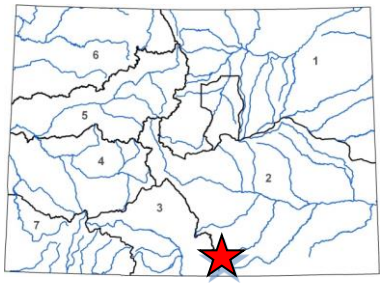
COLORADO
Colorado Water Conservation Board

Spring Creek Fire Flood Mitigation 2020
Huerfano County Water Conservancy District

January 2020 Board Meeting

Colorado Watershed Restoration Program Application



LOCATION	
County/Counties:	Huerfano
Drainage Basin:	Arkansas

DETAILS	
Total Project Cost:	$1,337,132
Colorado Watershed Restoration Program Request:	$668,566
Recommended amount:	$500,000
Other CWCB Funding:	$0
Other Funding Amount:	$668,566
Applicant Match:	$0
Project Type(s): Construction	
Project Category: Flood Hazard Mitigation	
Measurable Result: Project prioritization, project implementation, project monitoring.	

Huerfano County Water Conservancy District (District) is a Title 37 district formed by decree of the District Court in 1971 under the Water Conservancy Act and governed by a diverse five-person board, local residents appointed by that court. The District has a rich history of accomplishment and successful collaboration within the Cucharas watershed, much of it with CWCB funding, including: the Upper Cucharas Pre-Fire Assessment, the Cucharas Basin Storage Collaborative and its studies and projects, the Cucharas/Huerfano River Infrastructure Project (river gages and observation wells), the Upper Cucharas Flood Warning Gages (state-of-the art iridium gages below the burn scar and real-time notifications via satellite), the Cucharas/Huerfano Headgate Restoration Project (diversion structures below the burn scar subject to damage or destruction by post-fire flooding) and, the conduct of the first three phases of Spring Creek flood mitigation during 2019.

This proposal is part of a multi-year collaborative recovery program in Huerfano County within and below the 2018 Spring Creek Fire burn scar in the Cucharas River watershed. The focus is the greater Middle Creek drainage upstream of the Town of La Veta. It includes the minor and principal tributaries of Middle Creek, Indian Creek and South Abeyta Creek. The program participants are Huerfano County and the applicant, the Huerfano County Water Conservancy District (District). Through the use of NRCS (EWP) funding, the County has focused on private lands throughout the greater Middle Creek watershed with current emphasis on South Abeyta Creek. On the other hand, the District, using CWCB funding has concentrated on public and private lands not slated for EWP funding. During the upcoming second year of the program addressed by this proposal, the County will focus its efforts on the South Abeyta Creek watershed. The District and Arkansas River Watershed Collaborative (ARWC), the District's consultant, will work along the mainstems and in the watersheds of the various side tributaries of Middle Creek and Indian Creek.

This project builds on the topographic survey, hydraulic modeling and geomorphic assessment currently in progress. A process of stakeholder engagement (Task1) will lead to preferred solutions to threats from flooding to life, safety and property. Concomitantly, those solutions (including their water right implications) will be evaluated as part of that engagement. Stakeholders will also address fluvial opportunities, non-structural approaches and post-fire techniques. The group will prioritize solutions based on these investigations. Within budgetary constraints, the highest priority solutions and projects will be implemented (Tasks 2 & 3). Finally, monitoring and evaluation of project implementation will be conducted over three years to provide essential data on post-fire techniques and treatments (Task 5).

COLORADO WATERSHED RESTORATION PROGRAM
SPRING CREEK FIRE FLOOD MITIGATION 2020
Updated
PROJECT PROPOSAL SUMMARY SHEET

Project Title:	Spring Creek Fire Flood Mitigation 2020
Project Location:	Huerfano County Colorado (map attached) 37°30'43" N, 105°02'12" W
Grant Type:	Watershed/Stream Restoration and Flood Mitigation
Grant Request Amount:	$668,566
Cash Match Funding:	$668,566 (Huerfano County anticipated EWP payments, 2020)
In-Kind Match Funding:	Volunteer work is anticipated but not expected to be used as match
Project Sponsors:	Huerfano County Water Conservancy District (fiscal agent) Huerfano County, Colorado, Board of County Commissioners
Contact person:	Carol Dunn, HCWCD Administrator PO Box 442, La Veta, Colorado 81055 719-742-5581; hcwcdistrict@gmail.com

Project Description:

This proposal is part of a multi-year collaborative recovery program in Huerfano County within and below the 2018 Spring Creek Fire burn scar in the Cucharas River watershed. The focus is the greater Middle Creek drainage upstream of the Town of La Veta. It includes the minor and principal tributaries of Middle Creek, Indian Creek and South Abeyta Creek (Map, Attach. B).

The program participants are Huerfano County and the applicant, the Huerfano County Water Conservancy District (District). Through the use of NRCS (EWP) funding, the County has focused on private lands throughout the greater Middle Creek watershed with current emphasis on South Abeyta Creek. On the other hand, the District, using CWCB (WRP) funding has concentrated on public and private lands not slated for EWP funding. During the upcoming second year of the program addressed by this proposal, the County will focus its efforts on the South Abeyta Creek watershed. The District and Arkansas River Watershed Collaborative (ARWC), the District's consultant, will work along the mainstems and in the watersheds of the various side tributaries of Middle Creek and Indian Creek.

This project builds on the topographic survey, hydraulic modeling and geomorphic assessment conducted in 2019 Phase 3 of this ongoing program. A process of stakeholder engagement (Task 1) will lead to preferred solutions to threats from flooding to life, safety and property. Concomitantly, those solutions (including their water right implications) will be evaluated as part of that engagement. Stakeholders will also address fluvial opportunities, non-structural approaches and post-fire techniques. The group will prioritize solutions based on these investigations. Within budgetary constraints, the highest priority solutions and projects will be implemented (Tasks 2 & 3). Finally, monitoring and evaluation of project implementation will be conducted over three years to provide essential data on post-fire techniques and treatments (Task 5).

