FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

All sections must be addressed, or the application will be considered invalid

I. APPLICANT INFORMATION

A. Applicant Name: Katelin Killoy

Mailing Address: 730 ½ N Montana St.

City: Dillon State: MT Zip: 59725

Telephone: 406-596-1999 E-mail: Katelin.killoy@mt.gov

B. Contact Person (if different than applicant): _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ E-mail: _____

C. Landowner and/or Lessee Name (if different than applicant): Lapham Ranch Company

Mailing Address: PO Box 795

City: Jackson State: MT Zip: 59736

Telephone: 406-442-4603 E-mail: _____

Landowner and/or Lessee Name (if different than applicant): Vaquero LLC

Mailing Address: 722 Badger Lane

City: Butte State: MT Zip: 59701

Telephone: 406-442-4603 E-mail: _____

II. PROJECT INFORMATION

A. Project Name: Big Hole Spring Development Stock Water

River, stream, or lake: Warm Springs Creek

Location: Township: 5 South Range: 15 West Section: 13

Latitude: 45.4040866 Longitude: -113.4035511 *Within project (decimal degrees)*

County: Beaverhead

B. Purpose of Project: *(high level, focus on why the project is important)*

The purpose of this project is to increase healthy riparian habitat along the Big Hole River and its tributary Warm Springs Creek within the Arctic Grayling Big Hole CCAA. This project will develop two stock water systems by developing existing springs in upland pastures.

Lapham Ranch Company and Vaquero LLC are enrolled in the Candidate Conservation Agreement with Assurances for Arctic Grayling in the Big Hole Program (CCAA). In cooperation with the CCAA program, Lapham Ranch Company and Vaquero LLC have agreed to manage and improve riparian corridors in compliance with their CCAA site plan. In 2022, the CCAA agencies, NRCS, and the participating landowners agreed to develop 2 new stock water systems to improve grazing distribution and utilization and reduce reliance on Warm Springs Creek for stock water. Currently, these pastures do not have reliable stock water due to low water availability. In the pastures currently cattle drink directly from the spring, trampling it, which reduces the quality of the spring, potentially risking losing the spring over time. This project will develop two existing springs to provide reliable yearlong stock water while maintaining the quality of the springs. These developed springs will tie into the construction of pipeline with one tire stock tank at each system to provide reliable stock water throughout summer and winter months during drought and normal conditions.

Secondary resource concerns benefited by installation of the proposed projects include; Soil - Reduced bank erosion along streams or water conveyance channels; Water – Reduced surface water depletion; Plant – Enhanced plant productivity and health; Animal – Adequate livestock water.

The Objectives of the project include the following:

1. Improve grazing timing.
2. Improve grazing distribution
3. Improve bank stability.
3. Maintain or improve cover of deep rooting species.
4. Improve water quality and temperature.
5. Improve instream flows

C. Brief Project Description (attach additional information to end of application). Please include the anticipated construction schedule:

In cooperation with the CCAA program, Lapham Ranch Company and Vaquero LLC have agreed to manage and improve riparian corridors in compliance with their CCAA site plan. In 2022, the enrolled landowners determined that current water sources were inadequate in upland pastures. Stock water systems will provide the enrolled landowners the ability to graze longer in upland pastures which allows longer rest in riparian pastures. New stock water systems will improve grazing distribution and utilization and reduce reliance of Warm Springs Creek for stock water. Currently, these pastures do not have reliable stock water This project will develop two springs into stock tank systems to provide reliable yearlong stock water.

Scope of Work:

- Develop two springs
  - Vaquero
    - 1 tire tank
    - 460 feet of pipeline
    - 1 spring box
  - Lapham
    - 1 tire tank
    - 195 feet of pipeline
    - 1 spring box

This project builds on a watershed scale restoration effort for Arctic Grayling in the Big Hole River through the Candidate Conservation Agreement with Assurances Program (CCAA). The CCAA works with private landowners to address threats and implement conservation measures that benefit Arctic grayling and other native fish species.

D. What was the cause of habitat degradation and how will the project correct the cause?

Through landowner visits Warm Springs Creek was determined to not be a reliable source for stock water. Additionally, adding a stock water system will reduce grazing pressure along this portion of Warm Springs Creek and the Big Hole River.

E. Length of stream or size of lake that will be treated (project extent): 2 stream miles of Warm Springs Creek

Length/size of impact, if larger than project extent (e.g., stream miles opened): N/A

F. Project Budget Summary:

Grant Request (Dollars):	**$**	**19,420.00**
Matching Dollars:	**$**	**24,647.00**
Matching In-Kind Services:*	**$**	

**salaries of government employees are not considered matching contributions*

Other Contributions (not used as match)	**$**	
Total Project Cost:	**$**	**44,067.00**

G. Attach itemized (line item) budget – *see budget template*

H. Attach project location map(s) that include:

- ☐ Extent of the project, including context (relation to major landmark or town)
- ☐ Indication of public and private property
- ☐ Riparian buffer locations and widths (if applicable) and grazing locations

I. Attach project plans:

- ☐ Detailed sketches or plan views with the location and proposed restoration
- ☐ Pre-project photographs (GPS location strongly recommended)
- ☐ If water leasing or water salvage is involved, attach a supplemental questionnaire (*https://myfwp.mt.gov/getRepositoryFile?objectID=36110*)

J. Attach support letters or statements of (e.g., landowner consent, community or public support). For FWP statement, attach provided template. List any other project partners:

Biologist statement from Ryan Kreiner

III. MAINTENANCE AND MONITORING (attach additional information to end of application):

A. A 20-year maintenance commitment is required*. Please confirm that you will ensure this protection and describe your approach. Attach any relevant maintenance plans.

Yes	No
X	

**If it is a water leasing project, describe the length of the agreement.*

This project is part of each Landowner's Site-Specific Conservation Plan (SSP) through the Big Hole Arctic Grayling CCAA. The SSPs address threats to Arctic Grayling on the landowner's property including riparian health and instream flow. The SSP is a 10-year agreement, which Lapham Ranch Company signed their SSP in 2020 and Vaquero LLC signed their SSP in 2023. Both landowners have implemented numerous conservation projects for Arctic Grayling in good faith and successfully improved habitat, stream flows and connectivity that have benefited Arctic grayling and other native and sportfish. The landowners have signed both MFWP and USFWS landowner agreements (20 and 10-year agreements, respectively).

B. Will grazing be part of or adjacent to the project? If so, describe or attach land management plans, including short term and long term grazing regimes. If the landowner is not the applicant, please describe their involvement in the project. *If you want assistance with grazing plan development, note your need.*

Lapham Ranch Company and Vaquero LLC are enrolled in the Arctic Grayling Candidate Conservation Agreement with Assurances program in the Big Hole (CCAA). In cooperation with the CCAA program, the landowners have continually worked with FWP on grazing schedules in compliance with their SSP. All of Lapham Ranch Company's enrolled stream miles rate "Sustainable" since working with FWP on riparian fencing and other stock water projects. Lapham Ranch Company can manage their grazing schedule as long as all riparian assessments rate "Sustainable." The current grazing plan for Vaquero LLC calls for short duration grazing in riparian pastures after September 15th. The stock water systems will allow Lapham Ranch Company and Vaquero LLC to better manage their grazing schedules.

C. Will the project be monitored to determine if goals were met? If so, what are the short-term and long-term plans to assess benefits and lessons learned? Were pre-project data collected? Will monitoring information be shared with FWP?

The project will be monitored every five years as a part of the CCAA program using NRCS Riparian Assessment Method (NRCS 2004). Additionally, FWP annually monitors grayling abundance and genetic diversity downstream of the project area (on Pintlar Creek below the project area and the Big Hole River). Ongoing large-scale restoration efforts in the Big Hole River have positively influenced the overall grayling population and provides resilience to drought and other threats identified in the State of Montana's Upper Missouri River Arctic Grayling Conservation Strategy (2022). Lastly, this project is anticipated to maintain or improve adequate stream temperatures. On Warm Springs Creek there is one thermograph to monitor water temperature.

IV. PROJECT BENEFITS (attach additional information to end of application):

A. What species of fish will benefit from this project?

Arctic grayling (*Thymallus arcticus*), a designated Species of Concern by the State of Montana.

B. How will the project protect or enhance wild fish habitat?

Improved riparian health along Warm Springs Creek a tributary to the Big Hole River enhances grayling habitat by increasing tree cover and reducing sediment inputs into the stream. Lastly, stock water systems will maintain the efficiency of the springs allowing ditches to remain off instead of turning on for watering cattle, keeping water flowing into the Big Hole River.

C. What is the expected improvement to fish populations, both short term and long term? How might the project translate to angler success?

Improved riparian health of Big Hole River and its tributaries will benefit Arctic grayling by maintaining water in important conservation reaches. This provides the public an opportunity to appreciate and catch a unique Montana species.

D. Will the project increase public fishing opportunity for wild fish and, if so, how? Is public fishing allowed onsite? Is it allowed by permission? If not, describe how the public would benefit.

This project will increase public opportunity of a quality fishing experience by improving conditions for Arctic grayling persistence in the Big Hole.

E. Aside from angling, what local or large-scale public benefits will be realized from this project?

This project is part of an ongoing, large-scale habitat improvement program in the Big Hole which has positively influenced grayling population levels since its inception. Improved riparian health of Big Hole River equates to improved spawning and rearing conditions for grayling that migrate large distances within the Big Hole River, and more opportunity for the public to appreciate and catch a unique Montana species. Additionally, a stable and healthy grayling population eliminates the need to protect Arctic Grayling under the ESA, which would place restrictions on land-use and angling.

F. Will the project interfere with water or property rights of adjacent landowners? (explain):

No. Project will not interfere with any water rights or property rights.

G. Will the project result in the development of commercial recreational use on the site (including paid access)? Explain:

No. The project is located on a working ranch. There will be no development of commercial recreational use.

H. Is this project associated with the reclamation of past mining activity?

No.

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

V. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Katelin Killoy Date: 5/15/2025

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

Both tables MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for clarification.

PROJECT COSTS					GRANT REQUEST AND FUNDING			
Work Items (Itemize by Category)	**Number of Units**	**Unit Description***	**Cost/Unit**	**Total Cost**	**FUTURE FISHERIES REQUEST**	**Matching Contributions (Cash or In-Kind)*** **	**Other Contributions (Funds not used as match)**	**Total Funding**
**Units = feet, hours, cubic yards, etc. Do not use lump sum unless necessary.*								
Personnel								
Survey				$ -				$ -
Design				$ -				$ -
Engineering				$ -				$ -
Permitting				$ -				$ -
Oversight				$ -				$ -
Maintenance**				$ -				$ -
			Sub-Total	$ -	$ -	$ -	$ -	$ -
Travel								
Mileage				$ -				$ -
Per diem				$ -				$ -
			Sub-Total	$ -		$ -	$ -	$ -
Construction Materials								
Stock Tank	2	tank	$1,000.00	$ 2,000.00		2,000.00		$ 2,000.00
Pipe	655	feet	$10.00	$ 6,550.00		6,550.00		$ 6,550.00
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
			Sub-Total	$ 8,550.00	$ -	$ 8,550.00	$ -	$ 8,550.00
Equipment, Labor, and Mobilization								
				$ -				$ -
Lapham Spring Development Labor and mobilization	1	lumpsum	$16,067.00	$ 16,067.00	6,920.00	9,147.00		$ 16,067.00
McCoy Spring Development mobilization and labor	1	lumpsum	$19,450.00	$ 19,450.00	12,500.00	6,950.00		$ 19,450.00
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -

CCAA Big Hole Spring Development Stockwater 013-2025

(Revised 5/16/2025)

				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
			Sub-Total	$ 35,517.00	$ 19,420.00	$ 16,097.00	$ -	$ 35,517.00
			OVERALL TOTALS	$ 44,067.00	$ 19,420.00	$ 24,647.00	$ -	$ 44,067.00

OTHER REQUIREMENTS:

**For projects that include a maintenance request, it cannot exceed 10% of the total project cost.

***Match can include in-kind materials or labor. Justification for in-kind labor (e.g. hourly rates used) can be noted below. Do not use government salaries as match.

