



§319 Nonpoint Source Management Program  
FY2021



# Raft River Flood District No. 15

Raft River Subbasin and Aquifer Water Quality and Recharge Project  
Cassia County, Idaho

Project Sponsor

Project Field Officer

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## ATTACHMENTS

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- A ELECTRONIC APPLICATION**
- B VICINITY MAP**
- C PROJECT MAP**
- D LETTERS OF SUPPORT**

# RAFT RIVER SUBBASIN AND AQUIFER WATER QUALITY AND RECHARGE PROJECT

## PROJECT SPONSOR

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Organization Name	Raft River Flood District No. 15
Organization Phone	(208) 431-5560
Organization Email	sjward4242@gmail.com
Organization Address	PO Box 142, Malta, ID 83342
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Project Field Officer	Todd Gerratt
Field Officer Phone	(208) 312-8008

## PROJECT LOCATION

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Primary county	Cassia County
Other affected counties	N/A
Hydrologic Unit Code (HUC)	17040210
Latitude and longitude	Latitude: 42°27'38.28"N Longitude: 113°20'29.53"W

### Project Location Description

The Raft River Subbasin of south-central Idaho is a watershed in the Columbia River Basin. Of its total 967,150 acres, 81.6 percent of the watershed is within Idaho. The Raft River is a tributary of the Snake River with headwaters beginning in Northern Utah. The river joins the Snake River in Cassia County, Idaho just above Lake Walcott and downstream from the American Falls Reservoir. The Raft River aquifer is a historical contributor to the Eastern Snake Plain aquifer water balance; however, underflow is believed to be a fraction of historic levels [See **Attachment B – Vicinity Map**].

The proposed diversion is located on parcel RP11S27E181200, southwest of East 400 S and south of 2350 E in Malta, Idaho. The property legal description is SWSE and NWSE QQ of Section 18 Township 11S Range 27E. The parcel landowner, ADTD Farms, LLC, is a partner on the project and has agreed to provide an easement to the Flood District for operation and maintenance of the structure if the project is funded and construction moves forward [See **Attachment D – Letters of Support**].

## TMDL EFFORT

Is this project part of a TMDL effort? If yes, please provide the name of the TMDL in the box below and describe how the project fits into the overall load reduction effort.

### TMDL Name / Description:

In July 2004, the EPA approved the Raft River Subbasin Assessment and Total Maximum Load. The report identified the following pollutants in the segment from Malta to the Snake River: excessive sediments, excessive nutrients, total ammonia, dissolved oxygen, E. coli, flow alteration or diversions, and salinity. Due to a lack of water during the study, water quality information could not be gathered from the lower reaches of the Raft River. The section does remain on the §303(d) list for flow alteration.

Designated beneficial uses for the Raft River, specifically the segment from Cassia Creek to Heglar Canyon Creek, include cold water aquatic life, salmonid spawning and primary contact recreation (IDAPA 58.01.02.250).

The proposed flood flow and sediment control project will detain and divert flood flows and decrease the sediment load in the Raft River during annual flow events. Once diverted, the collected flood flow will percolate into the Raft River aquifer through the highly pervious gravel layer of the floodplain. Sediment will be trapped in the bottom of the pond and removed during annual maintenance. The expected annual diversions will be diverted under a recharge water right that allows up to 25 cfs of flow to be diverted for recharge purposes. The Flood District has additional jurisdiction to make emergency diversions in excess of 25 cfs during flood events that pose a risk to their service area.



