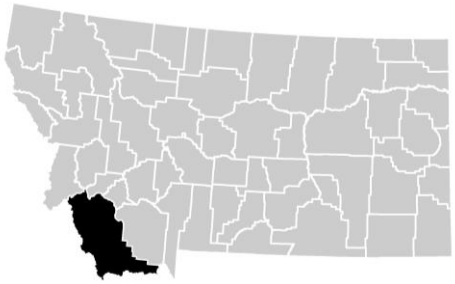
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 4



BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BEAVERHEAD COUNTY, UNINCORPORATED AREAS	300001
DILLON, CITY OF	300088
LIMA, TOWN OF	300177

FEMA

PRELIMINARY
01/15/2020

EFFECTIVE:

TBD

FLOOD INSURANCE STUDY NUMBER
30001CV000A
Version Number 2.6.4.6

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FLOOD INSURANCE STUDY REPORT
BEAVERHEAD COUNTY, MONTANA

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were

built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as “Post-FIRM” buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community’s regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Beaverhead County, Montana.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the United States Geological Survey (USGS) 8-digit Hydrologic Unit Code (HUC-8) sub-basins affecting each, are shown in Table 1. The FIRM panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Beaverhead County, Unincorporated Areas	300001	10020001, 10020002, 10020003, 10020004, 10020007	30001C0025C[1] 30001C0050C[1] 30001C0075C 30001C0100C 30001C0125C[1] 30001C0150C[1] 30001C0175C[1] 30001C0200C[1] 30001C0225C 30001C0250C 30001C0275C 30001C0300C 30001C0325C 30001C0350C 30001C0375C[1] 30001C0400C[1] 30001C0425C[1] 30001C0450C[1] 30001C0475C 30001C0500C 30001C0525C[1] 30001C0550C[1] 30001C0575C[1] 30001C0600C 30001C0614C 30001C0615C 30001C0618C 30001C0625C 30001C0650C[1] 30001C0675C[1] 30001C0700C[1] 30001C0725C 30001C0750C 30001C0775C[1]	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Beaverhead County, Unincorporated Areas	300001	10020001, 10020002, 10020003, 10020004, 10020007	30001C0800C[1] 30001C0825C[1] 30001C0850C[1] 30001C0875C[1] 30001C0877C 30001C0880C 30001C0881C 30001C0885C 30001C0900C 30001C0925C[1] 30001C0950C[1] 30001C0975C 30001C1000C 30001C1025C[1] 30001C1050C[1] 30001C1075C[1] 30001C1100C[1] 30001C1125C[1] 30001C1150C 30001C1169C 30001C1170C 30001C1175C 30001C1188C 30001C1189C 30001C1190C[1] 30001C1225C[1] 30001C1250C[1] 30001C1275C 30001C1300C[1] 30001C1325C[1] 30001C1350C[1] 30001C1375C[1] 30001C1400C[1] 30001C1419C 30001C1420C[1] 30001C1425C[1] 30001C1430C 30001C1431C 30001C1432C 30001C1433C	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Beaverhead County, Unincorporated Areas	300001	10020001, 10020002, 10020003, 10020004, 10020007	30001C1434C[1] 30001C1436C 30001C1437C 30001C1438C 30001C1439C 30001C1441C 30001C1445C[1] 30001C1451C 30001C1455C[1] 30001C1475C[1] 30001C1500C[1] 30001C1525C[1] 30001C1550C 30001C1575C[1] 30001C1600C[1] 30001C1625C[1] 30001C1650C[1] 30001C1675C[1] 30001C1679C 30001C1680C[1] 30001C1681C[1] 30001C1682C 30001C1683C 30001C1684C 30001C1686C[1] 30001C1687C 30001C1688C 30001C1689C 30001C1691C 30001C1692C 30001C1693C[1] 30001C1694C 30001C1701C 30001C1705C[1] 30001C1713C 30001C1715C[1] 30001C1725C[1] 30001C1750C[1] 30001C1775C[1] 30001C1800C[1]	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Beaverhead County, Unincorporated Areas	300001	10020001, 10020002, 10020003, 10020004, 10020007	30001C1825C[1] 30001C1850C[1] 30001C1875C[1] 30001C1900C[1] 30001C1907C 30001C1910C[1] 30001C1925C[1] 30001C1926C 30001C1930C[1] 30001C1950C[1] 30001C1975C[1] 30001C2000C[1] 30001C2025C[1] 30001C2050C[1] 30001C2075C[1] 30001C2100C[1] 30001C2125C[1] 30001C2150C[1] 30001C2175C[1] 30001C2200C[1] 30001C2225C[1] 30001C2250C[1] 30001C2275C[1] 30001C2300C[1] 30001C2325C[1] 30001C2350C[1] 30001C2375C[1] 30001C2400C[1] 30001C2425C[1] 30001C2450C[1] 30001C2475C[1] 30001C2500C[1] 30001C2525C[1] 30001C2550C[1] 30001C2575C[1] 30001C2600C[1] 30001C2625C[1] 30001C2650C[1] 30001C2675C[1] 30001C2700C[1]	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Beaverhead County, Unincorporated Areas	300001	10020001, 10020002, 10020003, 10020004, 10020007	30001C2725C[1] 30001C2750C[1] 30001C2775C[1] 30001C2800C[1] 30001C2814C 30001C2815C 30001C2825C[1] 30001C2850C[1] 30001C2875C[1] 30001C2900C[1] 30001C2925C[1] 30001C2950C[1] 30001C2975C[1] 30001C3000C[1] 30001C3025C[1] 30001C3050C[1] 30001C3075C[1] 30001C3100C[1] 30001C3125C[1] 30001C3150C[1] 30001C3152C 30001C3155C[1] 30001C3175C[1] 30001C3200C[1] 30001C3225C[1] 30001C3250C[1] 30001C3275C[1] 30001C3300C[1] 30001C3325C[1] 30001C3350C[1] 30001C3375C[1] 30001C3400C[1] 30001C3425C[1] 30001C3450C[1] 30001C3475C[1] 30001C3500C[1] 30001C3525C[1] 30001C3550C[1] 30001C3575C[1] 30001C3600C[1]	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Dillon, City of	300088	10020002	30001C1682C 30001C1684C 30001C1701C 30001C1705C[1]	
Lima, Town of	300177	10020001	30001C2814C 30001C2815C	

[1] Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1-percent-annual-chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1-percent-annual-chance and 0.2-percent-annual-chance floodplains; and 1-percent-annual-chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

  It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 30, “Map Repositories,” within this FIS Report.

- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

  The initial Countywide FIS Report for Beaverhead County became effective on [TBD]. Refer to Table 27 for information about subsequent revisions to the FIRMs.

- Selected FIRM panels for the community may contain information (such as floodways and cross sections) that was previously shown separately on the corresponding Flood Boundary and Floodway Map (FBFM) panels. In addition, former flood hazard zone designations have been changed as follows:

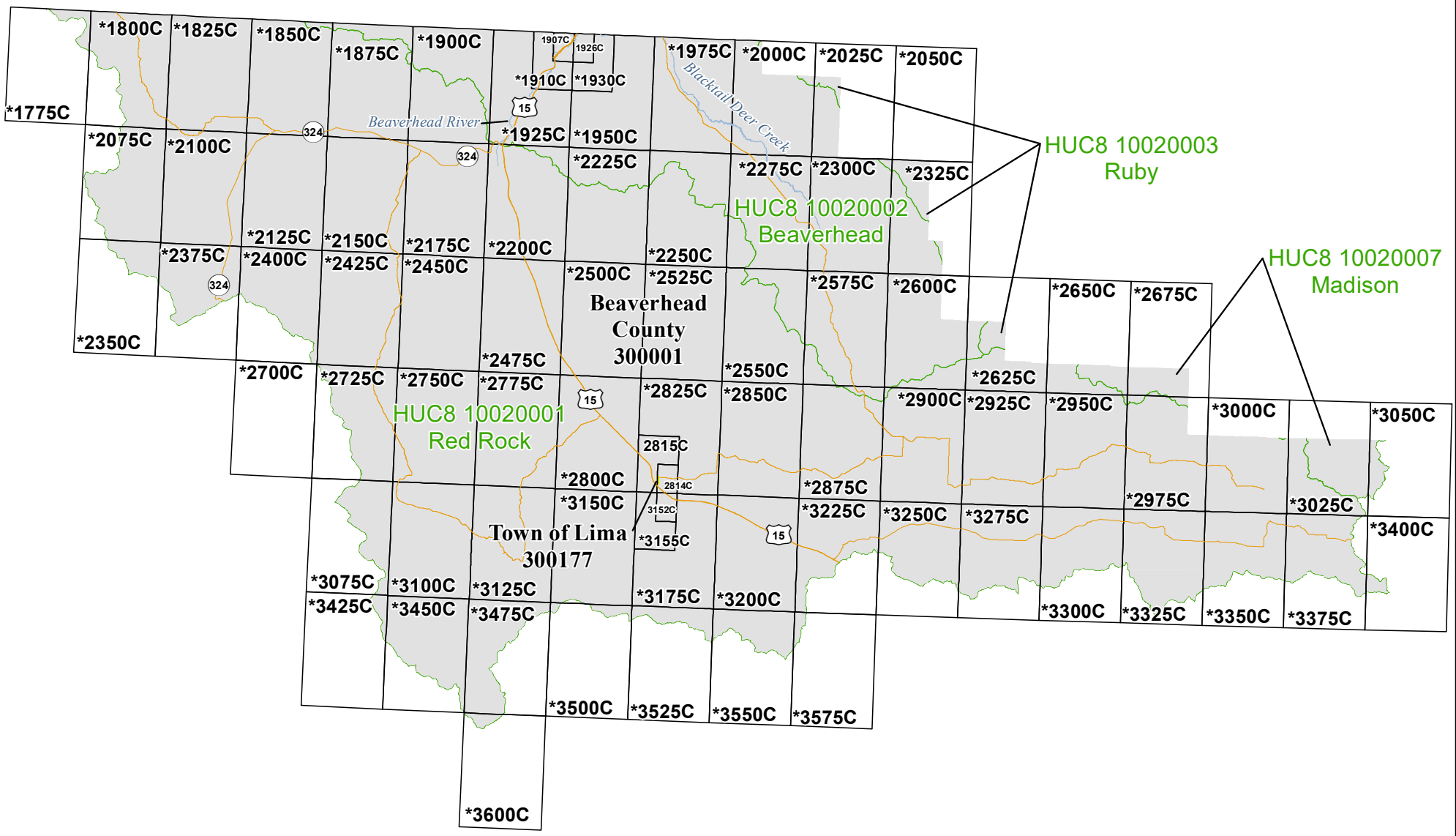
Old Zone	New Zone
A1 through A30	AE
V1 through V30	VE
B	X (shaded)
C	X (unshaded)

- The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at www.fema.gov/national-flood-insurance-program-community-rating-system or contact your appropriate FEMA Regional Office for more information about this program.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Beaverhead County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries, watershed boundaries, and USGS HUC-8 codes.

Figure 1: FIRM Index



N

1 inch = 11 miles 1 : 675,000

0 3 6 12 18 24 Miles

Map Projection:
State Plane Montana FIPS 2500 Feet; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

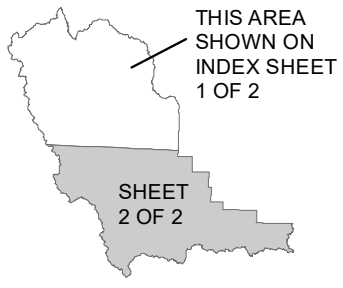
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

BEAVERHEAD COUNTY, MT
INDEX LOCATOR DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

BEAVERHEAD COUNTY, MONTANA and Incorporated Areas

PANELS PRINTED:
1907, 1926, 2814, 2815, 3152

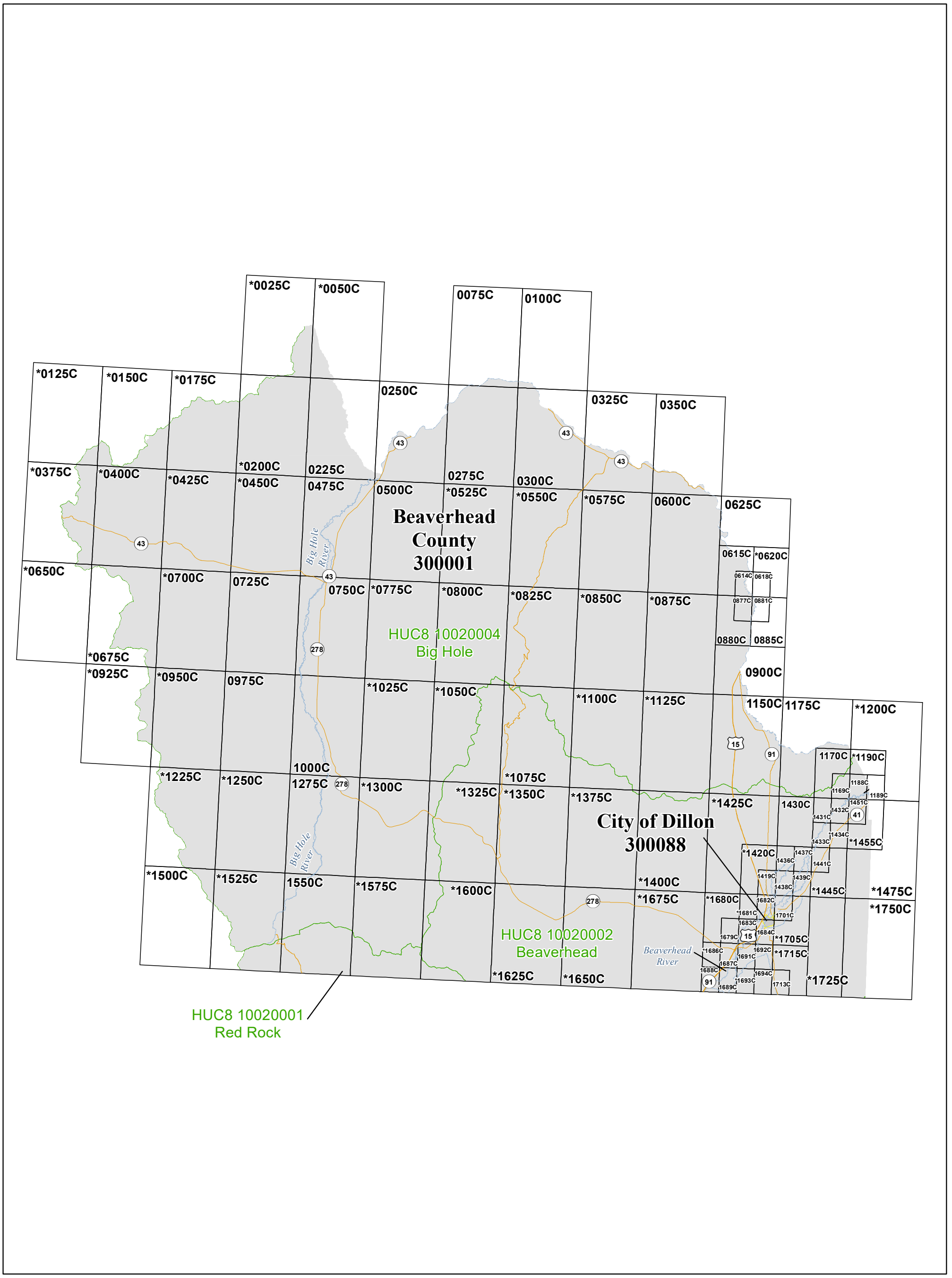
PRELIMINARY
01/15/2020

FEMA

MAP NUMBER
30001CIND2A

EFFECTIVE DATE

Figure 1: FIRM Index



1 inch = 8 miles 1 : 500,000

0 2.25 4.5 9 13.5 18 Miles

Map Projection:
State Plane Montana FIPS 2500 Feet; North American Datum 1983;
Western Hemisphere; Vertical Datum: NAVD 88

