

CONSOLIDATED OPERATIONS AND RECLAMATION PLAN - APPENDIX E9 - TAILINGS STORAGE FACILITIES - EMERGENCY PREPAREDNESS PLAN

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Approvals	Title	Signature	Date Signed



COMMITMENT



ACCOUNTABILITY



RESPECT



ENABLING



SAFETY

Stillwater Mine

Consolidated Operations and Reclamation Plan - Appendix E9 - Tailings Storage Facilities - Emergency Preparedness Plan

2021/04/28



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ABBREVIATIONS

DBA.....	dam breach assessment
EOR.....	Engineer of Record
EPP.....	Emergency Preparedness Plan
FMEA	Failure Modes and Effects Analysis
GISTM	Global Industry Standard on Tailings Management
IC	Incident Command
KP.....	Knight Piésold Ltd.
LEPC	Local Emergency Planning Committee
MCA	Montana Code Annotated
MDEQ.....	Montana Department of Environmental Quality
MT	Montana
ROM	Run of Mine
SWM	Stillwater Mine
TERT.....	Tailings Emergency Response Team
TSF.....	Tailings Storage Facility
UC.....	Unified Command
USFS	United States Department of Agriculture, Forest Service
VP	Vice President

CONSOLIDATED OPERATIONS AND RECLAMATION PLAN - APPENDIX E9 - TAILINGS STORAGE FACILITIES - EMERGENCY PREPAREDNESS PLAN

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this Emergency Preparedness Plan (EPP) is to reduce the risk of human life loss and injury, and minimize property damage in the event of the occurrence of a potential emergency or emergency event at the Nye Tailings Storage Facility (TSF) located at the Stillwater Mine (SWM) Site or the Hertzler TSF located at the Hertzler Ranch Facility north of Nye Montana.

1.2 INSTRUCTIONS

Step 1: Refer to Section 2 for definition of the appropriate Emergency Level and initial actions. Select the appropriate Emergency Level for the event.

Step 2: Refer to the Emergency Level section that corresponds with the Emergency Level selected for the event.

- For Level 1, Potential Emergency Condition, refer to Section 3
- For Level 2, Emergency Event, refer to Section 4

1.3 CONTROL AND REVISIONS TO THE EPP

The EPP is a controlled document and specific procedures have been defined for the distribution, revision, and review as outlined below.

1.3.1 DISTRIBUTION

The EPP will be controlled by the Environmental Supervisor. The Environmental will be responsible for keeping a record of the location of each copy of the EPP and ensuring that these copies are kept up to date. Copies of the EPP will be maintained at the locations listed on Table 1.1.

1.3.2 REVISIONS

The EPP is reviewed on an annual basis to ensure that it reflects the current operating conditions.

A letter of transmittal that clearly identifies the distribution list must accompany each revision. An update will consist of the entire EPP. A copy of each transmittal letter and the updated EPP will be kept on record as electronic copies within Sibanye Stillwater's electronic filing system. The document holders are responsible for replacing outdated copies of the document whenever revisions are received. Outdated plans shall be immediately discarded to avoid any confusion with revisions.

Table 1.1 EPP Distribution (May 2020)

Copy No.	Organization	Person Receiving Copy
1	Disaster and Emergency Services Stillwater County PO Box 1287 400 East 3rd Ave. N Columbus, MT 59019 Office: 1-406-322-8060 Cell: 1-406-321-1997 Fax: 1-406-322-8007	Carol Arkell, 911/DES Coordinator (40) CArkell@stillwater.mt.gov
2	Sibanye Stillwater 536 East Pike Avenue, P.O. Box 1330 Columbus, MT 59019 Office: 1-406-328-8627	Randy Weimer Corporate Environmental Manager
3	Sibanye Stillwater 536 East Pike Avenue, P.O. Box 1330 Columbus, MT 59019 Office: 1-406-328-8633	Dee Bray VP Safety and Health
4	Sibanye Stillwater 2562 Nye Road Nye, MT 59061 Office: 1-406-328-8529	Environmental Supervisor
5	Sibanye Stillwater 2562 Nye Road Nye, MT 59061 Office: 1-406-328-8445	Copy kept at Dispatch
6	Knight Piésold Ltd. 1650 Main St. West P1B 8G5 North Bay, Ontario Office: 1-705-476-2165	Craig Hall Deputy Engineer of Record (EOR)

1.4 EPP PERIODIC TEST

Sibanye Stillwater, with the assistance of appropriate regulatory or government authorities, will host and facilitate a periodic test of the EPP at least once every 5 years. A review of the EPP was last completed with the Stillwater County Local Emergency Planning Committee (LEPC) on June 28, 2018.

The periodic test will consist of a meeting and a tabletop exercise to review the EPP. Attendance shall include the appropriate Sibanye Stillwater representatives, local Disaster and Emergency Services representatives and others with key responsibilities listed in the EPP. At the discretion of Sibanye Stillwater, other organizations that may be involved with a Potential Emergency event at either TSF will be encouraged to participate. Prior to the tabletop exercise, meeting participants will visit both TSFs as part the periodic test to familiarize themselves with the facilities.

The tabletop exercise will begin with the facilitator presenting a scenario of a Potential Emergency event at the TSF. The scenario will be developed prior to the exercise. Once the scenario has been presented, the participants will discuss the responses and actions that they would take to address and resolve the scenario. The facilitator will control the discussion, ensuring realistic responses and developing the scenario throughout the exercise. An event log should be completed as it would during an actual event.

The tabletop exercise will then consider a Potential Emergency event developing into an Emergency Event. The participants will discuss the responses and actions that they would take to address and resolve

the scenario. The facilitator will control the discussion, ensuring realistic responses and developing the scenario throughout the exercise. An event log should be completed as it would during an actual event.

1.5 TSF LOCATION AND DESCRIPTION

The Stillwater Mine is located in Section 21, Township 5 South, Range 15 East in Stillwater County, Montana. There are two TSFs associated with the mine site, including the Nye TSF and the Stage 3 Hertzler TSF. The Nye and Stage Hertzler TSF are included in this EPP since they were constructed in a similar fashion, store the same materials, and if a failure were to occur in either impoundment, the discharge would flow into the Stillwater River drainage, depending on the extent and location of the failure, could reach the Stillwater River.

The Nye TSF is located at the Stillwater Mine site approximately 5 miles southwest of Nye, Montana (Latitude N42°23'20" Longitude W109°52'31"). The Hertzler TSF is located approximately 6.5 miles northeast of the mine site and 1.6 miles northeast of Nye, Montana (Latitude N45°27'13" Longitude W109°47'15"). The mine location is Shown on Figure 1.1 and general arrangement figures for both TSFs are provided in Appendix A.

The main components of the Nye TSF include the embankments, geosynthetic-lined tailings basin, tailings delivery system, and water reclaim system. The embankments were constructed from locally- excavated fill consisting of glacial till and outwash deposits and Run of Mine (ROM) Rockfill. The TSF was designed to provide temporary storage and management of the portion of the Probable Maximum Flood event that might inflow as storm waters to the TSF during operations. An Interim Cap is current being constructed over the Nye TSF to develop a trafficable surface, consolidate the near surface tailings, provide for interim water management, and mitigate fugitive dust emissions. The location and storage parameters for the Nye TSF are summarized on Table 1.2.

The main components of the Hertzler TSF include the embankments, geosynthetic-lined tailings basin and underdrain, tailings delivery system and water reclaim system. The TSF embankments are constructed from locally-excavated fill consisting of glacial till and outwash deposits. The TSF was designed for temporary storage and management of precipitation from the Probable Maximum Flood event that would fall on the basin surface. There is no Emergency Spillway associated with this TSF during operations. The location and storage parameters for the Hertzler TSF are summarized on Table 1.3.

1.6 BASIS FOR EPP

1.6.1 FAILURE MODES AND EFFECTS ANALYSIS

The objective of a Failure Modes and Effects Analysis (FMEA) is to facilitate a highly qualified, independent review of the design and engineering of the TSF prior to construction. The purpose of the FMEA review is to identify credible potential failure modes, risk rank those identified, and, based on risk ranking, make improvements to the design to lower and mitigate the risk of failure.

The most concerning potential failure modes for the Nye and Hertzler TSFs that have been identified are related to a breach in the integrity of the facility that would lead to a loss of water and tailings solids. These failure modes are related to potential structural and foundation failures or erosional failures.

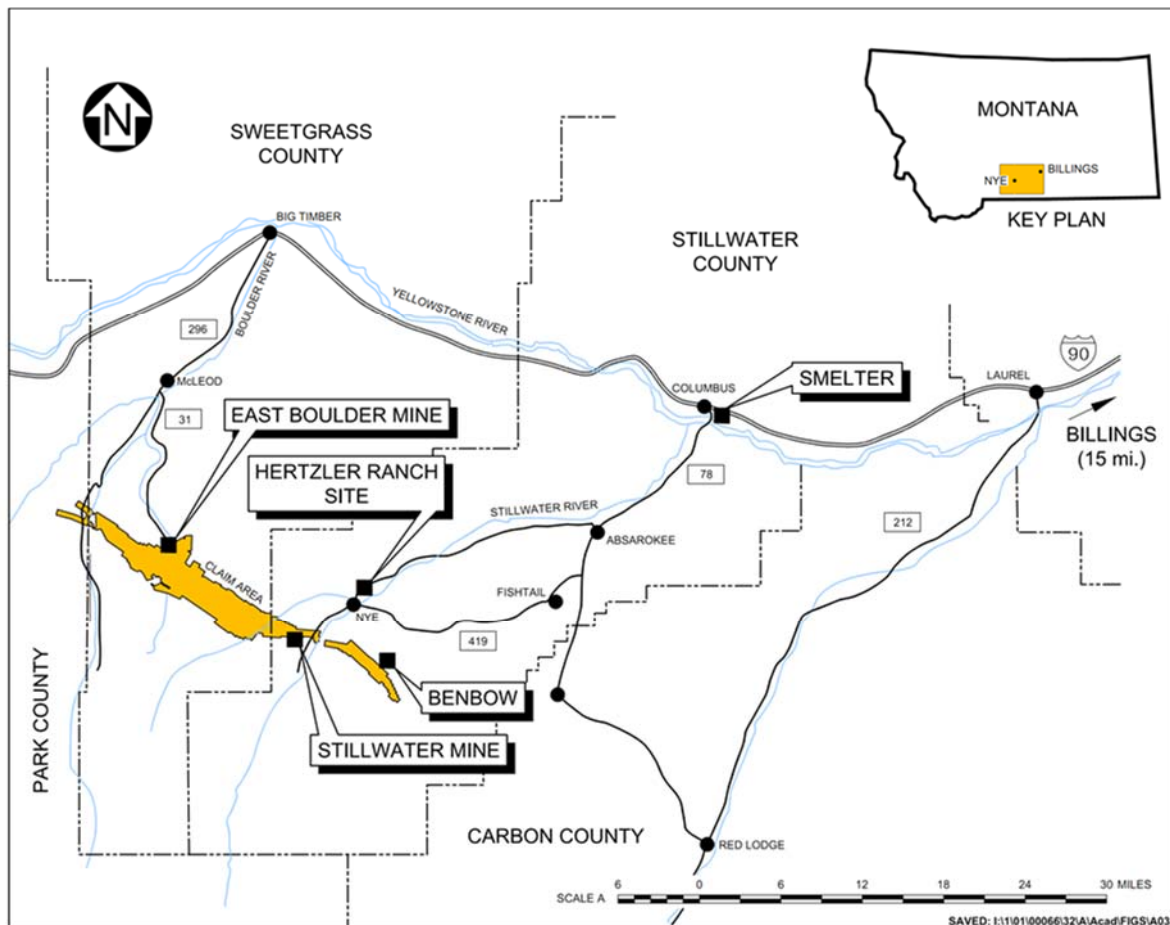


Figure 1.1 Mine Location

Table 1.2 Nye TSF Location and Storage Parameters

Parameter	Value
Impoundment Name	Nye TSF
Impoundment Operator	Sibanye Stillwater
Impoundment Type	Side hill/perimeter embankment lined with HDPE geomembrane
Location	State: Montana County: Stillwater Latitude: N42°23'20" Longitude: W109°52'31"
Nearest Town	Nye, MT: (5 miles)
Adjacent Stream	Stillwater River
Year Constructed	Current Embankment: 1986 to 1994
Embankment Crest Elevation	Current Embankment: El. 5,109 to 5,111 ft.
Embankment Length	5,248 ft.
Embankment Crest Width	30 ft.
Embankment Slopes	Downstream: 1.7H:1V, 1.5H:1V Upstream: 2.0H:1V, 2.5H:1V
Surface Area	42 acres
Operating Pond Volume	Actively being removed as part of closure capping
Spillway	During Operations: None Closure: Outlets to Channel
Hypothetical Breach Scenario	Embankment Slump and release of tailings solids (minimal pond volume after capping)
Regulatory Agencies	Montana Department of Environmental Quality (MDEQ), United States Department of Agriculture, Forest Service(USFS)

Table 1.3 Hertzler TSF Location and Storage Parameters

Parameter	Value
Impoundment Name	Hertzler TSF
Impoundment Operator	Sibanye Stillwater
Impoundment Type	Perimeter embankment lined with HDPE geomembrane
Location	State: Montana County: Stillwater Latitude: N45°27'13" Longitude: W109°47'15"
Nearest Town	Nye, MT: (1.6 miles)
Adjacent Stream	Stillwater River
Year Constructed	Current Embankment: 1999 to 2015
Embankment Crest Elevation	El. 5,036 ft.
Embankment Length	8,587 ft.
Embankment Crest Width	30 ft.
Embankment Slopes	Downstream: 2.0H:1V Upstream: 2.5H:1V, 3.0H:1V
Surface Area	96 acres
Operating Pond Volume	Minimum: 13.4 million cu. ft. 50 M gal Maximum: 20.1 million cu. ft. 150 M gal Filling El. 5,000 to 5,010: 250 – 200 M gal Filling El. 5,010 to 5,020: 200 – 150 M gal Filling El. 5,020 to 5,030: <150 M gal
Spillway	During Operations: None Closure: Outlets to Percolation Pond
Maximum Predicted Breach Release	2,700 acre-ft. (water and tailings)
Regulatory Agencies	MDEQ, USFS

Therefore, this EPP has been developed for the scenario of a potential failure of either the Nye or Hertzler TSFs that would result in a flash flood downstream of the facilities due to a release of water and tailings solids. A breach analysis was completed for each of the TSFs to estimate the downstream flood inundation zone. In turn, this identified the residences and roads that are at risk downstream of the TSF. An hypothetical breach of the Nye TSF would result in a much smaller inundation route than the Hertzler TSF as the operating pond is being reduced the surface of the TSF is being capped with waste rock. An updated dam breach assessment (DBA) was completed for the proposed Stage 4 and Stage 5 Hertzler TSF (KP, 2021). The updated DBA includes flood inundation maps along the Stillwater River from the Hertzler Ranch to the confluence of the Stillwater River and Yellowstone River. The updated inundation maps are used for emergency preparedness planning and are provided in Appendix B.

The Nye TSF is classified as having a high hazard potential and the Hertzler TSF is classified as having a low to high hazard potential (Federal Emergency Management Agency, U.S. Army Corps of Engineers). Each of the above failure modes and the factors that would contribute to a breach have been taken into consideration in determining the extent of the downstream flood inundation zone. The EPP and TOMS Manual have been developed to be compliant with MCA 82-4-379 (MT, 2019). Future updates to the EPP and TOMS Manual will also be compliant with the Global Industry Standard on Tailings Management (GISTM).