COLORADO WATERSHED RESTORATION PROGRAM
SPRING CREEK FIRE FLOOD MITIGATION 2020

UPDATED APPLICATION

This application seeks funding for the second year of the Spring Creek Fire Flood Mitigation Project in Huerfano County's Cucharas basin. Within the burn scar, the proposal will improve selection of projects designed to continue the restoration and protection of ecological processes that connect land and water while protecting life and property from post-fire flood hazards.

Applicant Qualifications

The lead project sponsor and applicant, Huerfano County Water Conservancy District (District), is a Title 37 district formed by decree of the District Court in 1971 under the Water Conservancy Act and governed by a diverse five-person board, local residents appointed by that court. The District and its projects have long enjoyed widespread support within the County. For example, in 2012 voters approved a dramatic increase in the District's mill levy (from 0.128 to 2.128 mills), and in 2013 the District was de-Bruced. At a recent "Huerfano Water Day" nearly 100 residents attended a day-long program reporting on District activities and projects. More information on the District and its activities can be found on its website, https://www.hcwcd.net/.

The other sponsor of the project is Huerfano County itself, whose leadership and staff consistently support District projects. The County has closely collaborated with the District in fire mitigation and recovery, as well as post-fire flood mitigation – both immediately after the Spring Creek Fire in 2018 and during the resulting work in 2019, *i.e.* Phases 1-3 of this project, financed by CWCB and NRCS (EWP). The County's cash contribution of $668,566 is secured. It is comprised of the County's anticipated and authorized expenditures of NRCS (EWP) monies in the greater Middle Creek and Indian Creek watersheds during CY 2020. (Attachment C)

The consultant, ARWC (Arkansas River Watershed Collaborative), is an arm of the Arkansas Basin Roundtable and a § 501(c)(3) nonprofit corporation. Its personnel have many years of experience in fire recovery and flood mitigation. ARWC was chosen as the original consultant in this project, beginning in 2019, because of its subject matter qualifications and experience, its intimate familiarity with the watershed (its local team foreman is a rancher in the watershed), and its below-market hourly rates which are roughly half those of other qualified consultants.

Other "stakeholders" in this project include ranchers and residents within the watershed, as well as outdoor recreationists who regularly visit it – hunters, fishermen, campers, and hikers. Others who are deeply interested reside below the burn scar and are subjected to flooding danger (including debris and sediment flows), as are downstream diverters (municipal and agricultural) who depend on the flow of Middle Creek to provide an adequate and clean source of water. Those stakeholders have been actively involved in

Phases 1–3 of this project (2019), as they will be during the next Phase (2020). They will be part of the stakeholder group described in Task 1 of the Scope of Work.

A letter of support from its chair has been authorized by the Arkansas Basin Roundtable.

Organizational Capability

History of applicant's accomplishments in the watershed.

The District has a rich history of accomplishment and successful collaboration within the Cucharas watershed, much of it with CWCB funding, including: the Upper Cucharas Pre-Fire Assessment, the Cucharas Basin Storage Collaborative and its studies and projects, the Cucharas/Huerfano River Infrastructure Project (river gages and observation wells), the Upper Cucharas Flood Warning Gages (state-of-the art iridium gages below the burn scar and real-time notifications via satellite), the Cucharas/Huerfano Headgate Restoration Project (diversion structures below the burn scar subject to damage or destruction by post-fire flooding) and, of course, the conduct of the first three phases of this project during 2019.

In those and related collaborations, the District has successfully worked with: Cucharas Sanitation & Water District, Huerfano County, City of Walsenburg, Town of La Veta, Purgatoire River Water Conservancy District, Colorado Division of Water Resources, Upper Huerfano Conservation District, NRCS, Maria Lake Grazing Association, La Veta Fire Protection District, Upper Huerfano Fire Protection District, Huerfano County Fire Protection District, and the Huerfano County Federal Mineral Lease District.

Staffing for this project includes:

For the District:

> Carol Dunn has been HCWCD Administrator for over 12 years and is secretary-treasurer of the board. She has provided grant administration, reporting and performed fiscal agent duties for well over a dozen grants. She will be responsible for approximately 900 hours of administrative, fiscal and reporting work for this project grant.
>
> Michael D. (Sandy) White is a member and past president of the District board and continues to be its representative for this project. A retired water lawyer, he is also a member of the County's Planning Commission and is the County representative to the Arkansas Basin Roundtable (and its past chair). With a background including engineering and management, he will actively and knowledgeably monitor project progress and will be the District's point person in coordinating its activities with those of the County.

For the County:

John Galusha is the long-time County Administrator who leads the county staff and reports to the Board of County Commissioners. He will be the point person for the County in coordinating its activities with those of the District.

Brittney Ciarlo has varied experience in enterprise management and is currently the County Recovery Manager in charge of disbursements of EWP funds.

For ARWC:

Chelsey Nutter is ARWC's Executive Director and brings a proven track record of developing, managing, and implementing successful projects throughout the Arkansas River Basin. She routinely brings together multiple and diverse stakeholders to create comprehensive solutions to complex challenges. With a background in business administration, land use, GIS, water administration/water rights, stakeholder engagement, and project management, Chelsey has the skills necessary to manage the ARWC team and produce results.

Theresa Springer is ARWC's "get it done" Recovery Coordinator. She has over 20 years of experience in post-fire flood recovery, bringing experience, knowledge, and a sincere passion for helping communities that have been affected by fire and flood. She arrived in Huerfano County a few days after the Spring Creek Fire and has been a frequent visitor ever since. Theresa has been instrumental in the recovery efforts for the Hayman, Waldo, Hayden, Beulah Hills, and Junkins fires in Colorado.

Carrie Adair, ARWC's GIS Specialist and Community Outreach Coordinator, will be responsible for collecting, storing, and managing the GIS project data. She will be on the ground collecting data, developing project mapping, interpreting maps, and providing education and outreach to project stakeholders and the community. Carrie has over 10 years of experience with GIS and was instrumental in the Waldo Canyon post-wildfire rehabilitation by creating project maps, collecting project data, and participating in community outreach and public meetings.