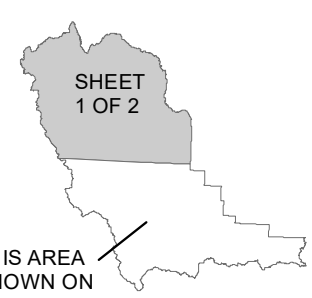
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

BEAVERHEAD COUNTY, MT
INDEX LOCATOR DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

BEAVERHEAD COUNTY, MONTANA and Incorporated Areas

PANELS PRINTED:

0075, 0100, 0225, 0250, 0275, 0300, 0325, 0350, 0475, 0500, 0600, 0614, 0615, 0618, 0625, 0725, 0750, 0877, 0880, 0881, 0885, 0900, 0975, 1000, 1150, 1169, 1170, 1175, 1188, 1189, 1275, 1419, 1430, 1431, 1432, 1433, 1436, 1437, 1438, 1439, 1441, 1451, 1550, 1679, 1682, 1683, 1684, 1687, 1688, 1689, 1691, 1692, 1694, 1701, 1713

PRELIMINARY
01/15/2020

FEMA

MAP NUMBER
30001CIND1A

EFFECTIVE DATE

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 27 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Non-Coastal Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

Figure 2. FIRM Notes to Users

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was State Plane Montana FIPS 2500 Feet; North American Datum 1983: Western Hemisphere. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov.

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 30 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was derived from digital orthophotography provided by the NAIP. This imagery was flown in 2016 and was produced at 1 meter resolution. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Beaverhead County**,** Montana, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 27 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

Figure 2. FIRM Notes to Users

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Beaverhead County, Montana, effective [TBD]**.**

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Beaverhead County.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.

	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.
	Regulatory Floodway determined in Zone AE.

Figure 3: Map Legend for FIRM

OTHER AREAS OF FLOOD HAZARD

Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.

Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.

Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood.

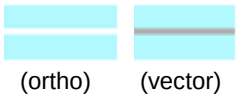
Area with Flood Risk due to Levee: Areas where a non-accredited levee, dike, or other flood control structure is shown as providing protection to less than the 1% annual chance flood.

OTHER AREAS

Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

Unshaded Zone X: Areas of minimal flood hazard.

FLOOD HAZARD AND OTHER BOUNDARY LINES



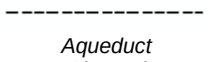
Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)

Limit of Study

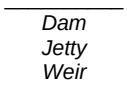
Jurisdiction Boundary

Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet

GENERAL STRUCTURES

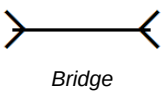


Channel, Culvert, Aqueduct, or Storm Sewer



Dam, Jetty, Weir

Levee, Dike, or Floodwall



Bridge

Figure 3: Map Legend for FIRM

REFERENCE MARKERS	
22.0	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
B 20.2	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
5280 21.1	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
17.5	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
8	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
513	Base Flood Elevation Line
ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)
ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity
BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway
MAPLE LANE	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
RAILROAD	Railroad

Figure 3: Map Legend for FIRM

_____	Horizontal Reference Grid Line
⎯⎯	Horizontal Reference Grid Ticks
+	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
^{42}**76**^{000m}**E**	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80° 16' 52.5"	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Beaverhead County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1-percent-annual-chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 22), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1-percent and 0.2-percent-annual-chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1-percent-annual-chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1-percent and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary is shown on the FIRM. Figure 3, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Beaverhead County, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 12. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1-percent-annual-chance floodplain corresponds to the SFHAs. The 0.2-percent-annual-chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Alder Creek	Beaverhead County, Unincorporated Areas; Town of Lima	Confluence with Junction Creek	Approximately 0.3 stream-miles above the confluence near the I-15 crossing	10020001	0.3	N	AE	August 2018
Beaverhead River	Beaverhead County, Unincorporated Areas	Boundary of Beaverhead County and Madison County	Approximately 5,600 feet downstream of the Confluence with Grasshopper Creek	10020002	41.6	Y	AE	May 2018
Beaverhead River Lower Split 1	Beaverhead County, Unincorporated Areas	Confluence with Beaverhead River	Divergence from Beaverhead River	10020002	1.2	N	AE	May 2018
Beaverhead River Lower Split 2	Beaverhead County, Unincorporated Areas	Confluence with Beaverhead River	Approximately 5,354 feet upstream	10020002	1.1	Y	AE	May 2018
Beaverhead River Lower Split 4	Beaverhead County, Unincorporated Areas	Confluence with Beaverhead River	Approximately 13,510 feet upstream	10020002	2.7	N	AE	May 2018
Beaverhead River Lower Split 5	Beaverhead County, Unincorporated Areas	Confluence with Beaverhead River	Approximately 3,664 feet upstream	10020002	0.8	Y	AE	May 2018
Beaverhead River Lower Split 6	Beaverhead County, Unincorporated Areas	Confluence with Beaverhead River	Approximately 6,678 feet upstream	10020002	1.3	Y	AE	May 2018
Beaverhead River Lower Split 7	Beaverhead County, Unincorporated Areas	Confluence with Beaverhead River	Approximately 1,813 feet upstream	10020002	0.4	N	AE	May 2018

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Beaverhead River Lower Split 8	Beaverhead County, Unincorporated Areas	Convergence with Beaverhead River	Divergence from Beaverhead River	10020002	0.6	N	AE	May 2018
Beaverhead River Overbank	Beaverhead County, Unincorporated Areas	Approximately 6,667 feet upstream of Webster Lane	Diversion structure at Beaverhead River approximately 473 feet upstream of Laknar Lane	10020002	1.6	Y	AE	May 2018
Big Hole River	Beaverhead County, Unincorporated Areas	Approximately 1,815 feet downstream of Trapper Creek Road/County Road	Approximately 2,800 feet upstream of Trapper Creek Road/County Road	10020004	0.9	Y	AE	October 2016
Big Hole River	Beaverhead County, Unincorporated Areas	Downstream limits within Beaverhead County	Approximately 1,815 feet downstream of Trapper Creek Road/County Road	10020004	25.0	N	A	August 2014
Big Hole River	Beaverhead County, Unincorporated Areas	Beaverhead/Silver Bow/Deer Lodge County Boundary	Confluence with Pioneer Creek	10020004	80.3	N	A	August 2014
Big Hole River	Beaverhead County, Unincorporated Areas	Approximately 2,800 feet upstream of Trapper Creek Road/County Road	Beaverhead/Silver Bow/Deer Lodge County Boundary	10020004	35.0	N	A	1986
Big Hole River West Channel	Beaverhead County, Unincorporated Areas	Approximately 215 feet downstream of Trapper Creek Road	Approximately 1,835 feet upstream of Trapper Creek Road	10020004	0.6	Y	AE	August 2014

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Blacktail Deer Creek	Beaverhead County, Unincorporated Areas; Dillon, City of	Confluence with Beaverhead River	Approximately 10.9 miles upstream of the Confluence with Beaverhead River	10020002	10.9	Y	AE	November 2018
Blacktail Meadows	Dillon, City of	Confluence with Blacktail Deer Creek	A point of divergence from Blacktail Deer Creek, approximately 4,341 feet upstream	10020002	0.8	N	AE	November 2018
Canyon Ditch Split	Beaverhead County, Unincorporated Areas	Confluence with Blacktail Deer Creek	A point of divergence from Blacktail Deer Creek, approximately 5,801 feet upstream	10020002	1.1	N	AE	November 2018
Dillon Canal	Beaverhead County, Unincorporated Areas	Confluence with Blacktail Deer Creek	Poindexter Slough	10020002	1.6	N	AE	May 2018
Gleed Ditch	Beaverhead County, Unincorporated Areas	Approximately two-tenths stream-miles upstream of Red Rock Road	Split flow from Junction Creek	10020001	0.6	N	AE	August 2018
Guidici Ditch	Beaverhead County, Unincorporated Areas	Approximately 3,800 feet downstream of Schuler Lane	Diversion structure at the Beaverhead River	10020002	1.8	Y	AE	May 2018
Junction Creek	Beaverhead County, Unincorporated Areas; Town of Lima	Approximately one stream-mile above confluence with Red Rock River	Approximately one-quarter stream miles above confluence with Traux Creek	10020001	3.1	Y	AE	August 2018

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Junction Creek Overflow	Beaverhead County, Unincorporated Areas; Town of Lima	Confluence with Gleed Ditch	Flow split from Junction Creek at Union Pacific Railroad crossing approximately one-stream mile above Lima southern limits	10020001	2.5	N	AE	August 2018
Murray Gilbert Slough	Beaverhead County, Unincorporated Areas	Approximately 4,117 feet downstream of Schuler Lane	Selway Slough	10020002	1.2	Y	AE	May 2018
Owen Ditch	Beaverhead County, Unincorporated Areas; City Of Dillon	Confluence with Blacktail Meadows	Approximately 6,060 feet upstream	10020002	1.2	Y	AE	May 2018
Poindexter Slough	Beaverhead County, Unincorporated Areas	Confluence with Beaverhead River	Diversion structure at the Beaverhead River, approximately 4.64 miles upstream	10020002	4.6	Y	AE	May 2018
Poindexter Slough Overflow	Beaverhead County, Unincorporated Areas	Confluence with Blacktail Deer Creek floodplain	Overflow from Poindexter Slough near Dillon Canal headgate	10020002	2.0	N	AE	May 2018
Selway Slough	Beaverhead County, Unincorporated Areas	Confluence with Beaverhead River	Approximately 8,109 feet downstream of Lost Trail	10020002	18.7	N	A	October 2018
Selway Slough	Beaverhead County, Unincorporated Areas	Approximately 8,109 feet downstream of Lost Trail	Diversion structure at Beaverhead River, approximately 1,085 feet upstream of Pioneer Drive	10020002	4.9	Y	AE	May 2018

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Selway Spill	Beaverhead County, Unincorporated Areas	Confluence with Selway Slough	Divergence from Beaverhead River, approximately 1,000 feet upstream	10020002	0.2	Y	AE	May 2018
Stodden Slough	Beaverhead County, Unincorporated Areas	Confluence with Beaverhead River	Approximately 1,300 feet upstream of Arrigoni Lane	10020002	7.8	Y	AE	May 2018
Upper Split	Beaverhead County, Unincorporated Areas	Confluence with Blacktail Deer Creek	A point of divergence from Blacktail Deer Creek, approximately 10,514 feet upstream	10020002	2.1	N	AE	November 2018

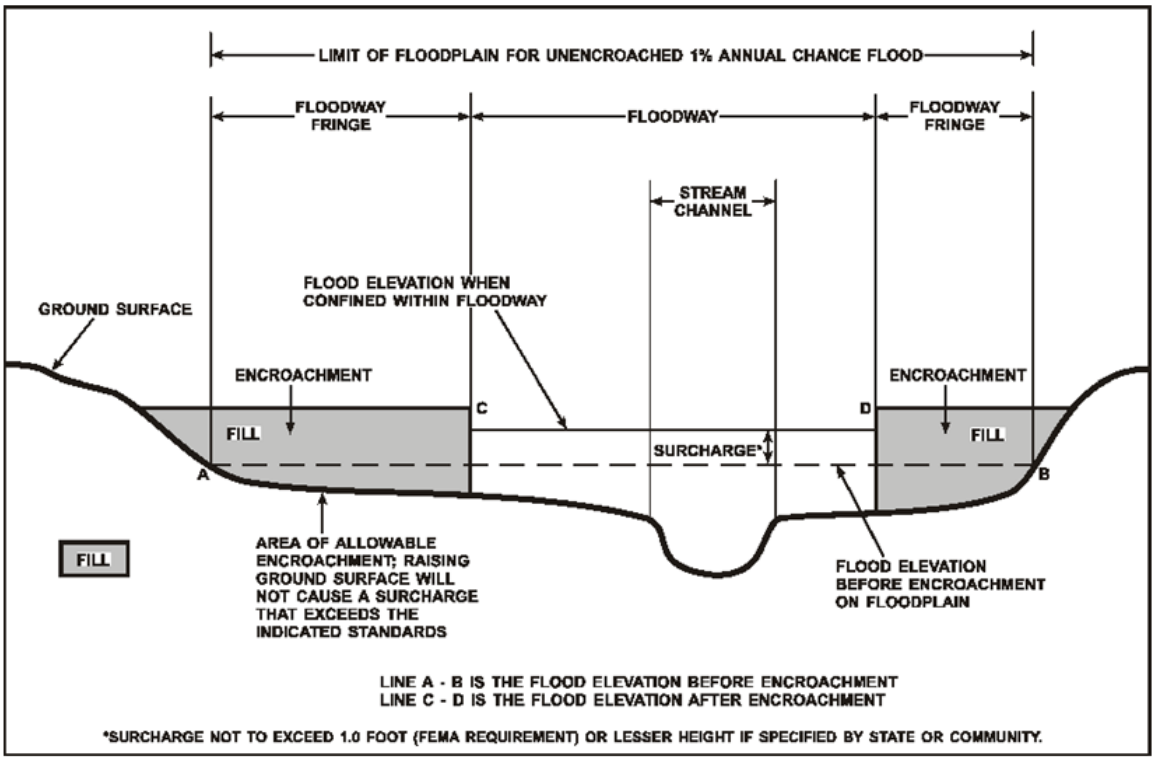
2.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1-percent-annual-chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1-percent-annual-chance flood. The floodway fringe is the area between the floodway and the 1-percent-annual-chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1-percent-annual-chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. Regulations for Montana require communities in Beaverhead County to limit increases caused by encroachment to 0.5 foot (MDNRC, 2014). These criteria take precedence over the minimum Federal criteria for purposes of regulating development in the floodplain, as set forth in the Code of Federal Regulations, 24 CFR, 1910 (d). The floodways computed for this study are based on a maximum increase of 0.5 foot.The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 23, “Floodway Data.”