1.6.2 POTENTIALLY IMPACTED AREAS

The potentially impacted areas are located adjacent to the Stillwater River downstream of each TSF. Potentially-impacted structures include the Stillwater Mine buildings, bridges, roads, and residences. The evacuation area is defined by the estimated flooded area or inundation zone. The inundation zone estimates for a Hertzler TSF breach is illustrated on the figures provided in Appendix B. Residences, building and bridges located along the Stillwater River and Highway 420 would be affected by a breach.

The estimated time for the flood wave to impact the closest locations downstream of the TSF could be less than 5 minutes. The estimated time for the flood wave to migrate downstream to Absarokee is approximately 2 to 3 hours following the development of a breach.

2.0 EMERGENCY LEVEL DEFINITIONS AND INITIAL ACTIONS

Two levels of emergency conditions provide warning signs that can be identified by site operations. These include, in progressing order of urgency, Potential Emergency (Level 1), and Emergency Condition (Level 2). Typical situations that would be classified under the two levels of emergency conditions and the actions to be taken are outlined on Table 2.1. The emergency levels are described further below.

2.1 LEVEL 1 - POTENTIAL EMERGENCY CONDITION

Conditions that represent a Potential Emergency Condition are those that if sustained or allowed to progress may result in an emergency, but no emergency situation is imminent. Refer to Table 2.1 for examples of potential emergency conditions and subsequent response actions.

The initial action in the event of a Level 1 Potential Emergency Condition is to discuss and define an action plan, at the site, under the direction of the Tailings Emergency Response Team (TERT) (Environmental Supervisor, Concentrator Manager, Vice President (VP) of SWM Operations, and the EOR). After such a plan is prepared, it must be presented to the VP of SWM Operations for approval. Construction equipment should be made available, if required, at short notice.

2.2 LEVEL 2 - EMERGENCY EVENT

An Emergency Event is defined by either failure of a significant component of the TSF and/or associated facility, or a significant failure of the performance of a component of the TSF. Such failure may have already occurred, or be imminent. Refer to Table 2.1 for examples of emergency conditions and subsequent response actions.

The Sheriff's office dispatch must be contacted immediately so emergency services can begin evacuations of all at risk people and close roads as needed. This is an **extremely urgent** situation when an TSF failure is occurring or is about to occur and cannot be prevented. There is potential for flash flooding downstream of the TSF due to the release of water and tailings solids. This could result in the flooding of private residences and roads. During a TSF breach, the closest downstream residence could be affected in less than 5 minutes.

Table 2.1 Emergency Warning Levels and Initial Actions

Warning Level	Example Conditions	Example Initial Actions
LEVEL 1 (POTENTIAL EMERGENCY CONDITION)	Major erosion of the downstream slope or crest	<ul style="list-style-type: none"> Contact the EOR Prepare to carry out corrective repairs
	Soft toe condition or significant turbid seepage at the downstream slope or toe	<ul style="list-style-type: none"> Determine if water source is natural or from the tailings basin Contact the EOR
		<ul style="list-style-type: none"> Commission a field investigation program Prepare to carry out corrective repairs
	Moderate cracks with notable displacement developing at the embankment crest or slope	<ul style="list-style-type: none"> Conduct embankment walkovers daily until the problem is understood and addressed Contact the EOR
		<ul style="list-style-type: none"> Monitor crack development (e.g. crack size, extent, etc.)
		<ul style="list-style-type: none"> Prepare to carry out corrective repairs
	Tailings Delivery Pipeline rupture and significant embankment erosion	<ul style="list-style-type: none"> Stop tailings discharge
		<ul style="list-style-type: none"> Determine the cause or reason for rupture and inspect for damages or leaks. If required, flush pipeline with water to clear obstruction. Complete pipeline repair at rupture point.
		<ul style="list-style-type: none"> Prepare to complete corrective repairs for embankment erosion Contact the EOR
	Water Levels in the TSF 1 ft. or more above maximum operating level (Hertzler TSF: El. 5,030 ft.; Nye TSF: El. 5,105 ft.) and rising	<ul style="list-style-type: none"> Stop tailings discharge to the TSF Initiate reduction efforts such as transferring water to the LAD Storage Pond or underground mine, evaporation, treatment and disposal Conduct a detailed inspection of the TSF after levels have decreased
	Water vortex within the pond	<ul style="list-style-type: none"> Initiate Level 1 procedures Check downstream of the dam area for increased and/or turbid seepage discharge Place granular filter materials as directed by the EOR
	Any other situations which may lead to a potential emergency	<ul style="list-style-type: none"> Discuss with the Environmental Supervisor Seek advice from the EOR

Warning Level	Example Conditions	Example Initial Actions
LEVEL 2 (EMERGENCY EVENT)	Failure or suspected imminent failure of an embankment (any reason)	<ul style="list-style-type: none"> Initiate Level 2 procedures and ensure safety of people Stop tailings discharge into the TSF Monitor water levels every 3 hours if safe to do so Lower pond by transferring water to LAD Storage Pond and/or to the Underground Mine via the reclaim water system Contact the EOR Construct confinement berms downstream of the embankment where feasible
	Water Levels in the TSF close to overtopping embankment and rising	<ul style="list-style-type: none"> Initiate Level 2 procedures and ensure safety of people Stop tailings discharge to the TSF Transfer water to the LAD Storage Pond or underground mine via the reclaim system Monitor water levels in embankment and allow water flow through an emergency spillway if present Conduct a detailed inspection of the TSF after levels have decreased
	Significant slumping, sliding, or bulging of an embankment slope or adjacent ground	<ul style="list-style-type: none"> Initiate Level 2 procedures Contact the EOR Consider construction of a stabilizing berm and verify with the EOR
	Significant turbid seepage resulting in erosion of embankment fill or foundations	<ul style="list-style-type: none"> Initiate Level 2 procedures Consider placement of a granular graded filters over seepage location and verify with the EOR
	Large earthquake resulting in significant embankment slumping and potential loss of freeboard	<ul style="list-style-type: none"> Initiate Level 2 procedures Carry out detailed post-earthquake inspection of the dam with the assistance of the EOR Restore dam as directed by the EOR

3.0 LEVEL 1 POTENTIAL EMERGENCY RESPONSE PLAN

3.1 LEVEL 1 REQUIRED ACTIONS AND COMMUNICATIONS

Level 1 emergencies include conditions that represent a potential emergency if the conditions are sustained or allowed to progress, but no emergency situation is imminent.

The Environmental Supervisor, Concentrator Manager, and/or VP of SWM Operations shall be immediately notified and verify that the Potential Emergency Response Plan should be initiated.

Once confirmed, the Emergency Response and Notification Flowchart (Figure 3.1) shall be followed.

The Environmental Supervisor, Concentrator Manager or designated representative shall implement the Level 1 Response Plan for a potential TSF emergency situation, which includes:

1. Contact the EOR and determine the course of action, inform him/her of the potential emergency event and that the EPP has been activated.
2. The TSF shall be inspected, in a safe manner. If the condition/occurrence is progressing and/or escalating to an imminent failure condition initiate Level 2 procedures.
3. The TERT will review the condition of the TSF and develop an appropriate remediation and action plan.
4. Following review of the severity of the condition by the TERT. The TERT will utilize SWM dispatch to contact the Sheriff's office (dispatch) if a pre-evacuation notice is required. The TERT will notify the Executive VP of US Operations. SWM dispatch will remain in communication with the Sheriff's office dispatch as required by the response plan.
5. The Level 1 Potential Emergency Condition Event Log (Table 3.1) shall be completed to document the event. Information that should be recorded includes:
 - Record all contacts that were made
 - Record all information, observations, and actions taken
 - Note the time of changing conditions
 - Document the situation with photographs and video, if possible
6. The Environmental Supervisor shall notify the regulatory Agencies.
7. The approved remediation plan shall be implemented. Construction equipment should be made available, if required, at short notice.
8. Following confirmation with the EOR and Agencies that the emergency situation has ended, an Emergency Situation Termination Report shall be completed by the Environmental Supervisor and/or Concentrator Manager.

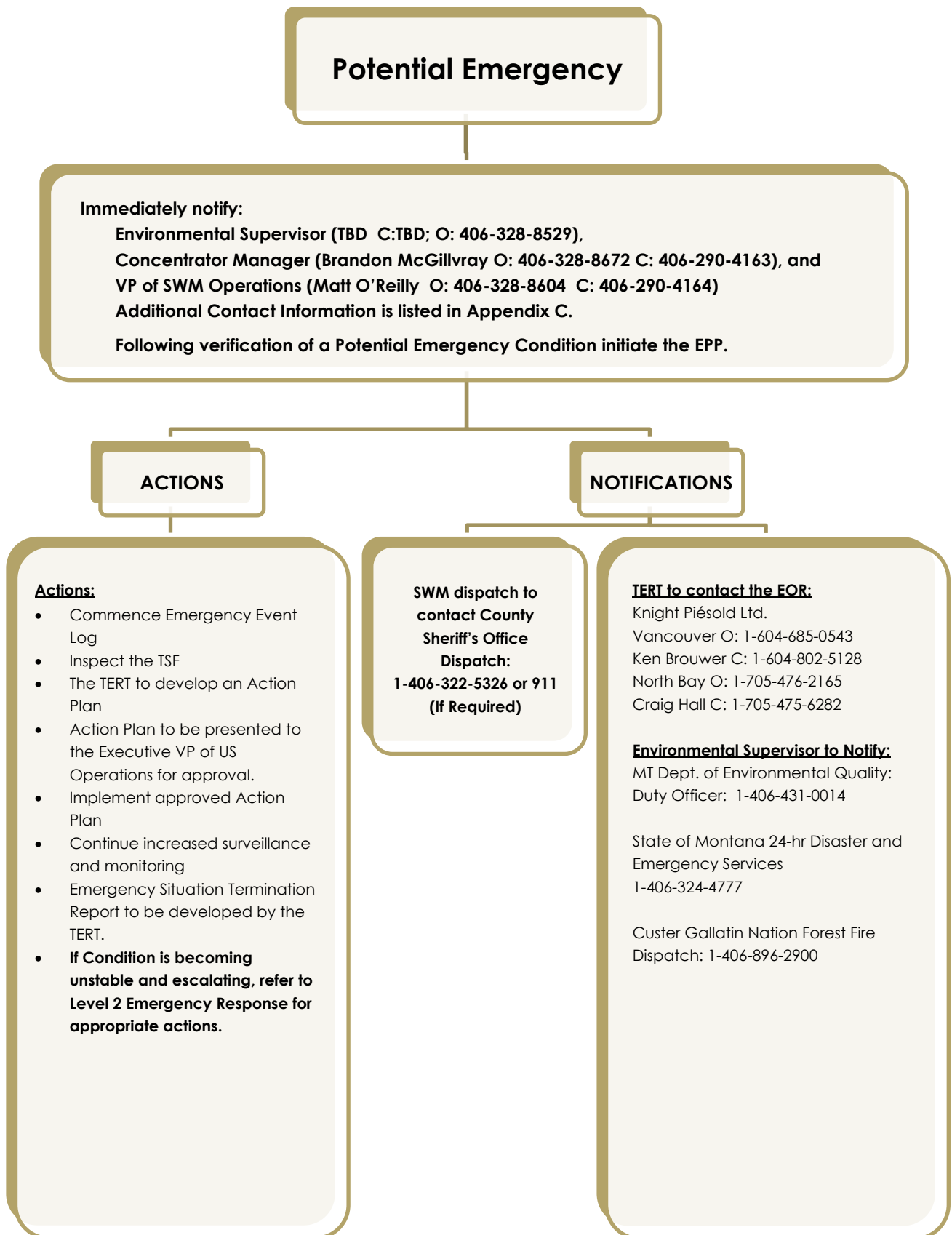


Figure 3.1 Level 1 - Potential Emergency Condition Response and Notification Flowchart

Table 3.1 Level 1 - Potential Emergency Event Log
(Page 2 of 3)

[illegible]

Report Prepared by:

Date: _____

**Table 3.1 Level 1 - Potential Emergency Event Log
(Page 3 of 3)**

Area(s) of TSF Affected:

Extent of TSF Damage:

Possible Cause(s):

Effect on TSF's Operation:

Initial Tailings/Water Elevation:

Time:

Maximum Tailings/Water Elevation:

Time:

Final Tailings/Water Elevation:

Time:

Description of Resulting Damage:

Other Data and Comments:

Observer's Name:

Telephone Number:

Report Prepared by:

4.0 LEVEL 2 EMERGENCY EVENT RESPONSE PLAN

4.1 LEVEL 2 REQUIRED ACTION AND COMMUNICATIONS

Level 2 emergencies are urgent events that require immediate action due to an imminent failure or failure that is in progress.

The TSF shall be inspected to verify the Emergency Condition.

The TERT and Corporate Environmental Manager shall be immediately notified and the Incident Commander shall immediately notify the Sheriff's Office dispatch / 911. The Sibanye Stillwater Incident Commander is defined in the Stillwater Mine Emergency Response Protocol Guidelines and Duties document. The Incident Commander will take control of the situation.

Refer to Figure 4.1 for the Emergency Response and Notification Flowchart and Figure 4.2 for the Level 2 Prescribed Emergency Communication. Emergency contact numbers are included in Appendix C and available resources are summarized in Appendix D.

The Incident Commander shall setup the Incident Command Center and implement the Level 2 Emergency Response Plan for an imminent failure or a failure that is in progress, which includes:

1. Notify the Sheriff's office dispatch.
2. Contact MSHA, immediately reportable incident.
3. Do whatever is necessary to bring people in immediate danger to safety.
4. A senior representative of Sibanye Stillwater with direct site knowledge will support the Jurisdiction Incident Command (IC) / Unified Command (UC). The Site Incident Commander will keep in frequent contact with the IC/UC as directed.
 - If the event that all means of communication are lost: (1) investigate the basis, (2) seek a successful means of communication, or (3) assign someone to follow through until communications are re-established. If these means fail, manage the situation as well as you can, and periodically try to re-establish contact with the IC/UC. Available communications include:
 - Dispatch radio
 - EMS radio (in ambulance)
 - Telephone
 - Satellite phone (in Safety Department)
 - Text 911
5. The Environmental Supervisor will notify the Agencies, and the National Response Center.
6. The Level 2 Emergency Event Log (Table 4.1) shall be completed to document the event.
 - Record all contacts that were made
 - Record all information, observations, and actions taken on the Level 2 Event Form
 - Note the time of changing conditions
 - Document the situation with photographs and video, if possible