Additional budget detail:

APPLICATION MATCHING CONTRIBUTIONS

Total should equal match listed above; do not include requested funds

CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
USFWS Partners Program		$ 6,352.00	$ 6,352.00	Y
NRCS Targeted Implementation Plan	$ -	$ 18,295.00	$ 18,295.00	Y
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ -	$ 24,647.00	$ 24,647.00	

OTHER CONTRIBUTIONS

Total should equal other contributions listed above; these are funds not specically matched to the Future Fisheries application

CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
Partners Program funding from USFWS for cultural surveys	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ -	$ -	$ -	

MONTANA FISH, WILDLIFE & PARKS

Future Fisheries Improvement Program

Appendix: FWP Statement

Project Title: Lapham and Vaquero Stock Water Systems

Please describe the potential impact of the project, including the priorities of the Fisheries Division and the importance to Montana's anglers.

The development of stock-water systems out of existing spring heads in the Upper Big Hole River has proven to be an incredibly effective way to restore riparian habitat and maintain adequate streamflow in the river and its tributaries. This project will directly benefit grayling by reducing irrigation withdrawal and maintaining flow in the Upper Big Hole River. This project will also concentrate grazing in off-channel areas which will allow continued recovery off deep-rooted riparian vegetation, thereby improving bank stability.

The upper Big Hole River CCAA program has been highly successful at improving the grayling population by addressing four primary threats: 1) Reduced Streamflows, 2) Degrading and non-functioning habitat types, 3) Barriers to grayling movement, and 4) The potential for grayling entrainment in irrigation ditches. It has been so successful that the US Fish and Wildlife Service specifically called out the program as a primary reason in their 2020 finding that Upper Missouri River Arctic grayling were not warranted for protections under the Endangered Species Act. Specifically, they state that *Conservation actions associated with the Big Hole CCAA and Strategic Habitat Conservation Plan have reduced water temperatures in tributaries, increased instream flows in tributaries and the mainstem Big Hole River, decreased the duration of stressful or lethal water temperatures for Arctic grayling, connected almost all core habitat so Arctic grayling can access thermal refugia if water temperatures become too warm in parts of the Big Hole River system, and improved riparian health.* Further, they conclude that *It is now apparent that these threats are being effectively mitigated on private land (Big Hole River) by conservation actions under the Big Hole CCAA and do not appear to be present or acting at a level to warrant concern on most of the other populations.*

Name of FWP Biologist Ryan Kreiner Date: 5/11/2025

Please attach to the FFIP application and materials and submit according to listed deadlines.

APPENDIX E. RIPARIAN MANAGEMENT PLAN

All riparian reaches rate “sustainable” for the Lapham Ranch Company. Due to the current riparian conditions on the property, the Lapham Ranch Company is not required to make changes to the existing grazing strategy for riparian areas on the enrolled property. The Lapham Ranch Company is asked, but not required, to consult with the Agencies should any significant changes to the existing grazing strategy be required for the operation. The Lapham Ranch Company will continue to operate and manage livestock in all riparian areas that maintains “sustainable” conditions. If riparian areas degrade below “sustainable” conditions this riparian management plan will be amended to improve management actions in the riparian habitat. At any time, the Lapham Ranch Company asks for future guidance or riparian management recommendations, the Agencies will assist in drafting and submitting an amendment to this Site-Specific Plan as agreed upon with the Lapham Ranch Company.

APPENDIX E. RIPARIAN MANAGEMENT PLAN

Proposed Action:

This riparian management plan is intended to provide an adaptive approach for improving riparian habitat conditions identified as being "at risk" on the Vaquero LLC Ranch within the 15-year timeline for sustainability. The agencies and Vaquero LLC met during Spring of 2022 to discuss management alternatives for this riparian management plan. As identified in the conservation actions for Riparian Zone Conservation and Restoration of site-specific plan, the following "at risk" riparian reaches require riparian management development to improve toward "sustainable" conditions:

Reach A – This reach rated "at risk" in the 2007, 2013, 2018, and 2022 riparian assessments. However, this reach is continuing to improve slowly. The "at risk" score is attributed to excessive lateral bank erosion, high sediment load and poor width to depth ratio, lack of riparian/wetland vegetation cover, high colonization of introduced graminoids, and browsing on willows. The 2022 assessment observed conditions have remained static from the last assessment in 2018 (65%) but is heavily influenced by the split of the river for the Husted Diversion project. This alone may prevent this section of the Big Hole in returning to "sustainable" conditions without major stream restoration activities.

The present causes to the lack of habitat improvement along this reach are attributed to legacy and present land use practices (e.g., summer grazing, irrigation, etc.). In the spring of 2023, the Agencies and Vaquero agree to evaluate the development of a new section of fence to control cattle distribution and grazing pressure along Reach A, so grazing only occurs after September 15th of each year.

If Reach A does not improve by the 2027 riparian assessment. Additional changes in reducing the stocking rate or change in grazing and timing and frequency may be evaluated and adopted into this riparian management plan. The Agencies recommend no more than a total of 8 AUMs for this pasture (following fence construction of new pasture) during late fall or winter use (assumptions: AUM = 915lbs, 1500lb cow with fetus, and consumption of 2% of body weight per day).

Reach B – This reach of Rock Creek rated "at risk" in the 2007, 2013, 2018, 2022 assessment years. Reach B has remained static in its overall habitat improvement from the initial score rating of 51% (at risk) in 2007 versus the most recent assessment completed 2022 of 55% (at risk).

This non-improvement is attributed to legacy land uses and landownership change in the recent 5 years. The Agencies recommend that all grazing in the pasture be deferred to after September 15th, to improve riparian habitat conditions further. It is anticipated with this management approach riparian habitat will improve by 2027. However, this reach

may be unable to reach "sustainable" conditions without major stream restoration activities due to historic, legacy impairments (e.g., incision, introduced graminoids, etc.).

If Reach B does not continue to improve by the 2027 riparian assessment. Additional changes in reducing the stocking rate or change in grazing and timing and frequency may be evaluated and adopted into this riparian management plan. The Agencies recommend no more than a total of 45 AUMs for this pasture during late fall or winter use (assumptions: AUM = 915lbs, 1500lb cow with fetus, and consumption of 2% of body weight per day).

IN WITNESS WHEREOF THE PARTIES HERETO have executed the riparian management plan portion of this site-specific plan to be in effect on the date of the last signature below.

_____ _____

Participating Landowner **Date**

_____ _____

Montana Fish, Wildlife and Parks **Date**

_____ _____

U.S. Fish and Wildlife Service **Date**

013-2025

CCAA Big Hole Spring Development Stockwater

PREPARED BY

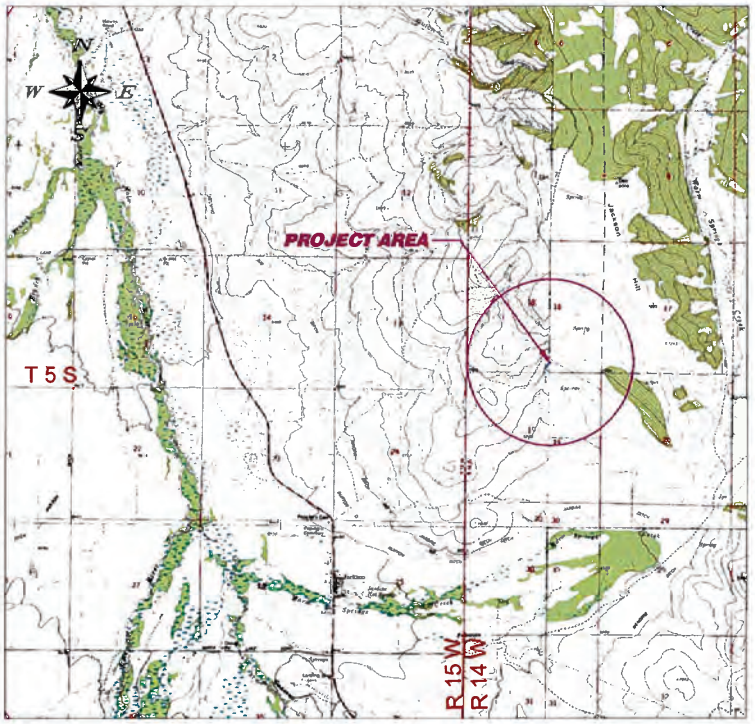
USDA United States Department of Agriculture

Natural Resources Conservation Service

Dillon Field Office

MONTANA

LAPHAM RANCH
REED SPRING DEVELOPMENT, PIPELINE, & TANK



LOCATION MAP

5000 0 5000 10000

Scale in Feet

ESTIMATED QUANTITIES				
NO.	ITEM	UNIT	PLANNED	AS-BUILT
1	36" DIA X 4' LONG PERFORATED SPRING BOX WITH			
	LID AND 3/16"x60"X60" STEEL PLATE	EA.	1	
2	1/2" WASHED GRAVEL	CU. YDS.	± 6.0	
3	12 MIL PLASTIC LINER	SQ. FT.	± 120	
4	1¼" GALVANIZED STEEL TEE	EA.	2	
5	1¼" DIA. x 3' GALVANIZED STEEL VENT PIPE	EA.	1	
6	1¼" GATE VALVE WITH NIPPLES	EA.	2	
7	IN PLACE TEE HANDLE FOR 1¼" GATE VALVE	EA	1	
8	1¼" PIPE UNION WITH NIPPLES	EA.	2	
9	2" PIPE UNION WITH NIPPLES	EA.	1	
10	2" HDPE PIPE FOR SPRING BOX OVERFLOW	LI. FT	± 40	
11	2 7/8" DIA x 3' STEEL PIPE WITH RODENT SCREEN			
	FOR OVERFLOW PIPE OUTLET PROTECTION	EA.	1	
12	1¼" DR11 200 PSI 4710 HDPE PIPE	LI. FT.	± 276	
13	8" DIA x 3' LONG SCH 40 RISER WITH LID	EA	1	
14	1¼" x ± 3.5' HIGH GALVANIZED STEEL INLET RISER			
	ASSEMBLY WITH FITTINGS	EA.	1	
15	FLOAT VALVE ASSEMBLY THAT DELIVERS 10 GPM	EA.	1	
16	4" DIA SCH 40 PVC TANK OVERFLOW RISER PIPE			
	ASSEMBLY WITH FITTINGS	EA.	1	
17	4" DIA SCH 40 PVC TANK OVERFLOW PIPE	LI. FT.	±40	
18	± 6" DIA x 3' STEEL PIPE WITH RODENT SCREEN			
	FOR TANK OVERFLOW PIPE OUTLET PROTECTION	EA	1	
19	EXCAVATION - TRENCHING	LI. FT.	±380	
20	± 2'x12' RUBBER TIRE STOCK TANK WITH			
	CONCRETE CENTER HUB	EA.	1	
21	PROTECTIVE FENCE FOR STOCK TANK - INCLUDES			
	UPRIGHTS AND RAILS - CHOICE OF MATERIALS	EA.	1	
22	GRAVEL FOR TANK APRON	CU. YDS.	±6.5	
23	ANIMAL ESCAPE RAMP	EA.	2	
24	MISCELLANEOUS FITTINGS AND MATERIALS	AS	REQUIRED	

LIST OF SPECIFICATIONS		
SPEC #	SPECIFICATION TITLE	DATE
MT CS-100	GENERAL REQUIREMENTS	03/2022
MT CS-102	POLUTION CONTROL	09/2020
MT CS-109	CORRUGATED METAL PIPE	03/2014
MT CS-113	METAL FABRICATION AND INSTALLATION	03/2014
MT CS-116	VALVES AND METERS	04/2013
MT PS-516	LIVESTOCK PIPELINE	12/2021
MT PS-574	SPRING DEVELOPMENT	11/2021
MT PS-614	WATERING FACILITY	12/2021

LIST OF OTHER ITEMS	
NO.	ITEM
1	OPERATION AND MAINTENANCE PLAN - SPRING DEVELOPMENT
2	OPERATION AND MAINTENANCE PLAN - LIVESTOCK PIPELINE
3	OPERATION AND MAINTENANCE PLAN - WATERING FACILITY
4	MT-ENG-253 WATER RIGHTS CONSIDERATIONS FOR IRRIGATION AND STOCKWATER SYSTEMS

INDEX OF DRAWING	
SHEET #	DRAWING TITLE
1	COVER SHEET
2	PLAN VIEW
3	SPRING BOX DETAILS
4	PIPELINE PROFILE
5	RUBBER TIRE TANK DETAILS

GENERAL NOTES

1. All elevations are in feet. All stationing is based on preliminary survey line data and is measured horizontal unless otherwise noted.
2. A survey of the area using a Trimble GPS unit was completed 10/21/2024. The horizontal datum is NAD 83. Coordinates are UTM Zone 12, International feet. The vertical datum is NAVD88 GEOID 09.
3. This system shall be installed according to plans and specifications. Any changes shall be approved by the respective design individual PRIOR to installation.
4. The NRCS may not be obligated to pay for as-built quantities that exceed those quantities shown on the plans and not approved through any changes.
5. It shall be the landowner's responsibility to obtain all necessary permits and easements as well as any other agreements necessary for the construction and operation of this project.
6. These plans and specifications do not indicate the existence or non-existence of utilities. It shall be the landowner's responsibility to locate all utilities within the project area.
7. Follow all OSHA guidelines for trench and excavation safety.
8. All disturbed areas shall be reseeded as soon as technically feasible following the completion of this project.
9. Fence the spring water collection area off from livestock and wildlife access to prevent any damage and prolong this project's longevity.