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The BFE is the elevation of the 1-percent-annual-chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

BFEs are primarily intended for flood insurance rating purposes. Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. For example, the user may use the FIRM to determine the stream station of a location of interest and then use the profile to determine the 1-percent annual chance elevation at that location. Because only selected cross sections may be shown on the FIRM for riverine areas, the profile should be used to obtain the flood elevation between mapped cross sections. Additionally, for riverine areas, whole-foot elevations shown on the FIRM may not exactly reflect the elevations derived from the hydraulic analyses; therefore, elevations obtained from the profile may more accurately reflect the results of the hydraulic analysis.

2.4 Non-Encroachment Zones

This section is not applicable for this Flood Risk Project.

2.5 Coastal Flood Hazard Areas

This section is not applicable for this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable for this Flood Risk Project.

Figure 5: Wave Runup Transect Schematic

[Not applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable for this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable for this Flood Risk Project.**.**

Figure 6: Coastal Transect Schematic

[Not applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable for this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, “Map Legend for FIRM.” Flood insurance zone designations are

assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in Beaverhead County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Beaverhead County, Unincorporated Areas	A, AE
Dillon, City of	AE
Lima, Town of	AE

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 4 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 4: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Beaverhead	10020002	Beaverhead River	Drains the eastern portion of Beaverhead County and City of Dillon; Beaverhead River and tributaries, Blacktail Deer Creek and extends into Madison County	1,501
Big Hole	10020004	Big Hole River	Encompassing the northern portion of Beaverhead County	2,789
Madison	10020007	Madison River	Small portion of upper portion of watershed touches Beaverhead County at the Madison County boundary	2,555
Red Rock	10020001	Red Rock River	Flows north through the corporate limits of Beaverhead County and Lima until its confluence with the Beaverhead River.	2,314
Ruby	10020003	Ruby River	Small portion of western portion of watershed touches Beaverhead County at the Madison County boundary	965

4.2 Principal Flood Problems

Table 5 contains a description of the principal flood problems that have been noted for Beaverhead County by flooding source.

Table 5: Principal Flood Problems

Flooding Source	Description of Flood Problems
Blacktail Deer Creek	The primary causes of flooding on Blacktail Deer Creek include spring snowmelt events and summer precipitation events. Historically, flood hazards in the City of Dillon have been caused by crossing structures with inadequate capacities. Structure improvements have been made since the documented flood events in the City of Dillon.
Junction Creek	Most flooding is along 1%-annual-chance floodplain until the Slader Street where the floodplain widens from backwaters of roadway crossings within the corporate limits of the town of Lima. An exception to this is the left overbank channel (Junction Creek Overflow) which is contained in the banks until Bailey Street where the downstream 1%-annual-chance widths expand to approximately up to 200- to 300-feet through Lima. The Junction Creek Overflow is primarily restricted to shallow flooding. This flooding is due to the limited capacity of the Railroad Bridge 1.5 stream miles upstream of Lima.

Table 6 contains information about historic flood elevations in the communities within Beaverhead County.

Table 6: Historic Flooding Elevations

[Not applicable to this Flood Risk Project]

4.3 Non-Levee Flood Protection Measures

Table 7 contains information about non-levee flood protection measures within Beaverhead County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 7: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Beaverhead River	Ryan Canyon Diversions	Control Structure	Upstream of Old Stage Road	N/A
Beaverhead River Overbank	In-line Structure	Flume	Downstream of Laknar Lane	N/A
Blacktail Deer Creek	Diversion Structure	Control Structure	Various locations	N/A
Blacktail Deer Creek	Owen Ditch Flume	Flume	N/A	N/A
Blacktail Meadows	Diversion Structure	Control Structure	N/A	N/A
Canyon Ditch Split	Canyon Ditch Embankment	Canal	Canyon Ditch	N/A
Guidici Ditch	In-line Structure	Flume	Downstream of Hwy 91	N/A
Junction Creek	Irrigation Check	Weir	Near Gleed Ditch	Wooden Check Structure and embankment
Junction Creek Overflow	Bailey Street	Weir	W Bailey Street	Road embankment - no bridge or culvert under embankment
Selway Slough	In-line Structure	Flume	Near Murray Gilbert Slough	N/A

4.4 Levees

This section is not applicable for this Flood Risk Project.

Table 8: Levees

[Not applicable to this Flood Risk Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year

floods, have a 10-, 4-, 2-, 1-, and 0.2-percent-annual-chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

In addition to these flood events, the “1-percent-plus”, or “1%+”, annual chance flood elevation has been modeled and included on the flood profile for certain flooding sources in this FIS Report. While not used for regulatory or insurance purposes, this flood event has been calculated to help illustrate the variability range that exists between the regulatory 1-percent-annual-chance flood elevation and a 1-percent-annual-chance elevation that has taken into account an additional amount of uncertainty in the flood discharges (thus, the 1% “plus”). For flooding sources whose discharges were estimated using regression equations, the 1%+ flood elevations are derived by taking the 1-percent-annual-chance flood discharges and increasing the modeled discharges by a percentage equal to the average predictive error for the regression equation. For flooding sources with gage- or rainfall-runoff-based discharge estimates, the upper 84-percent confidence limit of the discharges is used to compute the 1%+ flood elevations.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 26, “Incorporated Letters of Map Change”, which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, “FIRM Revisions.”

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 12. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 9. Stream gage information is provided in Table 11.

Table 9: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% 'plus' Annual Chance
Alder Creek	Station 1847**	*	0	0	0	0	0	0
Alder Creek	Station 1739	*	0	13	34	48	72	83
Alder Creek	Station 1550	*	0	25	67	95	152	225
Alder Creek	Station 1384	*	0	25	67	95	169	344
Alder Creek	Station 1235	*	0	25	67	95	177	403
Alder Creek	Station 1074	*	0	25	67	95	186	463
Alder Creek	Station 916	*	0	25	67	95	199	532
Alder Creek	Station 783	*	0	25	67	95	208	551
Alder Creek	Station 762	*	0	25	67	95	212	561
Alder Creek	Station 701	*	0	25	67	95	217	571
Alder Creek	Station 525	*	0	25	67	95	221	580
Alder Creek	Station 334	*	0	25	67	95	230	600
Alder Creek	Station 313	*	0	25	67	95	235	610
Beaverhead River	Beginning of study	*	1,560.00	1,920.00	2,250.00	2,630.00	3,760.00	3,760.00
Beaverhead River	Downstream Poindexter Slough diversion	*	1,559.02	1,917.22	2,244.26	2,618.7	3,723.04	3,723.04
Beaverhead River	At flow change location above Rattlesnake Creek	*	721.95	721.95	721.95	721.95	721.95	721.95
Beaverhead River	Below Poindexter Slough return	*	1,449.00	1,829.00	2,160.00	2,530.00	3,592.00	3,792.00
Beaverhead River	Near Wheat Lane	*	1,240.00	1,650.00	1,980.00	2,330.00	3,260.00	3,860.00

*Data Not Available

**HEC-RAS Lateral Weir model logic limitations require an upstream cross section for the reach receiving flow. HEC-RAS also requires a flow at the upstream cross section at each reach. Flow reported as zero at each flow node is actually 0.001-cfs as HEC-RAS logic does not allow zero flow.

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% 'plus' Annual Chance
Beaverhead River	Flow change location at Beaverhead River near Dillon, MT	*	1,150.00	1,460.00	1,710.00	1,960.00	2,590.00	2,990.00
Beaverhead River	Downstream Beaverhead River Lower Split 8	*	1,113.71	1,398.04	1,617.57	1,830.71	2,329.16	2,636.95
Beaverhead River	Downstream Beaverhead River Lower Split 7	*	1,093.14	1,361.71	1,567.72	1,766.16	2,199.48	2,444.4
Beaverhead River	Below confluence with Stodden Slough	*	1,150.00	1,460.00	1,710.00	1,960.00	2,590.00	2,990.00
Beaverhead River	Downstream Beaverhead River Lower Split 6	*	1,300.00	1,620.00	1,870.00	2,120.00	2,730.00	2,830.00
Beaverhead River	Downstream Beaverhead River Lower Split 5	*	1,256.8	1,540.84	1,748.96	1,950.11	2,431.6	2,514.06
Beaverhead River	Downstream Beaverhead River Lower Split 4	*	1,300.00	1,620.00	1,870.00	2,120.00	2,730.00	2,830.00
Beaverhead River	Downstream Beaverhead River Lower Split 3	*	1,265.16	1,524.86	1,713.85	1,888.2	2,305.77	2,377.72
Beaverhead River	Downstream Beaverhead River Lower Split 2	*	1,300.00	1,620.00	1,870.00	2,120.00	2,730.00	2,830.00
Beaverhead River Lower Split 1	Near confluence with Beaverhead River	*	65.22	150.05	242.71	353.02	681.83	740.07

*Data Not Available

**HEC-RAS Lateral Weir model logic limitations require an upstream cross section for the reach receiving flow. HEC-RAS also requires a flow at the upstream cross section at each reach. Flow reported as zero at each flow node is actually 0.001-cfs as HEC-RAS logic does not allow zero flow.

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% 'plus' Annual Chance
Beaverhead River Lower Split 2	Near confluence with Beaverhead River	*	39.90	110.21	181.00	261.20	481.93	515.75
Beaverhead River Lower Split 2	Near Albers Slough	*	0.62	9.45	24.69	44.92	105.12	113.17
Beaverhead River Lower Split 3	Near confluence with Beaverhead River	*	2.05	33.09	74.35	124.16	262.59	291.78
Beaverhead River Lower Split 3	Near Diamond O Drive	*	0.10	0.10	0.19	1.11	7.40	9.36
Beaverhead River Lower Split 4	Near confluence with Beaverhead River	*	43.30	79.26	121.14	169.99	298.50	316.04
Beaverhead River Lower Split 4	Near Albers Slough	*	43.30	79.26	120.97	169.58	294.41	311.88
Beaverhead River Lower Split 5	Near confluence with Beaverhead River	*	137.64	275.80	397.10	535.71	904.02	957.72
Beaverhead River Lower Split 6	Near confluence with Beaverhead River	*	140.44	255.54	357.54	475.50	748.08	801.73
Beaverhead River Lower Split 6	Near Anderson Lane	*	0.78	5.76	12.12	19.49	44.81	46.75
Beaverhead River Lower Split 7	Near confluence with Beaverhead River	*	20.66	36.43	49.95	64.65	133.15	215.69
Beaverhead River Lower Split 8	Near confluence with Beaverhead River	*	85.28	121.30	149.25	180.49	280.98	338.93
Beaverhead River Overbank	Near Lakner Lane Bridge at Beaverhead River	*	97.33	189.24	265.7	331.72	481.72	548.8
Beaverhead River Overbank	Near Beaverhead River	*	71.35	93.66	109.12	125.02	165.83	214.82

*Data Not Available

**HEC-RAS Lateral Weir model logic limitations require an upstream cross section for the reach receiving flow. HEC-RAS also requires a flow at the upstream cross section at each reach. Flow reported as zero at each flow node is actually 0.001-cfs as HEC-RAS logic does not allow zero flow.

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% 'plus' Annual Chance
Beaverhead River Overbank	East of Lakner Lane	*	25.00	25.00	25.00	25.00	25.00	25.00
Blacktail Deer Creek	Confluence with Beaverhead River	377	516	680	824	984	1,417	1,503
Big Hole River	Above Cherry Creek	2,359	12,100	*	15,800	17,200	20,100	*
Big Hole River	Above Trapper and Camp Creeks	2,271	11,900	*	15,600	17,000	20,000	*
Dillon Canal	At confluence with Blacktail Deer Creek	*	183.35	224.42	256.38	310.02	457.17	457.17
Dillon Canal	At diversion from Poindexter Slough	*	183.35	224.42	253.98	280.73	318.16	318.16
Gleed Ditch	Station 4686**	*	0	0	0	0	0	0
Gleed Ditch	Station 4666	*	172	239	290	317	435	599
Gleed Ditch	Station 2614	*	172	239	290	317	434	594
Gleed Ditch	Station 2581	*	172	239	290	317	433	589
Gleed Ditch	Station 2452	*	172	239	290	317	432	585
Gleed Ditch	Station 2268	*	168	233	281	307	415	550
Gleed Ditch	Station 1963	*	165	226	273	297	398	516
Gleed Ditch	Station 1706	*	123	164	197	214	287	373
Gleed Ditch	Station 1683	*	81	101	122	131	176	230
Gleed Ditch	Station 1517	*	81	101	122	131	180	245
Gleed Ditch	Station 1393	*	81	101	122	131	178	237
Gleed Ditch	Station 1379	*	81	101	122	131	176	230
Guidici Ditch	At diversion from Beaverhead River	*	96.15	138.67	171.81	201.87	262.11	292.24
Guidici Ditch	Near Pioneer Drive	*	95.84	141.32	202.66	299.31	567.04	772.28

*Data Not Available

**HEC-RAS Lateral Weir model logic limitations require an upstream cross section for the reach receiving flow. HEC-RAS also requires a flow at the upstream cross section at each reach. Flow reported as zero at each flow node is actually 0.001-cfs as HEC-RAS logic does not allow zero flow.

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% 'plus' Annual Chance
Guidici Ditch	Near Driveway Lane	*	63.90	80.48	106.55	133.94	260.09	335.81
Junction Creek	Station 21831	132	540	720	850	1,000	1,360	1,930
Junction Creek	Station 19820	132	537	695	794	898	1,135	1,515
Junction Creek	Station 19800	132	533	670	738	797	909	1,100
Junction Creek	Station 19719	132	540	720	850	998	1,342	1,820
Junction Creek	Station 15192	132	540	720	850	1,000	1,360	1,847
Junction Creek	Station 12354	132	540	720	850	1,000	1,360	1,915
Junction Creek	Station 6841	132	368	481	560	683	925	1,316
Junction Creek	Station 6808	132	537	710	833	973	1,309	1,767
Junction Creek Overflow	Station 13090**	*	0	0	0	0	0	0
Junction Creek Overflow	Station 12981	*	7	50	112	203	451	830
Junction Creek Overflow	Station 9737	*	0	25	83	172	415	790
Junction Creek Overflow	Station 8447	*	0	19	66	149	379	749
Junction Creek Overflow	Station 8327	*	0	6	33	101	307	666
Junction Creek Overflow	Station 8241	*	0	0	16	77	272	625
Junction Creek Overflow	Station 8053	*	0	0	16	77	255	506
Junction Creek Overflow	Station 7665	*	0	0	16	77	221	268

*Data Not Available

**HEC-RAS Lateral Weir model logic limitations require an upstream cross section for the reach receiving flow. HEC-RAS also requires a flow at the upstream cross section at each reach. Flow reported as zero at each flow node is actually 0.001-cfs as HEC-RAS logic does not allow zero flow.