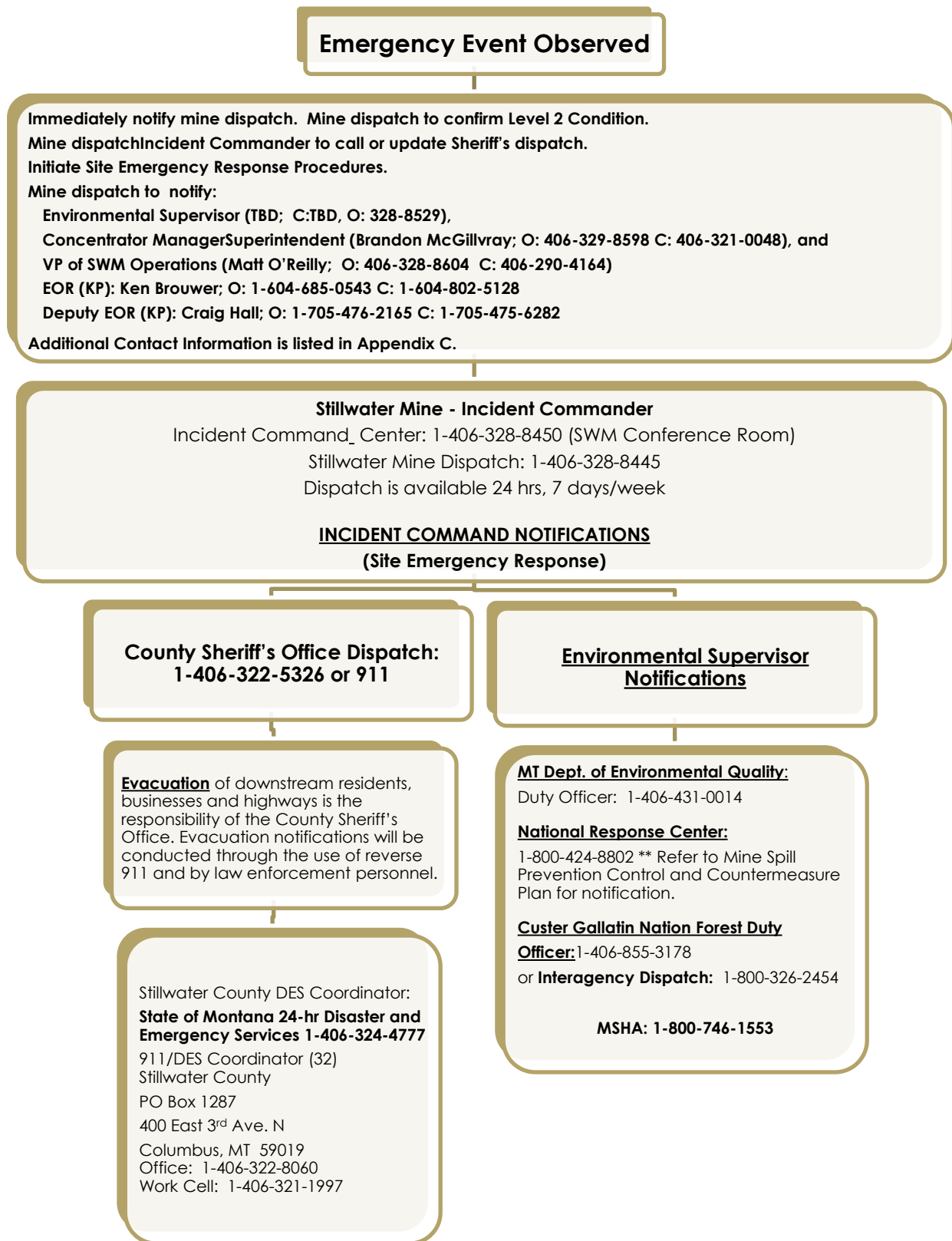


Figure 4.1 Level 2 - Emergency Response and Notification Flowchart

"This is an emergency. This is (Identify yourself; name and position)

The Stillwater Mine Nye TSF located at 2562 Nye Rd is failing. The downstream Stillwater River Valley area must be evacuated immediately. Repeat, the Stillwater Mine Nye TSF, located at 2562 Nye Rd is failing; evacuate the area along low-lying portions of the Stillwater River Valley.

OR

The Stillwater Mine Hertzler TSF, located at 1837 Stillwater River Rd is failing. The downstream Stillwater River Valley area must be evacuated immediately. Repeat, the Stillwater Mine Hertzler TSF, located at 1837 Stillwater River Rd is failing; evacuate the area along low-lying portions of the Stillwater River Valley.

We have activated the Emergency Preparedness Plan for this TSF and are currently under Emergency Level 2.

I can be contacted at the following number 328-xxxx. If you cannot reach me, please call the following alternative number (Dispatch 328-8401)."

Figure 4.2 Level 2 - Prescribed Emergency Communication

Table 4.1 Level 2 - Emergency Event Log
(Page 1 of 3)

Stillwater Mine (circle one): Nye TSF / Hertzler TSF

County: Stillwater County, Montana

Date: _____ Time: _____

1. When and how was the event detected? _____

2. Weather Conditions:

3. General Description of Emergency Event: _____

4. Emergency Level Determination: **2**

5. Emergency Level Determination Made by: _____

**Table 4.1 Level 2 - Emergency Event Log
(Page 2 of 3)**

Date	Time	Action/Event Progression	Action Taken By

**Table 4.1 Level 2 - Emergency Event Log
(Page 3 of 3)**

Area(s) of TSF Affected:

Extent of TSF Damage:

Possible Cause(s):

Effect on TSF's Operation:

Initial Tailings/Water Elevation:	<hr/>	Time:	<hr/>
Maximum Tailings/Water Elevation:	<hr/>	Time:	<hr/>
Final Tailings/Water Elevation:	<hr/>	Time:	<hr/>

Description of Flooded Downstream/Damages/Injuries/Loss of Life:

Other Data and Comments:

Observer's Name:

 Telephone Number:

Report Prepared by:

4.2 LEVEL 2 EMERGENCY EVENT TERMINATION

The Incident Commander is responsible for terminating the Level 2 EPP operations and relaying this decision to the appropriate authorities. It is then the responsibility of each person to notify the same group of contacts that were notified during the original event notification process to inform those people that the event has been terminated.

Prior to termination of an Emergency Event that has not caused actual TSF failure; the TSF will be inspected by the TERT to determine whether any damage has occurred that could potentially result in loss of life, injury, or property damage. If it is determined that conditions do not pose a threat to people or property, Sibanye Stillwater will advise the Incident Commander that it is safe to terminate the EPP operations as described above.

The Sibanye Stillwater Incident Commander and TERT will complete an Emergency Status report to document the Emergency Event and all actions that were taken. This report will be distributed to the appropriate authorities. Subsequent evaluations, investigations and engineering studies will be completed to determine remedial measures required for the TSF and impacted areas.

5.0 REFERENCES

- Knight Piésold Ltd. (KP), 2021. *Hertzler Tailings Storage Facility Dam Breach Assessment*. April 1. North Bay, Ontario. Ref. No. NB101-66/32-8, Rev 0.
- State of Montana (MT), 2019. *Montana Code Annotated (MCA) 2017*. Title 82. Minerals, Oil, and Gas. Chapter 4. Reclamation. Part 3. Metal Mine Reclamation.

6.0 CERTIFICATION

This report was prepared and reviewed by the undersigned.

We hereby certify that the following:

- The Emergency Preparedness Plan describes reasonable measures that can be taken to protect human health and the environment.

Prepared:



Lisa Boettcher, Sibanye Stillwater
Environmental Permitting and Projects Supervisor

Reviewed:



Matt Wolfe
Environmental Sustainability Manager - US Region

Approved:



Wayne Robinson, Sibanye Stillwater
Executive Vice President - US Operations

Appendix A

Location Figures

(Pages A-1 to A-2)

Appendix B

Flood Inundation Maps

(Previously Issued with NB101-66/32-8, Rev 0)

(Pages B-1 to B-23)



LEGEND:

★ PROJECT LOCATION

● USGS GAGING STATION

● CITY/TOWN

✱ MONTANA BRIDGE

— CONTOUR (50 ft INTERVAL)

— ROAD

— RIVER/STREAM/DRAINAGE

□ PAGE EXTENTS

□ LANDPARCEL BOUNDARY

② REFERENCE SHEET NUMBER

FLOOD INUNDATION EXTENTS

□ RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)

□ RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

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SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 1 OF 23

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PIA NO.	REF NO.
NB101-66/32	8
FIGURE C2.1	
REV 0	

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LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

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NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

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3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 2 OF 23

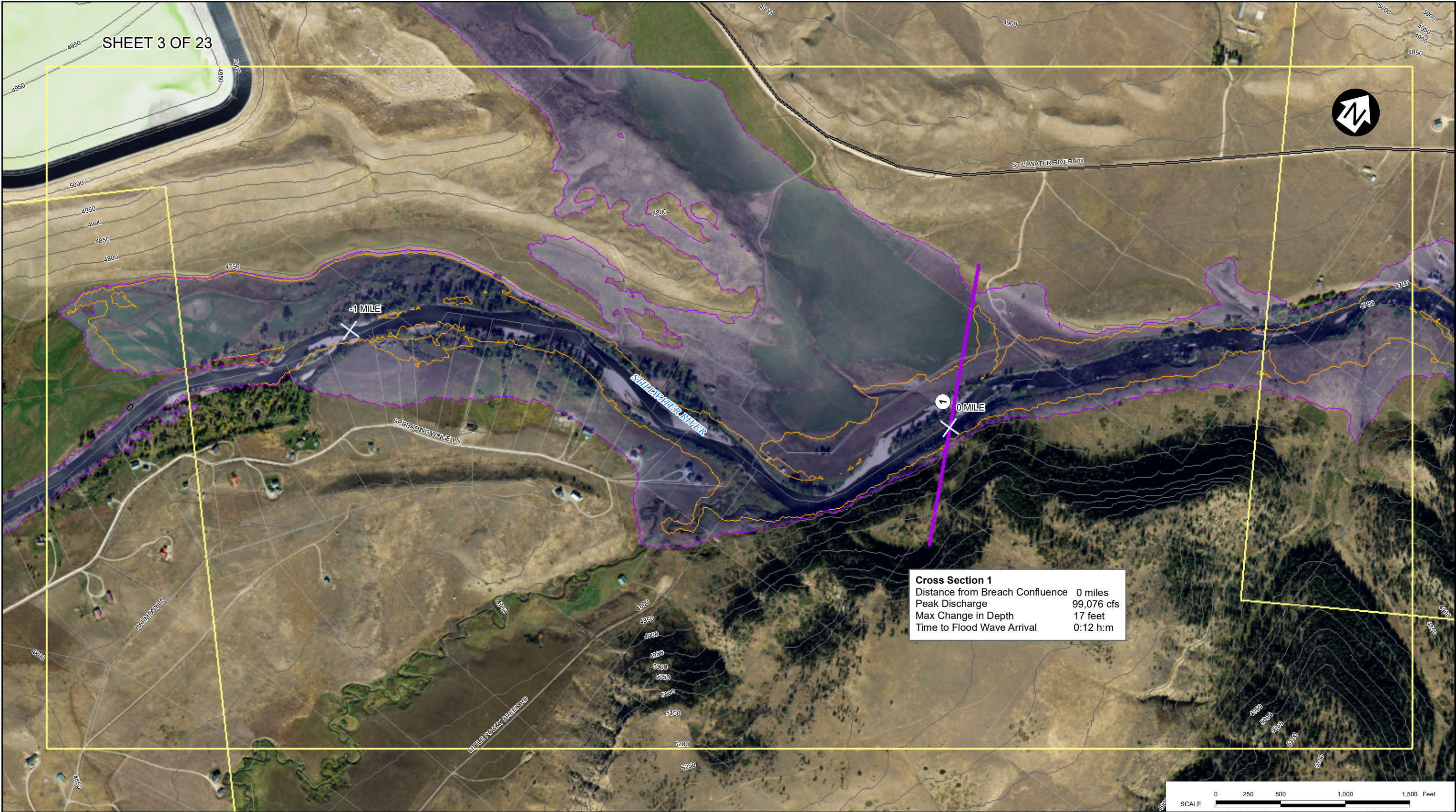
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8

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0

FIGURE C2.2

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SHEET 3 OF 23

Cross Section 1
Distance from Breach Confluence 0 miles
Peak Discharge 99,076 cfs
Max Change in Depth 17 feet
Time to Flood Wave Arrival 0:12 h:m

LEGEND:

★ PROJECT LOCATION

● USGS GAGING STATION

● CITY/TOWN

★ MONTANA BRIDGE

— CONTOUR (50 ft INTERVAL)

— ROAD

— RIVER/STREAM/DRAINAGE

□ PAGE EXTENTS

□ LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

□ RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)

□ RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

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REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

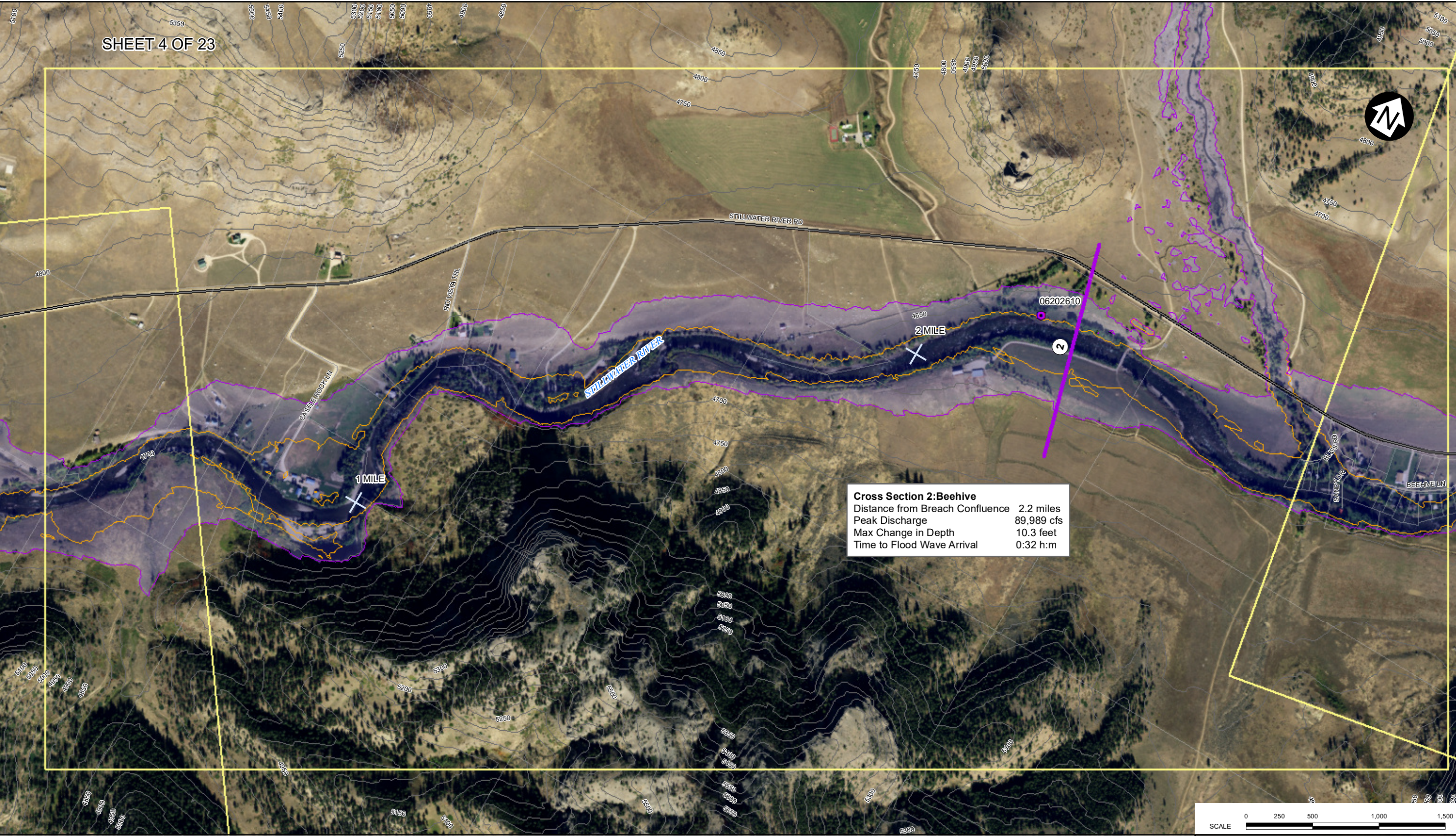
STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 3 OF 23