*Figure 1: Diversion on Big Wood Canal similar in design to the proposed project. The proposed project will include the Constant Head Orifice Weir outlet structure only; the river-wide diversion will be excluded.*

Stream	Segment	Assessment Unit	Pollutant(s)	Implementation Plan
Raft River	Cassia Creek to Heglar Canyon Creek	ID17040210SK002_05 ID17040210SK002_02	Fecal Coliform, Sediment, Temperature	Yes

## EXPECTED OUTCOMES & BENEFITS

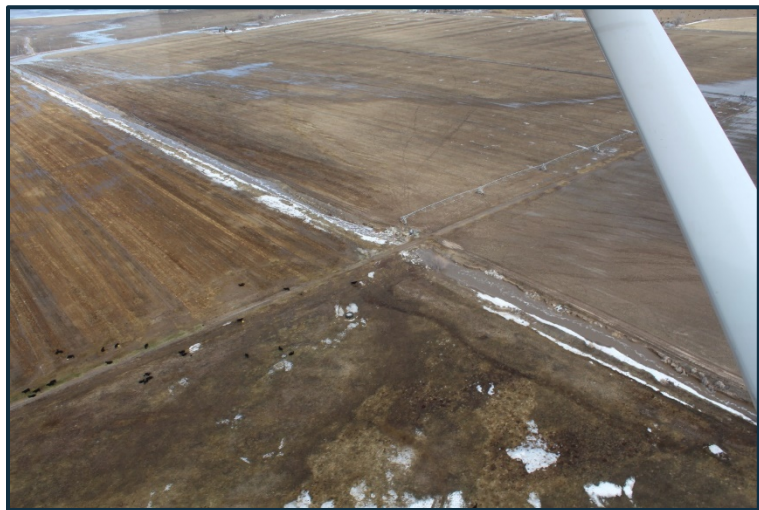
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### How is the project expected to reduce a pollutant of concern identified in a TMDL?

Ongoing declines in groundwater levels and heavy anthropomorphic impacts have changed the historically flowing Raft River into a dry river bed that has become largely channelized and detached from the historic river channel and floodplain. The dry conditions are unable to support riparian vegetation needed to stabilize the banks, resulting in a mobile alluvial streambed that easily transports sediment and debris downstream during flood events. The purpose of this project is to detain and divert flood flows and decrease the sediment load in the Raft River during flood events by diverting polluted water into an adjacent, high-infiltration rate sediment basin. High sediment load water, once diverted by the simple outlet and measurement structure, will flow along the diversion channel where it will connect with the historic river channel. As the high sediment load water travels through the channels, the flood flow will be stripped of silts to increase infiltration before it reaches the flood detention and recharge basin [See **Attachment C – Project Map**]. The proposed project entails the construction of the outlet measurement structure, bank stabilization of both the diversion and old river channel, and excavation of the recharge/sedimentation basin. The proposed high-capacity recharge/sediment control basin will have an estimated infiltration rate of 25 cfs of flood flow and a flood detention storage capacity of approximately 90 acre-ft per event.

This project is a collaborative effort of the Raft River Flood District, the Raft River Ground Water District, East Cassia Soil and Water Conservation District, and Ida Gold Farms, LLC / ADTD Farms, LLC. These entities are also partnered with other stakeholders in a larger effort already approved and funded by the NRCS Watershed Program to capture and recharge flood flows, stabilize groundwater levels, and reduce sediment load discharged into the highly sensitive Minidoka Wildlife Refuge. Located at the confluence of the Raft River and Snake River, the wetland is a key nesting location for the Western and Clarke's Grebes. Overtime, sediment has filled in the wetland and is reducing habitat.

Nonpoint sources are the only sources of pollution within the Raft River Subbasin. Preliminary flood flow analysis indicates the bankfull flows, with a 1.5-year return interval, at the Raft River Gauge (USGS 13078000 RAFT RIVER AB ONEMILE CREEK NR MALTA ID) are approximately 200 cfs per year. Bankfull flows transport the extent of the stream sediment load, and, over time, becomes channel forming. The proposed diversion would divert over 10 percent of the bankfull flows, thereby reducing sediment load by 10 percent.



*Figure 2: Typical channelized section of the Raft River due to intermittent flows as seen during the Raft River flood in 2017.*

In a continuous effort to lessen the impacts of annual flood events in the Raft River Subbasin, the Flood District put forth a similar project for funding through the Idaho Water Resources Board Flood Management Program and works in cooperation with the Raft River Groundwater District to maintain and fund recharge projects.

