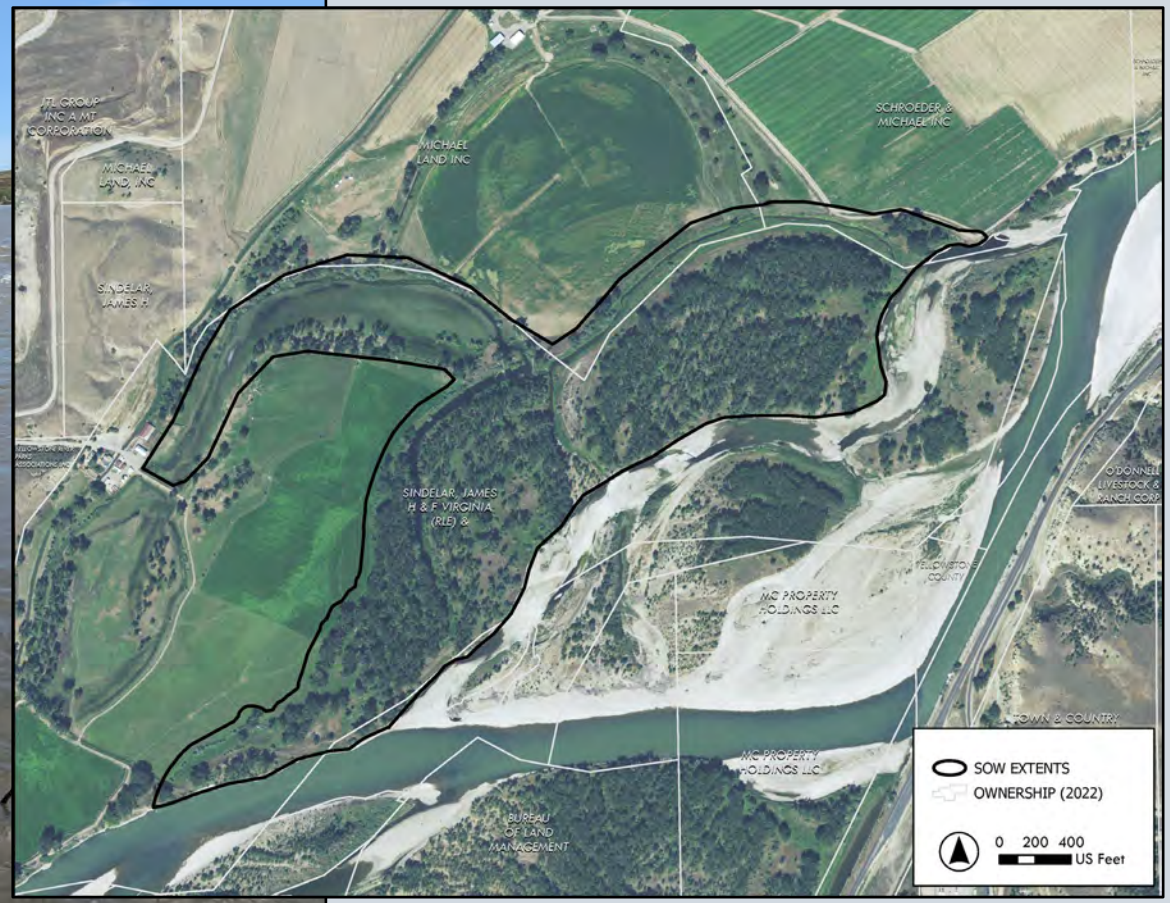
RIVER RANCH/DOVER ISLAND RESTORATION

YELLOWSTONE RIVER
BILLINGS, MONTANA



MARISA SOWLES

OCTOBER 2025

U.S. Army Corps of Engineers
Omaha District

Yellowstone River
Conservation District Council

Yellowstone River
Cumulative Effects Analysis

FINAL

December 2015

Final Programmatic Damage Assessment and Restoration Plan
and
Final Programmatic Environmental Assessment
for the
ExxonMobil Pipeline Company July 1, 2011 Yellowstone River Oil Spill

Prepared by State and Federal Trustees
State of Montana and U.S. Department of the Interior

January 2017

YELLOWSTONE RIVER PROJECT INVENTORY AND RANKING

OCTOBER 2017

PREPARED FOR:

Natural Resource Damage Program
1720 9th Avenue
PO Box 201425
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PREPARED BY:

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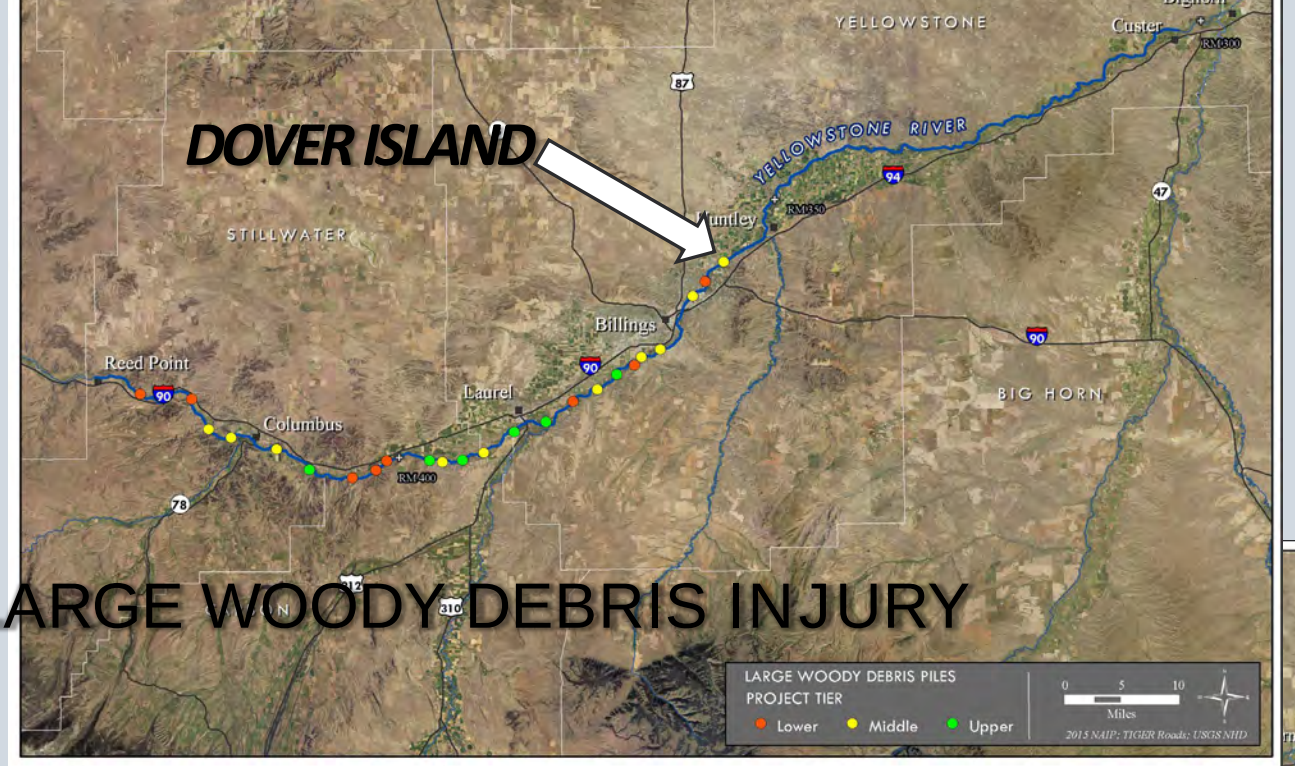