OWNER/OPERATOR REVIEW

1. I have reviewed the drawings, special provisions and construction specifications and agree to construct this project in accordance with them. Any modifications to the final drawings, specifications, or special provisions during construction will require approval from the NRCS design individual.
2. I agree to obtain all necessary permits, easements and water rights. I will inform NRCS of all conditions pertaining to the construction of the project as stated in the acquired permits. I also agree to comply with all Federal, State, and local laws pertaining to this construction.
3. Additionally, I acknowledge responsibility for marking private underground utilities affected by this project. State law and NRCS policy require that the excavator contact the Utility Notification Center at least 2 full business days prior to the start of the excavation work to ensure that all publicly owned underground utilities will be marked. The "CALL BEFORE YOU DIG" phone number for Montana is 811 OR 1-800-424-5555. A "CALL BEFORE YOU DIG" ticket number will be required before construction can begin if NRCS staff are to be present during construction

OWNER/OPERATOR _____ DATE _____

NRCS REPRESENTATIVE _____ DATE _____

	Date
Designed CLE BERKRAM	01/2025
Drawn CLE BERKRAM	01/2025
Checked .	.
Approved CLE BERKRAM	01/2025

COVER SHEET

REED SPRING DEVELOPMENT, PIPELINE, & TANK

LAPHAM RANCH

EQIP CONTRACT #74032523OKA - CINs 13, 14, 15

BEAVERHEAD COUNTY MONTANA

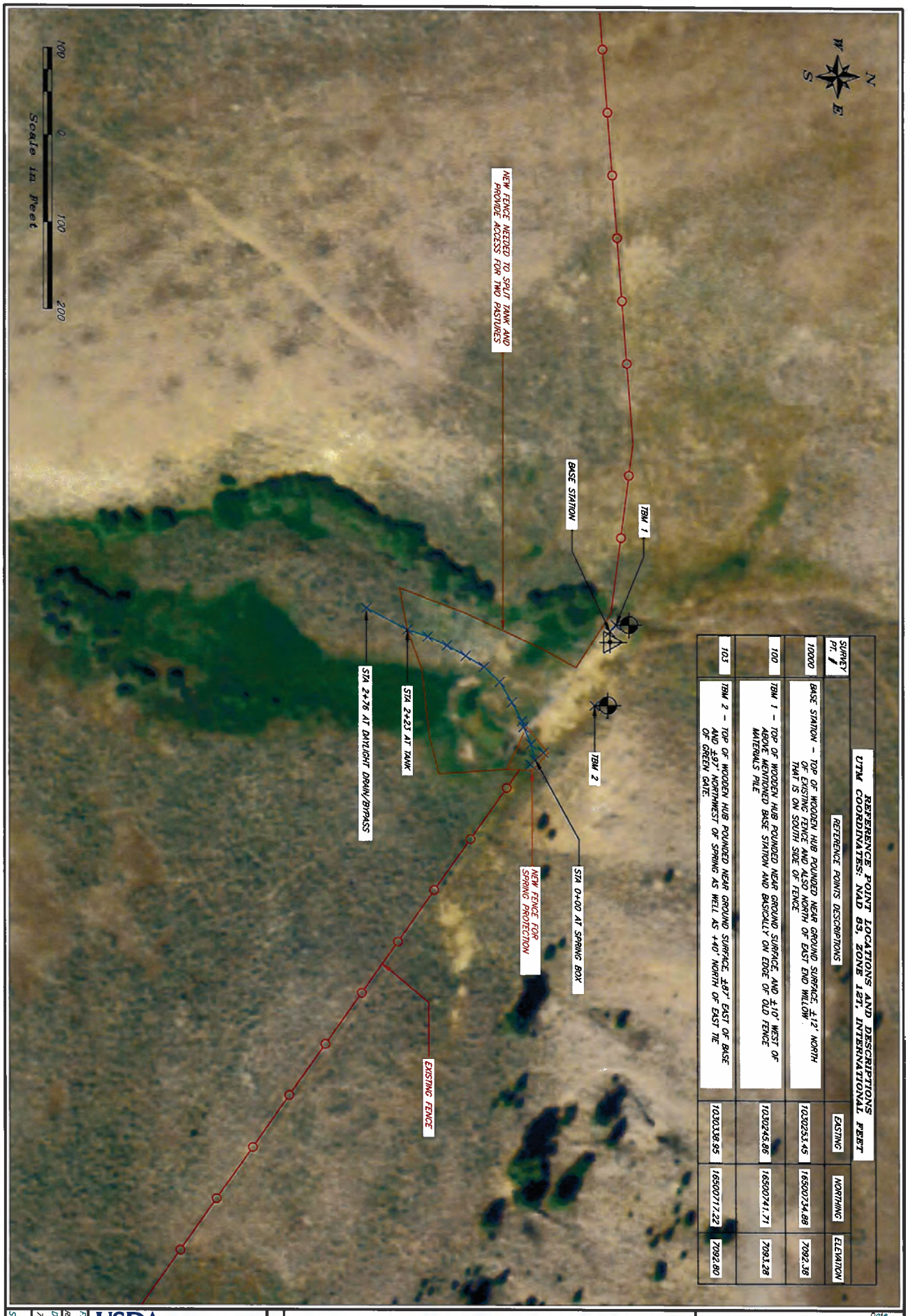
JOB CLASS III

USDA United States Department of Agriculture Natural Resources Conservation Service

File Name REEDFIELDSPRING.DWG

Drawing No. 74032523OKA-6

Sheet 1 of 5



UTM REFERENCE POINT LOCATIONS AND DESCRIPTIONS
COORDINATES: NAD 83, ZONE 12T, INTERNATIONAL FEET

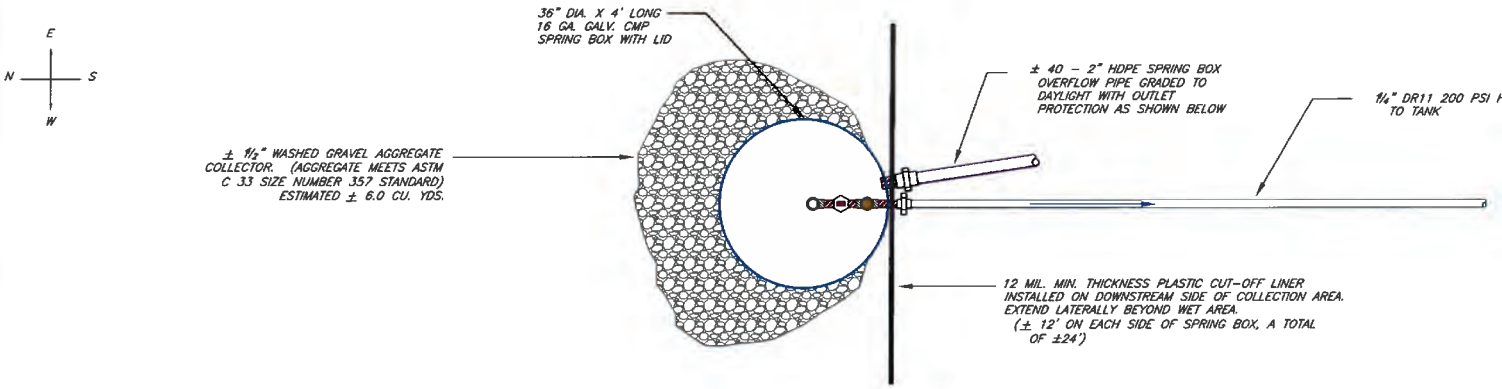
SURVEY PT. #	REFERENCE POINTS DESCRIPTIONS	EASTING	NORTHING	ELEVATION
10000	BASE STATION – TOP OF WOODEN HUB POUNDED NEAR GROUND SURFACE, ±12' NORTH OF EXISTING FENCE AND ALSO NORTH OF EAST END WILLOW THAT IS ON SOUTH SIDE OF FENCE	1030253.45	1650073.88	7092.38
100	TBM 1 – TOP OF WOODEN HUB POUNDED NEAR GROUND SURFACE, AND ±10' WEST OF ABOVE MENTIONED BASE STATION AND BASICALLY ON EDGE OF OLD FENCE MATERIALS PILE	1030245.86	1650074.71	7093.28
103	TBM 2 – TOP OF WOODEN HUB POUNDED NEAR GROUND SURFACE, ±97' EAST OF BASE AND ±97' NORTHWEST OF SPRING AS WELL AS +40' NORTH OF EAST TIE OF GREEN GATE.	1030338.95	1650077.22	7092.80

Sheet 2 of 5	File Name REEDPIELDSPRING.DWG Drawing No 740325230KA-6	USDA United States Department of Agriculture Natural Resources Conservation Service	JOB CLASS III

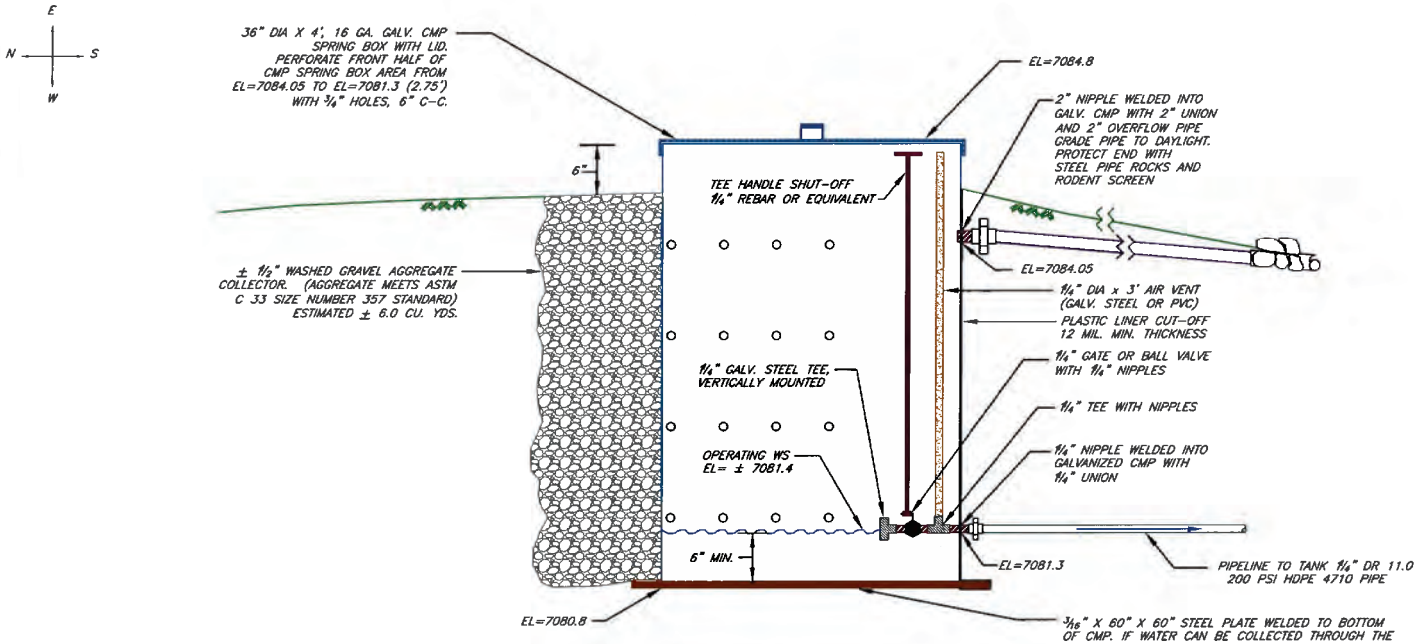
PLAN VIEW
REED SPRING DEVELOPMENT, PIPELINE, & TANK
LAPHAM RANCH
EQIP CONTRACT #740325230KA – CINs 13, 14, 15
BEAVERHEAD COUNTY MONTANA

		Date
Designed	OLE BERKRAM	01/2025
Drawn	OLE BERKRAM	01/2025
Checked		
Approved	OLE BERKRAM	01/2025

CCAA Big Hole Spring Development Stockwater 013-2025



REED SPRING LAYOUT
TOP VIEW



REED SPRING LAYOUT
SIDE VIEW

NOTES:

1) GRAVEL COLLECTOR SHALL BE CLEAN AND WELL GRADED.