David Steffan, M.A., is ARWC's on-the-ground crew leader for this project and has been since the beginning of Phase 1. A combat veteran, he ranches on Middle Creek, worked with the U.S. Army Corps of Engineers, acts as Fire Chief of the La Veta Fire Protection District, and was heavily involved in fighting the Spring Creek Fire in the watershed. Significantly, he is a friend or acquaintance of all the stakeholders within and below the Middle Creek watershed. David is an experienced heavy equipment operator, holds a Class A CDL with Haz-Mat and Tanker endorsements and has an S- 212 class A sawyer certification.

Kevin Pilgrim, P.E. (COCO Staff Engineer on loan to ARWC) has a Master's Degree in Civil Engineering with a focus on Stream Restoration and River Mechanics. He is experienced with working on habitat restoration projects on the Rio Grande River in New Mexico and San Joaquin River in California. Kevin worked on a green stormwater infrastructure program for King County in Seattle, WA. Most recently Kevin worked on an Emergency Watershed Protection Program on the Front Range of Colorado following the 2013 floods, focusing on reducing flood risk and building resiliency.

Luke Javernick, Ph.D., Executive Director of River Science, will subcontract with ARWC to conduct the Fluvial Opportunity Assessment (involving the DEM as well as the hydraulic modeling) described in Task 1 and utilized in later tasks to assess opportunities to reduce sediment and debris transport during flood events. Luke has extensive experience in modeling river functions. Two of his published research papers are as follows:

- Javernick L, Brasington J, Caruso B. (2014). Modelling the topography of shallow braided rivers using structure-from motion photogrammetry, 213(0):166–182. doi:10.1016/j.geomorph.2014.01.006
- Javernick, L., Redolfi, M., & Bertoldi, W. (2018). Evaluation of a numerical model's ability to predict bed load transport observed in braided river experiments. *Advances in Water Resources*, *115*, 207–218. https://doi.org/10.1016/j.advwatres.2018.03.012

In addition, as in Phases 1-3 of the project, we anticipate that there will be substantial volunteer time utilized (primarily non-local church youth groups coordinated through Rev. Janine Rose, pastor of the La Veta United Methodist Church) and a significant amount of paid hand work by SWIFT teams.

Proposal Effectiveness

The past year has been a teaching and learning experience. Folks from the District, County and ARWC have been in the watersheds daily. These are classrooms where Mother Nature is a hard and brutal teacher. First she ravished the basin by fire in 2018. Then she scoured it with post-fire floods in 2019. We've been there to see it all and to learn from it.

This proposal's effectiveness stems from that intimate experience, leavened and expanded with ARWC's previous work addressing the effects of other major wildfires and new advances in our respective disciplines. In the harsh and unforgiving terrain of the Middle and Indian Creek canyons, we now know what probably will work, what might work and what clearly will not.

At this time, however, we are taking a step to the side, involving stakeholders in the project. This 2020 project builds on the topographic survey, hydraulic modeling and geomorphic assessment conducted in 2019 Phase 3 of this ongoing program. A process of stakeholder engagement (Task 1) will lead to preferred solutions to threats from flooding to life, safety and property. Concomitantly, those solutions (including their

water right implications) will be evaluated as part of that engagement. Stakeholders will also address fluvial opportunities, non-structural approaches and post-fire techniques. The group will prioritize solutions based on these investigations. Within budgetary constraints, the highest priority solutions and projects will be implemented (Tasks 2 & 3). Finally, monitoring and evaluation of project implementation will be conducted over three years to provide essential data on post-fire techniques and treatments (Task 5).

Multiple goals:

This proposal meets multiple goals, including protection of life, property, infrastructure, water rights, water quality, watershed health, and irrigated agriculture. We will deploy a variety of techniques and innovations suggested by the engineering work and modeling in 2019 Phase 3 and selected by the stakeholders group. Its priority projects will be multi-purposed and will provide several benefits since they will consider multiple objectives – addressing homes, irrigated agriculture, water rights and water quality – all for the benefit of watershed health and flood protection.

Monitoring:

Monitoring is addressed in Task 5. Project monitoring and photo mapping are essential to inform future post-fire recovery treatments. For a period of three years (two years have already elapsed since the fire in 2018), we will collect and distribute data, which will be developed and utilized to inform stakeholders, funders and other organizations working in post-fire recovery of the success and failures of treatments.

A drone will provide aerial images of projects before and after implementation, demonstrating how they perform over time. Photo mapping will occur after each storm event for three years (after which the flooding attributable to hydrophobic soils is expected to subside). ARWC will work in partnership with the County to monitor all recovery projects, including projects funded by CWCB, CDPHE and EWP. The results will be distributed via an online dashboard and mapping program. Each year a story map of the years' time series will be developed and posted on the dashboard.

Updated
Scope of Work

GRANTEE and FISCAL AGENT
Huerfano County Water Conservancy District (HCWCD/District) - Fiscal Agent/Grantee
Huerfano County, Colorado - Collaborator
Arkansas River Watershed Collaborative (ARWC) - Contractor/Project Management

PRIMARY CONTACT: Carol Dunn - HCWCD Administrator

ADDRESS: PO BOX 442 La Veta, CO 81055

PHONE: 719-742-5581

PROJECT NAME: Spring Creek Fire Flood Mitigation 2020

GRANT AMOUNT: $668.566.00

INTRODUCTION AND BACKGROUND

This project is part of a multi-year collaborative recovery program in Huerfano County within and below the Spring Creek Fire (2018) burn scar in the greater Middle Creek watershed above the Town of La Veta. It includes Middle Creek's principal tributaries, Indian Creek and South Abeyta Creeks (see map, Attachment B). The program is conducted by Huerfano County and the applicant, the Huerfano County Water Conservancy District (District).