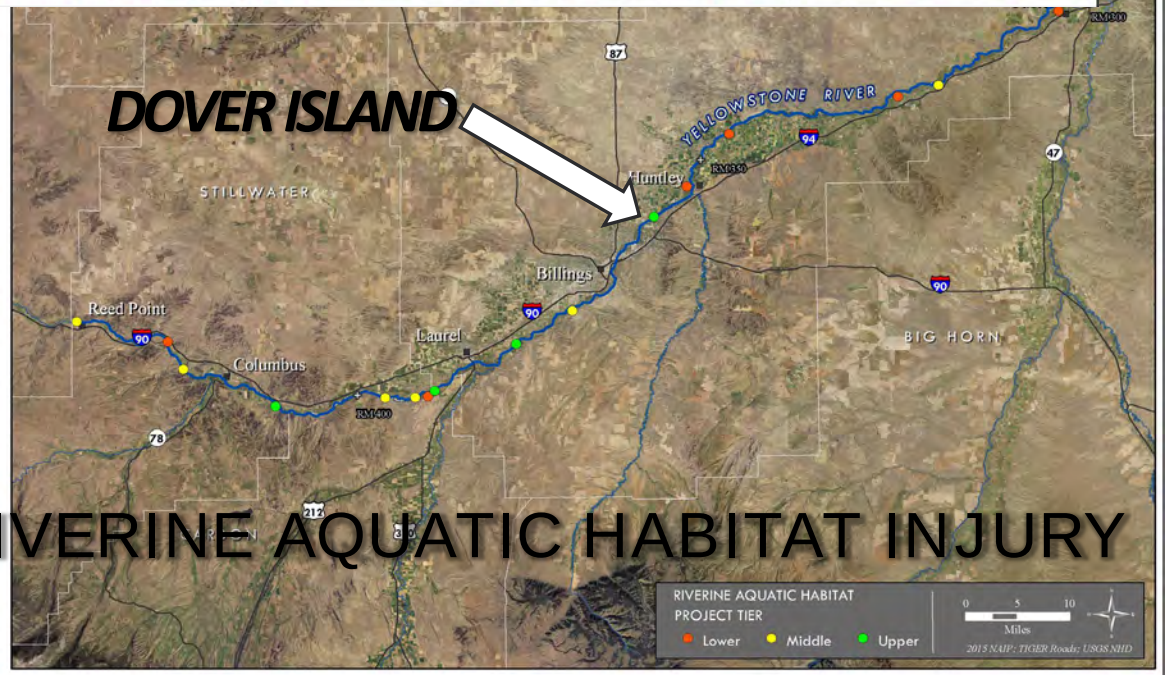
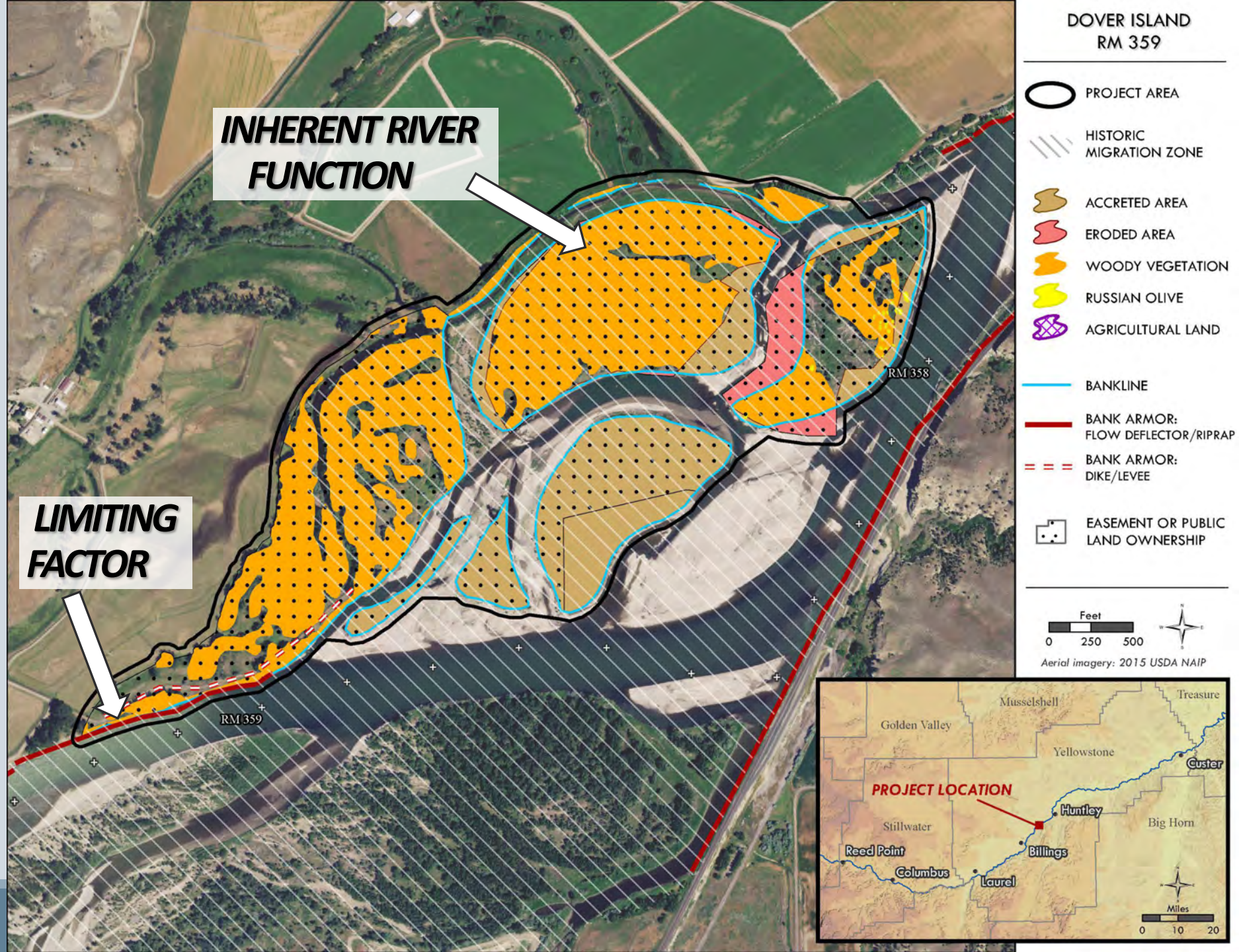