2) SPRING BOX SHALL BE FOUNDED ON IMPERVIOUS MATERIAL OR HAVE 3/16" GALV. STEEL PLATE BOTTOM IF FLOW IS COLLECTED ONLY BY COLLECTOR PIPES. SPRING BOX SHALL BE PERFORATED, GRAVEL PACKED, AND PLACED ON A 12" GRAVEL BASE IF FLOW WILL BE COLLECTED THROUGH SIDES AND BOTTOM OF BOX. MAY ALSO USE A 12" DEEP ½" WASHED GRAVEL WITH NON-WOVEN GEOSYNTHETIC LINER AS A BASE IF SITE CONDITIONS ALLOW.

3) REPAIR ANY AREAS WHERE DAMAGE TO THE ZINC COATING OCCURS IN ACCORDANCE WITH THE "SUBMERGENCE IN WATER EXPOSURE" SECTION OF CONSTRUCTION SPECIFICATION MT-109-CORRUGATED METAL PIPE.

4) SPRING BOX LID SHALL BE PAINTED OR GALVANIZED. IF PAINTED, FOLLOW PAINT SYSTEM E OF CONSTRUCTION SPECIFICATION MT-113-METAL FABRICATION AND INSTALLATION.

5) IT IS RECOMMENDED THAT THE COLLECTION AREA BE FENCED OFF TO INCREASE SPRING LONGEVITY.

DRAWING NOT TO SCALE

	Designed	Drawn	Checked	Approved
	OLE BERKRAM	OLE BERKRAM	.	OLE BERKRAM
Date	01/2025	01/2025		01/2025

SPRING BOX DETAILS
REED SPRING DEVELOPMENT, PIPELINE, & TANK
LAPHAM RANCH
EQIP CONTRACT #74032523OKA - CINs 19, 14, 15
BEAVERHEAD COUNTY MONTANA

JOB CLASS III

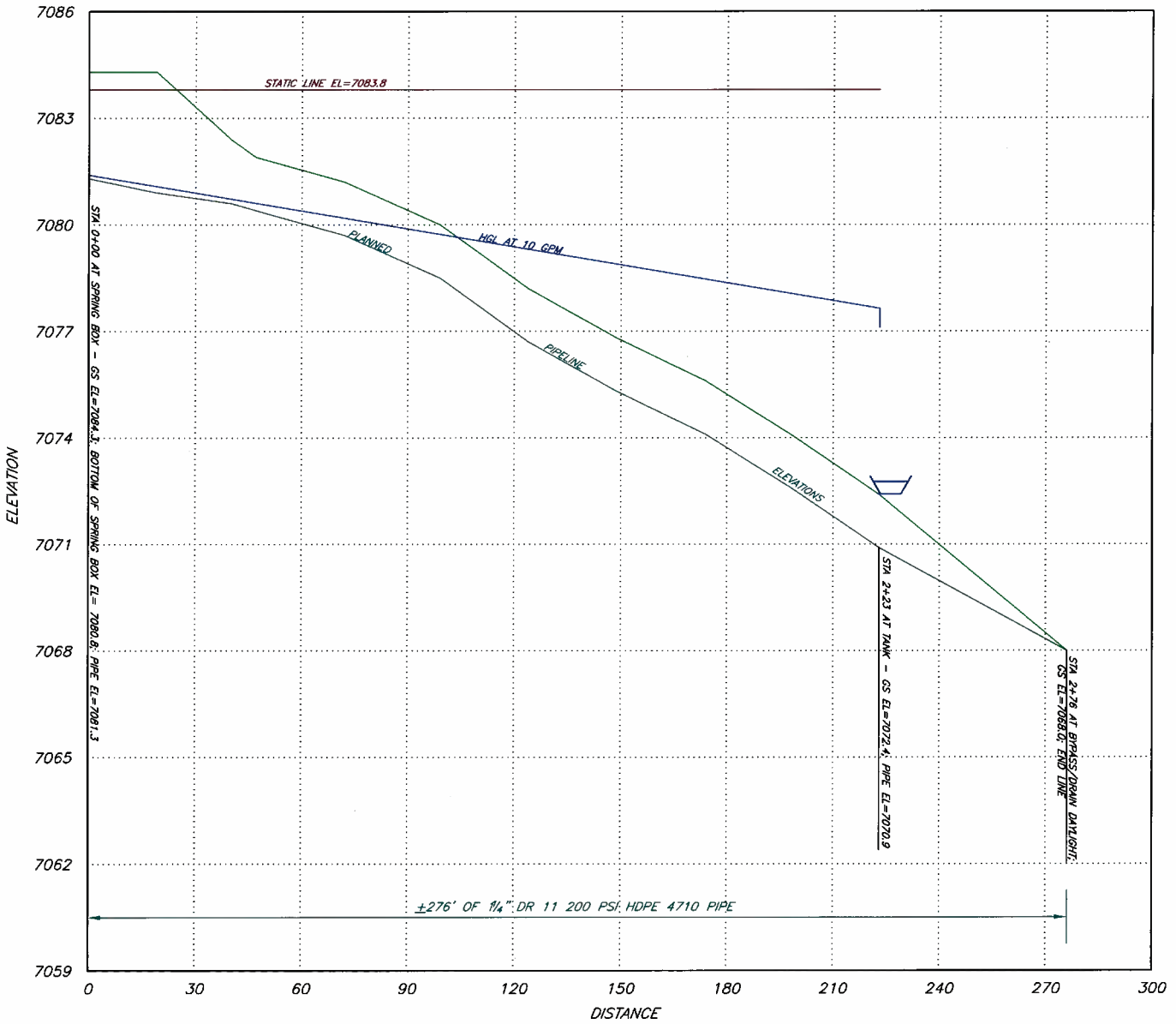
United States Department of Agriculture
USDA Natural Resources Conservation Service

File Name
REEDFIELDSPRING.DWG

Drawing No.
74032523OKA-6

Sheet 3 of 5

CCAA Big Hole Spring Development Stockwater 013-2025



PIPELINE PROFILE

NOTES:

1) ALL ELEVATIONS ARE REFERENCED OFF OF TBM'S ESTABLISHED FROM A BASE STATION DURING TRIMBLE R10 SURVEY GRADE GPS SURVEY COMPLETED ON 10/21/2024. THE HORIZONTAL DATUM IS NAD83. COORDINATES ARE UTM ZONE 12, INTERNATIONAL FEET. THE VERTICAL DATUM IS NAVD88 GEOID 09.

2) BASE STATION, ELEVATION=7092.375, IS THE TOP OF WOODEN HUB POUNDED NEAR GROUND ±12' NORTH OF EXISTING FENCE AND ALSO NORTH OF EAST END WILLOW LINE THAT IS ON SOUTH SIDE OF FENCE.
TBM #1, ELEVATION=7093.28, IS THE TOP OF A WOODEN HUB POUNDED NEAR GROUND ±10' WEST OF BASE STATION AND BASICALLY ON EDGE OF OLD FENCE MATERIALS PILE.
TBM #2, ELEVATION=7092.803, IS THE TOP OF A WOODEN HUB POUNDED NEAR GROUND ±87' EAST OF BASE AND ±97' NORTHWEST OF SPRING AS WELL AS ±40' NORTH OF EAST TIE OF GREEN GATE.

3) INTERNATIONAL FEET COORDINATES ARE AS FOLLOWS:
BASE STATION - 16500734.88N; 1030253.452E
TBM #1 - 16500741.710N; 1030245.858E
TBM #2 - 16500717.220N; 1030338.954E

4) THE DESIGNED PIPELINE SLOPES ARE AS FOLLOWS:
FROM STA 0+00 TO STA 0+19 = 0.021 FT/FT
FROM STA 0+19 TO STA 0+40 = 0.014 FT/FT
FROM STA 0+40 TO STA 0+47 = 0.029 FT/FT
FROM STA 0+47 TO STA 0+72 = 0.028 FT/FT
FROM STA 0+72 TO STA 0+99 = 0.044 FT/FT
FROM STA 0+99 TO STA 1+24 = 0.072 FT/FT
FROM STA 1+24 TO STA 1+49 = 0.056 FT/FT
FROM STA 1+49 TO STA 1+74 = 0.048 FT/FT
FROM STA 1+74 TO STA 1+98 = 0.063 FT/FT
FROM STA 1+98 TO STA 2+23 = 0.068 FT/FT
FROM STA 2+23 TO STA 2+76 = 0.055 FT/FT

5) CORRESPONDING CUTS FROM EACH STATION'S GROUND SURFACE ELEVATION TO THE PLANNED PIPELINE ELEVATION ARE AS FOLLOWS.:
STA 0+00 - CUT 3.00' TO EL=7081.3
STA 0+19 - CUT 3.40' TO EL=7080.9
STA 0+40 - CUT 1.80' TO EL=7080.6
STA 0+47 - CUT 1.50' TO EL=7080.4
STA 0+72 - CUT 1.50' TO EL=7079.7
STA 0+99 - CUT 1.50' TO EL=7078.5
STA 1+24 - CUT 1.50' TO EL=7076.7
STA 1+49 - CUT 1.50' TO EL=7075.3
STA 1+74 - CUT 1.50' TO EL=7074.1
STA 1+98 - CUT 1.50' TO EL=7072.6
STA 2+23 - CUT 1.50' TO EL=7070.9
STA 2+76 - CUT 0.00' TO EL=7068.0

6) MINIMUM BURIAL FOR PIPELINE IS 1.5' UNLESS OTHERWISE NOTED OR SHOWN ABOVE.