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NB101-66/32	8
FIGURE C2.3	
REV	0



Cross Section 2: Beehive
Distance from Breach Confluence 2.2 miles
Peak Discharge 89,989 cfs
Max Change in Depth 10.3 feet
Time to Flood Wave Arrival 0:32 h:m

LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

- NOTES:**
1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.
 2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.
 3. CONTOUR INTERVAL IS 50 FEET.
 4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
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0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 4 OF 23

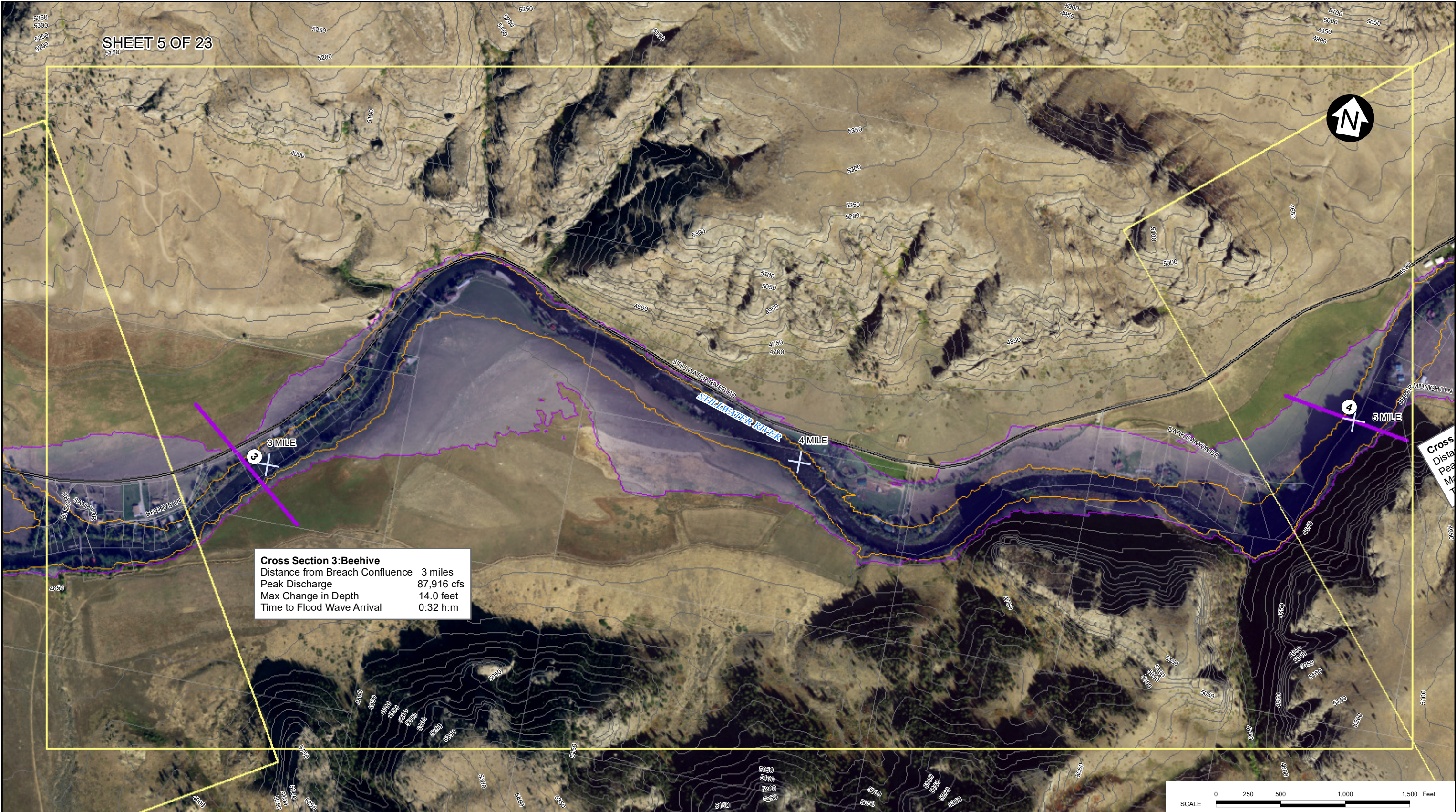
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8

FIGURE C2.4

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Cross Section 3:Beehive
Distance from Breach Confluence 3 miles
Peak Discharge 87,916 cfs
Max Change in Depth 14.0 feet
Time to Flood Wave Arrival 0:32 h:m

LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE
- PAGE EXTENTS
- LANDPARCEL BOUNDARY
- FLOOD INUNDATION EXTENTS**
- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

0	01APR'21	ISSUED WITH REPORT	SBF	SBF	CNH
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NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

SCALE 0 250 500 1,000 1,500 Feet

STILLWATER MINING COMPANY

STILLWATER MINE





RAINY DAY BREACH - FLOOD INUNDATION
SHEET 5 OF 23

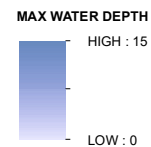
	PIA NO. NB101-66/32	REF NO. 8
	FIGURE C2.5	

REV 0



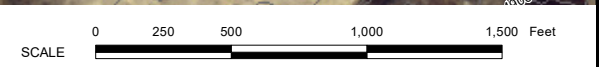
Cross Section 4	
Distance from Breach Confluence	5 miles
Peak Discharge	82,842 cfs
Max Change in Depth	10.5 feet
Time to Flood Wave Arrival	0:42 h:m

 PAGE EXTENTS
 LANDPARCEL BOUNDARY
FLOOD INUNDATION EXTENTS
 RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
 RAINY DAY BREACH INUNDATION EXTENTS



NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.
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3. CONTOUR INTERVAL IS 50 FEET.
4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).



STILLWATER MINING COMPANY

STILLWATER MINE

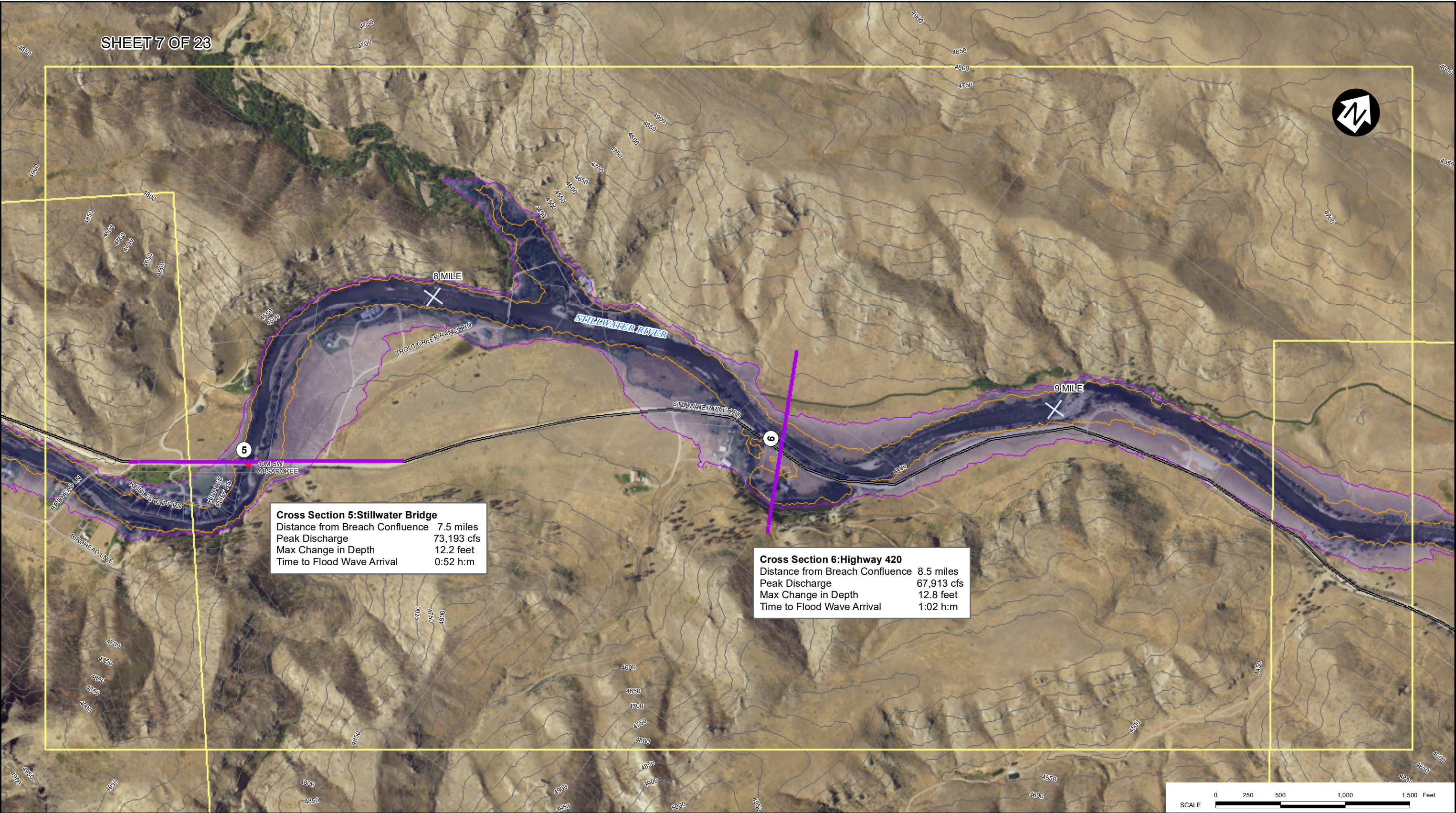
RAINY DAY BREACH - FLOOD INUNDATION
SHEET 6 OF 23



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FIGURE C2.6	REV 0

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Cross Section 5: Stillwater Bridge
Distance from Breach Confluence 7.5 miles
Peak Discharge 73,193 cfs
Max Change in Depth 12.2 feet
Time to Flood Wave Arrival 0:52 h:m

Cross Section 6: Highway 420
Distance from Breach Confluence 8.5 miles
Peak Discharge 67,913 cfs
Max Change in Depth 12.8 feet
Time to Flood Wave Arrival 1:02 h:m

LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 7 OF 23

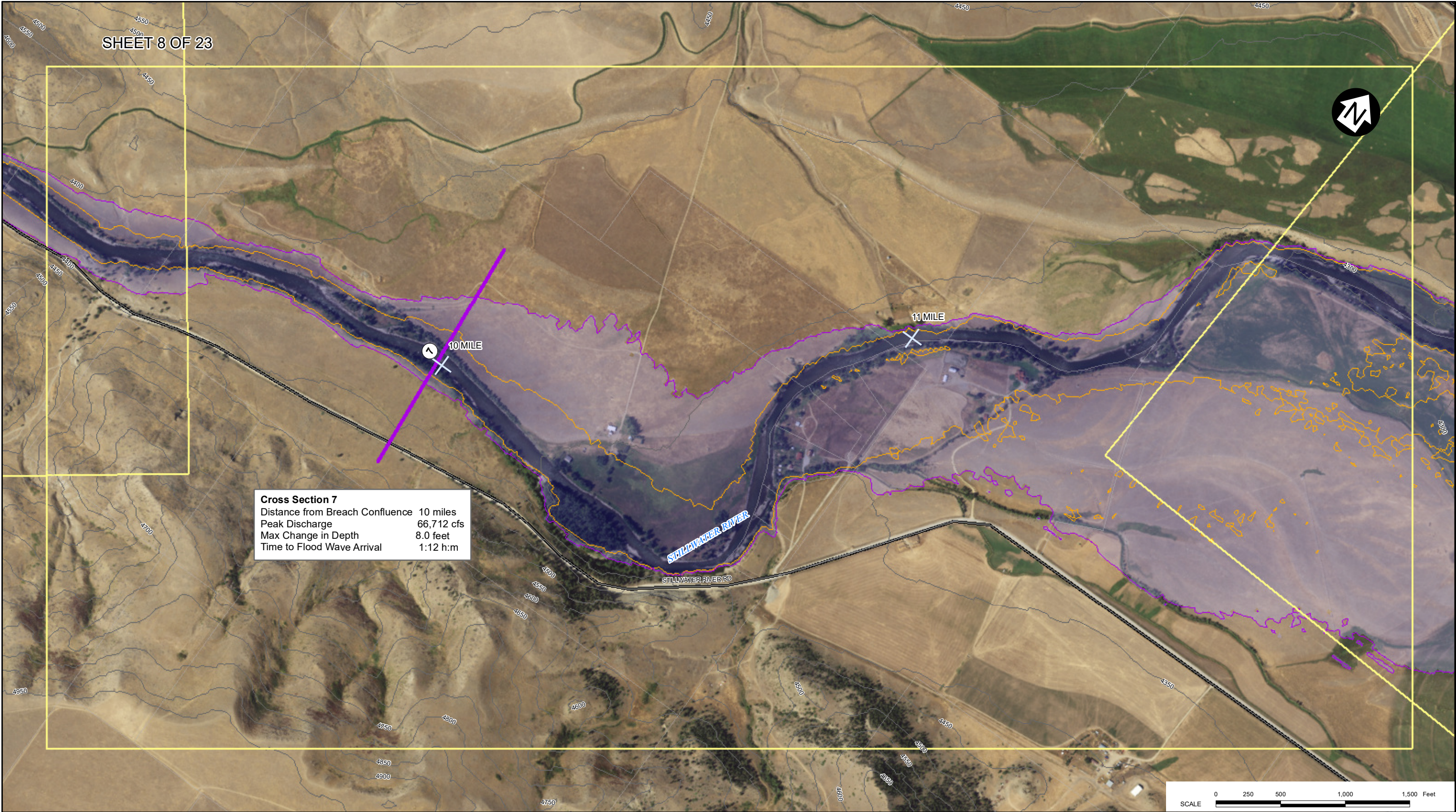
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REF NO.