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% 'plus' Annual Chance
Junction Creek Overflow	Station 7478	*	0	0	16	77	212	249
Junction Creek Overflow	Station 7186	*	0	0	16	77	189	200
Junction Creek Overflow	Station 6941	*	0	0	16	77	180	180
Murray Gilbert Slough	Near Driveway Lane	*	37.53	37.53	37.53	37.53	37.53	37.53
Murray Gilbert Slough	Near Sunset Lane	*	38.11	38.11	38.11	38.11	38.11	38.11
Murray Gilbert Slough	Near Schuler Lane	*	26.24	30.06	33.11	35.66	111.45	163.54
Murray Gilbert Slough	Near Baldy View Drive	*	22.41	22.41	22.41	22.41	22.41	22.41
Murray Gilbert Slough	At diversion from Selway Slough	*	2.93	4.37	9.78	16.19	24.06	33.97
Owen Ditch	At diversion from Beaverhead River	*	0.00	3.93	11.1	25.94	79.35	92.86
Owen Ditch	Near West Park Street	*	24.96	33.04	47.63	103.51	534.19	655.5
Poindexter Slough	At diversion from Beaverhead River	*	334.07	365.31	389.58	410.11	449.51	449.51
Poindexter Slough	Below diversion to Dillon Canal	*	498.30	648.12	793.05	1001.28	1681.01	1681.01
Poindexter Slough	Above return to Beaverhead River	*	717.50	876.49	1019.46	1203.01	1763.35	1843.41
Poindexter Slough Overflow	At overflow from Poindexter Slough	*	29.76	93.81	170.08	289.60	718.41	718.41
Poindexter Slough Overflow	At discharge to Blacktail Deer Creek floodplain	*	29.13	77.55	124.03	180.01	286.30	286.51
Selway Slough	Near Schuler Lane	*	108.59	183.57	321.78	484.71	1041.76	1427.7

*Data Not Available

**HEC-RAS Lateral Weir model logic limitations require an upstream cross section for the reach receiving flow. HEC-RAS also requires a flow at the upstream cross section at each reach. Flow reported as zero at each flow node is actually 0.001-cfs as HEC-RAS logic does not allow zero flow.

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% 'plus' Annual Chance
Selway Slough	Near Sunset Lane	*	84.97	135.08	238.43	347.85	716.93	972.47
Selway Slough	Below junction with Selway Spill	*	72.82	108.5	213.46	296.41	704.78	950.77
Selway Slough	Below diversion to Murray Gilbert Slough	*	70.87	103.01	178.27	237.94	376.00	486.12
Selway Slough	At diversion from Beaverhead River	*	71.13	64.62	58.74	46.86	19.23	0.10
Selway Spill	Selway Spill	*	0.10	5.65	36.34	82.2	279.44	427.86
Stodden Slough	Near confluence with Beaverhead River	*	237.77	375.40	506.01	652.65	1060.39	1329.20
Stodden Slough	Above Silver Maple Lane	*	36.30	61.96	92.45	129.68	263.41	357.65
Stodden Slough	Below Lagoon Road	*	33.54	59.66	84.93	114.80	207.74	262.46

*Data Not Available

**HEC-RAS Lateral Weir model logic limitations require an upstream cross section for the reach receiving flow. HEC-RAS also requires a flow at the upstream cross section at each reach. Flow reported as zero at each flow node is actually 0.001-cfs as HEC-RAS logic does not allow zero flow.

Figure 7: Frequency Discharge-Drainage Area Curves

[Not applicable to this Flood Risk Project]

Table 10: Summary of Non-Coastal Stillwater Elevations

[Not applicable to this Flood Risk Project]

Table 11: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record[1]	
					From	To
Beaverhead River	06016000	USGS	Beaverhead River at Barretts, MT	**2,730**	(1908) **1965**	(1965) **2016**
Beaverhead River	06017000	USGS	Beaverhead River at Dillon, MT	**2,958** (2,892)[3]	(1951) (1964) **1965** **2002**	(1952) (1965) **1971** **2016**
Beaverhead River	06018000[2]	USGS	Beaverhead River near Dillon, MT	**3,388** (3,419)[3]	(1951) (1964) **1965**	(1952) (1965) **1983**
Beaverhead River	06018500	USGS	Beaverhead River near Twin Bridges, MT	**3,619** (3,618)[3] 161	(1936) (1946) **1965**	(1944) (1965) **2016**
Big Sheep Creek	06013500	USGS	Big Sheep Creek, below Muddy Creek, near Dell, MT	279	1946 1960	1953 1991
Blacktail Deer Creek	06017500	USGS	Blacktail Deer Creek near Dillon MT	316	06/07/1946	05/01/1984
Muddy Creek	06134000	USGS	Muddy Creek, near Dell, MT	63	1960 1984	1974 1985
Red Rock Creek	06006000	USGS	Red Rock Creek above Lakes, near Lakeview, MT	37	1997	2017

Table 11: Stream Gage Information used to Determine Discharges (continued)

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record[1]	
					From	To
Red Rock River	06011000	USGS	Red Rock River at Kennedy Ranch, near Lakeview, MT	321	1937 1945 1956 1984	1942 1954 1967 1985
Ruby River	06019500	USGS	Ruby River above reservoir, near Alder, MT	534	1939	2017
Sweetwater Creek	06019400	USGS	Sweetwater Creek, near Alder, MT	82	1974	1991
Traux Creek	06013200	USGS	Traux Creek near Lima, MT	4	1960 1984	1974 1985

[1]Gage period of record may begin prior to 1965, however Clark Canyon Dam was completed and closed in 1964 and analyses performed on post-regulation systematic flood frequencies (numbers in parenthesis indicate total period of record prior to 1965)

[2]Denotes inactive gage location

[3]Denotes Drainage Area adjustment performed as described in Hydrologic Analysis Report (Pioneer Technical Services, 2017) to correct USGS delineation errors. Numbers in parenthesis indicate published USGS drainage area values, numbers in **bold** used in this analysis.

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream

segments for which a floodway was computed (Section 6.3), selected cross sections are also listed in Table 23, “Floodway Data.”

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 12. Roughness coefficients are provided in Table 13. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 12: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Alder Creek	Confluence with Junction Creek	Approximately 0.3 stream-miles above the confluence near the I-15 crossing	Flow split from Junction Creek is the sole flooding source	HEC-RAS, 5.0.3	01/31/2018	AE	Enhanced Level Analysis without floodway
Beaverhead River	Boundary of Beaverhead County and Madison County	Approximately 5,600 feet downstream of the Confluence with Grasshopper Creek	Flood frequency peak flow analysis of USGS gage data using Bulletin #17C methodologies	HEC-RAS	May 2018	AE w/ Floodway	
Beaverhead River Lower Split 1	Confluence with Beaverhead River	Divergence from Beaverhead River	Flood frequency peak flow analysis of USGS gage data using Bulletin #17C methodologies	HEC-RAS	May 2018	AE	
Beaverhead River Lower Split 2	Confluence with Beaverhead River	Approximately 5,354 feet upstream	Flood frequency peak flow analysis of USGS gage data using Bulletin #17C methodologies	HEC-RAS	May 2018	AE w/ Floodway	
Beaverhead River Lower Split 4	Confluence with Beaverhead River	Approximately 13,510 feet upstream	Flood frequency peak flow analysis of USGS gage data using Bulletin #17C methodologies	HEC-RAS	May 2018	AE	
Beaverhead River Lower Split 5	Confluence with Beaverhead River	Approximately 3,664 feet upstream	Flood frequency peak flow analysis of USGS gage data using Bulletin #17C methodologies	HEC-RAS	May 2018	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Beaverhead River Lower Split 6	Confluence with Beaverhead River	Approximately 6,678 feet upstream	Flood frequency peak flow analysis of USGS gage data using Bulletin #17C methodologies	HEC-RAS	May 2018	AE w/ Floodway	
Beaverhead River Lower Split 7	Confluence with Beaverhead River	Approximately 1,813 feet upstream	Flood frequency peak flow analysis of USGS gage data using Bulletin #17C methodologies	HEC-RAS	May 2018	AE	
Beaverhead River Lower Split 8	Convergence with Beaverhead River	Divergence from Beaverhead River	Flood frequency peak flow analysis of USGS gage data using Bulletin #17C methodologies	HEC-RAS	May 2018	AE	
Beaverhead River Overbank	Approximately 6,667 feet upstream of Webster Lane	Diversion structure at Beaverhead River approximately 473 feet upstream of Laknar Lane	HEC-RAS	HEC-RAS	May 2018	AE w/ Floodway	
Big Hole River (LOMR)	Approximately 1,815 feet downstream of Trapper Creek Road/County Road	Approximately 2,800 feet upstream of Trapper Creek Road/County Road	HEC-RAS	HEC-RAS	October 2016	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Big Hole River	Downstream limits within Beaverhead County	Approximately 1,815 feet downstream of Trapper Creek Road/County Road	HEC-RAS	HEC-RAS	August 2014	A	
Big Hole River	Beaverhead/Silver Bow/Deer Lodge County Boundary	Confluence with Pioneer Creek	HEC-RAS	HEC-RAS	August 2014	A	
Big Hole River	Approximately 2,800 feet upstream of Trapper Creek Road/County Road	Beaverhead/Silver Bow/Deer Lodge County Boundary	HEC-RAS	HEC-RAS	1986	A	
Big Hole River West Channel	Approximately 215 feet downstream of Trapper Creek Road	Approximately 1,835 feet upstream of Trapper Creek Road	HEC-RAS	HEC-RAS	August 2014	AE w/ Floodway	
Blacktail Deer Creek	Confluence with Beaverhead River	10.9 miles upstream of confluence with Beaverhead River	Flood Frequency Analysis using Weighted Gage Record Data	HEC-RAS 5.0.3	06/08/2018	AE w/ Floodway	Split flow optimizations across junctions and lateral weirs. Supplemental two dimensional model used to delineate shallow flooding within the City of Dillon.
Blacktail Meadows	Confluence with Blacktail Deer Creek	A point of divergence from Blacktail Deer Creek, approximately 4,341 feet upstream	Flood Frequency Analysis using Weighted Gage Record Data	HEC-RAS 5.0.3	06/08/2018	AE	Split flow optimizations across junctions and lateral weirs. Supplemental two dimensional model used to delineate shallow flooding within the City of Dillon.

Table 12: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Canyon Ditch Split	Confluence with Blacktail Deer Creek	A point of divergence from Blacktail Deer Creek, approximately 5,801 feet upstream	Flood Frequency Analysis using Weighted Gage Record Data	HEC-RAS 5.0.3	06/08/2018	AE	Split flow optimizations across junctions and lateral weirs. Supplemental two dimensional model used to delineate shallow flooding within the City of Dillon.
Dillon Canal	Confluence with Blacktail Deer Creek	Poindexter Slough	HEC-RAS	HEC-RAS	May 2018	AE	
Gleed Ditch	Approximately two-tenths stream-miles upstream of the old US Hwy 91 crossing	Split flow from Junction Creek	Flow split from Junction Creek is the sole flooding source	HEC-RAS, 5.0.3	01/31/2018	AE	Enhanced Level Analysis without floodway
Guidici Ditch	Approximately 3,800 feet downstream of Schuler Lane	Diversion structure at the Beaverhead River	HEC-RAS	HEC-RAS	May 2018	AE w/ Floodway	
Junction Creek	Approximately one stream-mile above confluence with Red Rock River	Approximately one-quarter stream miles above confluence with Traux Creek	Weighted USGS Montana and Idaho Regression Equations	HEC-RAS, 5.0.3	01/31/2018	AE w/ Floodway	Enhanced Analysis with floodway.
Junction Creek Overflow	Confluence with Gleed Ditch	Flow split from Junction Creek at Union Pacific Railroad crossing approximately one-stream mile above Lima southern limits	Flow split from Junction Creek is the sole flooding source	HEC-RAS, 5.0.3	01/31/2018	AE	Enhanced Level Analysis without floodway

Table 12: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Murray Gilbert Slough	Approximately 4200 feet downstream of Schuler Lane at Schultz Lane	Selway Slough	HEC-RAS	HEC-RAS	May 2018	AE w/ Floodway	
Owen Ditch	Confluence with Blacktail Meadows	Approximately 6,060 feet upstream	HEC-RAS	HEC-RAS	May 2018	AE w/ Floodway	
Poindexter Slough	Confluence with Beaverhead River	Diversion structure at the Beaverhead River, approximately 4.64 miles upstream	HEC-RAS	HEC-RAS	May 2018	AE w/ Floodway	
Poindexter Slough Overflow	Confluence with Blacktail Deer Creek floodplain	Overflow from Poindexter Slough near Dillon Canal headgate	HEC-RAS	HEC-RAS	May 2018	AE	
Selway Slough	Confluence with Beaverhead River	Approximately 8,109 feet downstream of Lost Trail	HEC-RAS	HEC-RAS	October 2018	A	Base Level 2-D Analysis
Selway Slough	Approximately 8,109 feet downstream of Lost Trail	Diversion structure at Beaverhead River, approximately 1,085 feet upstream of Pioneer Drive	HEC-RAS	HEC-RAS	May 2018	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Selway Spill	Confluence with Selway Slough	Divergence from Beaverhead River, approximately 1,000 feet upstream	HEC-RAS	HEC-RAS	May 2018	AE w/ Floodway	
Stodden Slough	Confluence with Beaverhead River	Approximately 1300 feet upstream of Arrigoni Lane	HEC-RAS	HEC-RAS	May 2018	AE w/ Floodway	
Upper Split	Confluence with Blacktail Deer Creek	A point of divergence from Blacktail Deer Creek, approximately 10,514 feet upstream	Flood Frequency Analysis using Weighted Gage Record Data	HEC-RAS 5.0.3	06/08/2018	AE	Split flow optimizations across junctions and lateral weirs. Supplemental two dimensional model used to delineate shallow flooding within the City of Dillon.