The County, using NRCS (EWP) funding, will focus on private parcels throughout the greater Middle Creek watershed with emphasis on South Abeyta Creek (Task 4). The District, using CWCB (WRP) and other funding, will concentrate on public and private lands not slated for EWP funding. The District's consultant, ARWC, will work in the drainages of the mainstems as well as the various side tributaries of Middle and Indian Creeks.

This project builds on the topographic survey, hydraulic modeling and geomorphic assessment conducted in 2019 Phase 3 of this ongoing program. A process of stakeholder engagement (Task 1) will lead to preferred solutions to threats from flooding to life, safety and property. Concomitantly, those solutions (including their water right implications) will be evaluated as part of that engagement. Stakeholders will also address fluvial opportunities, non-structural approaches and post-fire techniques. The group will prioritize solutions based on these investigations. Within budgetary constraints, the highest priority solutions and projects will be implemented (Tasks 2 & 3). Finally, monitoring and evaluation of project implementation will be conducted over three years to provide essential data on post-fire techniques and treatments (Task 5).

OBJECTIVES

- Protect life, safety and property.
- Reduce sediment loading and debris flows in Middle and Indian Creeks.
- Engage stakeholders in a discussion on fluvial considerations, opportunities and threats.

- Explore new treatment ideas through the lens of water rights, agriculture and the environment.
- Provide valuable information and data to the water community on post-fire treatments.
- Collaboratively prioritize recovery projects.
- Implement projects based on modeling, engineering analysis, water rights analysis, landowner participation, and stakeholder input.

TASKS

TASK 1- Stakeholder Engagement, Evaluation and Project Prioritization

Description of Task

Results from the Spring Creek Fire Phase 3 modeling and engineering analysis will be used by stakeholders to identify the types of project implementation methods suitable for post-fire recovery work in the watershed and to prioritize projects derived from those methods. Local preferences for innovative non-structural approaches will be reviewed. Stakeholders will evaluate how these treatments work in post-fire conditions, as well as the opportunities and threats inherent in each method. This work will be complicated by certain local realities. For example, in lower reaches often the "best" areas to access the floodplain are already occupied by homes or irrigated agriculture. The upper reaches are comprised of steep canyons with little access to alluvial fans. Within the canyons and especially below the canyon mouths, water right owners are particularly alert to diminishment of flows when they historically are in priority. Having identified topographic challenges as well as the water right and administrative concerns, the Stakeholders will address how to balance the many diverse needs and interests in post-fire conditions. With the assistance of subject matter experts, the Stakeholders will prioritize projects, techniques and methods to be used in tasks 3 and 4 below.

Method and Procedure

- Utilize modeling and engineering analysis from Phase 3 to identify potential location for project development.
- Develop stakeholder groups with representatives from agriculture, environmental/recreational, water rights administration, etc.
- Hold stakeholder meetings to discuss opportunities, threats and considerations for implementation.
- Prioritize projects, methods and techniques for implementation.

Deliverable

The deliverable for this task will be a prioritized list of projects based on stakeholder engagement. Analysis of opportunities, threats, considerations, and proposed implementation will be provided for each site.

TASK 2 – Indian Creek Drainage Recovery

Description of Task

Based on Stakeholder prioritization (Task 1), projects will be developed for the Indian Creek drainage. At this time and subject to Stakeholder priorities, it appears that clearing in certain areas of the narrow channel will help flows stay in the channel

and away from residences, agricultural buildings and roads. In other areas, clearing of debris jams and redistributing sediment could assist in accessing the floodplain. Lastly, new areas for sediment deposition may be identified through the previous geomorphic assessment. Projects will be developed based on the results of the analysis and stakeholder approval. Concurrently, the County through its EWP projects will be working on stream realignment, clearing and revegetation in the Indian Creek drainage (as documented in Task 4). ARWC will work closely with the County and Enginuity, the County's consultant, to develop projects that enhance EWP projects and work in conjunction with them.

ARWC will work with local contractors, volunteers and a SWIFT Crew to implement projects based on the priorities developed during Task 1 of this application.

Method and Procedure

- Develop projects based on Task 1 prioritization.
  Projects may include and will not be limited to clearing and snagging, cross vanes, water bars, earthwork, low water crossings, culvert repair, and/or non-structural innovations.
- Work in partnership with the County and Enginuity to assure projects are accommodating to EWP work.
- Secure all needed permitting.
- Conduct engineering analysis and design for project components.
- Hire subcontractors for construction of projects.
- Provide onsite project oversight and project management (foreman) for all project implementation.
- Monthly reporting to Stakeholders.
- Analysis, design, drafting, documenting, oversight.

Deliverable

The deliverable for this task will be reporting, mapping and photos of project completion.

TASK 3– Middle Creek Drainage Recovery

Description of Task

Using the same approach with Stakeholders as described above in Task 2, projects will be identified for Middle Creek. It is by far the most vulnerable area in the burn scar and has seen the most damage from post-fire flooding. This drainage and its associated tributaries significantly contribute sediment to the Cucharas River.

With ARWC's assistance, the Stakeholders will identify and prioritize projects based on need, ability to slow the flow, reduction of sediment loading, and landowner participation. Additionally, projects will be developed in conjunction with the County's proposed EWP projects identified for Middle Creek. Options will then be evaluated and projects implemented utilizing a variety of prescriptions. They may include drop structures, grade control, hand crew-laid abatis and LEBs, connection of floodplain in uninhabited areas, willow planting, and seeding/mulching.

ARWC will work with local contractors, volunteers and a SWIFT crew to implement projects based on the priorities established in Task 1, above.

Method and Procedure

- Develop projects based on priorities from Task 1.
  Projects may include and are not limited to hillslope treatments, drop structures, grade control, connection of floodplain, willow planting, seeding and mulching.
- Work in partnership with the County and Enginuity to assure projects are complementary to EWP work.
- Secure all needed permitting.
- Conduct engineering analysis and design for project components.
- Hire subcontractors for construction of projects.
- Provide onsite project oversight and project management (foreman) for all project implementation.
- Monthly reporting to Stakeholders.

Deliverable

The deliverable for this task will be reporting, mapping and photos of project completion.