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FIGURE C2.7

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Cross Section 7
Distance from Breach Confluence 10 miles
Peak Discharge 66,712 cfs
Max Change in Depth 8.0 feet
Time to Flood Wave Arrival 1:12 h:m

LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

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3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

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REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

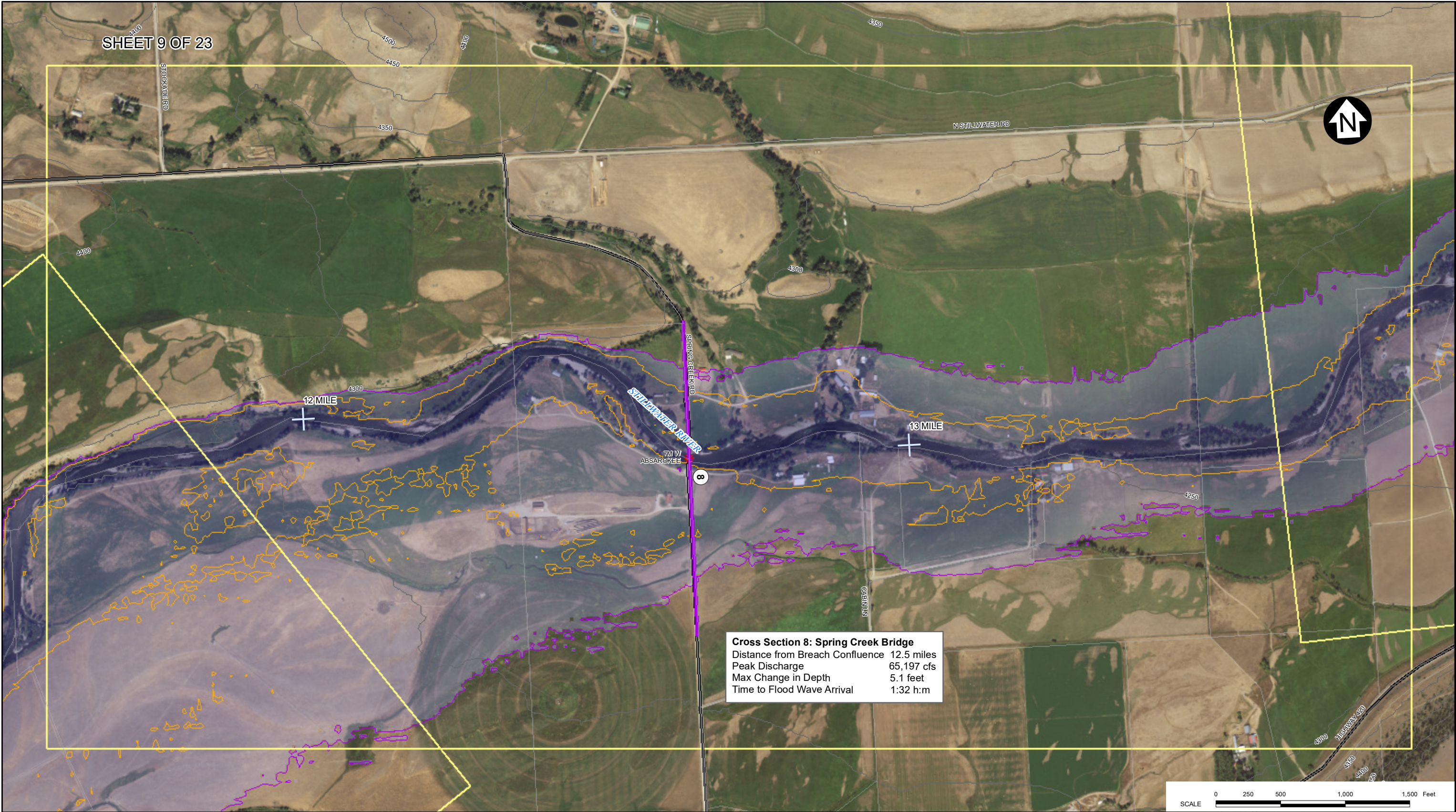
STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 8 OF 23

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	NB101-66/32	8
FIGURE C2.8		REV 0

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Cross Section 8: Spring Creek Bridge
Distance from Breach Confluence 12.5 miles
Peak Discharge 65,197 cfs
Max Change in Depth 5.1 feet
Time to Flood Wave Arrival 1:32 h:m

LEGEND:

★ PROJECT LOCATION

● USGS GAGING STATION

● CITY/TOWN

★ MONTANA BRIDGE

— CONTOUR (50 ft INTERVAL)

— ROAD

— RIVER/STREAM/DRAINAGE

□ PAGE EXTENTS

□ LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

□ RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)

□ RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

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3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 9 OF 23

Knight Piésold
CONSULTING

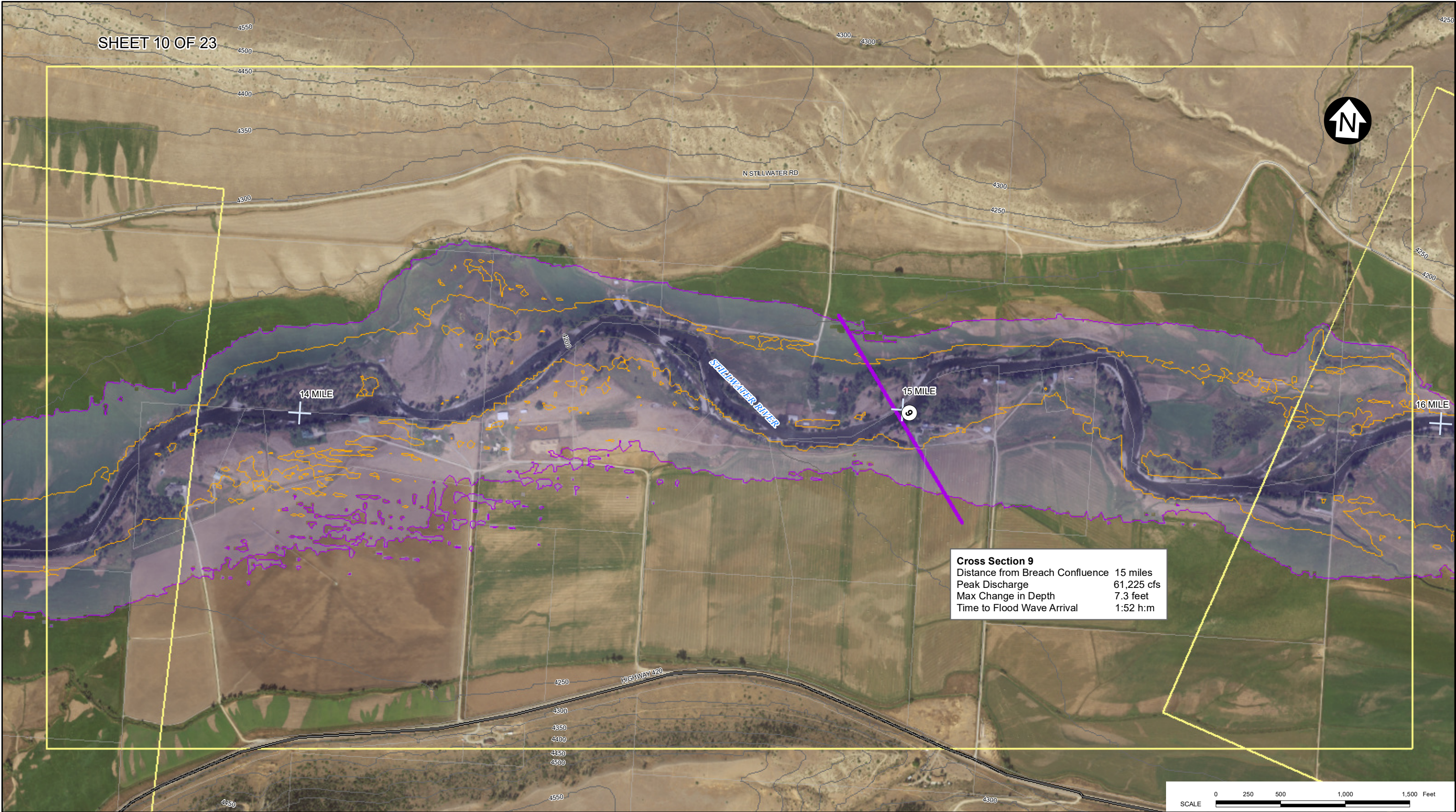
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FIGURE C2.9

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LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

SCALE 0 250 500 1,000 1,500 Feet

STILLWATER MINING COMPANY

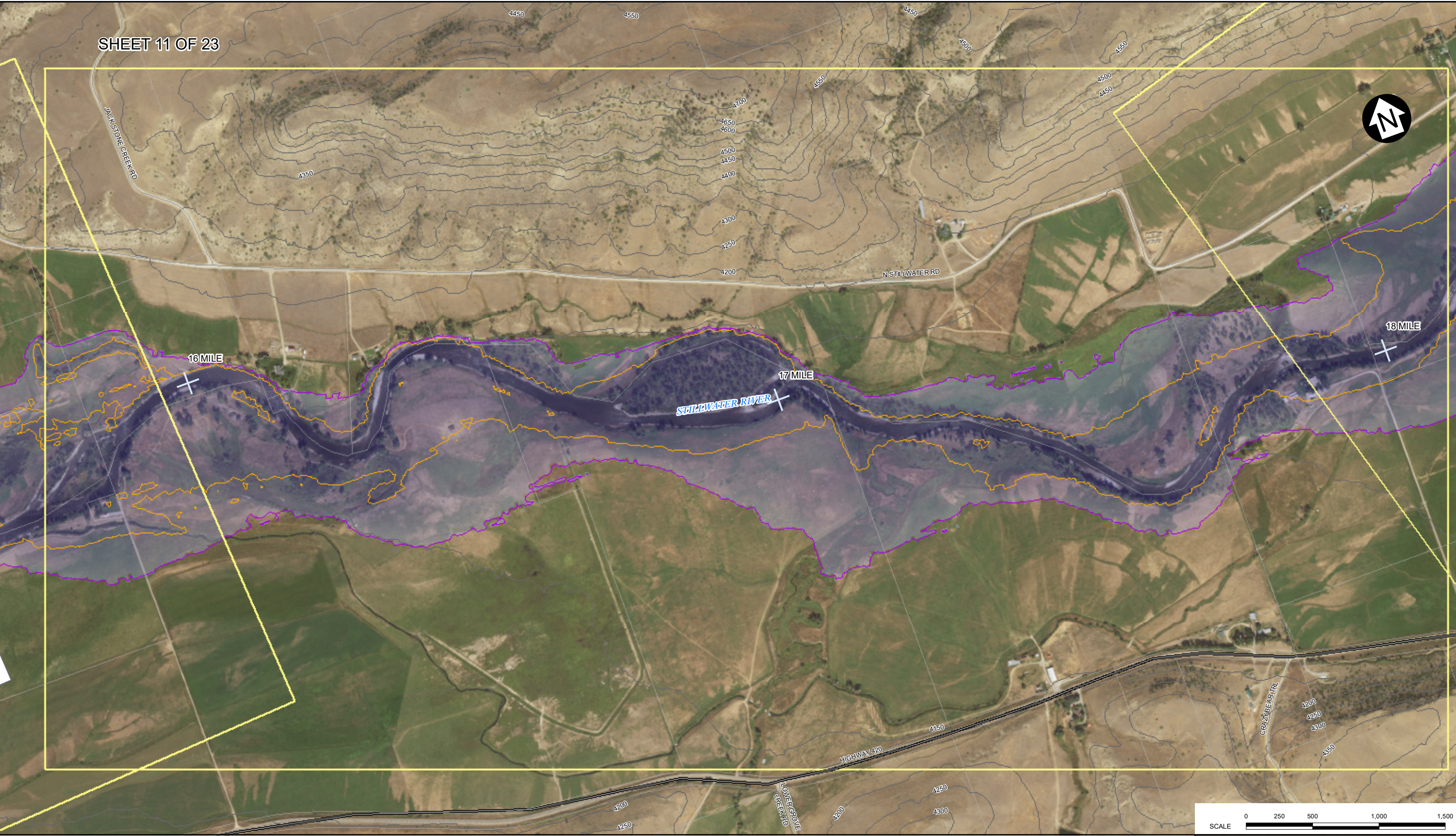
STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 10 OF 23

	PIA NO.	REF NO.
	NB101-66/32	8
FIGURE C2.10		REV 0

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LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

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3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

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REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 11 OF 23

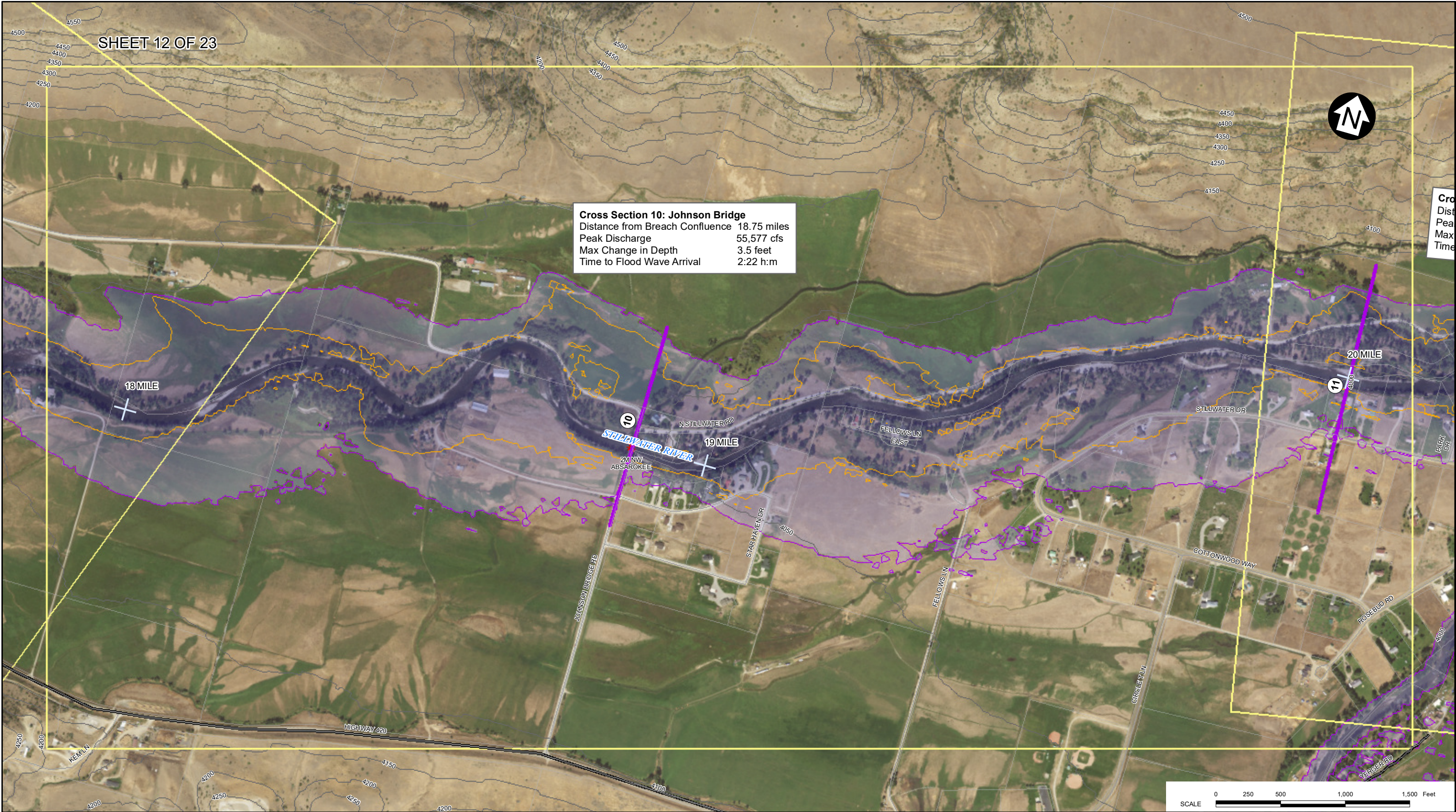
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FIGURE C2.11

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SHEET 12 OF 23

Cross Section 10: Johnson Bridge
Distance from Breach Confluence 18.75 miles
Peak Discharge 55,577 cfs
Max Change in Depth 3.5 feet
Time to Flood Wave Arrival 2:22 h:m

Cross
Dist
Peak
Max
Time

18 MILE

19 MILE

20 MILE

LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

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3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 12 OF 23