Table 13: Roughness Coefficients

Flooding Source	Channel "n"	Overbank "n"
Alder Creek*	0.046 - 0.070*	0.046 - 0.095
Beaverhead River and Splits	0.030 - 0.061	0.030 – 0.100
Beaverhead River Overbank	0.030 - 0.032	0.030 – 0.045
Blacktail Deer Creek	0.030 - 0.040	0.016 - 0.080
Blacktail Meadows	0.035 - 0.040	0.016 - 0.080
Canyon Ditch Split	0.045 - 0.050	0.035 - 0.080
Dillon Canal	0.032	0.030 - 0.035
Gleed Ditch	0.035 - 0.041	0.046 - 0.046
Guidici Ditch	0.032	0.030 – 0.080
Junction Creek	0.031 - 0.070	0.028 - 0.155
Murray Gilbert Slough	0.032	0.032 - 0.080
Poindexter Slough	0.032	0.030 - 0.100
Selway Slough	0.032 - 0.080	0.032 - 0.060
Selway Slough (Zone A)	0.045	0.045
Stodden Slough	0.030 - 0.080	0.030 - 0.080
Upper Split	0.050	0.050
* Reach has no base flow and does not have a typical channel/overbank roughness difference. Manning's 'n' channel roughness coefficient set more similarly to overbank floodplain roughness.		

5.3 Coastal Analyses

This section is not applicable for this Flood Risk Project.

Table 14: Summary of Coastal Analyses
[Not applicable to this Flood Risk Project]

5.3.1 Total Stillwater Elevations

This section is not applicable for this Flood Risk Project.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas
[Not applicable to this Flood Risk Project]

Table 15: Tide Gage Analysis Specifics
[Not applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable for this Flood Risk Project.

5.3.3 Coastal Erosion

This section is not applicable for this Flood Risk Project.

5.3.4 Wave Hazard Analyses

This section is not applicable for this Flood Risk Project.

Table 16: Coastal Transect Parameters

[Not applicable to this Flood Risk Project]

Figure 9: Transect Location Map

[Not applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

This section is not applicable for this Flood Risk Project.

Table 17: Summary of Alluvial Fan Analyses

[Not applicable to this Flood Risk Project]

Table 18: Results of Alluvial Fan Analyses

[Not applicable to this Flood Risk Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at www.ngs.noaa.gov.

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project

documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please visit the NGS website at www.ngs.noaa.gov.

The datum conversion locations and values that were calculated for Beaverhead County are provided in Table 19.

Table 19: Countywide Vertical Datum Conversion

[Not applicable to this Flood Risk Project]

Table 20: Stream-Based Vertical Datum Conversion

[Not applicable to this Flood Risk Project]

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM Database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, www.fema.gov/media-library/resources-documents/collections/361.

Base map information shown on the FIRM was derived from the sources described in Table 21.

Table 21: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Digital Orthophoto	USDA/NAIP	2016	1-meter GSD	Color Orthophotography
Base map files	Montana Geographic Information Clearinghouse	2016	NA	Political boundaries, rivers, lakes, streams, in digital format
Political boundaries	Montana State Library	2015	1:24,000	County Boundaries
Public Land Survey System (PLSS)	State Center for Geographic Information	2005	1:24,000	PLSS data were digitized from USGS quadrangles
Transportation	Montana State Library	2014	NA	Transportation Lines

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 22. In ponding areas, flood elevations were determined at each junction of the model; between junctions, boundaries were interpolated using the topographic elevation data described in Table 22.

In cases where the 1-percent and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 23, “Floodway Data.”

Certain flooding sources may have been studied that do not have published BFEs on the FIRMs, or for which there is a need to report the 1-percent-annual-chance flood elevations at selected cross sections because a published Flood Profile does not exist in this FIS Report. These streams may have also been studied using methods to determine non-encroachment zones rather than floodways. For these flooding sources, the 1-percent-annual-chance floodplain boundaries have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 22. All topographic data used for modeling or mapping has been converted as necessary to NAVD88. The 1-percent-annual-chance elevations for selected cross sections along these flooding sources, along with their non-encroachment widths, if calculated, are shown in Table 24, “Flood Hazard and Non-Encroachment Data for Selected Streams.”

Table 22: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Beaverhead County	Junction Creek, Multiple	Light Detection and Ranging data (LiDAR)	1-meter GSD	1 meter	Quantum Spatial Inc., 2017
Beaverhead County	All within HUC 10020002	Light Detection and Ranging data (LiDAR)	0.017 m RMSE	1 meter at 95% confidence level	Quantum Spatial Inc., 2016
City of Dillon, Beaverhead County	Multiple	Structure and Cross Section (Bathymetric) Field Survey	NA	NA	Morrison-Maierle Inc., May 2017

*Data Not Available

BFEs shown at cross sections on the FIRM represent the 1-percent-annual-chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in areas of ponding, and other areas with static base flood elevations.

Table 23: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	288	344	605	3.5	4,825.4	4,825.4	4,825.7	0.3
B	1,319	420	597	3.6	4,826.5	4,826.5	4,827.0	0.5
C	2,312	401	828	2.6	4,828.1	4,828.1	4,828.5	0.4
D	3,370	182	535	4.0	4,830.0	4,830.0	4,830.5	0.5
E	4,403	278	712	3.0	4,831.2	4,831.2	4,831.6	0.4
F	5,282	185	491	4.3	4,832.0	4,832.0	4,832.3	0.3
G	6,169	247	644	3.3	4,833.1	4,833.1	4,833.6	0.5
H	7,457	949	1,172	1.8	4,834.0	4,834.0	4,834.5	0.5
I	8,185	697	900	2.4	4,834.5	4,834.5	4,834.9	0.4
J	9,158	93	387	5.5	4,835.4	4,835.4	4,835.9	0.5
K	10,254	521	1,246	1.7	4,837.0	4,837.0	4,837.4	0.4
L	11,191	676	1,300	1.6	4,837.4	4,837.4	4,837.9	0.5
M	12,148	183	580	3.2	4,838.5	4,838.5	4,839.0	0.5
N	12,883	164	434	4.3	4,839.2	4,839.2	4,839.5	0.3
O	13,757	87	317	5.9	4,840.0	4,840.0	4,840.3	0.3
P	14,892	129	459	4.1	4,841.7	4,841.7	4,842.0	0.3
Q	15,701	169	556	3.4	4,842.4	4,842.4	4,842.8	0.4
R	17,011	328	722	2.6	4,843.6	4,843.6	4,844.0	0.4
S	18,116	314	625	3.2	4,845.1	4,845.1	4,845.5	0.4
T	19,100	1,166	1,171	1.8	4,845.8	4,845.8	4,846.2	0.4
U	20,087	1,062	1,455	1.5	4,847.3	4,847.3	4,847.8	0.5
V	20,964	948	814	2.6	4,848.0	4,848.0	4,848.4	0.4
W	21,927	110	445	4.8	4,850.8	4,850.8	4,851.1	0.3
X	22,716	105	470	4.5	4,851.7	4,851.7	4,852.0	0.3
Y	23,981	488	802	2.6	4,852.7	4,852.7	4,853.2	0.5
Z	24,769	130	391	5.4	4,853.7	4,853.7	4,854.1	0.4

[1] Feet above Beaverhead/Madison County Boundary

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BEAVERHEAD RIVER

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AA	25,452	476	980	2.2	4,854.7	4,854.7	4,855.1	0.4
AB	26,424	340	666	3.2	4,855.3	4,855.3	4,855.8	0.5
AC	27,399	208	511	4.2	4,856.6	4,856.6	4,856.8	0.2
AD	28,288	446	1,008	2.1	4,857.5	4,857.5	4,857.9	0.4
AE	29,344	1,153	865	2.5	4,859.5	4,859.5	4,859.9	0.4
AF	30,386	311	509	4.2	4,862.0	4,862.0	4,862.4	0.4
AG	31,632	746	1,204	1.8	4,864.2	4,864.2	4,864.6	0.4
AH	32,359	521	538	3.9	4,865.0	4,865.0	4,865.3	0.3
AI	33,284	130	437	4.9	4,868.9	4,868.9	4,869.2	0.3
AJ	34,150	567	744	2.9	4,870.3	4,870.3	4,870.8	0.5
AK	35,190	154	325	4.7	4,872.9	4,872.9	4,873.3	0.4
AL	36,371	186	279	5.6	4,875.3	4,875.3	4,875.3	0.0
AM	37,300	88	299	5.9	4,879.0	4,879.0	4,879.2	0.2
AN	38,326	303	583	3.6	4,881.7	4,881.7	4,882.0	0.3
AO	39,136	315	387	5.5	4,882.9	4,882.9	4,883.1	0.2
AP	40,311	708	664	3.2	4,884.7	4,884.7	4,885.1	0.4
AQ	41,186	436	665	3.2	4,887.0	4,887.0	4,887.2	0.2
AR	42,197	208	488	4.3	4,889.4	4,889.4	4,889.6	0.2
AS	43,120	164	289	7.3	4,890.9	4,890.9	4,891.0	0.1
AT	44,291	453	749	2.8	4,892.8	4,892.8	4,893.2	0.4
AU	45,755	725	875	2.4	4,894.2	4,894.2	4,894.7	0.5
AV	46,436	338	521	4.1	4,896.1	4,896.1	4,896.5	0.4
AW	47,592	119	401	5.3	4,899.2	4,899.2	4,899.6	0.4
AX	48,376	104	398	5.3	4,900.8	4,900.8	4,901.2	0.4
AY	49,164	401	969	2.2	4,902.6	4,902.6	4,902.8	0.2
AZ	50,040	771	1,046	2.0	4,902.9	4,902.9	4,903.1	0.2

[1] Feet above Beaverhead/Madison County Boundary

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BEAVERHEAD RIVER

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BA	51,033	771	937	2.3	4,904.6	4,904.6	4,905.0	0.4
BB	52,026	257	474	4.5	4,907.1	4,907.1	4,907.4	0.3
BC	53,283	256	710	3.0	4,910.1	4,910.1	4,910.6	0.5
BD	54,280	589	826	2.6	4,912.8	4,912.8	4,913.3	0.5
BE	55,403	576	628	3.4	4,915.7	4,915.7	4,916.0	0.3
BF	56,501	428	799	2.7	4,918.8	4,918.8	4,918.9	0.1
BG	57,408	736	1,210	1.8	4,920.0	4,920.0	4,920.5	0.5
BH	58,335	262	371	5.7	4,921.8	4,921.8	4,921.9	0.1
BI	59,171	254	433	4.9	4,924.0	4,924.0	4,924.2	0.2
BJ	60,045	640	863	2.5	4,925.4	4,925.4	4,925.9	0.5
BK	61,046	130	383	5.5	4,927.9	4,927.9	4,928.0	0.1
BL	62,249	241	556	3.8	4,930.1	4,930.1	4,930.2	0.1
BM	63,329	368	508	4.2	4,933.2	4,933.2	4,933.4	0.2
BN	64,269	284	641	3.3	4,934.8	4,934.8	4,935.3	0.5
BO	65,328	257	493	4.3	4,936.7	4,936.7	4,937.1	0.4
BP	66,122	213	441	3.7	4,938.6	4,938.6	4,939.1	0.5
BQ	67,002	231	464	3.6	4,941.4	4,941.4	4,941.6	0.2
BR	67,862	172	485	3.4	4,942.9	4,942.9	4,943.2	0.3
BS	68,757	69	236	7.0	4,943.7	4,943.7	4,943.9	0.2
BT	69,779	334	653	2.7	4,946.1	4,946.1	4,946.5	0.4
BU	70,887	181	463	3.8	4,948.5	4,948.5	4,948.8	0.3
BV	71,772	286	681	2.6	4,949.9	4,949.9	4,950.3	0.4
BW	72,846	155	385	5.5	4,951.6	4,951.6	4,952.1	0.5
BX	73,595	388	722	2.7	4,953.9	4,953.9	4,954.2	0.3
BY	74,610	285	534	3.7	4,954.5	4,954.5	4,955.0	0.5
BZ	75,438	496	645	3.0	4,955.6	4,955.6	4,955.9	0.3

[1] Feet above Beaverhead/Madison County Boundary

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
CA	76,241	614	792	2.5	4,957.1	4,957.1	4,957.5	0.4
CB	77,145	282	422	3.1	4,958.3	4,958.3	4,958.7	0.4
CC	78,324	194	375	3.6	4,960.2	4,960.2	4,960.7	0.5
CD	79,117	284	518	3.8	4,962.1	4,962.1	4,962.4	0.3
CE	80,282	274	428	4.6	4,964.9	4,964.9	4,965.2	0.3
CF	81,241	356	595	3.3	4,966.7	4,966.7	4,967.1	0.4
CG	82,128	410	521	3.8	4,968.1	4,968.1	4,968.6	0.5
CH	83,134	381	744	2.6	4,971.0	4,971.0	4,971.3	0.3
CI	84,038	347	757	2.6	4,971.7	4,971.7	4,972.2	0.5
CJ	84,918	334	498	3.9	4,973.4	4,973.4	4,973.8	0.4
CK	85,825	767	660	4.8	4,975.7	4,975.7	4,975.8	0.1
CL	86,678	602	1,027	1.9	4,978.0	4,978.0	4,978.4	0.4
CM	87,547	106	391	5.0	4,980.0	4,980.0	4,980.3	0.3
CN	88,468	116	416	4.7	4,981.9	4,981.9	4,982.3	0.4
CO	89,394	369	826	2.4	4,983.4	4,983.4	4,983.7	0.3
CP	90,404	409	729	2.7	4,985.7	4,985.7	4,985.9	0.2
CQ	91,582	718	621	3.2	4,987.9	4,987.9	4,988.2	0.3
CR	92,405	560	744	2.6	4,989.3	4,989.3	4,989.7	0.4
CS	93,494	584	822	2.4	4,991.3	4,991.3	4,991.6	0.3
CT	94,252	282	519	3.8	4,992.5	4,992.5	4,992.9	0.4
CU	95,099	343	771	2.5	4,994.4	4,994.4	4,994.8	0.4
CV	96,037	372	635	3.1	4,995.4	4,995.4	4,995.9	0.5
CW	96,976	418	621	3.2	4,997.2	4,997.2	4,997.5	0.3
CX	97,762	741	1,154	1.7	4,998.1	4,998.1	4,998.5	0.4
CY	98,803	646	701	2.8	4,999.0	4,999.0	4,999.5	0.5
CZ	99,720	440	579	3.4	5,000.4	5,000.4	5,000.9	0.5