TASK 4– Huerfano County EWP Projects in Indian, Middle and South Abeyta

Description of Task

Implementation work under the EWP program will be conducted in Indian, Middle and South Abeyta drainages. ARWC will work in partnership with the County and Enginuity to assure that ARWC projects are complementary to EWP projects and assist in overall recovery for the area. Additionally, ARWC will work in partnership with the County to monitor these projects after completion. (See Attachment C.)

Method and Procedure

Indian Creek – CR 421

- Dam, diversion /excavation earthwork, critical area planting and mulching, erosion control blanket, water bar, obstruction/debris removal, streambank protection (580), rock rip-rap.

Middle Creek- CR 422 & Lot 19

- Dam, diversion/excavation earthwork, debris removal, rock rip-rap, low water crossing.

South Abeyta Creek- CR 442, 440 & HWY 160

- Dam, diversion (348) /excavation earthwork, critical area planting (342) and mulching, obstruction/debris removal (500), streambank protection (580), trash/debris racks, rock rip-rap, water bar, trap/RIB bags 4'.

Deliverable

Documentation from the County will be provided upon project completion for matching requirements.

TASK 5– Project Monitoring and Photo Mapping

Description of Task

Project monitoring and photo mapping are essential to inform future post-fire recovery treatments. A system to collect and distribute data will be developed and utilized to inform stakeholders, funders, and other organizations working in post-fire

recovery of the success and failures of treatments. Wildfire is increasing throughout the State, and data is needed to evaluate and analyze treatment options.

A drone will provide aerial images of projects before and after implementation, demonstrating how they perform over time. Photo mapping will occur after each storm event for three years (after which the flooding attributable to hydrophobic soils is expected to subside). ARWC will work in partnership with the County to monitor all recovery projects, including projects funded by CWCB, CDPHE and EWP. The results will be distributed via an online dashboard and mapping program. Each year a story map of the years' time series will be developed and posted on the dashboard.

Method and Procedure

- Set up mapping application, online map and dashboard.
- Develop user accounts for stakeholders and provide training.
- Establish photo point locations for each existing project and new projects that emerge.
- Develop system for collecting data after each storm event.
- Conduct drone imagery for post project completion.
- Collect data after each storm event in partnership with the County.
- Manage data, create maps and update online platform.
- Create annual story maps to show time series of events.
- Reporting and presentations to stakeholders.

Deliverable

Successfully collect and distribute data through online platform. Annual story map for three years.

TASK 6– Grant Administration

Description of Task

HCWCD will conduct grant management, including progress reports, reimbursement documentation and grant administration. Based on previous experience as a fiscal agent for many CWCB grants, the District has determined that up to 7% is an appropriate amount for administration.

Method and Procedure

- Reimbursement documentation with associated progress reports will be submitted monthly/quarterly based on task completion.
- Six-month progress reports will be provided until project completion.
- A final report will be provided upon project completion.

Deliverable

Monthly/quarterly reimbursement documentation and progress reports; 6-month comprehensive reports; a final report upon project completion.

HCWCD SPRING CREEK FIRE FLOOD MITIGATION 2020

Budget & Timeline Table

Task	Description	Target Start Date	Target Completion Date	CWCB Funds	Matching Funds	Total
1	Stakeholder Engagement/Project Prioritization	3/1/2020	12/31/2022	$43,070.00		$43,070
2	Indian Creek Recovery	3/1/2020	12/31/2022	$232,106.00		$232,106
3	Middle Creek Recovery	3/1/2020	12/31/2022	$262,170.00		$262,170
4	EWP Projects	3/1/2020	12/31/2022		$668,566.00	$668,566
5	Photo Mapping and Monitoring	3/1/2020	12/31/2022	$87,570.00		$87,570
6	Grant Administration	3/1/2020	12/31/2022	$43,650.00		$43,650
	TOTALS			**$668,566.00**	**$668,566.00**	**$1,337,132.00**

Cash match will be provided through Huerfano County (co-sponsor) EWP funds expended in 2020.
In-kind match is expected to increase through volunteer efforts but is not secured at this time.

