excessive erosion in the protective cover, displacement or damage to articulating concrete blocks or other unusual irregularities to the auxiliary spillway structure will be reported to the dam safety officials.

(10) **Rock Riprap** - Rock riprap that becomes dislodged shall be replaced or moved back into its original location.

(11) **Impact Basin/Outlet Channel** – Inspect the impact basin for deterioration of concrete surfaces or damage to fencing around basin. The foundation drain outlets shall be kept open and free of debris and the rodent guards maintained in place. Foundation drains should be monitored for excessive seepage or for a lack of seepage as an indication that internal problems may exist within the drainage system. Inspect for displaced or deteriorated rock riprap. The water surface in the outlet channel shall be monitored during periods of full pipe discharge. When the water surface in the channel rises to within 6 inches of the pipe conduit invert elevation during flow periods, the outlet channel shall be cleared of trees, silt, or other debris, which caused the rise in water surface.

(12) **Upstream Wave Protection** – Inspect for deterioration or displacement of the earth embankment rock riprap, and wave berm and restore to original slopes and grades. Remove excessive accumulation of debris and remove undesirable vegetation.

(13) **Access Road** - Maintain the access road to the dam in drivable condition. Remove any obstructions to the passage of vehicles and add fill as needed to prevent ponding of water.

(14) **Easements/landrights** – The terms and conditions of all easements and landrights documents shall be checked for potential violations.

(15) **Replacement of Components** - The following items are not expected to retain operational capability for the program life of the FRS and are anticipated to be replaced. Timing for replacement should be evaluated during annual O&M inspections.

- . • trash racks;
- . • slide gate hardware (stems, stem guides, etc.);
- . • fences/gates; and

- rodent guards.

A schedule for corrective actions shall be developed for completion of identified maintenance work in a timely manner.

D. O&M Inspections:

Four types of inspections are required to ensure that the flood control and water supply structure functions as designed.

(1) **Monitoring** of the dam will be accomplished to identify and report abnormal conditions between scheduled inspections. Trained personnel of the City of McKinney will perform monitoring while carrying out their routine duties.

Irregularities are to be reported to the dam safety officials.

(2) **Special** inspections will be conducted immediately following severe storms, earthquakes, initial filling of the reservoir, vandalism, and other significant events.

(3) **Annual** inspections will be accomplished according to an approved schedule by a qualified trained individual using an inspection checklist approved by NRCS. For the first 3 years after installation of the structure, an NRCS engineer shall participate in the annual inspections.

(4) **Formal** inspections shall be conducted at least once every 5 years. These inspections are to be accomplished under the leadership of a registered professional engineer licensed in the State with assistance from other specialists as needed. The State Dam Safety Agency will be invited to participate in this inspection. The purpose of the inspection is to determine the safety and structural integrity of the dam, and to determine whether the dam meets the current NRCS and State Dam Safety Agency criteria.

All personnel involved in conducting inspections and performing O&M activities shall be trained and equipped utilizing NRCS criteria. Upon request, NRCS may assist in training sponsor employees. NRCS shall accompany the sponsor(s) on inspections for the first 3 years after completion of the structure. After the first three annual inspections, NRCS may continue to provide assistance to the sponsors during subsequent O&M inspections, if requested by the sponsors and if NRCS resources are available.

E. Records:

The Collin County Soil and Water Conservation District and the City of McKinney shall maintain the following records in a permanent file at their respective office: a record of all significant actions taken; the cost of performance and completion dates; as-built drawings; permits; and related material. Copies of all inspection reports shall be provided to NRCS.

F. Hazard Concerns:

FRS Nos. 2A was originally constructed in a rural environment to design specifications for low hazard (a) dams. FRS No. 2A has been re-classified as a high hazard class (c) dam by NRCS and the State Dam Safety Agency. The specific

hazard concerns associated with FRS No. 2A is the potential loss of life and significant property damage should the dam fail. At risk are downstream residents as well as motorists who use County Road 123 (Bloomdale Road) and County Road 124 below the dam.