### **How is the project going to protect a high-quality waterway?**

The Raft River is the major waterway draining the 360 square miles of the Raft River Subbasin and a tributary of the Snake River, the confluence of which falls within Lake Walcott. The Minidoka Wildlife Refuge is a highly sensitive wetland located at the confluence whose beneficial uses include salmonid spawning and cold water aquatic life. Flow alteration of the Raft River for irrigation use has resulted in a channelized and unstable riverbed. The proposed flood detention basin diversion is adjacent to the current Raft River channel and in a prime location for flood control, flood detention, and sediment retention as one of the last sections before the Raft River enters a channelized section with higher density farming and industry.

### **How will the outcome benefit aquatic communities, recreation, wildlife habitat and populations, pasture lands, civic matter, etc.?**

The Raft River aquifer is a prolific groundwater source and a historical contributor to the Eastern Snake Plain aquifer water balance; however, underflow is believed to be a fraction of historic levels. The aquifer remains an important groundwater source used for irrigating approximately 80,000 acres of highly productive agricultural land. The Idaho Department of Water Resources (IDWR) designated the Raft River aquifer a Critical Groundwater Area in 1963 in response to USGS documented water level decline and decreased stream flow.

Average annual groundwater level declines exceed 2-ft per year.

Decreasing groundwater levels, compounded with the effects of sediment, channelization, irrigation diversions, and low summer flows, have made the Raft River into an intermittent river with a dry, channelized riverbed and little riparian habitat to stabilize the bank. These conditions contribute to the heavy sediment load flood events in the Raft River Valley.



*Figure 3: Raft River flood in 2017 over I-86.*

In 2017, catastrophic flood waters from the Raft River overtopped I-86 and caused a five-day closure of the interstate. To mitigate flood risk, the Idaho Transportation Department has since raised the section of interstate that crosses the Raft River and replaced the bridge to increase sediment storage capacity at the confluence of the Raft River

and Snake River. Sedimentation is also a risk for the Minidoka Wildlife Refuge and the wetlands within the confluence.

## ESTIMATED TOTAL PROJECT FUNDING

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Estimated Total Cost of Project	\$258,490
Estimated Matching Funds Amount	\$109,290
Estimated §319 Grant Amount	\$149,200

Include a brief description of the sources of the 40 percent match contribution.

- The Flood District held a board meeting by conference call on July 15, 2020 and approved a hard match of \$4,000 for the proposed project [See **Attachment D – Letters of Support**].
- ADTD Farms, LLC has the labor and equipment resources to excavate the flood control recharge basin, the diversion and old channels, and the outlet measurement site (the structure itself will be contracted out). ADTD has partnered with the Flood District and agreed to provide excavation labor costs as an in-kind match (56 percent of the estimated matching fund amount) and riprap, gravel, and grass seed as a material soft match (40 percent of the estimated matching fund amount).

## PROJECT DETAILS

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Water body type	River/Stream
Project type	Agriculture & Ground Water
Primary pollutants to be addressed	Bacteria, Sediment & Temperature
Beneficial uses affected by the project	Water supply & Wildlife habitat

Primary BMPs to be implemented:

- Sediment basin
- Channel stabilization
- Water and sediment control

## ESTIMATED ANNUAL LOAD REDUCTION

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Estimated pollutant load reduction:

Will be provided once calculations are completed by IDEQ.

Method used to make estimate:

Pending IDEQ estimated pollutant load reduction calculations.

### Modeling exercise used:

Pending IDEQ estimated pollutant load reduction calculations.

## BEST MANAGEMENT PRACTICES MONITORING

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Diversion measurements will be taken during diversion period. Water quality samples will be taken during each diversion period for five years and analyzed for TSS, TP, and E coli. Monitoring will continue for five years and a report of the activities, water quality, and estimated load reduction will be compiled.

## PUBLIC INFORMATION AND EDUCATION

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The project will be tracked and reported to the East Cassia Soil and Water Conservation District for inclusion in their newsletters. The Raft River Flood District will post a sign at the project site for the duration of the project to inform the public of the project. The sign will read: "This cooperative project has been funded by the Idaho Department of Environmental Quality and the United States Environmental Protection Agency."