SCALE; HORZ. 1"=30'
VERT. 1"=3'

		Date
Designed	OLE BERKRAM	01/2025
Drawn	OLE BERKRAM	01/2025
Checked		
Approved	OLE BERKRAM	01/2025

PIPELINE PROFILE
REED SPRING DEVELOPMENT, PIPELINE, & TANK
LAPHAM RANCH
EQIP CONTRACT #74032623OKA - CINs 13, 14, 15
BEAVERHEAD COUNTY MONTANA

JOB CLASS III

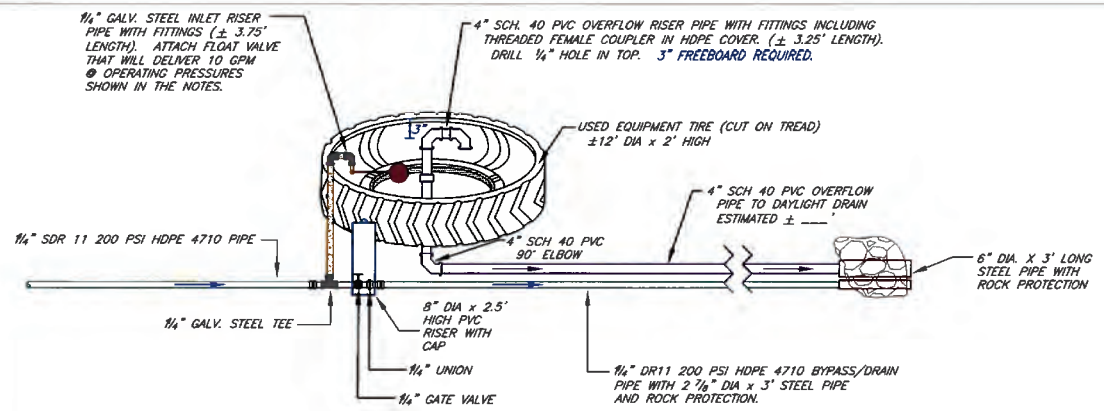
USDA United States Department of Agriculture
Natural Resources Conservation Service

File Name
REEDFIELDSPRING.DWG

Drawing No.
74032523OKA-6

Sheet 4 of 5

CCAA Big Hole Spring Development Stockwater 013-2025



PLUMBING FOR RUBBER TIRE STOCK TANK DOWNHILL INSTALLATION – SIDE VIEW

NOTES:

1) EXCAVATE A LEVEL PAD, SET TANK, AND PLACE GRAVEL FOR APRON A MINIMUM OF 6' OUT FROM TANK AND 6" THICK AS SHOWN.

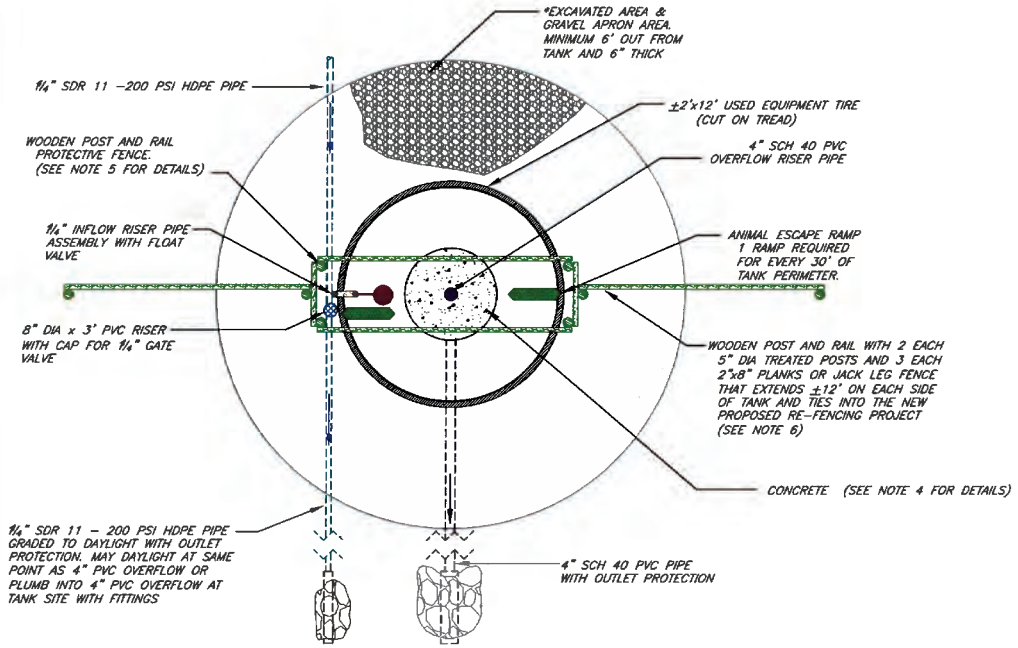
2) THIS DRAWING IS FOR A "DOWNHILL TYPE" RUBBER TIRE TANK INSTALLATION AT THE FOLLOWING LOCATIONS AND PRESSURES: STA 2+23 – 4.1 PSI STATIC & 1.2 PSI OPERATING

3) A FLOAT VALVE THAT WILL DELIVER 10 GPM AT A MINIMUM OF 2 PSI WILL BE NEEDED

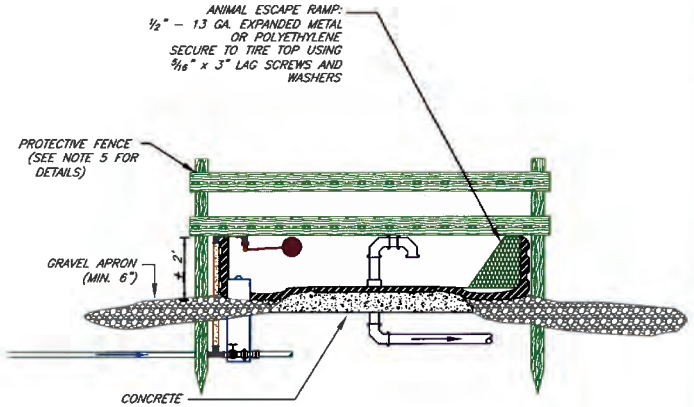
4) THE TIRE CENTER WILL BE FILLED WITH 3000 PSI CONCRETE. SEAL AROUND HUB TO PREVENT LEAKAGE. A POLYETHYLENE COVER MAY BE SUBSTITUTED FOR CONCRETE. PLEASE CONTACT NRCS FOR DETAILS.

5) POSTS SHALL BE TREATED AND A MINIMUM OF 5" DIAMETER. BOARDS SHALL BE A MINIMUM OF 2"x8". A STEEL PIPE AND RAIL FENCE MAY BE SUBSTITUTED FOR WOOD. PLEASE CONTACT NRCS FOR DETAILS.

6) PROTECTIVE TANK FENCE IS CONFIGURED SO THAT A CROSS FENCE SPLITTING 2 FIELDS CAN TIE INTO IT WHILE STILL PROTECTING THE INLET RISER AND OVERFLOW ASSEMBLIES.



RUBBER TIRE STOCK TANK DOWNHILL INSTALLATION – TOP VIEW



PROTECTIVE FENCE SIDE VIEW

DRAWING NOT TO SCALE

		Date
Designed	OLE BERKRAM	01/2025
Drawn	OLE BERKRAM	01/2025
Checked		
Approved	OLE BERKRAM	01/2025

RUBBER TIRE TANK DETAILS

REED SPRING DEVELOPMENT, PIPELINE, & TANK
LAPHAM RANCH
EQIP CONTRACT #74032523OKA – CINs 13, 14, 15
BEAVERHEAD COUNTY MONTANA

JOB CLASS III

United States Department of Agriculture
USDA Natural Resources Conservation Service

File Name
REEDFIELDSPRING.DWG

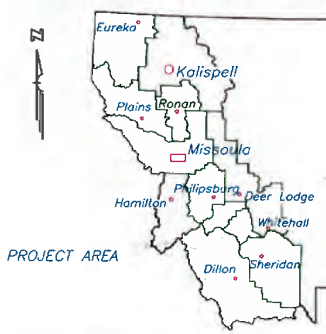
Drawing No
74032523OKA–6

Sheet 5 of 5

013-2025

CCAA Big Hole Spring Development Stockwater

McCOY CATTLE COMPANY
MID VAQUERO SPRING DEVELOPMENT



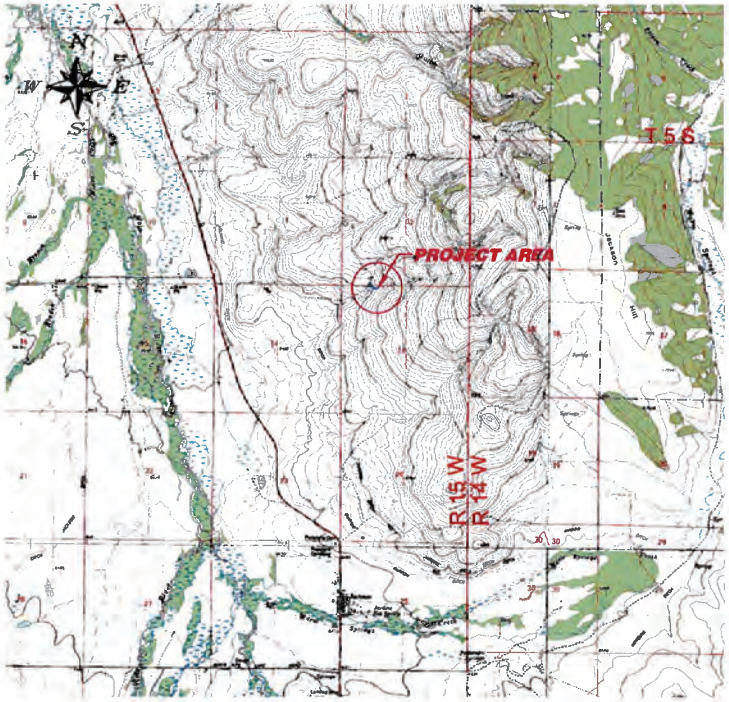
PREPARED BY

USDA United States Department of Agriculture

Natural Resources Conservation Service

Dillon Field Office

MONTANA



LOCATION MAP

5000 0 5000 10000

Scale in Feet

ESTIMATED QUANTITIES				
NO.	ITEM	UNIT	PLANNED	AS-BUILT
1	36" DIA X 5' LONG SPRING BOX WITH LID AND			
	3/16"x60"X60" STEEL PLATE	EA	1	
2	4" DIA PVC PERFORATED COLLECTION PIPE	LI. FT.	± 105	
3	4" STEEL TO PLASTIC COUPLER	EA.	1	
4	1/2" WASHED GRAVEL	CU. YDS.	± 26	
5	12 MIL PLASTIC LINER	SQ. FT.	± 1100	
6	1/4" GALVANIZED STEEL TEE	EA.	3	
7	1/4" DIA. x 4' GALVANIZED STEEL VENT PIPE	EA.	1	
8	1/4" GATE VALVE WITH NIPPLES	EA.	2	
9	IN PLACE TEE HANDLE FOR 1/4" GATE VALVE	EA	1	
10	1/4" PIPE UNION WITH NIPPLES	EA.	2	
11	2" PIPE UNION WITH NIPPLES	EA.	1	
12	2" HDPE PIPE FOR SPRING BOX OVERFLOW	LI. FT	± 40	
13	2 2/8" DIA x 3' STEEL PIPE WITH RODENT SCREEN			
	FOR SPRING BOX OVERFLOW AND DRAIN PIPE			
	OUTLET PROTECTION	EA.	2	
14	1/4" DR11 200 PSI 4710 HDPE PIPE	LI. FT.	± 510	
15	8" DIA x 3' LONG SCH 40 PVC RISER WITH LID	EA	1	
16	1/4" x ± 3.5' HIGH GALVANIZED STEEL INLET RISER			
	PIPE ASSEMBLY WITH FITTINGS	EA.	1	
17	FLOAT VALVE ASSEMBLY THAT DELIVERS 5 GPM	EA.	1	
18	4" DIA SCH 40 PVC TANK OVERFLOW RISER PIPE			
	ASSEMBLY WITH FITTINGS INCLUDING	EA.	1	
19	4" DIA SCH 40 PVC TANK OVERFLOW PIPE	LI. FT.	±40	
20	± 6" DIA x 3' STEEL PIPE WITH RODENT SCREEN			
	FOR TANK OVERFLOW PIPE OUTLET PROTECTION	EA	1	
21	EXCAVATION - TRENCHING	LI. FT.	±690	
22	± 2'x12' RUBBER TIRE STOCK TANK WITH			
	CONCRETE CENTER HUB	EA.	1	
23	PROTECTIVE FENCE FOR STOCK TANK - INCLUDES			
	UPRIGHTS AND RAILS - CHOICE OF MATERIALS	EA.	1	
24	GRAVEL FOR TANK APRON	CU. YDS.	±6.5	
25	ANIMAL ESCAPE RAMP	EA.	2	
26	MISCELLANEOUS FITTINGS AND MATERIALS	AS	REQUIRED	