The Emergency Action Plan (EAP) for these rehabilitated FRS outlines a sequential list of contingencies to be followed in the event the structures are subject to imminent failure or periods of high water flow. The City of McKinney is responsible for ensuring that this plan is reviewed and updated annually. Copies of the updated plan shall be provided to NRCS and to the Director, State Dam Safety Office.

V. INSPECTIONS AND REPORTS

1. The Sponsors shall inspect the rehabilitated structures as specified in the O&M plan(s).
2. The NRCS may inspect these structures at any reasonable time during the time covered by this agreement.
3. A written report of each inspection shall be prepared. A copy of each report shall be provided by the inspecting sponsor to the other sponsors and the NRCS District Conservationist in a timely manner following the inspection. The report shall describe the conditions found and list corrective actions needed with a time frame to complete each action.
4. Any unusual circumstances observed between annual inspections shall be reported immediately to the sponsors and the local NRCS office.

VI. TIME AND RESPONSIBILITY

The Sponsor's responsibility for operation and maintenance begins when a rehabilitated structure is determined complete by NRCS. This responsibility shall include the replacement of any component of the rehabilitated structure as needed. This agreement shall remain in effect until the structure identified in this agreement has reached the end of program life. The program life of FRS No. 2A is defined as 50 years from the date of completion of rehabilitation.

VII. FINANCIAL PLAN

1. Assurances: The City represents to and assures the NRCS that it has sufficient financial resources to fulfill its obligations under this O&M agreement for the full term of this agreement.
2. Source of Funding/Provision for a Reserve or Sinking Fund: The source of

funding to pay for its obligations under this agreement will come from City tax revenues. The City will establish a reserve or sinking fund in which to place tax revenues which have been levied and collected to pay for its obligations under this agreement.

3. Estimates of Costs: The estimated costs for operation and maintenance only of rehabilitated FRS No. 2A is estimated to be about \$3,500 annually based upon 2014 prices and costs. In the event of the freeboard hydrograph storm event (30.1 inches of rain in 6 hours) damage to the articulating concrete block structure in auxiliary spillway should be expected. The damage will likely occur on the lower third of the auxiliary spillway and is thought to include: gully repair, resetting or replacement of ACB mats, topsoiling and vegetation establishment.
4. Periodic Updating of Costs: The estimated costs will be updated every five years upon request by the City and concurrence by the NRCS.
5. Compliance with State Law Requirements: In entering into this agreement and agreeing to the terms, conditions, requirements and obligations contained therein and imposed upon it, the City has complied with the requirements of Texas law and in particular Art. XI, Sections 5 and 7 of the Texas Constitution. With regard to the financial obligations incurred by the City under this agreement (and, in particular, the obligations to operate and maintain the structures), in order to pay for such financial obligations when it becomes necessary to do so and in order to comply with the requirements of Art. XI, Sections 5 and 7 of the Texas Constitution, the City has passed an Ordinance dated June 20, 2006 agreeing to compute and ascertain a tax rate and to levy, assess and collect a tax sufficient to satisfy these financial obligations in full and agrees to create a sinking fund where this tax revenue will be placed to be used to satisfy the obligations imposed upon the City by this agreement.

VIII. VIOLATIONS

This Agreement is a legally binding contract which shall be enforced as necessary to protect the interest of the Federal government and the general public. It is understood that if the sponsor(s) fail to accomplish the provisions of the O&M plan(s), they will be required to reimburse the federal government for the financial assistance provided by NRCS. The Federal government shall have the right to take any further actions it deems necessary.

VIII. REVIEW AND REVISION OF THIS AGREEMENT

This agreement and associated O&M Plan(s) shall be reviewed at least once every 5 years by the sponsors and NRCS. This O&M Agreement and associated O&M Plan(s) may be revised by mutual consent of both sponsors and NRCS.

Collin County Soil and Water Conservation District

By: _____

Title: _____

This action was authorized at an official meeting of the Sponsor named immediately above on _____.

Attest: _____ Title: _____

City of McKinney

By: _____ Title: _____

This action was authorized at an official meeting of the Sponsor named immediately above on _____.

Attest: _____ Title: _____

USDA, Natural Resources Conservation Service

By: _____

Title: **State Conservationist**

Date: _____