HCWCD SPRING CREEK FIRE FLOOD MITIGATION 2020

Task		Expense					Exec. Director Rate= $80/hr		Engineer Rate= $100/hr		Foreman Rate = $60/hr		Supervisor Rate= $50/hr		GIS Technician Rate= $50/hr		River Science Rate= $100/hr		Sub Contractor Management	Huerfano Co EWP Match	CWCB Total Request	Total Project
		Description	Rate	Unit Type	Unit Multiplier	Total	Hours	Subtotal	Hours	Subtotal	Hours	Subtotal	Hours	Subtotal	Hours	Subtotal	Hours	Subtotal	5%			
Task 1- Stakeholder Engagement, Evaluation, Prioritization																						
1-A	Initial Stakeholder Meeting/Eng. Review					$ -	20	$ 1,600	15	$ 1,500	12	$ 720	12	$ 600	12	$ 600	15	$ 1,500	$ 75		$ 6,595	$ 6,595
1-C	Review Landownership, water rights, treatments					$ -	40	$ 3,200		$ -	20	$ 1,200	20	$ 1,000		$ -		$ -	$ -		$ 5,400	$ 5,400
1-D	Locate projects & identify treatments					$ -	20	$ 1,600	15	$ 1,500	20	$ 1,200	20	$ 1,000		$ -	15	$ 1,500	$ 75		$ 6,875	$ 6,875
1-E	Field Tours					$ -	20	$ 1,600	20	$ 2,000	20	$ 1,200	20	$ 1,000	20	$ 1,000	20	$ 2,000	$ 100		$ 8,900	$ 8,900
1-G	Landower Initial Outreach & LTEs					$ -		$ -		$ -	40	$ 2,400	40	$ 2,000		$ -		$ -	$ -		$ 4,400	$ 4,400
1-I	Prioritize and Finalize Projects					$ -	40	$ 3,200		$ -	40	$ 2,400	40	$ 2,000	20	$ 1,000		$ -	$ -		$ 8,600	$ 8,600
1-J	Travel (Mileage)		$ 0.52	mile	2500	$ 1,300.00		$ -		$ -		$ -		$ -		$ -		$ -	$ -		$ 1,300	$ 1,300
1-K	Travel (Hotel)		$ 100	night	10	$ 1,000.00		$ -		$ -		$ -		$ -		$ -		$ -	$ -		$ 1,000	$ 1,000
	Subtotal Task 1					$ 2,300		$ 11,200		$ 5,000		$ 9,120		$ 7,600		$ 2,600		$ 5,000	$ 250		$ 43,070	$ 43,070
Task 2 - Indian Creek Recovery																						
2-A	Landowner Agreements/ Contracts					$ -	20	$ 1,600		$ -	20	$ 1,200	20	$ 1,000		$ -		$ -	$ -		$ 3,800	$ 3,800
2-B	Initial Project Designs and Overview					$ -	20	$ 1,600		$ -	40	$ 2,400	40	$ 2,000		$ -		$ -	$ -		$ 6,000	$ 6,000
2-D	Stakeholder/ Landowner Approval					$ -	40	$ 3,200		$ -	40	$ 2,400	40	$ 2,000		$ -		$ -	$ -		$ 7,600	$ 7,600
2-F	Contracting for Construction					$ -	20	$ 1,600		$ -	20	$ 1,200	20	$ 1,000		$ -		$ -	$ -		$ 3,800	$ 3,800
2-G	SWIFT Crew	16 Man Crew + 2 Supervisors	$ 3,200	day	22	$ 70,400		$ -		$ -	120	$ 7,200	160	$ 8,000		$ -		$ -	$ 3,520		$ 89,120	$ 89,120
2-H	Local Sub-Contractors (TBD)	Equipment, Supplies, Labor	$ 71,368	project	1	$ 71,368		$ -		$ -	100	$ 6,000	160	$ 8,000		$ -		$ -	$ 3,568		$ 88,936	$ 88,936
2-E	Engineering Design 15% of Construction					$ -		$ -	150	$ 15,000		$ -		$ -		$ -		$ -	$ -		$ 15,000	$ 15,000
2-I	Reporting, Meetings, Etc.					$ -	40	$ 3,200		$ -	60	$ 3,600	40	$ 2,000		$ -		$ -	$ -		$ 8,800	$ 8,800
2-J	Post-Project Imagery & Basic Modeling					$ -		$ -		$ -		$ -		$ -		$ -	50	$ 5,000	$ 250		$ 5,250	$ 5,250
2-K	Travel (Mileage)		$ 0.52	mile	2500	$ 1,300		$ -		$ -		$ -		$ -		$ -		$ -	$ -		$ 1,300	$ 1,300
2-L	Travel (Hotel)		$ 100	night	25	$ 2,500		$ -		$ -		$ -		$ -		$ -		$ -	$ -		$ 2,500	$ 2,500
	Subtotal Task 2					$ 145,568		$ 11,200		$ 15,000		$ 24,000		$ 24,000		$ -		$ 5,000	$ 7,338		$ 232,106	$ 232,106
Task 3- Middle Creek Recovery																						
3-A	Landowner Agreements/ Contracts					$ -	20	$ 1,600		$ -	20	$ 1,200	20	$ 1,000		$ -		$ -	$ -		$ 3,800	$ 3,800
3-b	Initial Project Designs and Overview					$ -	20	$ 1,600		$ -	40	$ 2,400	40	$ 2,000		$ -		$ -	$ -		$ 6,000	$ 6,000
3-D	Stakeholder/ Landowner Approval					$ -	40	$ 3,200		$ -	40	$ 2,400	40	$ 2,000		$ -		$ -	$ -		$ 7,600	$ 7,600
3-E	Contracting for Construction					$ -	20	$ 1,600		$ -	20	$ 1,200	20	$ 1,000		$ -		$ -	$ -		$ 3,800	$ 3,800
3-F	SWIFT Crew	16 Man Crew + 2 Supervisors	$ 3,200	day	22	$ 70,400		$ -		$ -	120	$ 7,200	160	$ 8,000		$ -		$ -	$ 3,520		$ 89,120	$ 89,120
3-G	Local Sub-Contractors (TBD)	Equipment, Supplies, Labor	$ 100,000	project	1	$ 100,000		$ -		$ -	100	$ 6,000	160	$ 8,000		$ -		$ -	$ 5,000		$ 119,000	$ 119,000
3-H	Engineering Design 15% of Construction					$ -		$ -	150	$ 15,000		$ -		$ -		$ -		$ -	$ -		$ 15,000	$ 15,000
3-I	Reporting, Meetings, Etc.					$ -	40	$ 3,200		$ -	60	$ 3,600	40	$ 2,000		$ -		$ -	$ -		$ 8,800	$ 8,800
3-J	Post-Project Imagery & Basic Modeling					$ -		$ -		$ -		$ -		$ -		$ -	50	$ 5,000	$ 250		$ 5,250	$ 5,250
3-K	Travel (Mileage)		$ 0.52	mile	2500	$ 1,300		$ -		$ -		$ -		$ -		$ -		$ -	$ -		$ 1,300	$ 1,300
3-L	Travel (Hotel)		$ 100	night	25	$ 2,500		$ -		$ -		$ -		$ -		$ -		$ -	$ -		$ 2,500	$ 2,500
	Subtotal Task 3					$ 174,200		$ 11,200		$ 15,000		$ 24,000		$ 24,000		$ -		$ 5,000	$ 8,770		$ 262,170	$ 262,170
Task 4- Huerfano County EWP Projects in Indian, Middle & South Abeyta Drainages (See Exhibit C for Details)																						
4-A	Indian Creek - 5218 CR 421					$ -		$ -		$ -		$ -		$ -		$ -		$ -	$ -	$ 85,055	$ -	$ 85,055
4-B	Indian Creek- 5218 CR 421					$ -		$ -		$ -		$ -		$ -		$ -		$ -	$ -	$ 101,490	$ -	$ 101,490
4-C	Middle Creek- 2122 CR 442					$ -		$ -		$ -		$ -		$ -		$ -		$ -	$ -	$ 94,890	$ -	$ 94,890
4-D	Middle Creek- Lot 19 La Veta Ranch					$ -		$ -		$ -		$ -		$ -		$ -		$ -	$ -	$ 34,015	$ -	$ 34,015
4-E	South Abeyta - CR 442					$ -		$ -		$ -		$ -		$ -		$ -		$ -	$ -	$ 192,200	$ -	$ 192,200
4-F	South Abeyta- 5336 Hwy 160					$ -		$ -		$ -		$ -		$ -		$ -		$ -	$ -	$ 146,716	$ -	$ 146,716
4-G	South Abeyta - 198 CR 440					$ -		$ -		$ -		$ -		$ -		$ -		$ -	$ -	$ 14,200	$ -	$ 14,200
	Subtotal Task 4					$ -		$ -		$ -		$ -		$ -		$ -		$ -	$ -	$ 668,566	$ -	$ 668,566
Task 5- Photo Mapping and Monitoring																						
5-A	Create Collection App, Dashborad, Online Map					$ -		$ -		$ -		$ -		$ -	260	$ 13,000		$ -	$ -		$ 13,000	$ 13,000
5-B	Setup User Accounts & Provide Training					$ -		$ -		$ -		$ -		$ -	124	$ 6,200		$ -	$ -		$ 6,200	$ 6,200
5-C	Identify Project Locations & Establish Photo Points					$ -		$ -		$ -		$ -	60	$ 3,000	210	$ 10,500		$ -	$ -		$ 13,500	$ 13,500
5-D	Add New Photo Points as New Projects Emerge					$ -		$ -		$ -		$ -	80	$ 4,000	80	$ 4,000		$ -	$ -		$ 8,000	$ 8,000
5-E	Year #1: Collect Photos after each Rain/Flood Event					$ -		$ -		$ -		$ -	70	$ 3,500		$ -		$ -	$ -		$ 3,500	$ 3,500
5-F	Year #2: Collect Photos after each Rain/Flood Event					$ -		$ -		$ -		$ -	50	$ 2,500		$ -		$ -	$ -		$ 2,500	$ 2,500
5-G	Year #3: Collect Photos after each Rain/Flood Event					$ -		$ -		$ -		$ -	25	$ 1,250		$ -		$ -	$ -		$ 1,250	$ 1,250
5-H	Create Story Map/ Summary @ end of each Year					$ -		$ -		$ -		$ -		$ -	400	$ 20,000		$ -	$ -		$ 20,000	$ 20,000
5-I	Subscription & Storage	ESRI Software & Storage	$ 8,500	package	1	$ 8,500.00		$ -		$ -		$ -		$ -	192	$ 9,600		$ -	$ -		$ 18,100	$ 18,100
5-K	Travel (Mileage)		$ 0.52	mile	1000	$ 520.00		$ -		$ -		$ -		$ -		$ -		$ -	$ -		$ 520	$ 520
5-L	Travel (Hotel)		$ 100	night	10	$ 1,000.00		$ -		$ -		$ -		$ -		$ -		$ -	$ -		$ 1,000	$ 1,000
	Subtotal Task 4					$ 10,020		$ -		$ -		$ -		$ -		$ 14,250		$ 63,300		$ -	$ -		$ 87,570	$ 87,570
Task 6- Grant Administration																						
6-A	HCWCD, 6.5%							$ -														
	Subtotal Task 5					$ -		$ -													$ 43,650	$ 43,650
	Grand Total					$ 332,088		$ 33,600		$ 35,000		$ 57,120		$ 69,850		$ 65,900		$ 15,000	$ 16,358	$ 668,566	$ 668,566	$ 1,337,132