PIA NO.
NB101-66/32

REF NO.
8

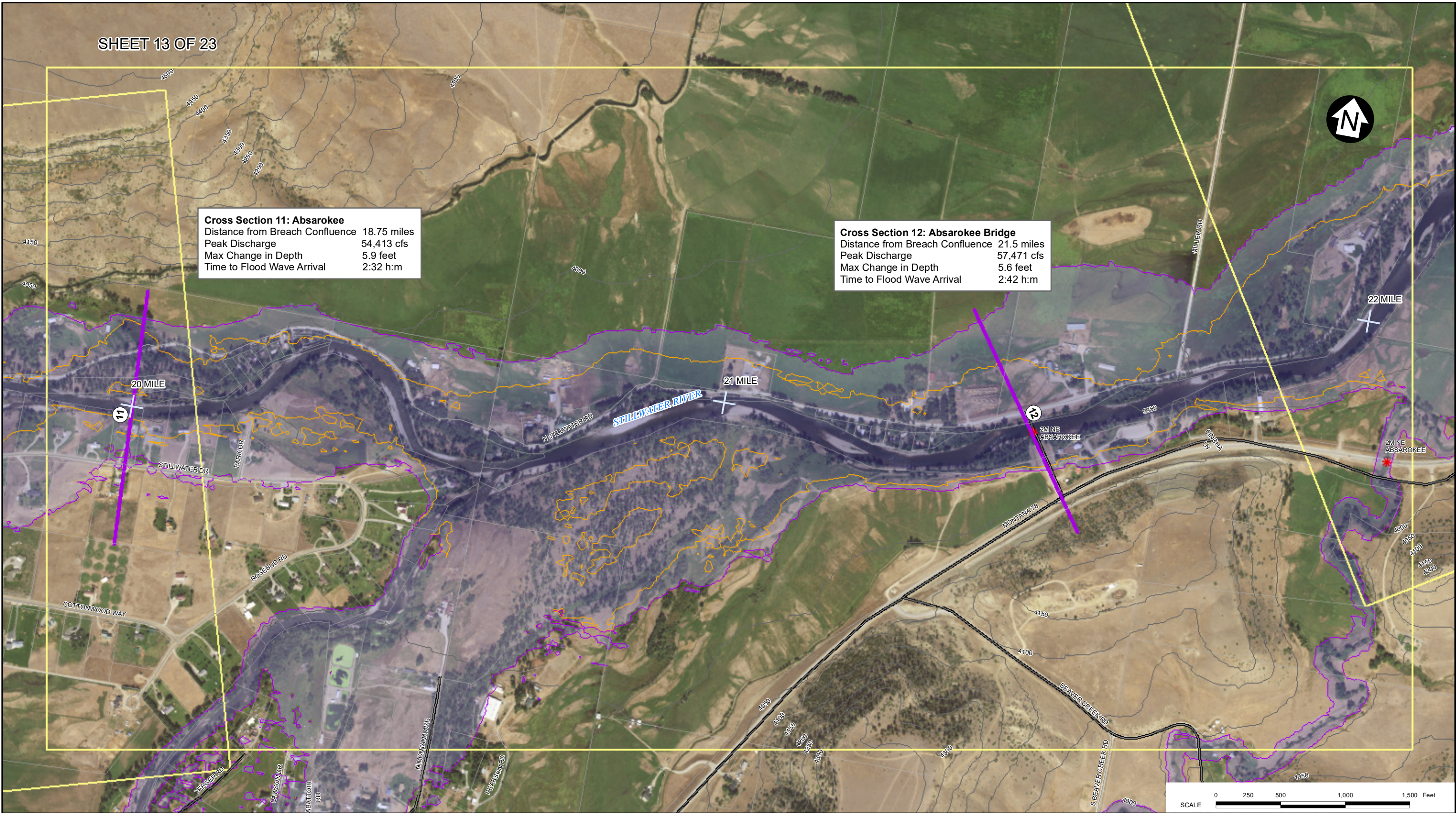
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FIGURE C2.12

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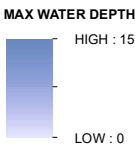
Cross Section 11: Absarokee
Distance from Breach Confluence 18.75 miles
Peak Discharge 54,413 cfs
Max Change in Depth 5.9 feet
Time to Flood Wave Arrival 2:32 h:m

Cross Section 12: Absarokee Bridge
Distance from Breach Confluence 21.5 miles
Peak Discharge 57,471 cfs
Max Change in Depth 5.6 feet
Time to Flood Wave Arrival 2:42 h:m



- LEGEND:**
- ★ PROJECT LOCATION
 - USGS GAGING STATION
 - CITY/TOWN
 - ★ MONTANA BRIDGE
 - CONTOUR (50 ft INTERVAL)
 - ROAD
 - RIVER/STREAM/DRAINAGE

- PAGE EXTENTS
- LANDPARCEL BOUNDARY
- FLOOD INUNDATION EXTENTS
- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS



- NOTES:**
- COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.
 - BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.
 - CONTOUR INTERVAL IS 50 FEET.
 - BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

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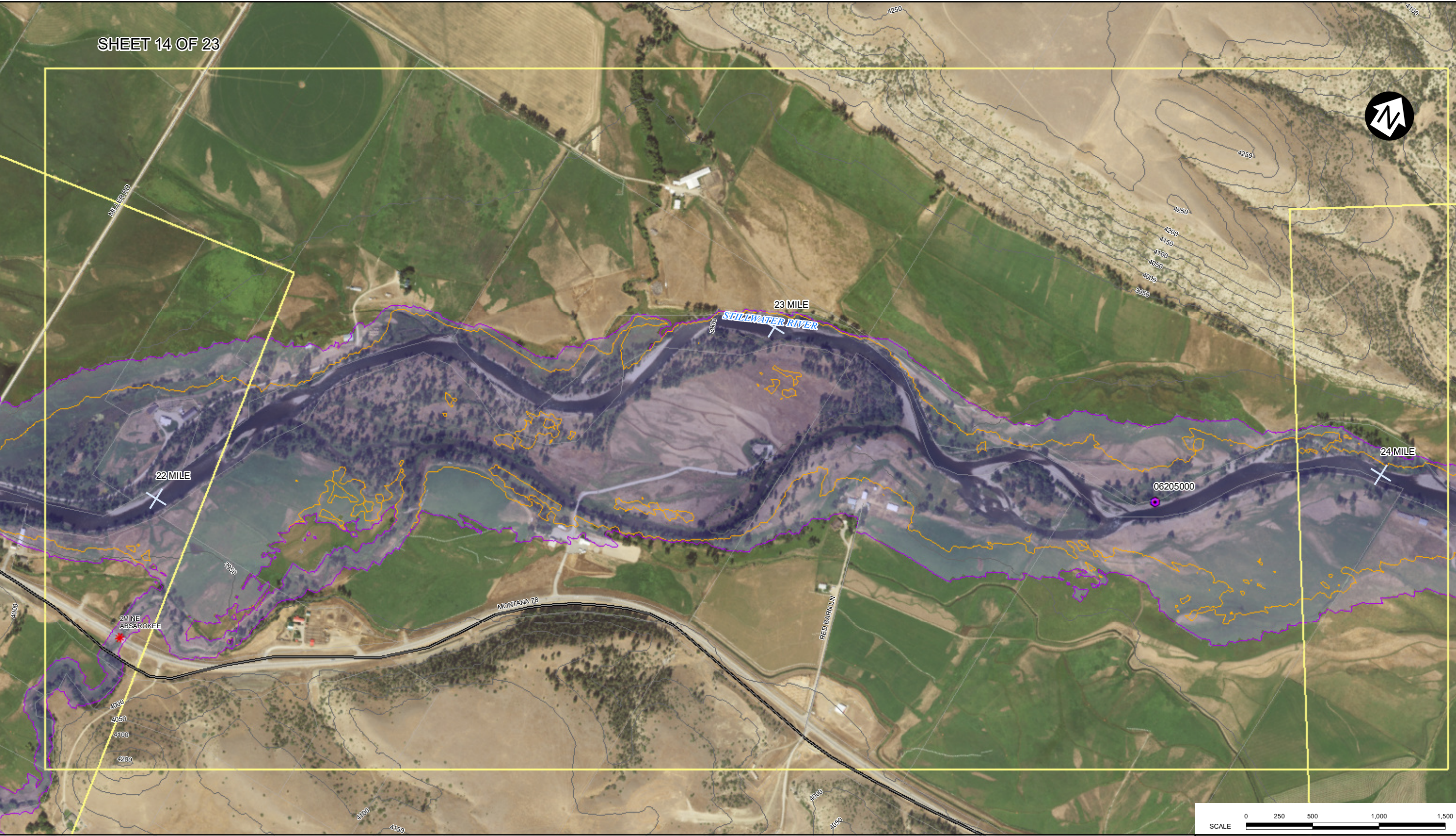
STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION
SHEET 13 OF 23



PIA NO.	REF NO.
NB101-66/32	8
FIGURE C2.13	
REV	0



LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

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0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 14 OF 23

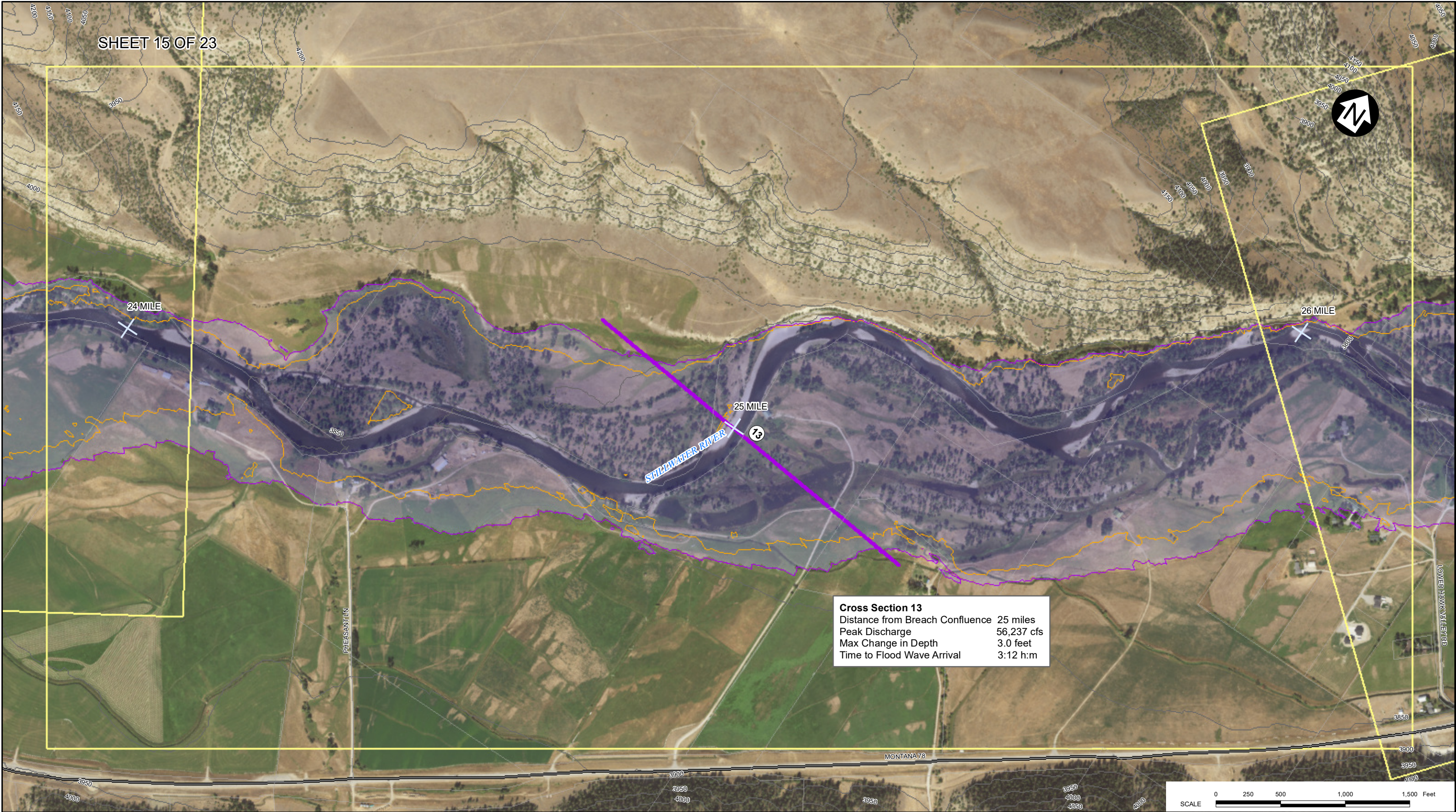
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FIGURE C2.14

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Cross Section 13
Distance from Breach Confluence 25 miles
Peak Discharge 56,237 cfs
Max Change in Depth 3.0 feet
Time to Flood Wave Arrival 3:12 h:m

LEGEND:

★ PROJECT LOCATION

● USGS GAGING STATION

● CITY/TOWN

✱ MONTANA BRIDGE

— CONTOUR (50 ft INTERVAL)

— ROAD

— RIVER/STREAM/DRAINAGE

□ PAGE EXTENTS

□ LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

□ RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)

□ RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

SCALE 0 250 500 1,000 1,500 Feet

STILLWATER MINING COMPANY

STILLWATER MINE

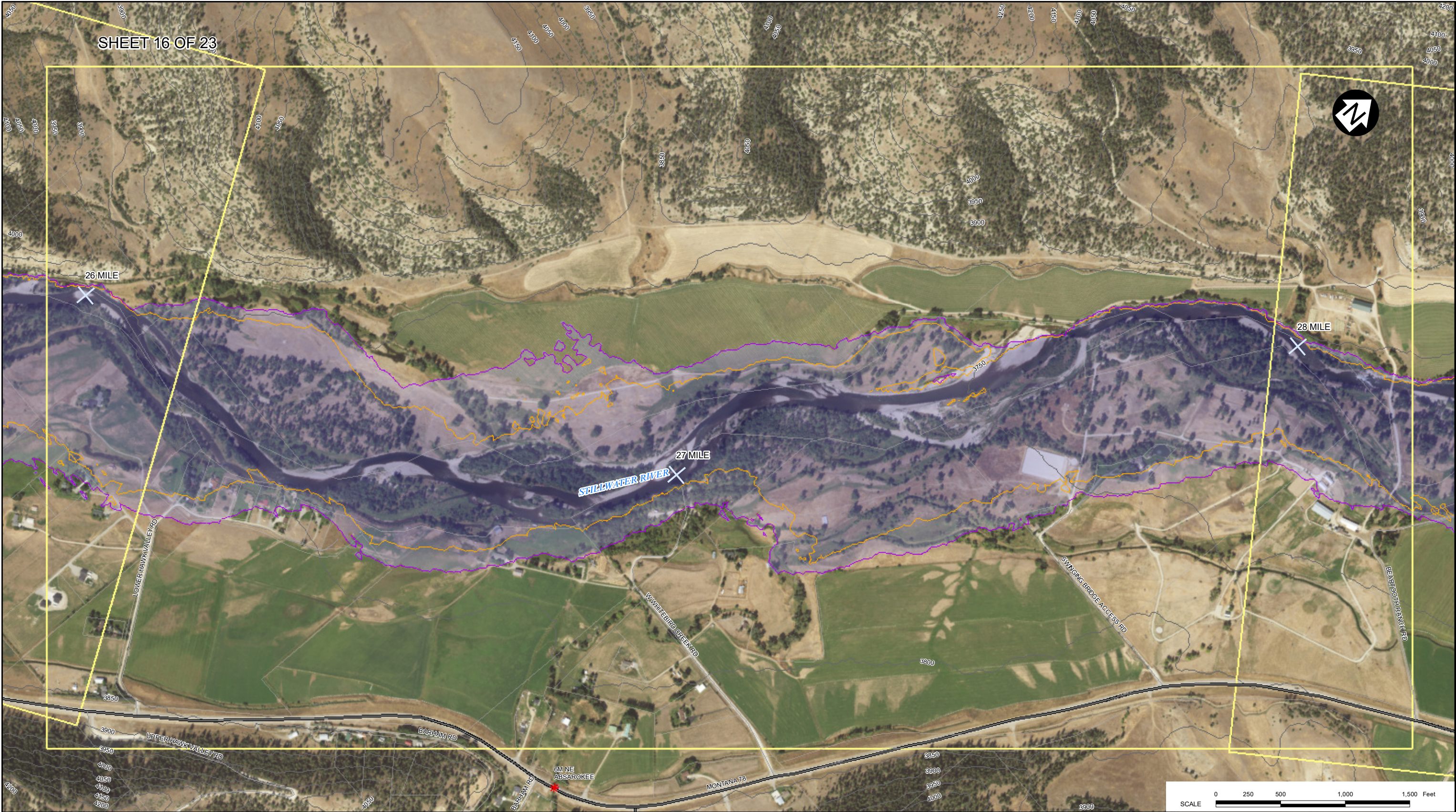
RAINY DAY BREACH - FLOOD INUNDATION

SHEET 15 OF 23

Knight Piésold CONSULTING

PIA NO.	REF NO.
NB101-66/32	8
FIGURE C2.15	
REV 0	

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LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0	01APR'21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