LIST OF SPECIFICATIONS		
SPEC #	SPECIFICATION TITLE	DATE
MT CS-100	GENERAL REQUIREMENTS	03/2022
MT CS-102	POLUTION CONTROL	09/2020
MT CS-109	CORRUGATED METAL PIPE	03/2014
MT CS-113	METAL FABRICATION AND INSTALLATION	03/2014
MT PS-516	LIVESTOCK PIPELINE	12/2021
MT PS-574	SPRING DEVELOPMENT	11/2021
MT PS-614	WATERING FACILITY	12/2021

LIST OF OTHER ITEMS	
NO.	ITEM
1	OPERATION AND MAINTENANCE PLAN - SPRING DEVELOPMENT
2	OPERATION AND MAINTENANCE PLAN - LIVESTOCK PIPELINE
3	OPERATION AND MAINTENANCE PLAN - WATERING FACILITY
4	MT-ENG-253 WATER RIGHTS CONSIDERATIONS FOR IRRIGATION AND STOCKWATER SYSTEMS

INDEX OF DRAWING	
SHEET #	DRAWING TITLE
1	COVER SHEET
2	PLAN VIEW
3	PIPELINE PROFILE
4	SPRING BOX DETAILS
5	DRAIN DETAILS
6	RUBBER TIRE TANK DETAILS

GENERAL NOTES

1. All elevations are in feet. All stationing is based on preliminary survey line data and is measured horizontal unless otherwise noted.
2. A survey of the area using a Trimble GPS unit was completed 08/22/2023. The horizontal datum is NAD 83. Coordinates are UTM Zone 12, International feet. The vertical datum is NAVD88 GEOID 09.
3. This system shall be installed according to plans and specifications. Any changes shall be approved by the respective design individual PRIOR to installation.
4. The NRCS may not be obligated to pay for as-built quantities that exceed those quantities shown on the plans and not approved through any changes.
5. It shall be the landowner's responsibility to obtain all necessary permits and easements as well as any other agreements necessary for the construction and operation of this project.
6. These plans and specifications do not indicate the existence or non-existence of utilities. It shall be the landowner's responsibility to locate all utilities within the project area.
7. Follow all OSHA guidelines for trench and excavation safety.
8. All disturbed areas shall be reseeded as soon as technically feasible following the completion of this project.
9. Fence the spring water collection area off from livestock and wildlife access to prevent any damage and prolong this projects longevity.

OWNER/OPERATOR REVIEW

1. I have reviewed the drawings, special provisions and construction specifications and agree to construct this project in accordance with them. Any modifications to the final drawings, specifications, or special provisions during construction will require approval from the NRCS design individual.
2. I agree to obtain all necessary permits, easements and water rights. I will inform NRCS of all conditions pertaining to the construction of the project as stated in the acquired permits. I also agree to comply with all Federal, State, and local laws pertaining to this construction.
3. Additionally, I acknowledge responsibility for marking private underground utilities affected by this project. State law and NRCS policy require that the excavator contact the Utility Notification Center at least 2 full business days prior to the start of the excavation work to ensure that all publicly owned underground utilities will be marked. The "CALL BEFORE YOU DIG" phone number for Montana is 811 OR 1-800-424-5555. A "CALL BEFORE YOU DIG" ticket number will be required before construction can begin if NRCS staff are to be present during construction.

OWNER/OPERATOR _____ DATE _____

NRCS REPRESENTATIVE _____ DATE _____

	Date	
Designed	OLE BERKRAM	05/2024
Drawn	OLE BERKRAM	05/2024
Checked		
Approved	OLE BERKRAM	05/2024

COVER SHEET
MID VAQUERO SPRING
McCOY CATTLE CO.
EQIP CONTRACT #74032523OJ2 - CINs 1, 2, 3
BEAVERHEAD COUNTY MONTANA

JOB CLASS III

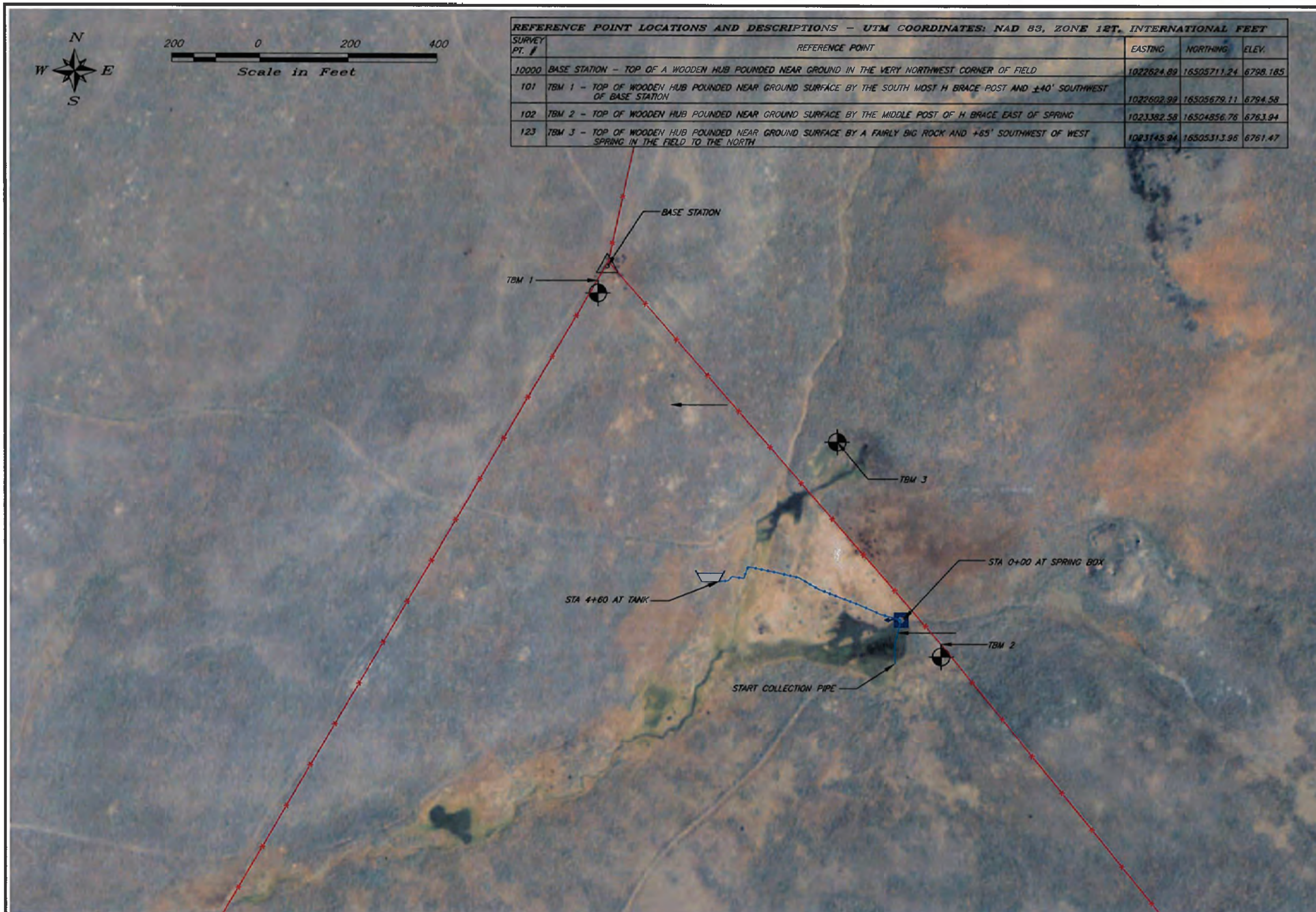
USDA United States Department of Agriculture Natural Resources Conservation Service

File Name
MIDVAQUEROSPRING.DWG

Drawing No
74032523OJ2-1

Sheet 1 of 6

REFERENCE POINT LOCATIONS AND DESCRIPTIONS – UTM COORDINATES: NAD 83, ZONE 12T, INTERNATIONAL FEET				
SURVEY PT. #	REFERENCE POINT	EASTING	NORTHING	ELEV.
10000	BASE STATION – TOP OF A WOODEN HUB POUNDED NEAR GROUND IN THE VERY NORTHWEST CORNER OF FIELD	1022624.89	16505711.24	6798.185
101	TBM 1 – TOP OF WOODEN HUB POUNDED NEAR GROUND SURFACE BY THE SOUTH MOST H BRACE POST AND ±40' SOUTHWEST OF BASE STATION	1022602.99	16505679.11	6794.58
102	TBM 2 – TOP OF WOODEN HUB POUNDED NEAR GROUND SURFACE BY THE MIDDLE POST OF H BRACE EAST OF SPRING	1023382.58	16504856.76	6763.94
123	TBM 3 – TOP OF WOODEN HUB POUNDED NEAR GROUND SURFACE BY A FAIRLY BIG ROCK AND +65' SOUTHWEST OF WEST SPRING IN THE FIELD TO THE NORTH	1023145.94	16505313.96	6761.47



Designed OLE BERKRAM Date 05/2024
Drawn OLE BERKRAM 05/2024
Checked
Approved OLE BERKRAM 05/2024

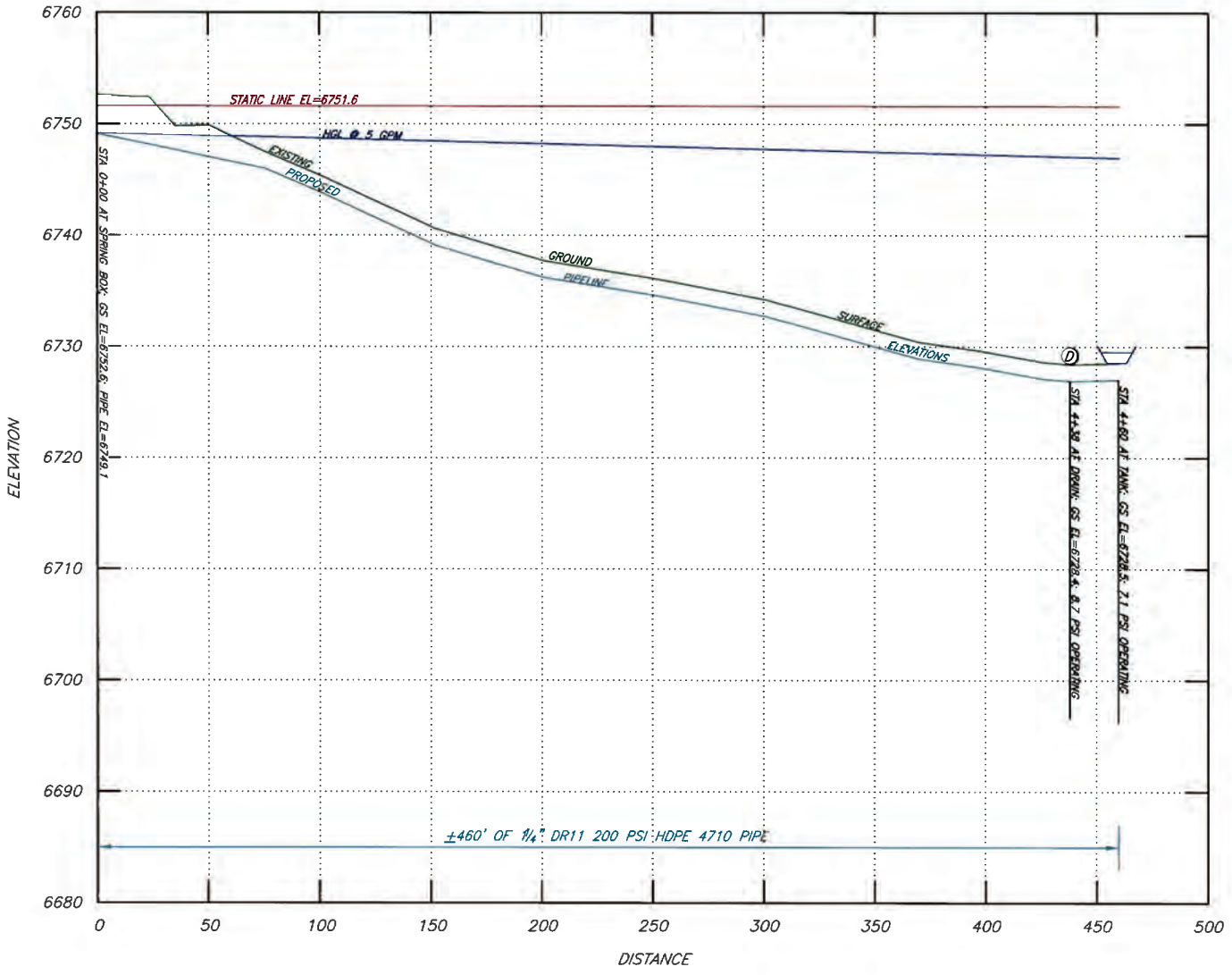
PLAN VIEW
MID VAQUERO SPRING
McCOY CATTLE CO.
EQIP CONTRACT #743252230JZ – CINs 1, 2, 3
BEAVERHEAD COUNTY MONTANA