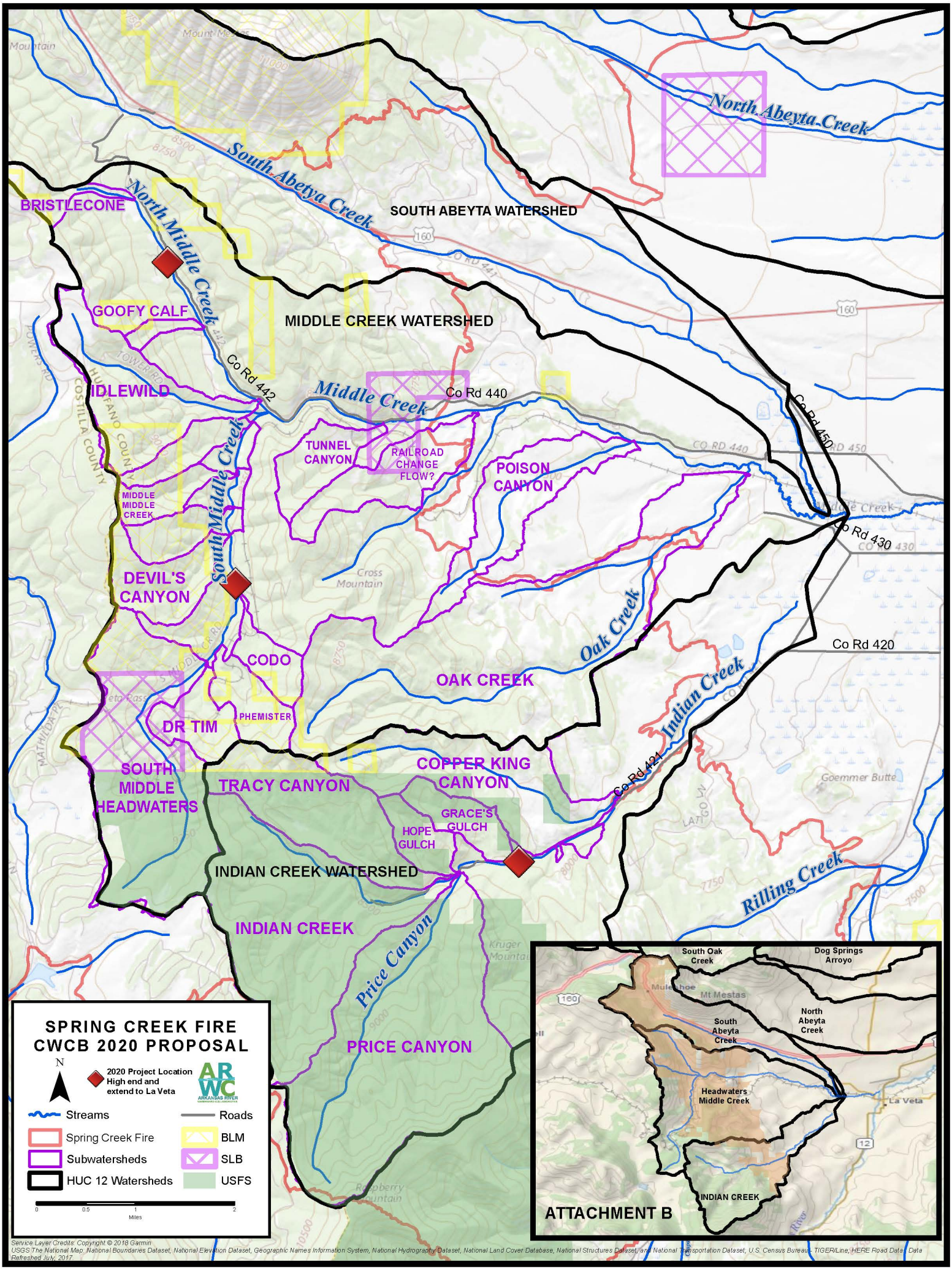
SPRING CREEK FIRE FLOOD MITIGATION 2020
Attachment A
PHOTOS