[1] Feet above Beaverhead/Madison County Boundary

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
DA	100,385	295	484	4.1	5,002.0	5,002.0	5,002.4	0.4
DB	101,415	204	571	3.4	5,004.3	5,004.3	5,004.6	0.3
DC	102,266	459	452	4.3	5,005.7	5,005.7	5,005.8	0.1
DD	103,006	766	511	3.8	5,007.7	5,007.7	5,008.1	0.4
DE	103,939	963	691	2.8	5,011.7	5,011.7	5,011.9	0.2
DF	104,874	697	809	2.4	5,013.0	5,013.0	5,013.3	0.3
DG	105,802	1,104	1,628	1.2	5,015.0	5,015.0	5,015.3	0.3
DH	106,665	844	1,382	1.4	5,016.2	5,016.2	5,016.7	0.5
DI	107,517	735	1,119	1.8	5,017.5	5,017.5	5,018.0	0.5
DJ	108,382	624	1,187	1.7	5,019.4	5,019.4	5,019.7	0.3
DK	109,107	530	999	2.0	5,020.1	5,020.1	5,020.5	0.4
DL	110,017	573	947	2.1	5,023.0	5,023.0	5,023.5	0.5
DM	110,938	488	969	2.0	5,024.6	5,024.6	5,024.8	0.2
DN	111,709	610	1,017	1.9	5,025.2	5,025.2	5,025.6	0.4
DO	112,622	848	989	2.0	5,026.5	5,026.5	5,026.7	0.2
DP	113,555	537	948	2.1	5,028.4	5,028.4	5,028.7	0.3
DQ	114,245	485	463	4.2	5,029.7	5,029.7	5,030.1	0.4
DR	115,219	115	385	5.1	5,033.1	5,033.1	5,033.5	0.4
DS	116,234	534	893	2.2	5,035.3	5,035.3	5,035.5	0.2
DT	116,822	560	914	2.1	5,036.6	5,036.6	5,037.1	0.5
DU	117,829	549	947	2.1	5,038.3	5,038.3	5,038.7	0.4
DV	118,600	731	1,496	1.3	5,040.0	5,040.0	5,040.3	0.3
DW	119,348	774	1,094	1.8	5,040.6	5,040.6	5,040.8	0.2
DX	120,192	276	439	4.5	5,043.1	5,043.1	5,043.4	0.3
DY	120,883	289	782	2.5	5,045.6	5,045.6	5,046.0	0.4
DZ	121,827	255	635	3.1	5,047.3	5,047.3	5,047.6	0.3

[1] Feet above Beaverhead/Madison County Boundary

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BEAVERHEAD RIVER

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
EA	122,535	302	636	3.1	5,048.7	5,048.7	5,048.9	0.2
EB	123,402	536	593	3.3	5,050.3	5,050.3	5,050.4	0.1
EC	124,097	461	761	2.6	5,052.8	5,052.8	5,052.9	0.1
ED	124,899	347	639	3.1	5,054.4	5,054.4	5,054.7	0.3
EE	125,666	383	436	4.5	5,055.7	5,055.7	5,056.0	0.3
EF	126,458	635	414	4.7	5,058.2	5,058.2	5,058.7	0.5
EG	127,182	250	554	4.2	5,061.1	5,061.1	5,061.1	0.0
EH	127,990	126	291	8.0	5,062.9	5,062.9	5,063.0	0.1
EI	128,792	162	447	5.2	5,065.7	5,065.7	5,065.8	0.1
EJ	129,629	120	539	4.3	5,067.8	5,067.8	5,067.8	0.0
EK	130,524	416/216[2]	1,266	1.8	5,070.2	5,070.2	5,070.2	0.0
EL	131,317	1,097	720	3.2	5,071.5	5,071.5	5,071.8	0.3
EM	132,192	496	587	4.0	5,074.9	5,074.9	5,075.2	0.3
EN	133,110	73	338	6.9	5,077.9	5,077.9	5,078.3	0.4
EO	134,092	287	737	3.2	5,081.4	5,081.4	5,081.4	0.0
EP	135,187	178	449	5.2	5,083.7	5,083.7	5,084.1	0.4
EQ	135,938	199	781	3.0	5,086.2	5,086.2	5,086.6	0.4
ER	136,851	238	728	3.2	5,089.9	5,089.9	5,090.1	0.2
ES	137,773	532	621	4.1	5,092.6	5,092.6	5,092.6	0.0
ET	138,556	113	390	6.0	5,094.9	5,094.9	5,094.9	0.0
EU	139,614	69	296	7.9	5,098.3	5,098.3	5,098.7	0.4
EV	140,714	53	258	9.1	5,101.3	5,101.3	5,101.5	0.2
EW	141,629	108	442	5.7	5,104.7	5,104.7	5,105.2	0.5
EX	142,496	381	614	4.1	5,108.6	5,108.6	5,108.6	0.0
EY	143,297	171	397	6.4	5,109.8	5,109.8	5,109.8	0.0
EZ	144,147	595	1,172	2.2	5,111.9	5,111.9	5,112.0	0.1

[1] Feet above Beaverhead/Madison County Boundary

[2] Total floodway width/width as modeled for Beaverhead River

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BEAVERHEAD RIVER

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
FA	144,882	327	541	4.7	5,113.1	5,113.1	5,113.1	0.0
FB	145,787	263	692	3.7	5,116.6	5,116.6	5,116.6	0.0
FC	146,735	601	665	3.8	5,117.2	5,117.2	5,117.2	0.0
FD	147,804	224	571	4.4	5,118.9	5,118.9	5,119.4	0.5
FE	148,814	368	597	4.2	5,120.7	5,120.7	5,121.1	0.4
FF	149,800	372	404	6.3	5,123.3	5,123.3	5,123.5	0.2
FG	150,602	769	860	2.9	5,125.6	5,125.6	5,126.1	0.5
FH	151,356	1,114	700	3.6	5,127.1	5,127.1	5,127.5	0.4
FI	153,785	1,333	1,183	2.4	5,129.2	5,129.2	5,129.6	0.4
FJ	155,392	2,234	2,429	1.8	5,131.1	5,131.1	5,131.5	0.4
FK	156,683	2,021	1,408	1.8	5,133.1	5,133.1	5,133.5	0.4
FL	158,026	1,240	1,104	2.3	5,134.8	5,134.8	5,135.1	0.3
FM	159,657	1,904	1,535	2.3	5,136.9	5,136.9	5,136.9	0.0
FN	160,603	1,298	901	1.2	5,138.0	5,138.0	5,138.0	0.0
FO	161,578	123	165	5.3	5,138.8	5,138.8	5,138.8	0.0
FP	162,554	470	227	3.9	5,141.6	5,141.6	5,141.6	0.0
FQ	163,425	391	331	3.1	5,143.2	5,143.2	5,143.2	0.0
FR	164,201	886	606	1.6	5,144.1	5,144.1	5,144.1	0.0
FS	164,803	850	518	1.9	5,144.7	5,144.7	5,144.7	0.0
FT	165,586	440	193	5.1	5,146.5	5,146.5	5,146.5	0.0
FU	166,643	80	217	4.6	5,149.6	5,149.6	5,149.6	0.0
FV	167,534	230	376	2.9	5,152.4	5,152.4	5,152.5	0.1
FW	168,298	107	245	4.5	5,155.3	5,155.3	5,155.3	0.0
FX	169,360	369	287	5.7	5,156.8	5,156.8	5,156.8	0.0
FY	170,252	840	1,576	1.0	5,159.4	5,159.4	5,159.4	0.0
FZ	171,272	908	1,083	1.7	5,161.4	5,161.4	5,161.4	0.0

[1] Feet above Beaverhead/Madison County Boundary

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
GA	172,216	540	1,088	2.9	5,163.1	5,163.1	5,163.1	0.0
GB	173,137	358	473	3.8	5,165.4	5,165.4	5,165.5	0.0
GC	173,999	1,079	1,112	3.5	5,168.4	5,168.4	5,168.4	0.0
GD	174,694	329	971	3.3	5,170.1	5,170.1	5,170.1	0.0
GE	175,644	65	1,820	5.0	5,171.4	5,171.4	5,171.4	0.0
GF	176,256	824	2,542	2.8	5,174.4	5,174.4	5,174.4	0.0
GG	177,174	881	1,587	2.3	5,175.9	5,175.9	5,175.9	0.0
GH	178,283	1,169	2,183	3.3	5,177.4	5,177.4	5,177.4	0.0
GI	179,451	1,414	963	2.8	5,180.1	5,180.1	5,180.1	0.0
GJ	181,214	1,479	2,045	1.6	5,183.0	5,183.0	5,183.0	0.0
GK	183,064	1,511	2,668	1.7	5,186.4	5,186.4	5,186.4	0.0
GL	184,200	1,453	1,539	1.9	5,188.2	5,188.2	5,188.2	0.0
GM	185,081	1,155	1,011	2.6	5,190.0	5,190.0	5,190.1	0.1
GN	186,157	423	753	3.5	5,192.5	5,192.5	5,192.9	0.4
GO	187,290	424	726	3.6	5,195.0	5,195.0	5,195.4	0.4
GP	188,226	134	483	5.5	5,197.6	5,197.6	5,198.1	0.5
GQ	189,493	525	1,226	2.3	5,200.1	5,200.1	5,200.6	0.5
GR	190,337	766	1,232	2.1	5,202.4	5,202.4	5,202.9	0.5
GS	191,379	338	658	4.0	5,206.1	5,206.1	5,206.6	0.5
GT	192,232	227	486	5.4	5,208.2	5,208.2	5,208.6	0.4
GU	193,336	153	465	5.7	5,211.4	5,211.4	5,211.9	0.5
GV	194,333	351	658	4.0	5,214.7	5,214.7	5,215.2	0.5
GW	195,911	349	706	3.7	5,218.7	5,218.7	5,219.2	0.5
GX	196,742	699	623	4.2	5,222.0	5,222.0	5,222.4	0.4
GY	197,746	324	491	5.4	5,225.7	5,225.7	5,225.9	0.2
GZ	199,231	108	375	7.0	5,230.3	5,230.3	5,230.8	0.5

[1] Feet above Beaverhead/Madison County Boundary

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BEAVERHEAD RIVER

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
HA	200,521	819	686	3.8	5,234.0	5,234.0	5,234.1	0.1
HB	201,849	89	346	7.6	5,238.8	5,238.8	5,239.0	0.2
HC	203,199	119	479	5.5	5,243.7	5,243.7	5,244.1	0.4
HD	204,531	89	372	7.1	5,247.0	5,247.0	5,247.5	0.5
HE	205,578	105	355	7.4	5,250.6	5,250.6	5,251.1	0.5
HF	206,604	104	421	6.2	5,254.6	5,254.6	5,255.1	0.5
HG	207,446	95	399	6.6	5,259.2	5,259.2	5,259.2	0.0
HH	208,233	217	564	4.7	5,261.4	5,261.4	5,261.4	0.0
HI	209,134	98	409	6.4	5,263.2	5,263.2	5,263.3	0.1
HJ	210,254	88	445	5.9	5,266.0	5,266.0	5,266.4	0.4
HK	211,091	70	351	7.5	5,267.9	5,267.9	5,268.2	0.3
HL	211,846	96	390	6.7	5,270.6	5,270.6	5,270.7	0.1
HM	212,617	79	385	6.8	5,273.2	5,273.2	5,273.3	0.1
HN	213,736	137	436	6.0	5,276.2	5,276.2	5,276.5	0.3
HO	214,654	79	446	5.9	5,278.7	5,278.7	5,278.8	0.1
HP	215,783	119	454	5.8	5,282.6	5,282.6	5,282.7	0.1
HQ	217,314	222	634	4.2	5,286.1	5,286.1	5,286.4	0.3
HR	218,598	84	411	6.4	5,289.5	5,289.5	5,289.8	0.3
HS	219,400	78	441	6.0	5,291.7	5,291.7	5,291.7	0.0

[1] Feet above Beaverhead/Madison County Boundary

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BEAVERHEAD RIVER

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Beaverhead River Lower Split 2								
A	1,136	239	364	0.7	4,837.9	4,837.9	4,838.4	0.5
B	1,936	144	68	3.9	4,839.6	4,839.6	4,839.8	0.2
C	2,582	103	245	1.1	4,840.0	4,840.0	4,840.3	0.3
D	3,199	53	101	2.3	4,840.2	4,840.2	4,840.4	0.2
E	3,773	43	75	2.8	4,841.5	4,841.5	4,841.6	0.1
F	4,301	70	89	2.3	4,842.6	4,842.6	4,842.7	0.1
G	5,143	311	54	1.3	4,844.1	4,844.1	4,844.2	0.1
H	5,354	373	33	1.4	4,844.6	4,844.6	4,844.7	0.1
Beaverhead River Lower Split 5								
A	205	186	384	1.5	4,872.9	4,872.9	4,873.4	0.5
B	893	49	139	4.0	4,874.3	4,874.3	4,874.6	0.3
C	1,612	92	133	2.6	4,875.7	4,875.7	4,875.9	0.2
D	2,180	484	129	2.4	4,880.2	4,880.2	4,880.3	0.1
Beaverhead River Lower Split 6								
A	255	89	91	5.2	4,938.5	4,938.5	4,938.8	0.3
B	1,043	43	100	4.8	4,940.0	4,940.0	4,940.5	0.5
C	1,739	204	265	1.8	4,942.3	4,942.3	4,942.7	0.4
D	2,325	110	171	2.8	4,943.2	4,943.2	4,943.5	0.3
E	3,042	68	174	2.7	4,944.8	4,944.8	4,945.3	0.5
F	3,734	85	215	1.8	4,945.5	4,945.5	4,945.9	0.4
G	4,459	277	250	1.5	4,947.6	4,947.6	4,948.0	0.4
H	4,729	132	136	2.8	4,948.7	4,948.7	4,949.0	0.3

[1] Feet above Confluence with Beaverhead River

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Beaverhead River Overbank								
A	6,667[1]	10	14	1.8	5,057.4	5,057.4	5,057.4	0.0
B	7,237[1]	274	666	0.5	5,061.7	5,061.7	5,061.7	0.0
C	7,689[1]	424	392	0.9	5,061.8	5,061.8	5,061.8	0.0
D	8,279[1]	32	107	3.1	5,063.9	5,063.9	5,063.9	0.0
E	8,593[1]	27	99	1.3	5,064.6	5,064.6	5,064.6	0.0
Big Hole River								
A	30[2]	313/197[3]	710	5.7	5,165.4	5,165.4	5,165.8	0.4
B	1,674[2]	299/264[3]	916	4.4	5,171.0	5,171.0	5,171.0	0.0

[1] Feet above Limit of Study
[2] Feet above Butte-Silver Bow County Limits
[3] Width/Width Within Silver Bow County Limits