## PROJECT TASKS / WORK PLAN

Title	Dates	Responsible Parties	\$319	Match	Total
#1 Grant Administration	July 2021- July 2022	RRFD	\$700	\$1,500	\$2,200
Timeframe Description:	All 319 NPS administrative procedures will be followed for the duration of the project.				
Deliverables:	Administrative staff will track the progress of the entire project, to include: keeping records of all required information; tracking, obtaining and preparing all invoices; securing any necessary signatures; assisting with progress reporting; and posting signage at project site along the main road.				
#2 ADTD Farms, LLC Easement	July 2021- October 2021	ADTD Farms, LLC and RRFD	\$2,500	\$2,500	\$5,000
Timeframe Description:	RRFD will work with the private landowner to secure an easement for the construction, operation, and maintenance of the diversion structure. Total task cost will be used to prepare the easement; the private landowner will grant the easement for flood diversion match.				
Deliverables:	Legal description and recorded easement allowing Raft River Flood District access to the structure.				
#3 Permitting	July 2021- October 2021	J-U-B ENGINEERS, Inc.	\$4,000	\$0	\$4,000



Timeframe Description:	A Jt. Application for Permits and the Cassia County Flood Plain permits will be secured as indicated.				
Deliverables:	Applicable issued permits for construction.				
<b>#4 Design of Diversion and Measurement Weir</b>	July 2021- October 2021	J-U-B ENGINEERS, Inc.	\$25,000	\$0	\$25,000
Timeframe Description:	The drafting and design of a Constant Head Orifice Weir outlet structure and riprap diversion within the Raft River and diversion channel to the historic Raft River Channel. The diversion structure will include the design of a riprap static weir to increase the head and will be sized for a 100-year event using HEC-RAS. The outlet will be designed to carry the estimated infiltration rate of 25 cfs and be controlled by head gates with board to maintain outlet head for measurements. Design will use engineered structures and specifications. A topographic survey of the Raft River reach at the proposed diversion and measurement weir location will be completed to develop a diversion design that ties in with the old channel.				
Deliverables:	Final design drawings and associated technical memoranda, and final bid package.				
<b>#5 Diversion Construction</b>	October 2021- January 2022	Contractor and ADTD Farms, LLC	\$110,000	\$8,720	\$118,720
Timeframe Description:	The diversion will be constructed in the dry period of the Raft River, typically occurring from the late summer to early spring. Construction material quantities will be refined during the final design process. Estimated excavation will include embankments and a 500-foot diversion channel to the abandoned channel that runs into the flood detention/recharge basin. The outlet would be sized to carry the estimated infiltration rate of 44 cfs and be controlled by head gates with board to maintain outlet head for measurements. All necessary materials will be identified and secured prior to initiation of construction or secured for a timely delivery during construction. Excavation will be local to the point of diversion and will be completed in the dry season after required permits are secured. The dry season typically starts in June and runs through January. Estimated construction costs include a 9 percent estimate for construction inspection.				
Deliverables:	Completed construction of the Constant Head Orifice Weir outlet structure. Maintenance will be included as part of the NRCS Raft River Watershed Project. A diversion channel, protected by riprap and/or vegetation per the ECSWCD and engineering design, will be constructed and will divert flows from the current Raft River to the old Raft River channel.				