LARGE WOODY DEBRIS INJURY

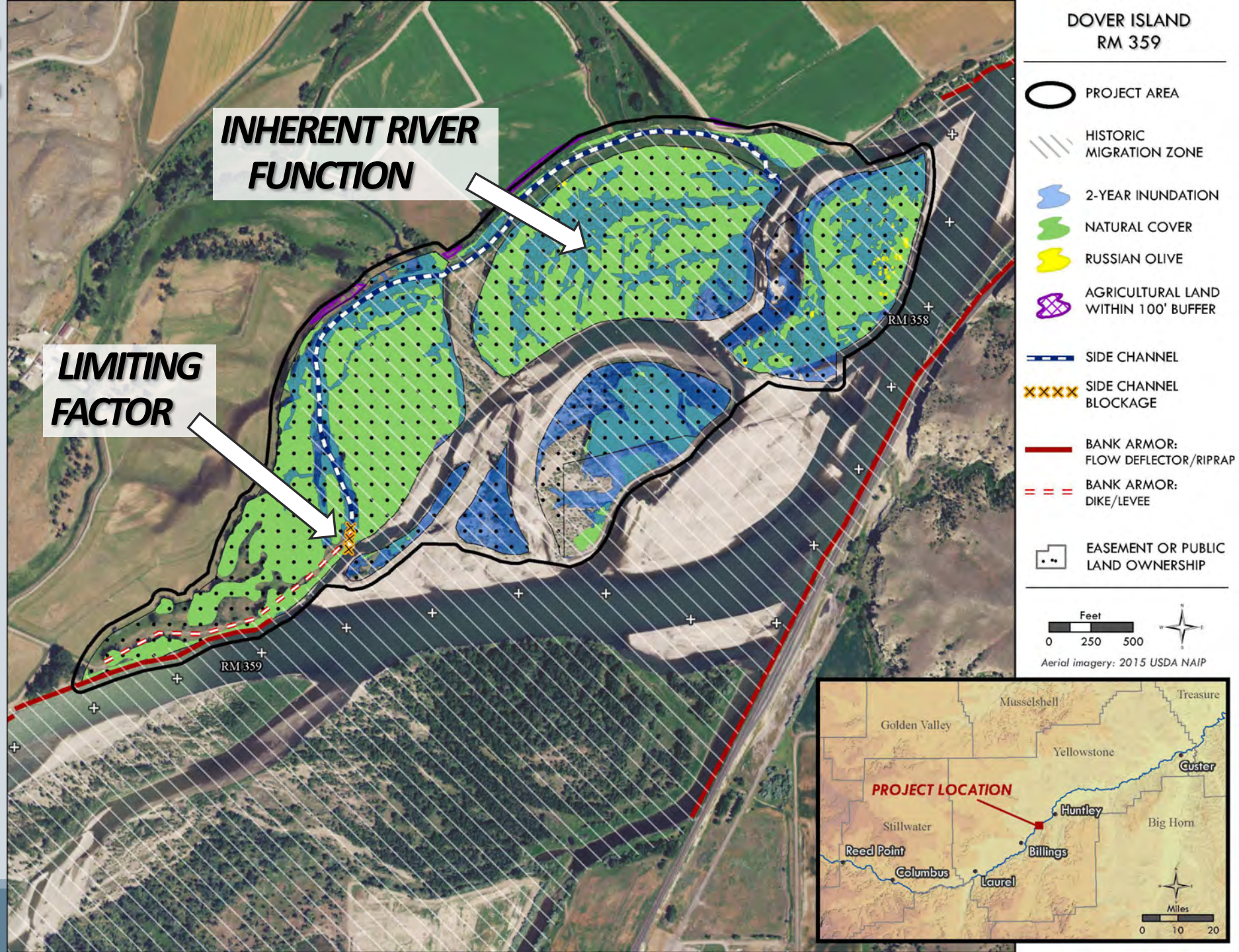


RIVERINE AQUATIC HABITAT INJURY

LARGE WOODY DEBRIS INJURY



RIVERINE AQUATIC HABITAT INJURY

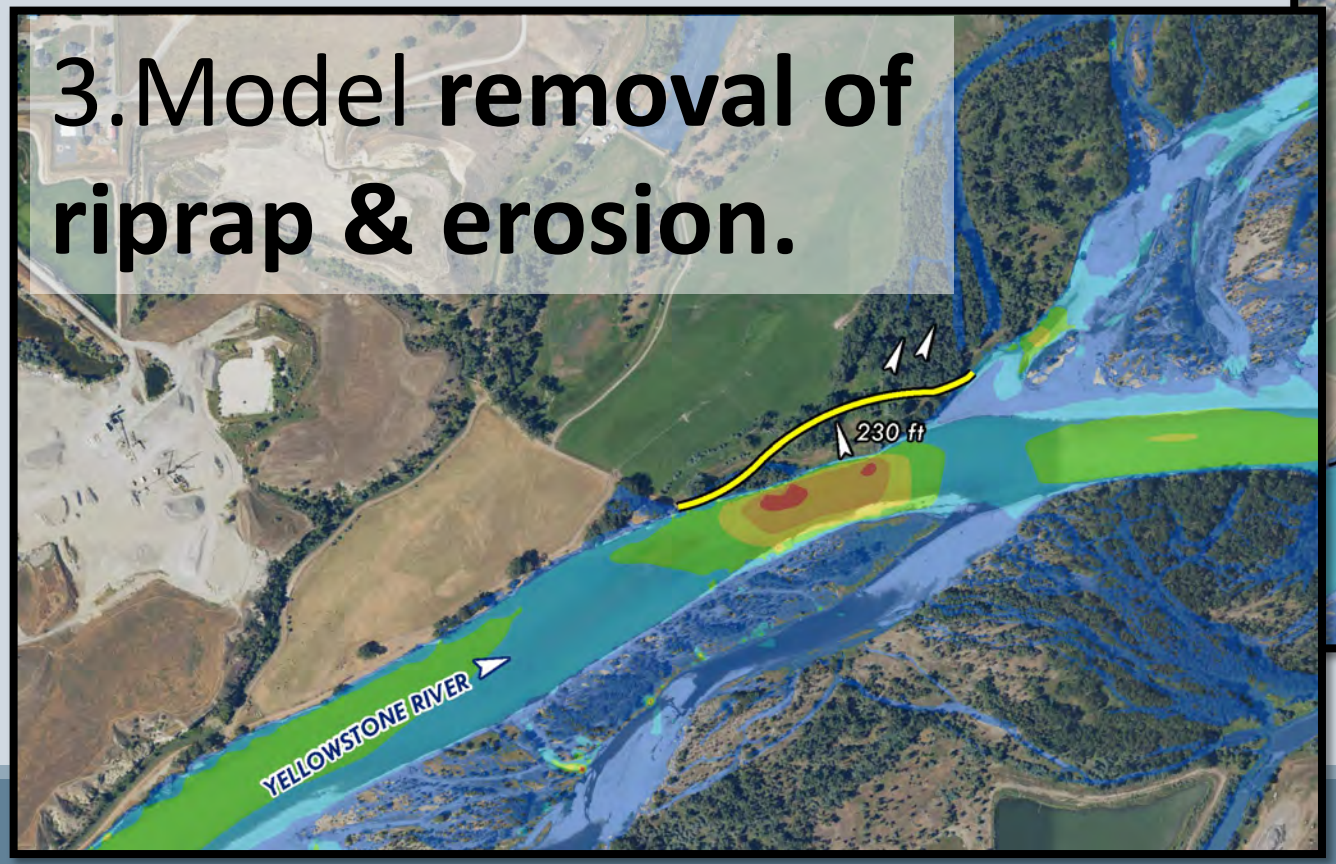