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	181	416/151[2]	264	3.7	5,070.1	5,069.5[4]	5,070	0.5
B	857	241	501	2.0	5,071.2	5,071.2	5,071.6	0.4
C	1,711	236[3]	265	3.7	5,073.7	5,073.7	5,073.9	0.2
D	2,012	437	619	1.6	5,074.6	5,074.6	5,075.1	0.5
E	2,456	78	175	5.6	5,076.1	5,076.1	5,076.4	0.3
F	2,894	180	518	1.9	5,077.9	5,077.9	5,078.2	0.3
G	3,345	492	1437	0.7	5,078.1	5,078.1	5,078.6	0.5
H	3,956	417	710	1.4	5,078.3	5,078.3	5,078.8	0.5
I	5,258	177	455	2.2	5,081.3	5,081.3	5,081.6	0.3
J	5,900	99	217	4.1	5,083.6	5,083.6	5,084.0	0.4
K	7,031	93	276	3.2	5,087.6	5,087.6	5,088.0	0.4
L	7,683	167[3]	252	3.5	5,091.0	5,091.0	5,091.1	0.1
M	7,940	172[3]	192	4.8	5,091.8	5,091.8	5,092.1	0.3
N	8,143	124	283	3.2	5,094.7	5,094.7	5,094.7	0.0
O	8,468	43	162	5.6	5,095.9	5,095.9	5,096.2	0.3
P	8,841	138	291	3.1	5,097.8	5,097.8	5,098.2	0.4
Q	9,467	72	224	4.1	5,099.8	5,099.8	5,099.8	0.0
R	9,923	53	184	5.1	5,102.2	5,102.2	5,102.4	0.2
S	10,290	109	375	2.6	5,103.9	5,103.9	5,104.4	0.5
T	10,885	215	634	1.6	5,104.3	5,104.3	5,104.7	0.4
U	11,106	178[3]	317	3.1	5,104.3	5,104.3	5,104.8	0.5
V	12,018	122	250	3.9	5,107.0	5,107.0	5,107.1	0.1
W	12,633	163	396	2.5	5,108.3	5,108.3	5,108.5	0.2
X	13,166	246	430	2.3	5,110.8	5,110.8	5,111.0	0.2
Y	13,586	98	428	2.3	5,112.6	5,112.6	5,113.0	0.4
Z	15,315	183	673	1.5	5,113.2	5,113.2	5,113.7	0.5

[1]Feet above confluence with Beaverhead River
[2]Total floodway width/width as modeled for Blacktail Deer Creek
[3]Floodway top width includes width of high ground area
[4]Elevation computed without consideration of backwater effects from Beaverhead River

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BLACKTAIL DEER CREEK

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AA	16,465	61	258	3.8	5,114.2	5,114.2	5,114.6	0.4
AB	17,164	250	742	1.3	5,115.8	5,115.8	5,116.0	0.2
AC	17,933	132	395	2.5	5,116.9	5,116.9	5,117.1	0.2
AD	18,812	87	173	5.7	5,117.8	5,117.8	5,118.3	0.5
AE	20,099	79	235	4.2	5,123.7	5,123.7	5,124.0	0.3
AF	21,701	269	436	2.3	5,128.6	5,128.6	5,129.1	0.5
AG	22,803	94	243	4.0	5,132.3	5,132.3	5,132.6	0.3
AH	23,924	130	337	2.9	5,135.9	5,135.9	5,136.4	0.5
AI	25,008	60	156	6.3	5,140.1	5,140.1	5,140.5	0.4
AJ	25,628	77	252	3.9	5,145.9	5,145.9	5,145.9	0.0
AK	26,509	109	490	2.0	5,152.6	5,152.6	5,153.1	0.5
AL	26,876	238	593	1.7	5,153.2	5,153.2	5,153.7	0.5
AM	27,289	92	179	5.5	5,154.3	5,154.3	5,154.6	0.3
AN	28,120	62	159	6.2	5,159.9	5,159.9	5,160.4	0.5
AO	28,932	243	344	2.9	5,165.0	5,165.0	5,165.3	0.3
AP	29,995	69	200	4.9	5,172.0	5,172.0	5,172.2	0.2
AQ	31,150	260	293	3.4	5,179.4	5,179.4	5,179.8	0.4
AR	32,722	253	469	2.1	5,188.6	5,188.6	5,189.0	0.4
AS	33,802	122	224	3.5	5,193.4	5,193.4	5,193.8	0.4
AT	34,825	247[2]	244	3.2	5,197.9	5,197.9	5,198.2	0.3
AU	36,107	161	296	2.7	5,203.6	5,203.6	5,204.1	0.5
AV	37,463	70	153	5.2	5,210.9	5,210.9	5,211.2	0.3
AW	38,532	203	423	1.9	5,217.9	5,217.9	5,218.3	0.4
AX	39,542	90	209	3.8	5,223.1	5,223.1	5,223.3	0.2
AY	41,150	41	124	6.4	5,230.6	5,230.6	5,230.9	0.3
AZ	42,443	95	206	4.8	5,236.0	5,236.0	5,236.4	0.4

[1]Feet above confluence with Beaverhead River

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BA	43,582	216	358	2.7	5,241.5	5,241.5	5,241.9	0.4
BB	44,340	252	301	3.3	5,246.3	5,246.3	5,246.7	0.4
BC	45,540	179	218	4.5	5,254.9	5,254.9	5,255.1	0.2
BD	46,687	201[2]	258	3.8	5,264.5	5,264.5	5,264.9	0.4
BE	48,162	206[2]	261	2.4	5,275.1	5,275.1	5,275.5	0.4
BF	49,489	162[2]	204	3.8	5,284.9	5,284.9	5,285.1	0.2
BG	50,734	45	110	7.1	5,294.5	5,294.5	5,294.7	0.2
BH	51,668	145	152	5.1	5,303.2	5,303.2	5,303.2	0.0
BI	52,745	204[2]	219	3.6	5,311.7	5,311.7	5,311.8	0.1
BJ	53,837	291[2]	296	2.6	5,319.9	5,319.9	5,320.1	0.2
BK	54,977	176[2]	208	3.7	5,329.0	5,329.0	5,329.4	0.4
BL	56,104	240[2]	251	3.1	5,337.9	5,337.9	5,338.3	0.4
BM	57,269	135	194	4.0	5,346.6	5,346.6	5,346.8	0.2
BN	58,295	143	224	4.4	5,354.9	5,354.9	5,355.2	0.3

[1]Feet above confluence with Beaverhead River
[2]Floodway top width includes width of high ground area

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	4,895	18	28	1.6	5,054.5	5,054.5	5,054.5	0.0
B	5,548	39	26	1.9	5,055.3	5,055.3	5,055.3	0.0
C	6,376	40	57	4.1	5,056.5	5,056.5	5,056.5	0.0
D	6,987	506	271	1.4	5,058.4	5,058.4	5,058.4	0.0
E	7,754	432	175	2.5	5,061.3	5,061.3	5,061.3	0.0
F	8,325	533	339	0.7	5,063.4	5,063.4	5,063.4	0.0
G	8,957	24	40	5.0	5,065.2	5,065.2	5,065.2	0.0
H	9,617	20	39	5.1	5,068.2	5,068.2	5,068.2	0.0

[1] Feet above Limit of Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: GUIDICI DITCH

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	5,455	70	187	5.2	6212.9	6212.9	6213.4	0.5
B	7,427	405[2]	233	4.3	6227.2	6227.2	6227.3	0.1
C	9,064	145[2]	226	4.4	6241.1	6241.1	6241.2	0.1
D	11,026	107	263	3.8	6257.9	6257.9	6258.2	0.3
E	12,988	113[2]	179	5.6	6277.2	6277.2	6277.3	0.1
F	14,841	62	147	6.8	6292.6	6292.6	6292.8	0.2
G	16,713	70	186	5.4	6306.6	6306.6	6307.1	0.5
H	18,655	110	231	4.3	6320.4	6320.4	6320.7	0.3
I	20,483	29	138	7.3	6338.1	6338.1	6338.2	0.1
J	21,831	114	749	1.3	6354.2	6354.2	6354.4	0.2

[1] Feet above confluence with Red Rock River.

[2] Floodway top width includes width of high ground area.

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: JUNCTION CREEK

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3,762	23	24	1.1	5,047.8	5,047.8	5,047.8	0.0
B	4,162	227	765	0.3	5,049.7	5,049.7	5,049.7	0.0
C	4,663	210	205	1.0	5,050.2	5,050.2	5,050.2	0.0
D	5,262	205	136	1.5	5,051.3	5,051.3	5,051.3	0.0
E	5,769	195	293	1.1	5,053.2	5,053.2	5,053.2	0.0
F	6,261	174	17	1.0	5,053.6	5,053.6	5,053.6	0.0

[1] Feet above a point 4,117 feet downstream of Schuler Lane

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	326	78	91	1.1	5,096.9	5,096.9	5,097.3	0.4
B	1,082	200	304	0.3	5,097.2	5,097.2	5,097.5	0.3
C	1,977	18	33	3.2	5,097.3	5,097.3	5,097.6	0.3
D	2,795	46	51	2.0	5,099.9	5,099.9	5,100.0	0.1
E	3,887	15	26	5.0	5,102.0	5,102.0	5,102.0	0.0
F	4,669	17	230	3.8	5,104.8	5,104.8	5,104.8	0.0
G	5,308	493	160	0.6	5,106.5	5,106.5	5,106.5	0.0
H	6,060	102	22	1.3	5,109.1	5,109.1	5,109.1	0.0

[1] Feet above Confluence with Blacktail Meadows

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: OWEN DITCH

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	225	438	817	2.4	5,139.4	5,139.4	5,139.4	0.0
B	1,321	1,364	767	2.1	5,140.4	5,140.4	5,140.4	0.0
C	2,238	1,594	757	1.8	5,142.1	5,142.1	5,142.1	0.0
D	2,976	1,106	429	3.0	5,144.4	5,144.4	5,144.4	0.0
E	3,889	560	163	7.8	5,146.4	5,146.4	5,146.4	0.0
F	5,093	382	831	1.5	5,148.5	5,148.5	5,149.0	0.5
G	5,962	233	454	2.8	5,149.1	5,149.1	5,149.5	0.4
H	6,624	292	735	1.7	5,150.5	5,150.5	5,150.7	0.2
I	8,066	414	673	1.9	5,151.2	5,151.2	5,151.6	0.4
J	8,952	640	503	2.5	5,152.3	5,152.3	5,152.5	0.2
K	10,247	1,262	1,200	1.0	5,153.7	5,153.7	5,153.8	0.1
L	11,090	400	517	1.9	5,156.0	5,156.0	5,156.0	0.0
M	12,028	591	994	1.0	5,159.4	5,159.4	5,159.6	0.2
N	13,100	874	1,500	0.8	5,159.5	5,159.5	5,159.7	0.2
O	14,114	481	461	2.2	5,161.4	5,161.4	5,161.5	0.1
P	15,092	200	350	3.2	5,164.6	5,164.6	5,164.6	0.0
Q	16,029	139	206	5.2	5,166.8	5,166.8	5,166.8	0.0
R	16,796	605	581	1.9	5,169.3	5,169.3	5,169.3	0.0
S	17,507	1,177	800	1.5	5,172.2	5,172.2	5,172.2	0.0
T	18,540	1,639	1,580	1.6	5,174.8	5,174.8	5,174.8	0.0
U	19,120	699	658	2.0	5,175.8	5,175.8	5,175.8	0.0
V	20,471	565	540	2.1	5,178.1	5,178.1	5,178.1	0.0
W	21,516	531	599	1.8	5,181.2	5,181.2	5,181.2	0.0
X	22,160	1,040	265	2.1	5,182.0	5,182.0	5,182.0	0.0
Y	22,937	782	277	2.0	5,183.5	5,183.5	5,183.5	0.0
Z	24,324	65	149	3.2	5,187.2	5,187.2	5,187.2	0.0

[1] Feet above confluence with Beaverhead River

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	53	88	153	3.2	5,000.1	5,000.1	5,000.6	0.5
B	693	85	164	3.3	5,001.3	5,001.3	5,001.6	0.3
C	1,340	29	104	4.7	5,002.6	5,002.6	5,002.9	0.3
D	2,003	45	155	3.1	5,003.8	5,003.8	5,004.0	0.2
E	2,832	36	101	4.8	5,005.4	5,005.4	5,005.8	0.4
F	3,840	73	159	3.1	5,007.4	5,007.4	5,007.7	0.3
G	4,553	87	115	5.2	5,009.0	5,009.0	5,009.0	0.0
H	5,369	35	103	4.7	5,011.5	5,011.5	5,012.0	0.5
I	6,102	135	246	2.0	5,014.1	5,014.1	5,014.5	0.4
J	6,850	55	209	2.3	5,015.7	5,015.7	5,016.1	0.4
K	7,460	77	204	2.4	5,016.5	5,016.5	5,016.7	0.2
L	8,039	71	132	3.7	5,017.9	5,017.9	5,018.1	0.2
M	8,779	244	183	2.7	5,020.6	5,020.6	5,020.9	0.3
N	9,401	452	366	1.3	5,021.9	5,021.9	5,022.3	0.4
O	10,205	308	211	2.3	5,024.2	5,024.2	5,024.6	0.4
P	11,083	241	166	2.9	5,027.0	5,027.0	5,027.1	0.1
Q	11,626	86	194	2.5	5,028.7	5,028.7	5,029.1	0.4
R	12,127	123	180	2.7	5,030.4	5,030.4	5,030.6	0.2
S	12,873	102	187	2.6	5,032.6	5,032.6	5,032.7	0.1
T	13,602	176	268	1.8	5,034.6	5,034.6	5,034.9	0.3
U	14,357	360	238	2.0	5,037.3	5,037.3	5,037.5	0.2
V	14,922	230	394	1.2	5,038.8	5,038.8	5,039.2	0.4
W	15,503	117	188	2.6	5,040.0	5,040.0	5,040.3	0.3
X	16,081	98	296	1.6	5,041.9	5,041.9	5,042.1	0.2
Y	16,591	118	260	1.9	5,042.5	5,042.5	5,042.8	0.3
Z	17,364	143	166	2.9	5,044.1	5,044.1	5,044.2	0.1

[1] Feet above a point 8,109 Feet Downstream of Lost Trail

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SELWAY SLOUGH

Table 23: Floodway Data (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Selway Slough								
AA	18,032[1]	152	211	2.3	5,045.7	5,045.7	5,046.2	0.5
AB	18,665[1]	113	203	2.3	5,047.7	5,047.7	5,047.7	0.0
AC	19,359[1]	240	315	1.1	5,048.8	5,048.8	5,049.2	0.4
AD	19,820[1]	48	94	2.3	5,049.9	5,049.9	5,050.2	0.3
AE	20,533[1]	130	157	1.4	5,051.4	5,051.4	5,051.7	0.3
AF	21,321[1]	217	110	2.0	5,052.9	5,052.9	5,052.9	0.0
AG	21,972[1]	221	166	1.5	5,054.6	5,054.6	5,054.6	0.0
AH	22,580[1]	81	144	1.8	5,055.9	5,055.9	5,056.3	0.4
AI	23,277[1]	252	747	1.2	5,057.6	5,057.6	5,057.6	0.0
AJ	23,913[1]	238	190	1.6	5,059.2	5,059.2	5,059.2	0.0
AK	24,523[1]	39	345	4.5	5,062.4	5,062.4	5,062.4	0.0
AL	25,262[1]	142	90	5.0	5,064.6	5,064.6	5,064.6	0.0
AM	25,742[1]	181	134	2.0	5,065.9	5,065.9	5,065.9	0.0
Selway Spill								
A	640[2]	221	88	1.0	5,065.1	5,065.1	5,065.1	0.0
B	984[2]	753	474	0.2	5,065.2	5,065.2	5,065.2	0.0
Stodden Slough								
A	126[3]	107	182	3.6	4,958.1	4,958.1	4,958.2	0.1
B	454[3]	77	133	4.6	4,958.5	4,958.5	4,958.7	0.2

[1] Feet above a point 8,109 Feet Downstream of Lost Trail
[2] Feet above Confluence with Selway Slough
[3] Feet above Confluence with Beaverhead River

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SELWAY SLOUGH - SELWAY SPILL - STODDEN SLOUGH

Table 24: Flood Hazard and Non-Encroachment Data for Selected Streams

[Not applicable to this Flood Risk Project]

6.4 Coastal Flood Hazard Mapping

This section is not applicable for this Flood Risk Project.