<b>#6 Flood Detention/ Recharge/Sedimentation Basin Construction</b>	October 2021- January 2022	ADTD Farms, LLC	\$0	\$53,400	\$53,400
Timeframe Description:	The flood detention/recharge basin will be constructed during the dry period of the Raft River, typically occurring from the late summer to early spring. Construction material quantities will be refined during the final design process. The flood detention/recharge basin is currently planned to be 6 acres in size and 15 feet in depth and will also require excavation to construct.				
Deliverables:	A 6-acre flood detention/recharge/sedimentation basin constructed and restored to a depth of 15 feet.				
<b>#7 Channel Stabilization</b>	October 2021- January 2022	ADTD Farms, LLC	\$0	\$43,170	\$43,170
Timeframe Description:	The channel will be stabilized during the dry period of the Raft River, typically occurring from the late summer to early spring. Construction will include dirt work, excavation, and riprap and gravel placement along approximately 2,000 feet of the old Raft River channel.				
Deliverables:	Approximately 2,000 feet of the old Raft River channel scrubbed, and silts removed to expose granular materials.				
<b>#8 Monitoring</b>	July 2021- July 2022	RRFD and J-U-B ENGINEERS, Inc.	\$5,500	\$0	\$5,500
Timeframe Description:	Development of the project and restoration activities, including those for the diversion, diversion channel, and flood detention/recharge/sedimentation basin, will be documented. Water quality samples will be taken during each diversion period for 5 years and analyzed for TSS, TP, and <i>E. coli</i> . Monitoring will continue for 5 years. A report of the activities, water quality, and estimated load reduction will be provided by the Flood District with the assistance of J-U-B ENGINEERS, Inc.				
Deliverables:	A 5-Year Report to include monitoring efforts, before and after documentation, and diversion and total sediment load retained by the facility.				
<b>#9 Information and Education</b>	July 2021- July 2022	East Cassia Soil and Water Conservation District (ECSWCD)	\$1,500	\$0	\$1,500
Timeframe Description:	ECSWCD to provide community education and outreach through their newsletters, website, and other educational resources. ECSWCD will also provide consultation services on the plant varieties and vegetation best				

	suited for bank stabilization in the disturbed, constructed, and modified areas of the project. The District will track the project using information provided by the Flood District and retain and distribute the 5-Year Report.
Deliverables:	Public relations and outreach of the facility to the ECSWCD network and affiliated organizations.

*\*The Raft River Flood District (RRFD) has followed all federal guidelines in the procurement of J-U-B ENGINEERS, Inc. as the engineering firm on this project.*

## BUDGET

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### Project Personnel Costs

N/A

### Sub-Contractual Costs

Title	Total Amount	\$319 Amount	Match Amount
Easement Preparation	<b>\$5,000</b>	\$2,500	\$2,500
Permitting	<b>\$4,000</b>	\$4,000	\$0
Monitoring	<b>\$5,500</b>	\$5,500	\$0
Project Design and Surveying	<b>\$25,000</b>	\$25,000	\$0
Diversion and Measurement Weir Construction	<b>\$118,720</b>	\$110,000	\$8,720

### Travel Costs

N/A

### Supplies, Operating, and Equipment Costs

Description	Total Amount	\$319 Amount	Match Amount
Riprap and Gravel	<b>\$29,000</b>	\$0	\$29,000
Grass Seed	<b>\$14,170</b>	\$0	\$14,170
Excavation Equipment Operation	<b>\$53,400</b>	\$0	\$53,400
Newsletter Distribution, Website Outreach, and Educational Resources	<b>\$1,500</b>	\$1,500	\$0
Project Administration	<b>\$1,500</b>	\$0	\$1,500
Project Signage	<b>\$700</b>	\$700	\$0

### Indirect Costs

N/A

## Match Sources

Source Title	Match Type	Amount
1 – Raft River Flood District	Hard	<b>\$4,000</b>
2 – ADTD FARMS LLC	Soft	<b>\$43,170</b>
	In-Kind	<b>\$62,120</b>

## LETTERS OF SUPPORT

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List all letters of support received here. Include copies of all stated letters with your final/signed hard copy application.

- National Resource Conservation Service – Burley Field Office
- East Cassia Soil and Water Conservation District
- Raft River Ground Water District
- ADTD FARMS, LLC