SCALE 0 250 500 1,000 1,500 Feet

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

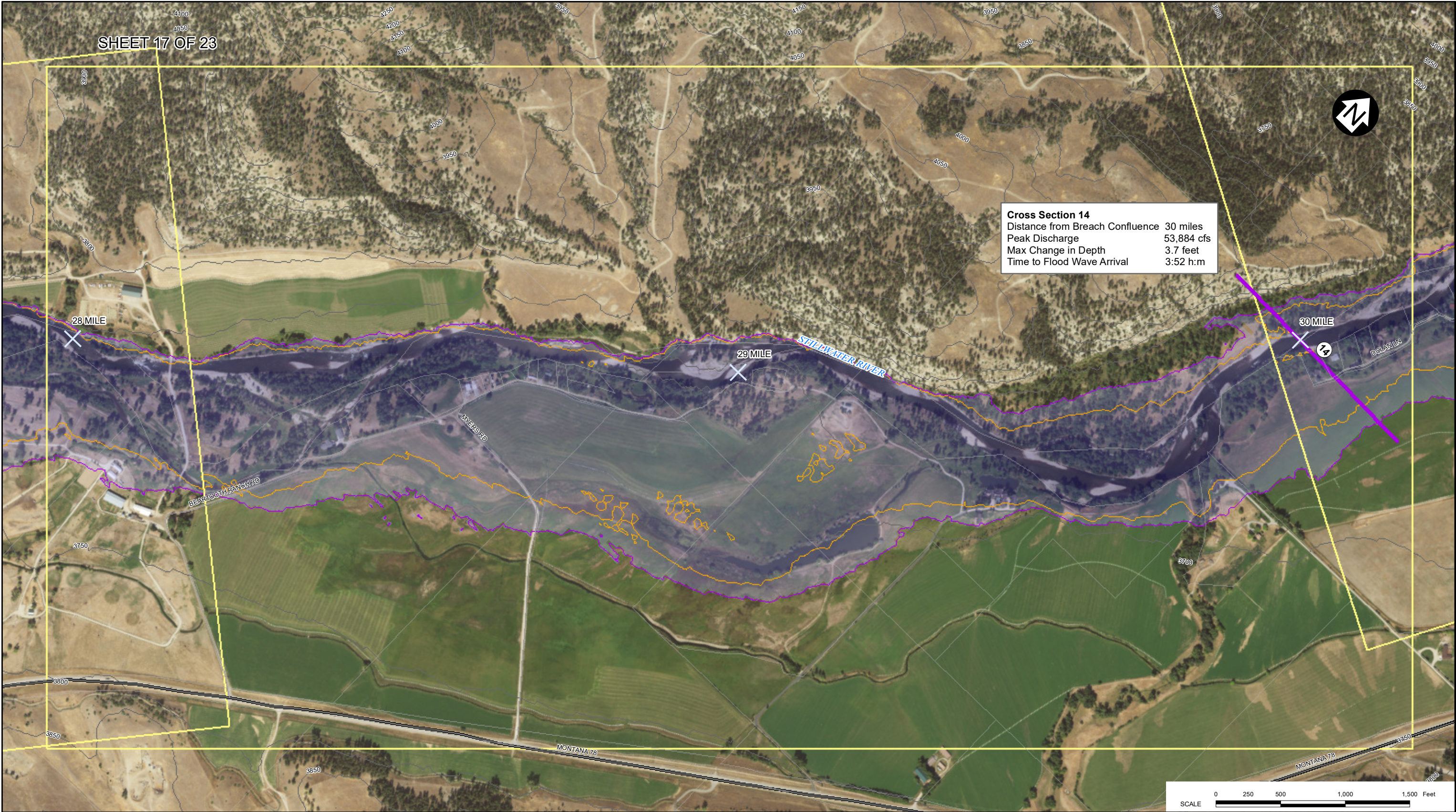
SHEET 16 OF 23

PIA NO.
NB101-66/32

REF NO.
8

FIGURE C2.16

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SHEET 17 OF 23

Cross Section 14
Distance from Breach Confluence 30 miles
Peak Discharge 53,884 cfs
Max Change in Depth 3.7 feet
Time to Flood Wave Arrival 3:52 h:m

LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ✱ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 17 OF 23

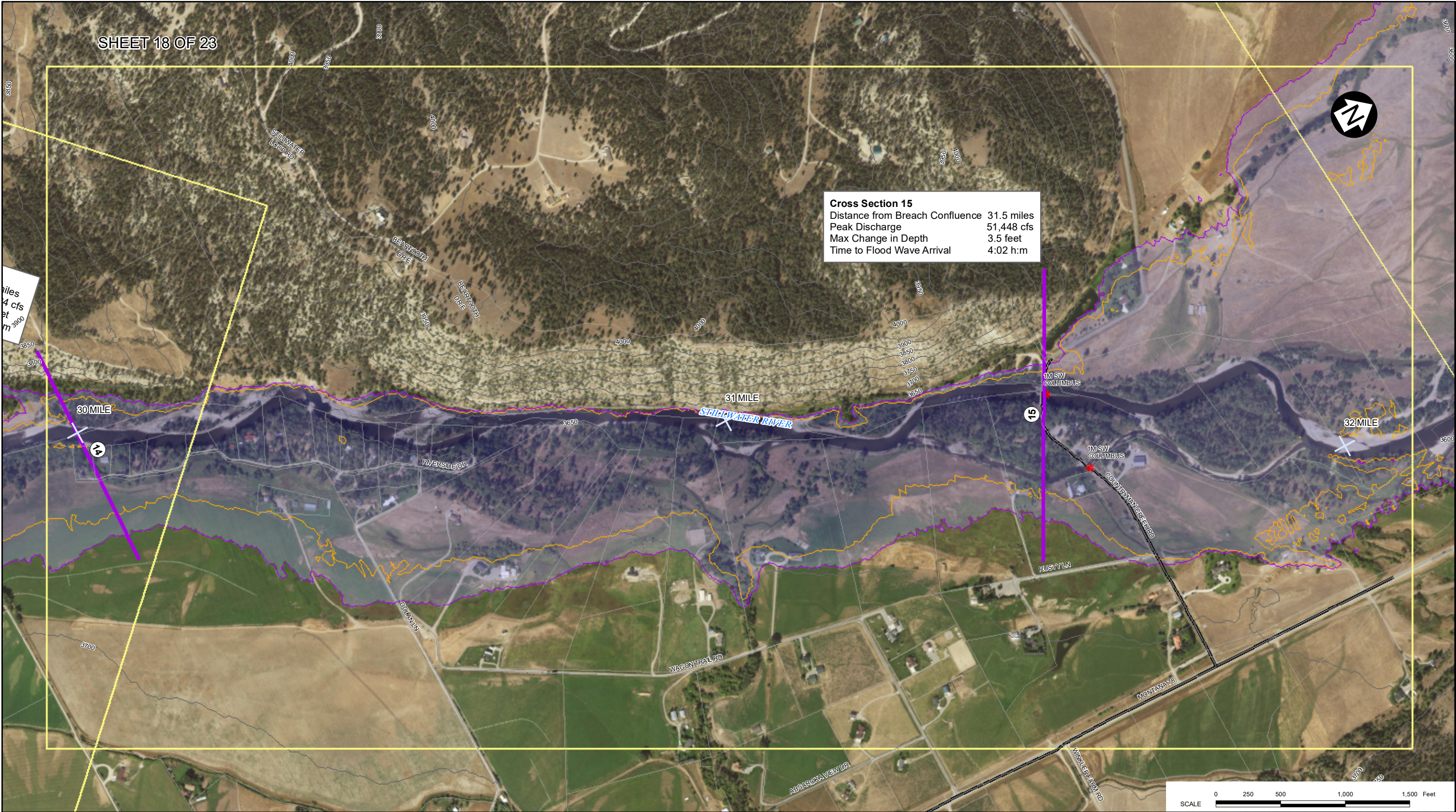
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NB101-66/32

REF NO.
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FIGURE C2.17

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LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE
- PAGE EXTENTS
- LANDPARCEL BOUNDARY
- FLOOD INUNDATION EXTENTS**
- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS
- MAX WATER DEPTH**
- HIGH : 15
- LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).


0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 18 OF 23

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REF NO. 8

FIGURE C2.18

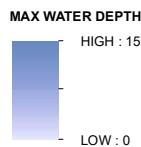
REV 0



YELLOWSTONE RIVER

- LEGEND:**
- ★ PROJECT LOCATION
 - USGS GAGING STATION
 - CITY/TOWN
 - ✱ MONTANA BRIDGE
 - CONTOUR (50 ft INTERVAL)
 - ROAD
 - RIVER/STREAM/DRAINAGE

- PAGE EXTENTS
- LANDPARCEL BOUNDARY
- FLOOD INUNDATION EXTENTS
- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS



- NOTES:**
- COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.
 - BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.
 - CONTOUR INTERVAL IS 50 FEET.
 - BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
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STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION
SHEET 19 OF 23



PIA NO.
NB101-66/32

REF NO.
8

FIGURE C2.19

REV
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LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

FLOOD INUNDATION EXTENTS

- RAINNY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINNY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

- COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.
- BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.
- CONTOUR INTERVAL IS 50 FEET.
- BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0	01APR'21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 20 OF 23

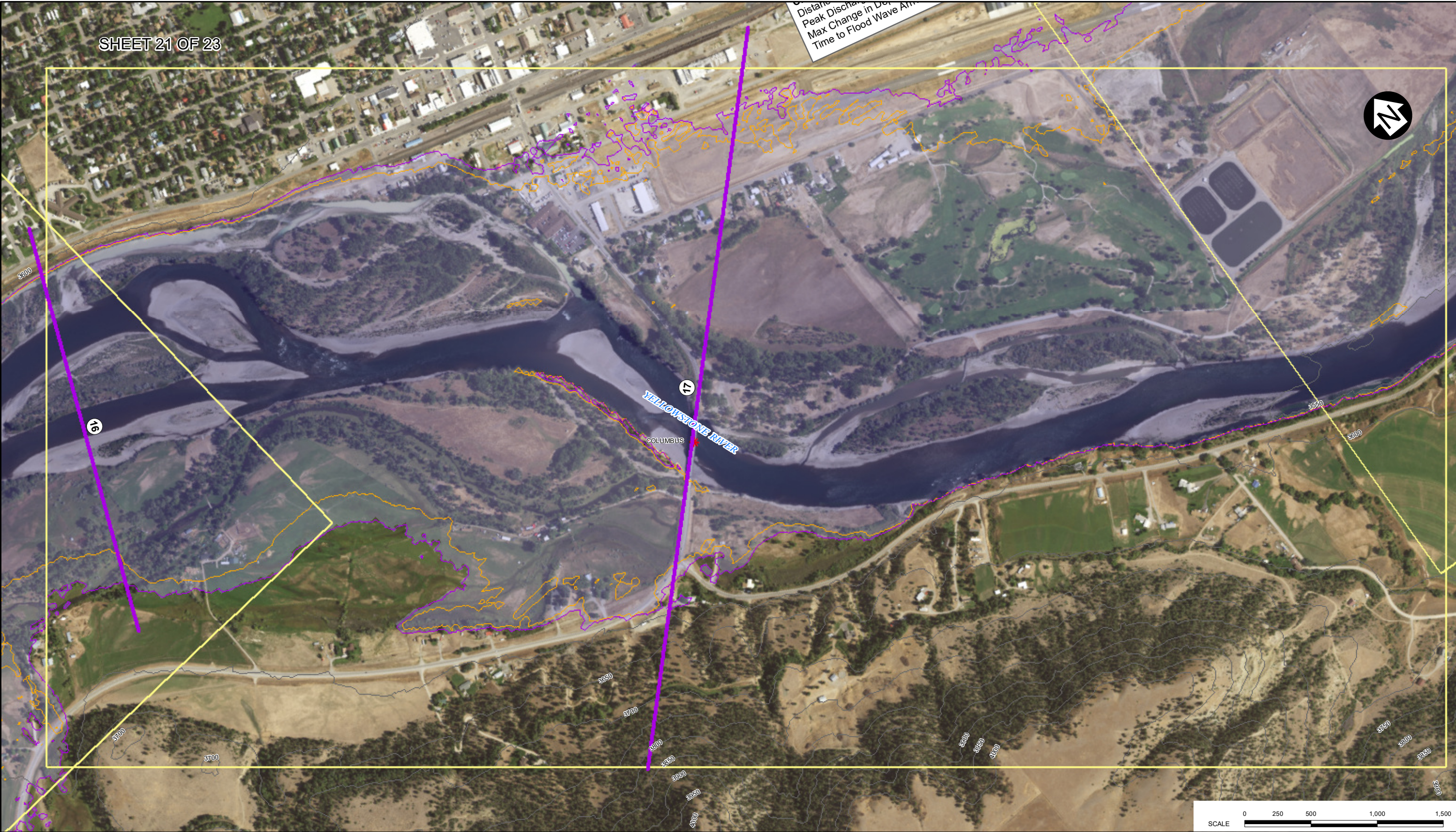
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NB101-66/32

REF NO.
8

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FIGURE C2.20

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Distance
Peak Discharge
Max Change in Depth
Time to Flood Wave Arrive

LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE
- PAGE EXTENTS
- LANDPARCEL BOUNDARY
- FLOOD INUNDATION EXTENTS**
- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.
2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.
3. CONTOUR INTERVAL IS 50 FEET.
4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