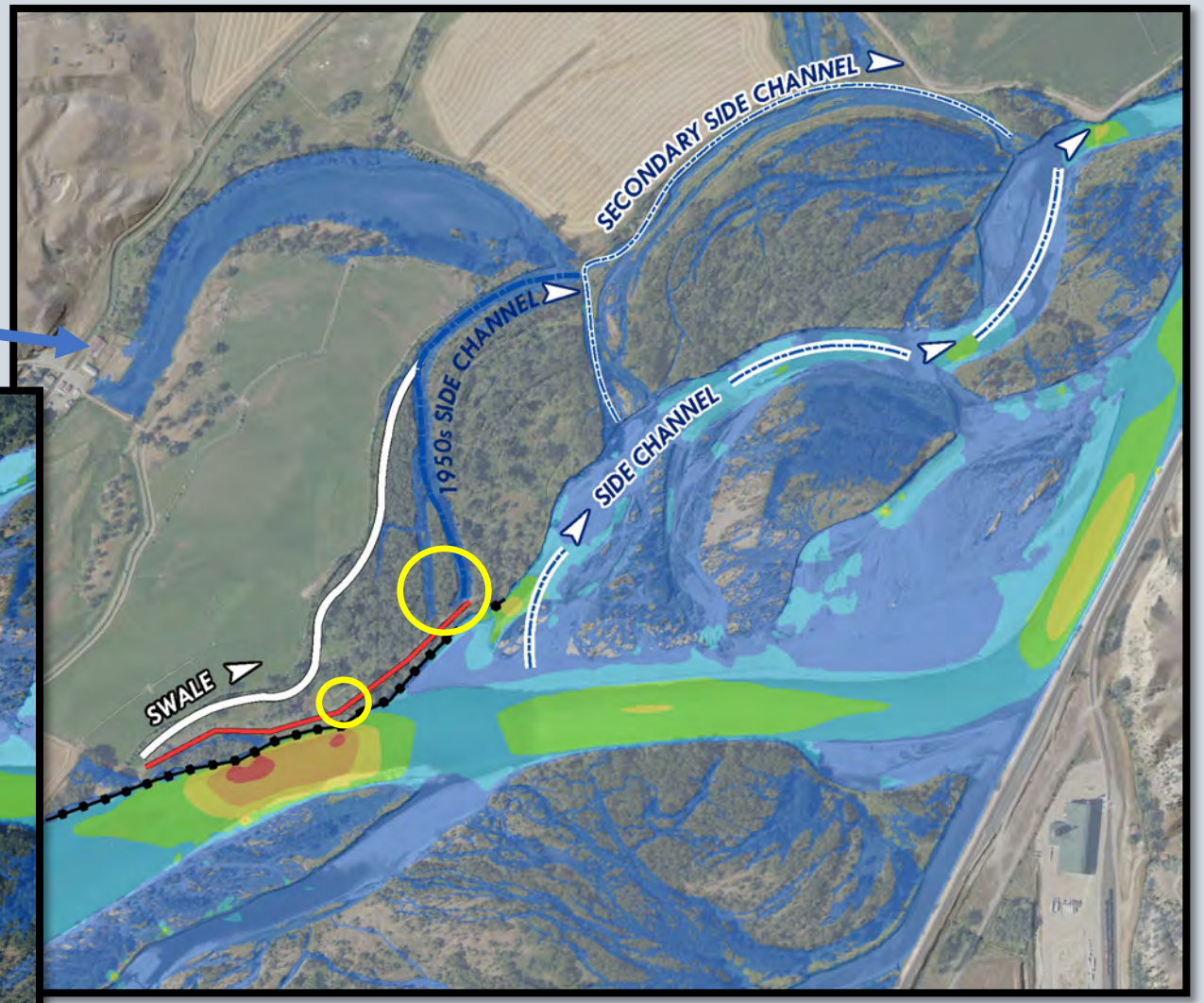
FEASIBILITY ANALYSIS

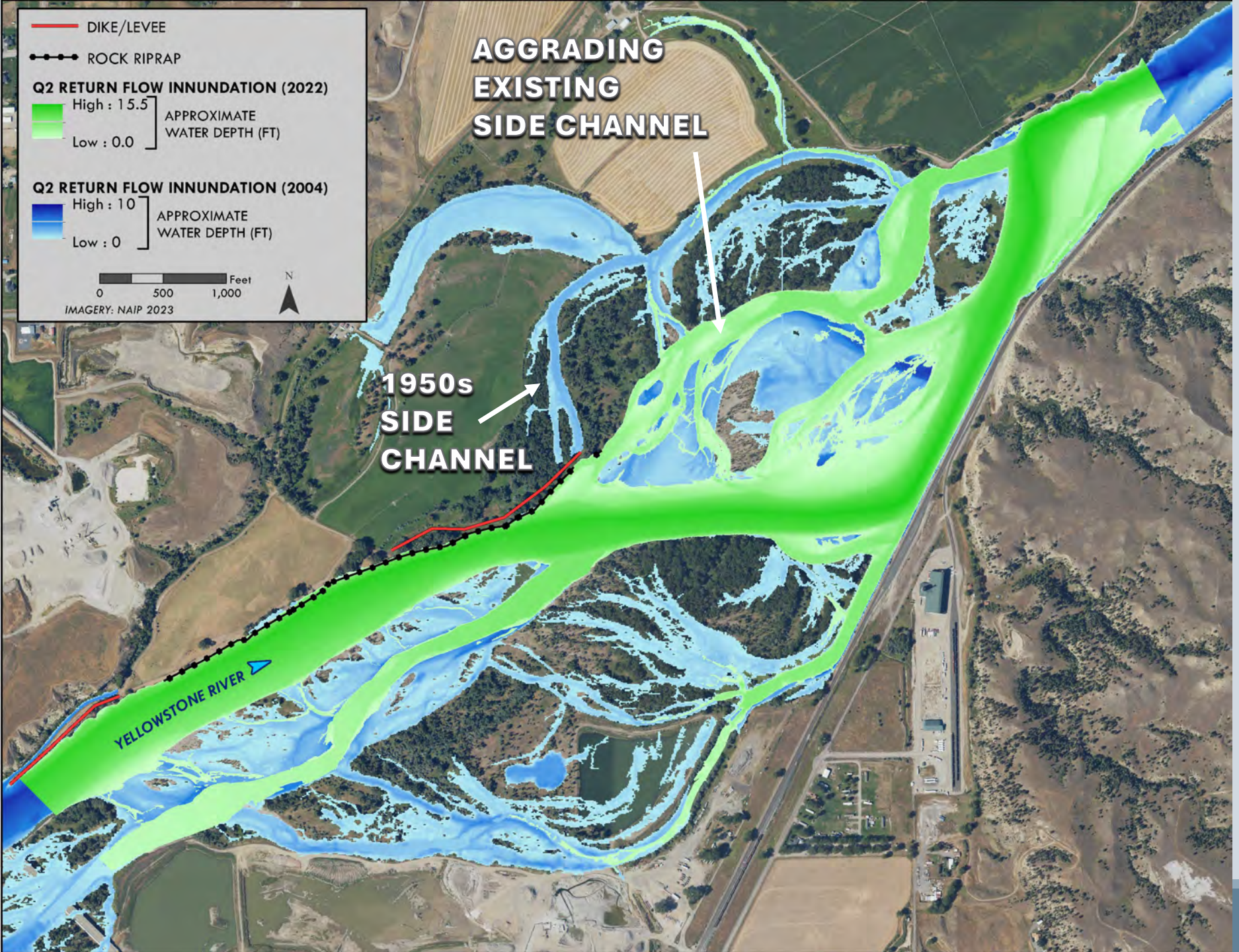
1. Model **existing conditions.**

2. Model **levee breach** and