## SIGNATURE AUTHORITY

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Signature Authority Name

Sara Jane Ward

Signature Authority Title

Secretary, Raft River Flood District No. 15

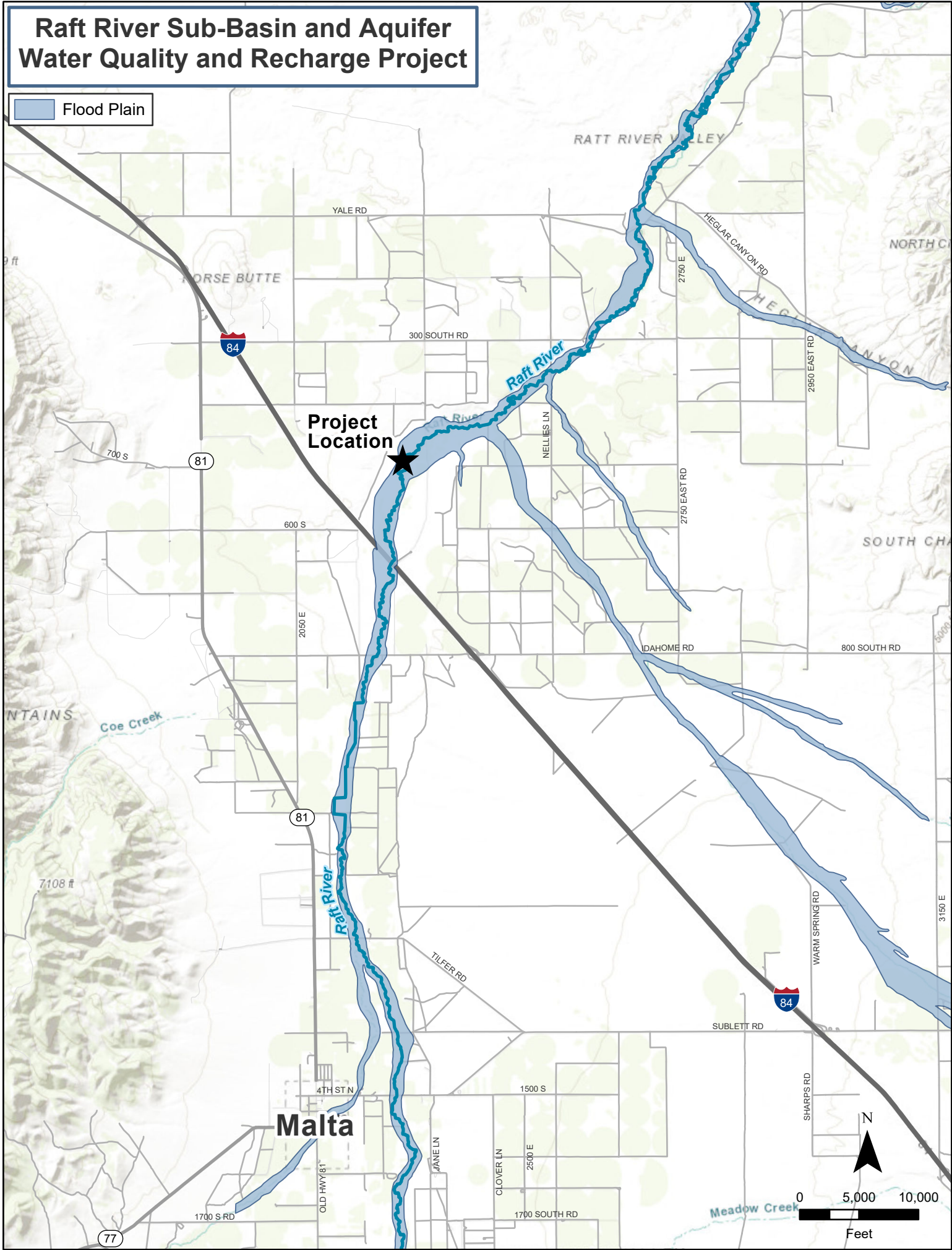
Signature Authority Phone

(208)431-5560



# Raft River Sub-Basin and Aquifer Water Quality and Recharge Project

Flood Plain





# Raft River Sub-Basin and Aquifer Water Quality and Recharge Project

- Proposed Point of Diversion
- Proposed Diversion Channel
- Proposed Flood Detention/Recharge Basin
- Current Channel
- Old Channel
- Flood Plain Boundary

End of Old Channel Stabilization

- Strip topsoil
- Stabilize banks with grass seed and riprap

Start of Old Channel Stabilization

- Stabilize banks

Point of Diversion/  
Measurement Structure