Photos #1 & #2: During flood event on Middle Creek - July 24, 2019
(reported as less than one year rainfall event).

Photos #3 & #4: Post flood damage to Upper Middle Creek.

Pre- and Post-runoff LEBs.

Abatis Barrier Post-Flood.



HCWCD SPRING CREEK FIRE FLOOD MITIGATION 2020
Attachment C
Huerfano County 2020 EWP Projects
in Middle Creek Watershed

Creek	Project	Description	Location	Dollar Amt		Total Poject	Total Creek	% Watershed
Indian	**Project Name:**	5218 CR 421						
	Proposed Recovery Measure (including mitigation)	Quantity	Units	Unit Cost ($)	Amount ($)			
	Dam, Diversion / Excavation earth-work	425	CY					
	Critical Area Planting and Mulching	20	AC					
	Erosion Control Blanket	2100	SY					
	Total Installation Cost					**$85,055.00**		
	Project Name:	5218 CR 421						
	Proposed Recovery Measure (including mitigation)	Quantity	Units	Unit Cost ($)	Amount ($)			
	Water bar	1	EA					
	Obstruction/Debris Removal	50	CY					
	Streambank Protection (580)	333.333	LN					
	Rock Rip-rap	35	CY					
	Total Installation Cost					**$101,490.00**	**$186,545.00**	20%
Middle	**Project Name:**	2122 CR 442						
	Proposed Recovery Measure (including mitigation)	Quantity	Units	Unit Cost ($)	Amount ($)			
	Dam, Diversion Excavation earth-work	400	LF					
	Debris Removal	50	CY					
	Rock Rip-rap	150	CY					
	Total Installation Cost					**$94,890.00**		
	Project Name:	Lot 19 La Veta Ranch						
	Proposed Recovery Measure (including mitigation)	Quantity	Units	Unit Cost ($)	Amount ($)			
	Debris Removal	50	CY					
	Rock Rip-rap	40	CY					
	Low Water Crossing							
	Total Installation Cost					**$34,015.00**	**$128,905.00**	14%
South Abeyta (match used for 2019 Phase 3)	**Project Name:**	5720 CR 442						
	Proposed Recovery Measure (including mitigation)	Quantity	Units	Unit Cost ($)	Amount ($)			
	Critical Area Planting (342) and Mulching/Wattles	50	AC	$4,000.00	$200,000.00			
	Rock Rip-rap	420	CY	$130.00	$54,600.00			
	Earthwork, General Cut/Fill (per CY)/Water Bars/Spillway	100	CY	$11.00	$1,100.00			
	Total Installation Cost					**$255,700.00**		

Creek	Project	Description	Location	Dollar Amt	Total Poject	Total Creek	% Watershed

Project Name:	CR 442				
Proposed Recovery Measure (including mitigation)	Quantity	Units	Unit Cost ($)	Amount ($)	
Dam, Diversion (348) / Excavation earth-work	200	CY	$11.00	$2,200.00	
Critical Area Planting (342) and Mulching/Wattles	10	AC	$4,000.00	$40,000.00	
Streambank Protection (580)	500	LF	$300.00	$150,000.00	
Total Installation Cost					**$192,200.00**

Project Name:	5336 Hwy 160				
Proposed Recovery Measure (including mitigation)	Quantity	Units	Unit Cost ($)	Amount ($)	
Dam, Diversion (348) / Excavation earth-work	75	CY			
Critical Area Planting (342) and Mulching/	20	AC			
Obstruction/Debris Removal (500)	1	CY			
Streambank Protection (580)	1700	LF			
Trash/Debris Rack-W	1	EA			
Trash/Debris Rack-N	1	EA			
Rock Rip-rap	700	CY			
Water bar	1	EA			
Total Installation Cost					**$146,715.80**

Project Name:	198 CR 440						
Proposed Recovery Measure (including mitigation)	Quantity	Units	Unit Cost ($)	Amount ($)			
Trap/RIB bags 4'	400	LF	$33.00	$13,200.00			
Obstruction Removal	50	CY	$20.00	$1,000.00			
Total Installation Cost					**$14,200.00**	**$608,815.80**	66%
					Total Watershed	**$924,265.80**	100%
Less South Abeyta match used for Phase 3						-$255,700.00	
Match available for Phase 2020						**$668,565.80**	