Table 25: Summary of Coastal Transect Mapping Considerations

[Not applicable to this Flood Risk Project]

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 30, “Map Repositories”).

6.5.1 Letters of Map Amendment

A LOMA is an official revision by letter to an effective NFIP map. A LOMA results from an administrative process that involves the review of scientific or technical data submitted by the owner or lessee of property who believes the property has incorrectly been included in a designated SFHA. A LOMA amends the currently effective FEMA map and establishes that a specific property is not located in a SFHA. **A LOMA cannot be issued for properties located on the PFD (primary frontal dune).**

To obtain an application for a LOMA, visit www.fema.gov/letter-map-amendment-loma and download the form “MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill”. Visit the “Flood Map-Related Fees” section to determine the cost, if any, of applying for a LOMA.

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at www.fema.gov/online-tutorials.

For more information about how to apply for a LOMA, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627).

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA’s determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting www.fema.gov/letter-map-amendment-loma for the "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill" or by calling the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the "Flood Map-Related Fees" section.

A tutorial for LOMR-F is available at www.fema.gov/online-tutorials.

6.5.3 Letters of Map Revision

A LOMR is an official revision to the currently effective FEMA map. It is used to change flood zones, floodplain and floodway delineations, flood elevations and planimetric features. All requests for LOMRs should be made to FEMA through the chief executive officer of the community, since it is the community that must adopt any changes and revisions to the map. If the request for a LOMR is not submitted through the chief executive officer of the community, evidence must be submitted that the community has been notified of the request.

To obtain an application for a LOMR, visit www.fema.gov/media-library/assets/documents/1343 and download the form "MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision". Visit the "Flood Map-Related Fees" section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Beaverhead County FIRM are listed in Table 26. Please note that this table only includes LOMCs that have been issued on the FIRM panels updated by this map revision. For all other areas within this county, users should be aware that revisions to the FIS Report made by prior LOMRs may not be reflected herein and users will need to continue to use the previously issued LOMRs to obtain the most current data.

Table 26: Incorporated Letters of Map Change

[Not applicable to this Flood Risk Project]

6.5.4 Physical Map Revisions

A Physical Map Revisions (PMR) is an official republication of a community's NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

The community's chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

For more information about the PMR process, please visit www.fema.gov and visit the "Flood Map Revision Processes" section.

6.5.5 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards within a given community. FEMA accomplishes this through a national watershed-based mapping needs assessment strategy, known as the Coordinated Needs Management Strategy (CNMS). The CNMS is used by FEMA to assign priorities and allocate funding for new flood hazard analyses used to update the FIS Report and FIRM. The goal of CNMS is to define the validity of the engineering study data within a mapped inventory. The CNMS is used to track the assessment process, document engineering gaps and their resolution, and aid in prioritization for using flood risk as a key factor for areas identified for flood map updates. Visit www.fema.gov to learn more about the CNMS or contact the FEMA Regional Office listed in Section 8 of this FIS Report.

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Beaverhead County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 27, "Community Map History." A description of each of the column headings and the source of the date is also listed below.

- *Community Name* includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.

- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or "pending" (for Preliminary FIS Reports) is shown. If the community is listed in Table 27 but not identified on the map, the community is treated as if it were unmapped.

- *Initial FHBM Effective Date* is the effective date of the first FHBM. This date may be the same date as the Initial NFIP Map Date.

- *FHBM Revision Date(s)* is the date(s) that the FHBM was revised, if applicable.

- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community.

- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the

- FIRMs exist in countywide format, as PMRs of FIRM panels within the county are completed, the FIRM Revision Dates in the table for each community affected by the PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

The initial effective date for the Beaverhead County FIRMs in countywide format was [TBD].

Table 27: Community Map History

Community Name	Initial Identification Date	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Beaverhead County, Unincorporated Areas	09/30/1982	NA	NA	09/30/1982	[TBD]
Dillon, City of	11/08/1974	11/08/1974	07/30/1976	07/05/1982	[TBD]
Lima, Town of	07/25/1975	07/25/1975	NA	07/05/1982	03/04/1986

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 28 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 28: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Alder Creek	TBD	Morrison Maierle	MAS No. 2016-01	July 2018	Beaverhead County, Unincorporated Areas and Town of Lima
Beaverhead River and Splits	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Beaverhead River and Splits	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Beaverhead River overflow	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Beaverhead River overflow	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon

Table 28: Summary of Contracted Studies Included in this FIS Report (continued)

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Big Hole River	TBD	RESPEC Consulting Services	NA	August 2014	Beaverhead County, Unincorporated Areas
Big Hole River	TBD	Michael Baker International	MAS No. 2016-01	June 2017	Beaverhead County, Unincorporated Areas
Big Hole River West Channel	TBD	Michael Baker International	MAS No. 2016-01	June 2017	Beaverhead County, Unincorporated Areas
Blacktail Deer Creek	TBD	DOWL	MAS No. 2016-01	November 2018	Beaverhead County, Unincorporated Areas; City of Dillon
Blacktail Meadows	TBD	DOWL	MAS No. 2016-01	November 2018	Beaverhead County, Unincorporated Areas; City of Dillon
Canyon Ditch Split	TBD	DOWL	MAS No. 2016-01	November 2018	Beaverhead County, Unincorporated Areas; City of Dillon
Dillon Canal	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Dillon Canal	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Gleed Ditch	TBD	Morrison Maierle	MAS No. 2016-01	July, 2018	Beaverhead County, Unincorporated Areas and Town of Lima
Guidici Ditch	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Guidici Ditch	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Junction Creek	TBD	Morrison Maierle	MAS No. 2016-01	July 2018	Beaverhead County, Unincorporated Areas and Town of Lima
Junction Creek Overflow	TBD	Morrison Maierle	MAS No. 2016-01	July 2018	Beaverhead County, Unincorporated Areas and Town of Lima
Murray Gilbert Slough	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon

Table 28: Summary of Contracted Studies Included in this FIS Report (continued)

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Murray Gilbert Slough	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Owen Ditch	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Owen Ditch	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Poindexter Slough	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Poindexter Slough	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Poindexter Slough Overflow	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Poindexter Slough Overflow	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Selway Slough (Zone A)	TBD	Michael Baker International	MAS No. 2016-01	October 2018	Beaverhead County, Unincorporated Areas
Selway Slough	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Selway Slough	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Selway Spill	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Selway Spill	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Stodden Slough	TBD	Pioneer Technical Services	MAS No. 2016-01	April 2017	Beaverhead County, Unincorporated Areas; City of Dillon
Stodden Slough	TBD	Michael Baker International	MAS No. 2016-01	March 2017	Beaverhead County, Unincorporated Areas; City of Dillon

Table 28: Summary of Contracted Studies Included in this FIS Report (continued)

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Upper Split	TBD	DOWL	MAS No. 2016-01	November 2018	Beaverhead County, Unincorporated Areas; City of Dillon

7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and previous Flood Risk Projects are shown in Table 29. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

Table 29: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Beaverhead County, Unincorporated Areas	TBD	03/06/2019	Flood Risk Review	FEMA; Montana Department of Natural Resources and Conservation (MTDNRC); Compass; Beaverhead County, Unincorporated Areas
		04/15/2019	Flood Risk Review	FEMA; MTDNRC; Compass; Beaverhead County, Unincorporated Areas
		TBD	CCO Meeting	FEMA; MTDNRC; Compass; Beaverhead County, Unincorporated Areas
Dillon, City of	TBD	03/06/2019	Flood Risk Review	FEMA; MTDNRC; Compass; Beaverhead County, Unincorporated Areas
		TBD	CCO Meeting	FEMA; MTDNRC; Compass; Beaverhead County, Unincorporated Areas
Lima, Town of	TBD	04/15/2019	Flood Risk Review	FEMA; MTDNRC; Compass; Dillon, City of
		TBD	CCO Meeting	FEMA; MTDNRC; Compass; Lima, Town of

SECTION 8.0 – ADDITIONAL INFORMATION

Information concerning the pertinent data used in the preparation of this FIS Report can be obtained by submitting an order with any required payment to the FEMA Engineering Library. For more information on this process, see www.fema.gov.

Table 30 is a list of the locations where FIRMs for Beaverhead County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

Table 30: Map Repositories

Community	Address	City	State	Zip Code
Beaverhead County, Unincorporated Areas	Beaverhead County Courthouse 2 South Pacific Street, Suite 12	Dillon	MT	59725
Dillon, City of	125 North Idaho Street	Dillon	MT	59725
Lima, Town of	Beaverhead County Courthouse 2 South Pacific Street, Suite 12	Dillon	MT	59725

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM Databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 31.

Table 31 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the State NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of State and local GIS data in their state.

Table 31: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/engineering-library
NFIP website	www.fema.gov/national-flood-insurance-program
NFHL Dataset	msc.fema.gov
FEMA Region VIII	Denver Federal Center Building 710, Box 25267 Denver, CO 80225-0267 (303) 235-4800

Table 31: Additional Information (continued)

Other Federal Agencies	
USGS website	www.usgs.gov
Hydraulic Engineering Center website	www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Traci Sears, CFM Dept. of Natural Resources and Conservation 1625 Eleventh Ave. Helena, MT 59601 Phone: (406) 444-6654 tsears@mt.gov
Bureau Chief of Water Operations	Stephen Story, PE, CFM Dept. of Natural Resources and Conservation 1625 Eleventh Ave. Helena, MT 59601 Phone: (406) 444-6816 sestory@mt.gov
State GIS Coordinator	Erin Fashoway Montana State Library P.O. Box 201800 1515 East 6th Avenue Helena MT 59620-1800 EFashoway@mt.gov 406-444-9013

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

Table 32 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 32: Bibliography and References

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
MT DNRC, 2014	Montana Department of Natural Resources and Conservation	2014 Model Regulations	DNRC	Helena, MT	2014	http://dnrc.mt.gov/divisions/water/operations/floodplain-management
MT DNRC 2016	Montana Department of Natural Resources and Conservation	*Dillon AOI, Beaverhead County LiDAR Technical Data Report*	Quantum Spatial	Helena, MT	May 2016	
MT DNRC, 2017a	Montana Department of Natural Resources and Conservation	Hydrology Design Report, Junction Creek Detailed Floodplain Study Beaverhead County, MT	DNRC	Helena, MT	2017	http://dnrc.mt.gov/divisions/water/operations/floodplain-management
MT DNRC 2017b	Montana Department of Natural Resources and Conservation	*Draft Beaverhead River Hydrologic Analysis*	Pioneer Technical Services	Helena, MT	April 2017	
MT DNRC 2017c	Montana Department of Natural Resources and Conservation	*Survey Report Beaverhead River & Blacktail Deer Creek Flood Study*	Morrison-Maierle, Inc.	Helena, MT	May 2017	
MT DNRC 2018	Montana Department of Natural Resources and Conservation	*Beaverhead River and Splits Enhanced Hydraulic Analysis Report*	Michael Baker International	Helena, MT	May 2018	
FEMA, 2013	Federal Emergency Management Agency	cHECk-RAS, Version 2.0.1 Software and User Guide	FEMA	N/A	2013	https://www.fema.gov/check-ras-hec-ras-validation-tool

Table 32: Bibliography and References (continued)

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
FEMA, 2015a	Federal Emergency Management Agency	RASPLOT, Version 3.0 Software and User Guide	FEMA	N/A	2015	https://www.fema.gov/rasplot-version-30
FEMA, 2015b	Federal Emergency Management Agency	Montana DNRC Cooperating Technical Partners Mapping Activity Statement (MAS): No. 2016-01, Beaverhead County Modernization Project, Phase II	FEMA	N/A	2016	https://www.fema.gov/media-library/assets/documents/34953
FEMA. 2016	Federal Emergency Management Agency	Hydraulics: One-Dimensional Analysis: *Guidance for Riverine Flooding Analyses and Mapping*.	FEMA	N/A	2016	https://www.fema.gov/media-library-data/1484864685338-42d21ccf2d87c2aac95ea1d7ab6798eb/Hydraulics_OneDimensionalAnalyses_Nov_2016.pdf
Morrison-Maierle, Inc. 2017	Morrison-Maierle, Inc.	Survey Report, Junction Creek Detailed Flood Study, Beaverhead Countywide Project, Phase II, Mapping Activity Statement No. 2016-01	Morrison-Maierle, Inc.	Helena, MT	2017	https://m-m.net/
Quantum Spatial, 2017	Quantum Spatial / Montana Department of Natural Resources	Lima AOI, Beaverhead County LiDAR Data Delivery	Quantum Spatial	Corvallis, OR	2017	https://www.quantumspatial.com
USGS, 1967	United States Geological Survey	Water-Supply Paper 1849, Roughness Characteristics of Natural Channels	Harry H. Barnes, Jr.	Washington	1967	https://pubs.usgs.gov/wsp/wsp_1849/

Table 32: Bibliography and References (continued)

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
USACE, 2016	United States Army Corps of Engineers	HEC-RAS 5.0.3, Hydraulic Modeling Software.	USACE Hydrologic Engineering Center	Davis, CA	2016	https://www.hec.usace.army.mil/software/hec-ras/
USDA-FSA 2012, 2014, 2015	United States Department of Agriculture: Farm Service Agency	National Agriculture Imagery Program (NAIP) Aerial Photographs	USDA-FSA	Salt Lake City, UT	2015	https://www.fsa.usda.gov/contact-us
W.J. Syme, 2008	N/A	Flooding in Urban Areas – 2D Modeling Approaches for Buildings and Fences	W.J. Syme	N/A	2008	