JOB CLASS III

USDA United States Department of Agriculture
Natural Resources Conservation Service

File Name MIDVAQUEROSPRING.DWG
Drawing No. 740325230JZ-1
Sheet 2 of 6

CCAA Big Hole Spring Development Stockwater 013-2025



PIPELINE PROFILE

NOTES:

1) ALL ELEVATIONS ARE REFERENCED OFF OF TBM'S ESTABLISHED FROM A BASE STATION DURING TRIMBLE R10 SURVEY GRADE GPS SURVEY COMPLETED ON 08/29/2023. THE HORIZONTAL DATUM IS NAD83. COORDINATES ARE UTM ZONE 12, INTERNATIONAL FEET. THE VERTICAL DATUM IS NAVD88 GEOID 09.

2) BASE STATION, ELEVATION=6798.185, IS THE TOP OF A WOODEN HUB POUNDED NEAR GROUND IN THE VERY NORTHWEST CORNER OF FIELD.
TBM #1, ELEVATION=6794.58, IS THE TOP OF A WOODEN HUB POUNDED NEAR GROUND SURFACE BY THE SOUTH MOST H BRACE FENCE POST AND ±40' SOUTHWEST OF BASE.
TBM #2, ELEVATION=6763.94, IS THE TOP OF A WOODEN HUB POUNDED NEAR GROUND SURFACE BY THE MIDDLE POST OF H BRACE NORTHEAST OF SPRING.
TBM #3, ELEVATION=6761.47, IS THE TOP OF A WOODEN HUB POUNDED NEAR GROUND SURFACE BY A FAIRLY BIG ROCK AND ±65' SOUTHWEST OF "WEST SPRING" IN OTHER FIELD.

3) INTERNATIONAL FEET COORDINATES ARE AS FOLLOWS:
BASE STATION – 16505711.24N; 1022624.89E
TBM #1 – 16505679.11N; 1022602.99E
TBM #2 – 16504856.76N; 1023382.58E
TBM #3 – 16505313.96N; 1023145.94E

4) THE DESIGNED PIPELINE SLOPES ARE AS FOLLOWS:
FROM STA 0+00 TO STA 0+75 = 0.0413 FT/FT
FROM STA 0+75 TO STA 1+01 = 0.0846 FT/FT
FROM STA 1+01 TO STA 1+52 = 0.0922 FT/FT
FROM STA 1+52 TO STA 2+51 = 0.0320 FT/FT
FROM STA 2+51 TO STA 3+01 = 0.0380 FT/FT
FROM STA 3+01 TO STA 3+70 = 0.0551 FT/FT
FROM STA 3+70 TO STA 3+98 = 0.0286 FT/FT
FROM STA 3+98 TO STA 4+26 = 0.0357 FT/FT
FROM STA 4+26 TO STA 4+38 = 0.0167 FT/FT
FROM STA 4+38 TO STA 4+60 = −0.0045 FT/FT

5) CORRESPONDING CUTS FROM EACH STATION'S GROUND SURFACE ELEVATION TO THE PLANNED PIPELINE ELEVATION ARE AS FOLLOWS.:
STA 0+00 – CUT 3.50' TO EL=6749.10
STA 0+16 – CUT 3.96' TO EL=6748.44
STA 0+23 – CUT 4.25' TO EL=6748.15
STA 0+35 – CUT 2.15' TO EL=6747.65
STA 0+50 – CUT 2.87' TO EL=6747.03
STA 0+75 – CUT 1.50' TO EL=6746.00
STA 1+01 – CUT 1.50' TO EL=6743.80
STA 1+52 – CUT 1.50' TO EL=6739.10
STA 2+01 – CUT 1.50' TO EL=6736.20
STA 2+51 – CUT 1.50' TO EL=6734.60
STA 3+01 – CUT 1.50' TO EL=6732.70
STA 3+70 – CUT 1.50' TO EL=6728.90
STA 3+98 – CUT 1.50' TO EL=6728.10
STA 4+26 – CUT 1.50' TO EL=6727.10
STA 4+38 – CUT 1.50' TO EL=6726.90
STA 4+60 – CUT 1.50' TO EL=6727.00

6) MINIMUM BURIAL FOR PIPELINE IS 1.5' UNLESS OTHERWISE NOTED OR SHOWN ABOVE.

SCALE: HORZ. 1"=50'
VERT. 1=10'

		Date
Designed	OLE BERKRAM	05/2024
Drawn	OLE BERKRAM	05/2024
Checked	.	
Approved	OLE BERKRAM	05/2024

PIPELINE PROFILE
MID VAQUERO SPRING
McCOY CATTLE CO.
EQIP CONTRACT #740325230JZ – CINs 1, 2, 3
BEAVERHEAD COUNTY MONTANA

JOB CLASS III

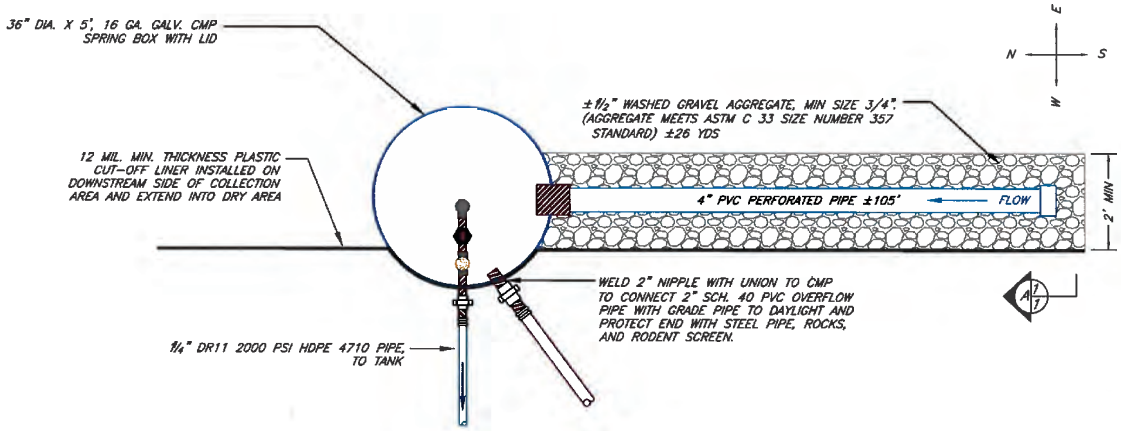
USDA United States Department of Agriculture
Natural Resources Conservation Service

File Name
MIDVAQUEROSPRING.DWG

Drawing No
740.325230JZ–1

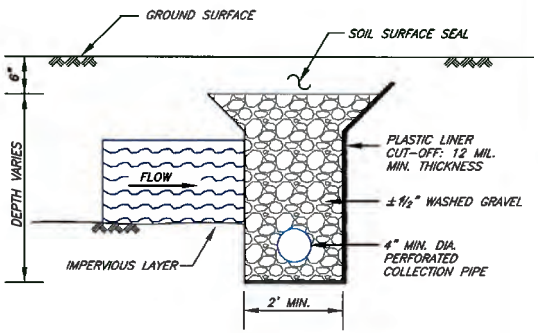
Sheet 3 of 6

CCAA Big Hole Spring Development Stockwater 013-2025

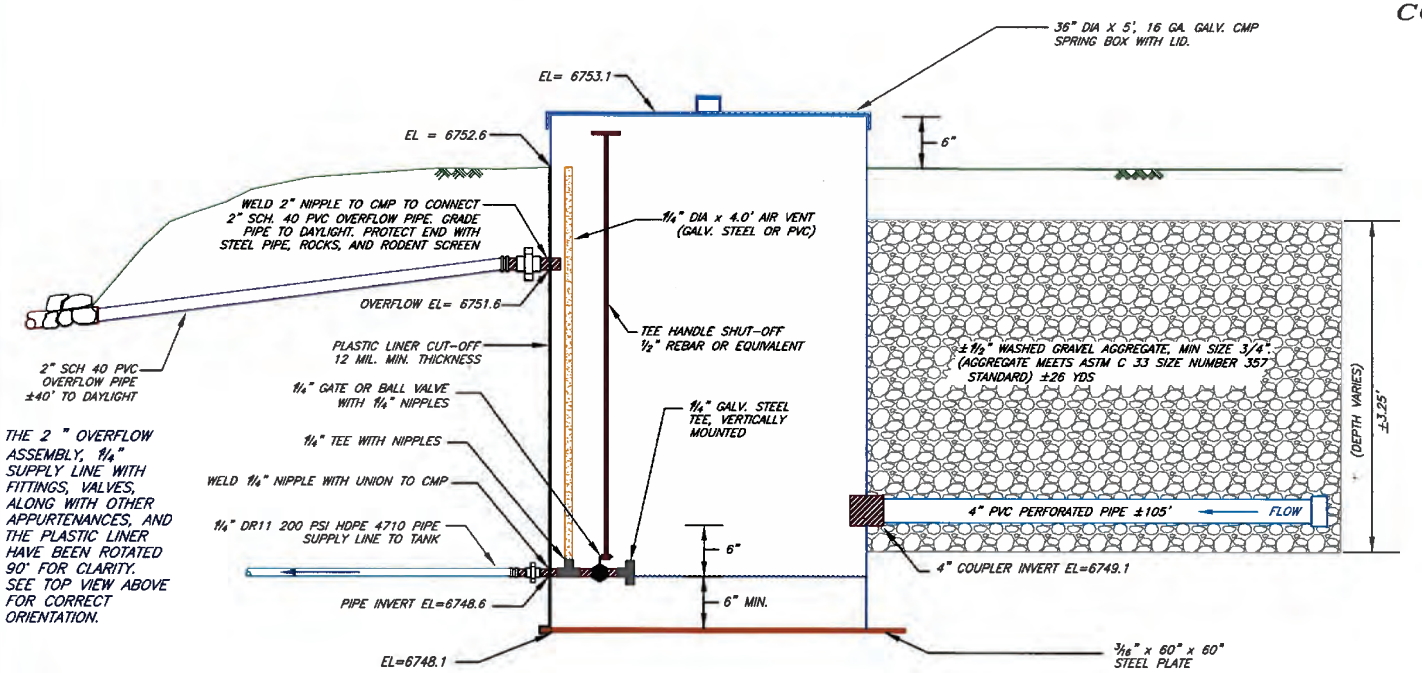


SPRING LAYOUT
TOP VIEW

SECTION A/T



TYPICAL CROSS SECTION
COLLECTION SYSTEM



THE 2 " OVERFLOW ASSEMBLY, 1¼" SUPPLY LINE WITH FITTINGS, VALVES, ALONG WITH OTHER APPURTENANCES, AND THE PLASTIC LINER HAVE BEEN ROTATED 90° FOR CLARITY. SEE TOP VIEW ABOVE FOR CORRECT ORIENTATION.