SCALE 0 250 500 1,000 1,500 Feet

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

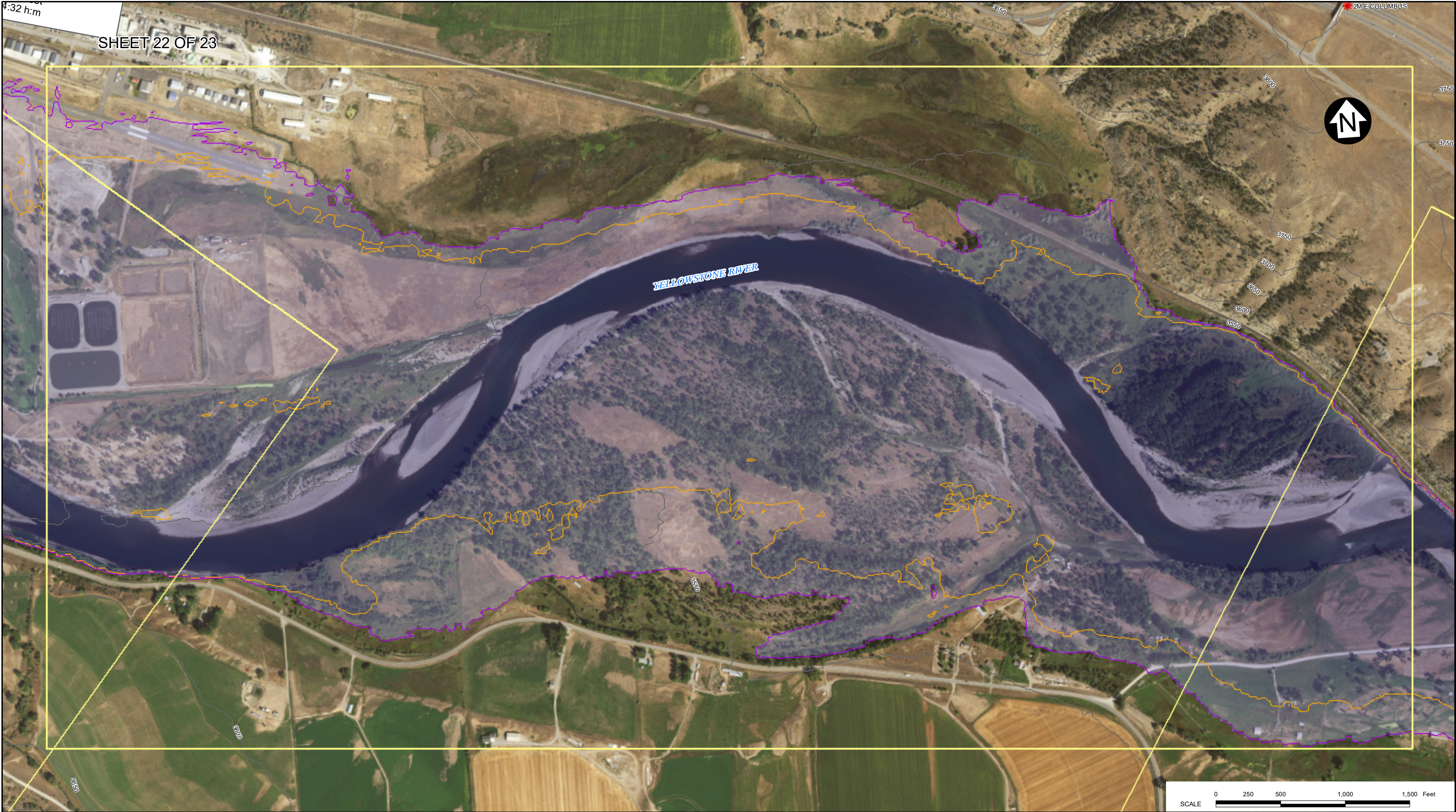
SHEET 21 OF 23

Knight Piésold CONSULTING

PIA NO. NB101-66/32 REF NO. 8

FIGURE C2.21

REV 0



LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE
- PAGE EXTENTS
- LANDPARCEL BOUNDARY
- FLOOD INUNDATION EXTENTS**
- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

- COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.
- BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.
- CONTOUR INTERVAL IS 50 FEET.
- BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

STILLWATER MINING COMPANY		
STILLWATER MINE		
RAINY DAY BREACH - FLOOD INUNDATION		
SHEET 22 OF 23		
	PIA NO.	REF NO.
	NB101-66/32	8
FIGURE C2.22		REV 0

0	01APR21	ISSUED WITH REPORT	SBF	SBF	CNH
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

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LEGEND:

- ★ PROJECT LOCATION
- USGS GAGING STATION
- CITY/TOWN
- ★ MONTANA BRIDGE
- CONTOUR (50 ft INTERVAL)
- ROAD
- RIVER/STREAM/DRAINAGE

— PAGE EXTENTS

— LANDPARCEL BOUNDARY

FLOOD INUNDATION EXTENTS

- RAINY DAY INUNDATION EXTENTS (WITHOUT BREACH)
- RAINY DAY BREACH INUNDATION EXTENTS

MAX WATER DEPTH

HIGH : 15

LOW : 0

NOTES:

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE MONTANA FIPS 2500 FEET INTL.

2. BASE MAP/IMAGERY: © ESRI AND DATA (ONLINE) SERVICE LAYERS (2017). REDLANDS, CA: ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE. ALL RIGHTS RESERVED.

3. CONTOUR INTERVAL IS 50 FEET.

4. BASEMAP DATA SOURCED FROM MONTANA STATE LIBRARY (GEOGRAPHIC INFORMATION SERVICE).

0 250 500 1,000 1,500 Feet

SCALE

STILLWATER MINING COMPANY

STILLWATER MINE

RAINY DAY BREACH - FLOOD INUNDATION

SHEET 23 OF 23

Knight Piésold
CONSULTING

PIA NO.
NB101-66/32

REF NO.
8

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FIGURE C2.23

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Appendix C

Emergency Contact Information

(Pages C-1 to C-3)



TABLE C.1

STILLWATER MINING COMPANY
STILLWATER MINE

CONSOLIDATED OPERATIONS AND RECLAMATION PLAN - APPENDIX E9 - TAILINGS STORAGE FACILITIES - EMERGENCY PREPARED PLAN
EMERGENCY CONTACT LIST (MAY 2021)

Print May-06-21 8:48:24

Title	Name	Contact Information			
Stillwater Mining Company (SMC)					
Vice President of Legal, Government and Environmental	Heather McDowell	Office:	406-373-8743		
		Cellular:	406-598-0066	E-mail:	Heather.McDowell@sibanyestillwater.com
Chief Operating Officer	Ken Klucksdahl	Office:	406-328-8410		
		Cellular:	406-698-2812	E-mail:	Ken.Klucksdahl@sibanyestillwater.com
Vice President of Stillwater Mine Operations	Matt O'Reilly	Office:	406-328-8604		
		Cellular:	406-290-4164	E-mail:	Matt.OReilly@sibanyestillwater.com
Corporate Environmental Manager	Randy Weimer	Office:	406-328-8627		
		Cellular:	406-321-0015	E-mail:	Randy.Weimer@sibanyestillwater.com
Vice President of Safety and Health	Dee Bray	Office:	406-328-8633		
		Cellular:	406-321-0013	E-mail:	Dee.Bray@sibanyestillwater.com
Concentrator Manager	Brandon McGillvray	Office:	406-328-8672		
		Cellular:	406-290-4163	E-mail:	Brandon.McGillvray@sibanyestillwater.com
Environmental Supervisor	To Be Determined	Office:	406-328-8529		
		Cellular:		E-mail:	
Stillwater East Mine Manager	To Be Determined	Office:			
		Cellular:		E-mail:	
Stillwater West Mine Manager	Chuck Pollard	Office:	406-328-8573		
		Cellular:	406-321-0053	E-mail:	Chuck.Pollard@sibanyestillwater.com
Mine Support Manager	Shane Parrow	Office:	406-328-8414		
		Cellular:	406-321-2074	E-mail:	Shane.Parrow@sibanyestillwater.com
Mobile Maintenance Manager	Scott Murphy	Office:	406-328-8456		
		Cellular:	406-780-1647	E-mail:	Scott.Murphy@sibanyestillwater.com
Environmental Specialist	Tom Kircher	Office:	406-328-8418		
		Cellular:	406-321-0468	E-mail:	Tom.Kircher@stillwatermining.com
Safety Manager	Pete Onoszko	Office:	406-328-8483		
		Cellular:	406-321-3348	E-mail:	Pete.Onoszko@sibanyestillwater.com
Knight Piésold Ltd. (KP)					
Engineer of Record	Ken Brouwer	Office:	604-685-0543		
		Cellular:	604-802-5128	Cellular:	kbrouwer@knightpiesold.com
Deputy Engineer of Record	Craig Hall	Office:	705-476-2165		
		Cellular:	705-475-6282	E-mail:	chall@knightpiesold.com
Montana Department of Environmental Quality					
Environmental Management Bureau Chief	Dan Walsh	Office:	406-444-6791	E-mail:	Dwalsh@mt.gov
United States Forest Service					
Custer Gallatin National Forest District Ranger	Ken Coffin	Office:	406-446-4529	E-mail:	kcoffin@fs.fed.us

I:\1\01\00110\22\A\Report\Report 5 - Stillwater EPP\Rev 4\App C - Emergency Contact Information\Table C.1 - Hertzler Emergency Contact List - 2021-02-02.xlsx>List



TABLE C.2

**SIBANYE STILLWATER
STILLWATER MINE**

**CONSOLIDATED OPERATIONS AND RECLAMATION PLAN - APPENDIX E9 - TAILINGS STORAGE FACILITIES - EMERGENCY PREPARED PLAN
EMERGENCY SERVICES CONTACT (May 2021)**

Print May-06-21 8:51:02

Agency/Organization	Principal Contact	Address	Office Telephone No.
Ambulance			911
Stillwater County Sheriff	Charles E Kem ckem@scsomt.org (term expires 12/31/2022)	PO Box 729 400 East 3 rd Ave. N Columbus, MT 59019	1-416-322-5326 or 911
Mine Safety and Health Administration (MSHA) (Helena)	Hotline and Curtis Petty Petty.Curtis@dol.gov	10 West 15 th Street Suite 2100 Helena, MT 59626	1-800-746-1553 1-406-441-1180
Stillwater Billings Clinic (Columbus)		710 11 th Street N Columbus, MT 59019	1-406-322-1000
HELP Helicopter - Medical		1233 North 30 th Street Billings, MT 59101	1-800-538-4357 Heli Pad Coordinates N45° 23' 05' W109°52'21'

I:\1\01\00110\22\A\Report\Report 5 - Stillwater EPP\Rev 4\App C - Emergency Contact Information\[Table C.2 - Hertzler Emergency Services Contact List - 2021-04-22.xlsx]List



TABLE C.3

**SIBANYE STILLWATER
STILLWATER MINE**

**CONSOLIDATED OPERATIONS AND RECLAMATION PLAN - APPENDIX E9 - TAILINGS STORAGE FACILITIES - EMERGENCY PREPARED PLAN
FEDERAL AND STATE AGENCIES CONTACTS (MAY 2021)**

Print May-06-21 8:55:05

Agency	Contact	Address	Telephone No.
Natural Response Centre (NRC) Sole Federal Spill Notification			1-800-424-8802
Montana Department of Natural Resources (Billings)			1-406-259-3264
Montana Department of Natural Resources (Head Office - Helena)	Michele Lemieux Impoundment Safety Program miemieux@mt.gov	1424 9th Avenue PO Box 201601 Helena, MT 59620-1601	1-406-444-6613
MDEQ - Water Quality Bureau (Helena Office)	Jon Kenning Water Protection Bureau jkenning@mt.gov	PO Box 200901 1520 E. Sixth Ave Helena, MT 59620-0901	1-406-444-2406
EPA Region 8		1860 Lincoln Street Denver, CO 80295	1-800-227-8917
MDEQ - Water Quality Bureau (Billings)	Dan Freeland dfreeland@mt.gov		1-406-256-7655
MDEQ - Solid & Hazardous Waste (Helena)			1-406-444-1430
Montana Department of Fish, Wildlife & Parks (Billings)			1-406-247-2940
Montana Mine Inspector			1-406-444-6401

I:\1\01\00110\22\A\Report\Report 5 - Stillwater EPP\Rev 4\App C - Emergency Contact Information\[Table C.3 - Federal and State Agency Contacts - 2021-04-22.xlsx]List

Appendix D

Resources Available

(Page D-1 to D-3)

TABLE D.1
SIBANYE STILLWATER
STILLWATER MINE
CONSOLIDATED OPERATIONS AND RECLAMATION PLAN - APPENDIX E9 - TAILINGS STORAGE
FACILITIES - EMERGENCY PREPARED PLAN
RESOURCES AVAILABLE

Printed: 2021/05/06 09:27:00

Company/Owner	Equipment/Material Type	Contact Info
Helicopter Services		
Billings Flying Service (Helicopters)	Chinook CH47D Bell 212 HP Bell 209 Long Ranger	1-406-252-6937 www.billingsflyingervice.com contact@flybfs.com
Central Copters Inc. (Belgrade, MT)	Euro Copter AS350B Bell 214B1	1-406-586-9185 www.centralcopters.com info@centralcopters.com
Rocky Mountain Rotors	Bell 206 BIII Jettranger Bell 505 X Bell 407 GX Bell 429	1-406-579-9312 www.rockymountainrotors.com mark@rmrheli.com
Earthworks Equipment		
Stillwater Mining Company Stillwater Mine 2562 Nye Road Nye, MT 59061	(1) 27 Ton Sterling Boom Truck (3) 50 Ton CAT 773B Haul Trucks (2) CAT 988 Loaders (1) CAT 966 Loader (1) CAT 420E Backhoe (1) CAT D8 Dozer (1) CAT 14G Road Grader	Dispatch: 1-406-328-8445 Security: 1-406-328-8444

TABLE D.1

**SIBANYE STILLWATER
STILLWATER MINE**

**CONSOLIDATED OPERATIONS AND RECLAMATION PLAN - APPENDIX E9 - TAILINGS STORAGE
FACILITIES - EMERGENCY PREPARED PLAN
RESOURCES AVAILABLE**

Company/Owner	Equipment/Material Type	Contact Info
Stillwater Mining Company Stillwater Mine 2562 Nye Road Nye, MT 59061	(1) CAT CS553 Compactor (smooth roller) (1) CAT Telehandler TH360B Extended Boom Forklift (2) 4WD Forklifts (Manitou M450 and Lift King) (3) CASE Skid Steers (SV300, 445, and 40XT) (1) PETERBILT 357 Water Truck (1) PETERBILT Trash Truck (1) 85' Genie Manlift (1) Oshkosh Concrete Mix Truck (2) Portable Light Plants	Dispatch: 1-406-328-8445 Security: 1-406-328-8444
Stillwater Excavating PO Box 865 1101 Highway 10 East Columbus, MT 59019	(1) Excavator - CAT 345D (1) Excavator - JOHN DEERE 330CLC (1) Excavator - JOHN DEERE 20GLC (1) Mini Excavator - JOHN DEERE 50D (1) Mini Excavator - JOHN DEERE 27D (1) Loader - CAT 938G (27 cu. yd) (1) Loader - JOHN DEERE 644J (21 cu. yd) (1) Loader - MICHIGAN L190 (5 cu. yd) (1) Dozer - CAT D5 MXL (1) Motor Grader - CAT 140G	Office: 1-406-322-4644 Cell: 1-406-321-0000

TABLE D.1
SIBANYE STILLWATER
STILLWATER MINE
CONSOLIDATED OPERATIONS AND RECLAMATION PLAN - APPENDIX E9 - TAILINGS STORAGE
FACILITIES - EMERGENCY PREPARED PLAN
RESOURCES AVAILABLE

Company/Owner	Equipment/Material Type	Contact Info
Stillwater Excavating PO Box 865 1101 Highway 10 East Columbus, MT 59019 (continued)	(1) Scraper - JOHN DEERE 862 (1) Skid Steer - JOHN DEERE 333D (1) Skid Steer - JOHN DEERE 270 (1) Skid Steer - NEW HOLLAND L185 (1) Haul Truck - TEREX TA30 (1) Haul Truck - TROJAN 09K (1) Vibratory Roller - CAT L5563D (1) Vibratory Roller - CAT CP433C	Office: 1-406-322-4644 Cell: 1-406-321-0000
Vorhes Excavating and Welding PO Box 794 Absarokee, MT 59001	(1) Excavator - CASE CX130 (1) Backhoe - FORD LB95 (1) Motor Grader - CHAMPION (Full Size) (2) Dump Trucks - KENWORTH T800 & WL900	Office: 1-406-328-4961

I:\1\01\00110\22\A\Report\Report 5 - Stillwater EPP\Rev 4\App D - Resources Available\Appendix D Resources Available SWM-2021-04-22.docx