SPRING LAYOUT
SIDE VIEW

NOTES:

1) GRAVEL COLLECTOR SHALL BE CLEAN AND WELL GRADED.
2) IF NEEDED, USE A GEO-TEXTILE FILTER AROUND OUTSIDE OF GRAVEL TO PREVENT FINES MIGRATION INTO SPRING BOX.
3) SPRING BOX SHALL HAVE 3/16"x60"x60" GALVANIZED STEEL PLATE BOTTOM.
4) REPAIR ANY AREAS WHERE DAMAGE TO THE ZINC COATING OCCURS IN ACCORDANCE WITH THE "SUBMERGENCE IN WATER EXPOSURE" SECTION OF CONSTRUCTION SPECIFICATION MT-109-CORRUGATED METAL PIPE.
5) SPRING BOX AND LID SHALL BE PAINTED OR GALVANIZED. IF PAINTED, FOLLOW PAINT SYSTEM E OF CONSTRUCTION SPECIFICATION MT-113-METAL FABRICATION AND INSTALLATION.
6) SPRING BOX LAYOUT & DESIGN MAY BE ALTERED IN THE FIELD AS NECESSARY WITH THE APPROVAL OF NRCS.
7) FOLLOW ALL OSHA STANDARDS FOR TRENCH SAFETY.

DRAWING NOT TO SCALE

Date	Designed	Drawn	Checked	Approved
05/2024	OLE BERKRAM	OLE BERKRAM	OLE BERKRAM	05/2024

SPRING BOX DETAILS

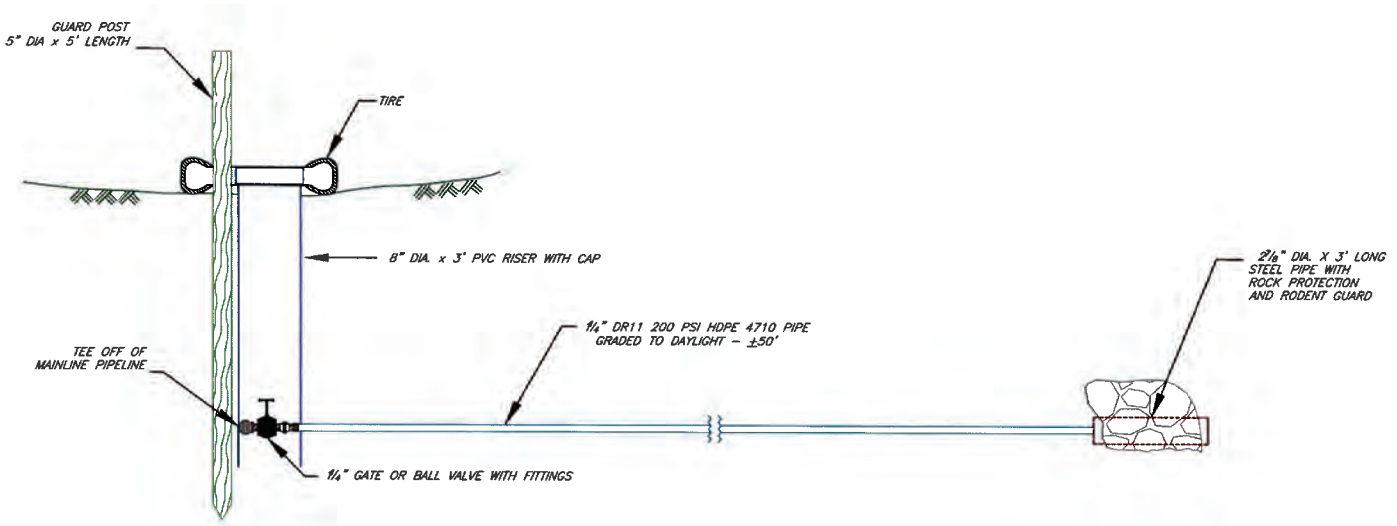
MID VAQUERO SPRING DEVELOPMENT
McCOY CATTLE CO.
EQIP CONTRACT #74032523OJZ - CINs 1, 2, 3
BEAVERHEAD COUNTY MONTANA

JOB CLASS III

USDA United States Department of Agriculture
Natural Resources Conservation Service

File Name: MIDVAQUEROSPRING.DWG
Drawing No.: 740325230JZ-1
Sheet 4 of 6

CCAA Big Hole Spring Development Stockwater 013-2025



PIPELINE DRAIN DETAILS – SIDE VIEW

LOCATIONS	MAINLINE PIPE DIAMETER	STATIC PRESSURE	OPERATING PRESSURE AT 5 GPM
STA 4+38	1¼"	10.6 PSI	8.7 PSI

NOTE:

GATE OR BALL VALVE SHALL HAVE A MINIMUM RATING OF 100 PSI.

PIPELINE DETAILS – DRAIN STATIONS

DRAWING NOT TO SCALE

		Date
Designed	OLE BERKRAM	05/2024
Drawn	OLE BERKRAM	05/2024
Checked	.	.
Approved	OLE BERKRAM	05/2024

DRAIN DETAILS
MID VAQUERO SPRING DEVELOPMENT
McCOY CATTLE CO.
EQIP CONTRACT#74032623012 - CINs 1, 2, 3
BEAVERHEAD COUNTY MONTANA

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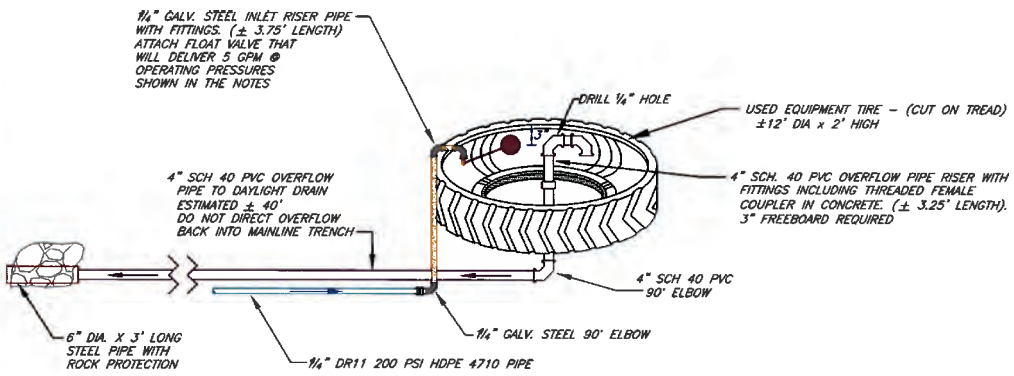
MIDVAQUEROSPRING.DWG

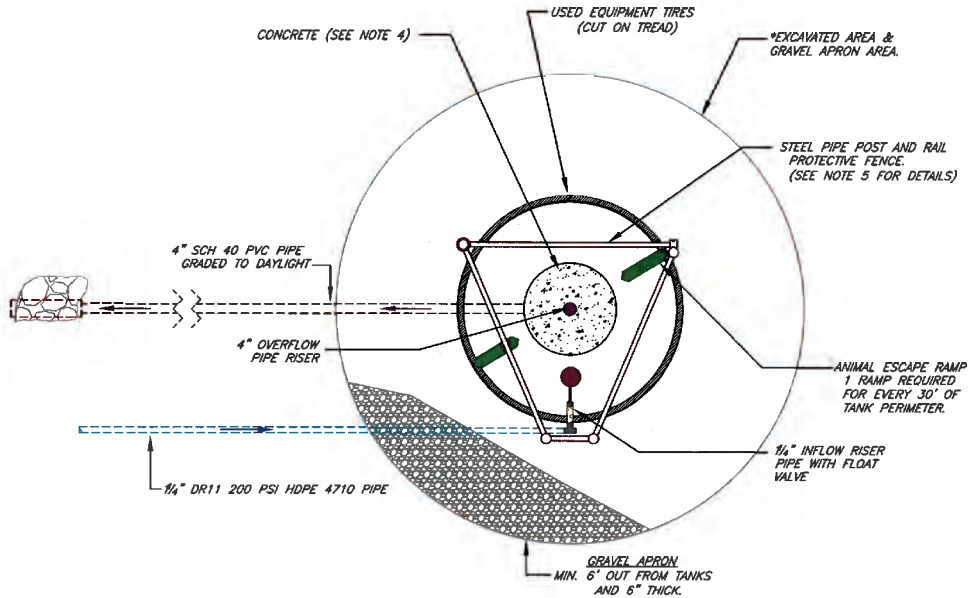
Drawing No.
740325230J2-1

Sheet 5 of 6

CCAA Big Hole Spring Development Stockwater 013-2025



PLUMBING FOR RUBBER TIRE STOCK TANK UPHILL INSTALLATION – SIDE VIEW



RUBBER TIRE STOCK TANK UPHILL INSTALLATION – TOP VIEW

NOTES:

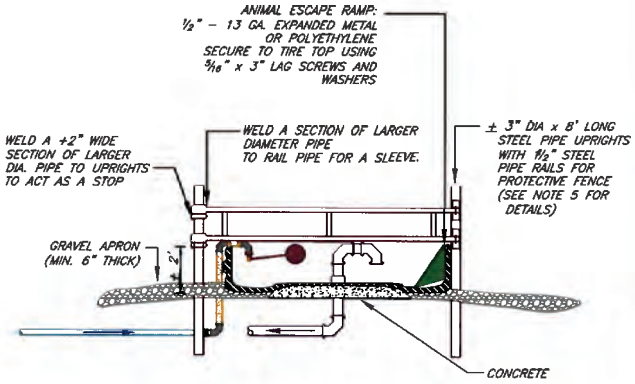
1) EXCAVATE A LEVEL PAD, SET TANK, AND PLACE GRAVEL FOR APRON A MINIMUM OF 6' OUT FROM TANK AND 6" THICK AS SHOWN.

2) THIS DRAWING IS FOR AN "UPHILL TYPE" TANK INSTALLATION AT THE FOLLOWING LOCATIONS AND PRESSURES: STA 4+60 – 7.1 PSI OPERATING

3) A FLOAT VALVE THAT WILL DELIVER 5 GPM AT A MINIMUM OF 5 PSI AND RATED FOR AT LEAST 50 PSI WILL BE NEEDED.

4) THE TIRE CENTER WILL BE FILLED WITH 3000 PSI CONCRETE. SEAL AROUND HUB TO PREVENT LEAKAGE. A POLYETHYLENE COVER MAY SUBSTITUTED FOR CONCRETE. PLEASE CONTACT NRCS FOR DETAILS.

5) ONE SIDE OF RAIL FENCE CAN BE HINGED FOR TANK ACCESS. ONE END OF HINGED SIDE MAY BE SLEEVED WITH A LARGER DIAMETER PIPE FOR BOTH RAILS. ALSO, A +2" WIDE SECTION OF THE LARGER DIAMETER PIPE MAY BE WELDED TO THE UPRIGHT TO ACT AS A STOP. BOTH RAILS CAN BE WELDED FLUSH TO THE SLEEVE. THE OTHER END OF THE HINGED SIDE MAY HAVE 3/16"x2½"x2½" ANGLE IRON BRACKET ASSEMBLIES FOR BOTH RAILS WELDED TO THE UPRIGHT. DRILL ½" DIA HOLES IN BOTH TOP AND BOTTOM ANGLE IRON BRACKETS TO ALLOW ½" DIA T–TOP REBAR STOP PINS TO SLIDE THROUGH AND SECURE THE PIPE RAILS WITH A KEEPER PIN. THE RAILS ON THE OTHER TWO FENCE SIDES MAY BE WELDED DIRECTLY TO UPRIGHTS. FILL UPRIGHTS WITH DIRT AND WELD CAPS TO TOPS. THERE ARE OTHER METHODS OF SECURING THE HINGED SIDE, CHECK WITH NRCS FOR MORE DETAILS. MAY SUBSTITUTE STEEL POSTS AND RAILS WITH 5" DIA TREATED POSTS AND 2"x8" PLANKS. PLEASE CONTACT NRCS FOR DETAILS.



PROTECTIVE FENCE SIDE VIEW

DRAWING NOT TO SCALE

RUBBER TIRE TANK DETAILS

MID VAQUERO SPRING

McCOY CATTLE CO.

EQIP CONTRACT #74338230JZ – CINs 1, 2, 3

BEAVERHEAD COUNTY MONTANA

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