re-connect 1950s side channel & swale.

3. Model **removal of riprap & erosion.**

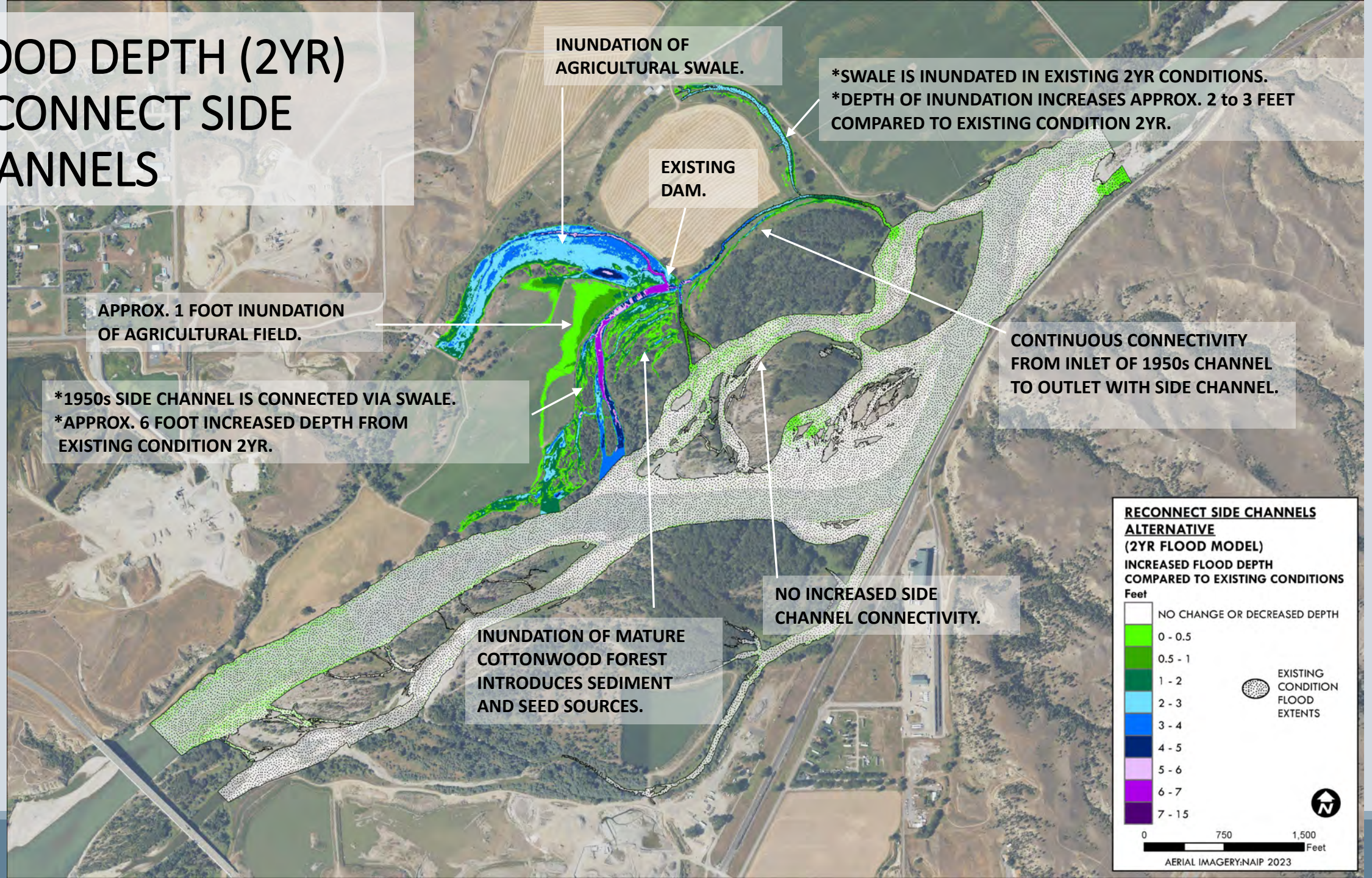




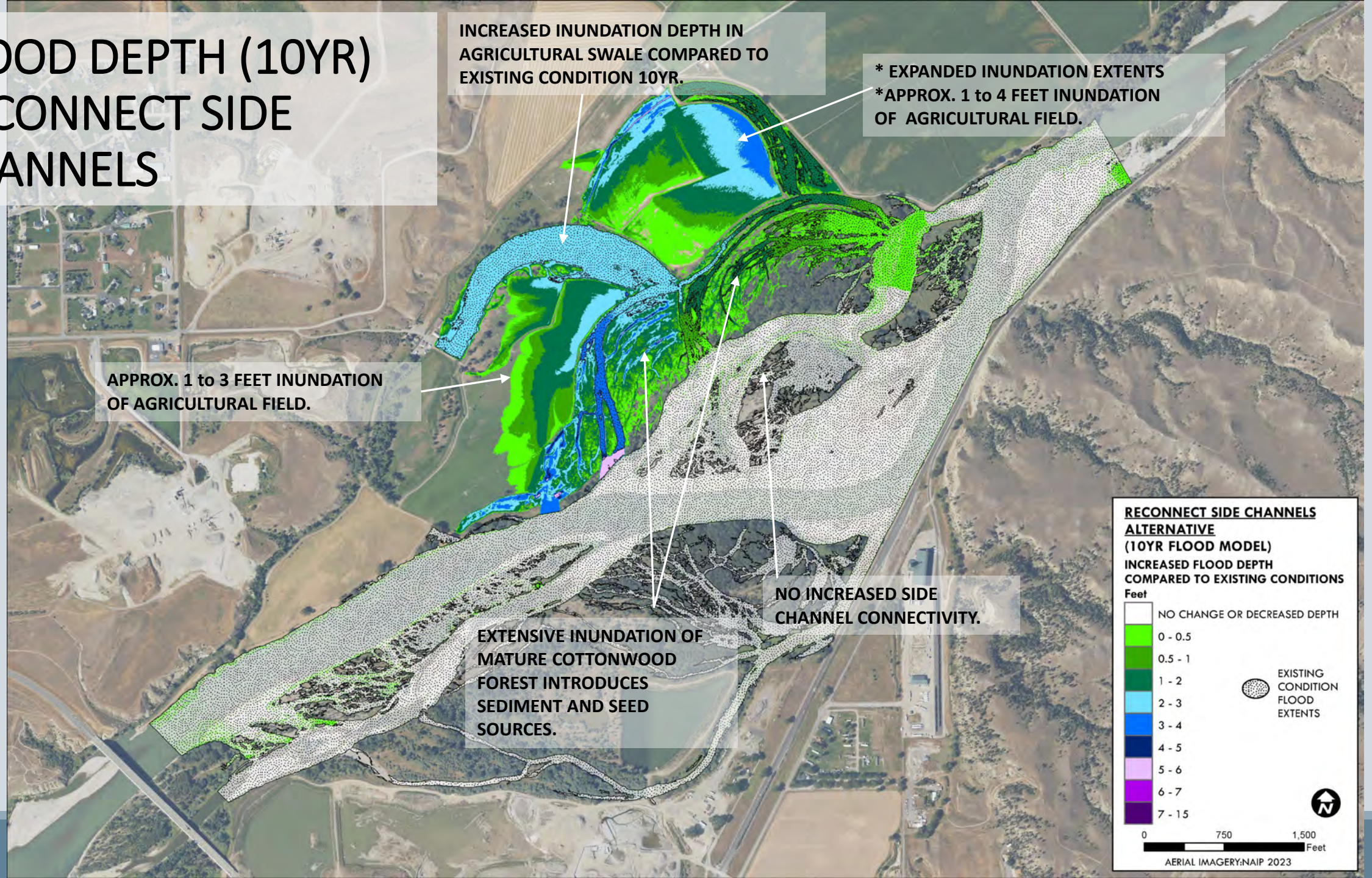

DIKE/LEVEE
ROCK RIPRAP
Q2 RETURN FLOW INNUNDATION (2022)
High : 15.5
Low : 0.0
APPROXIMATE WATER DEPTH (FT)
Q2 RETURN FLOW INNUNDATION (2004)
High : 10
Low : 0
APPROXIMATE WATER DEPTH (FT)
0
500
1,000
Feet
N
IMAGERY: NAIP 2023
AGGRADING EXISTING SIDE CHANNEL
1950s SIDE CHANNEL
YELLOWSTONE RIVER


AGGRADING
EXISTING
SIDE CHANNEL
1950s
SIDE
CHANNEL
YELLOWSTONE RIVER
Yellowstone River
Image © 2025 Airbus

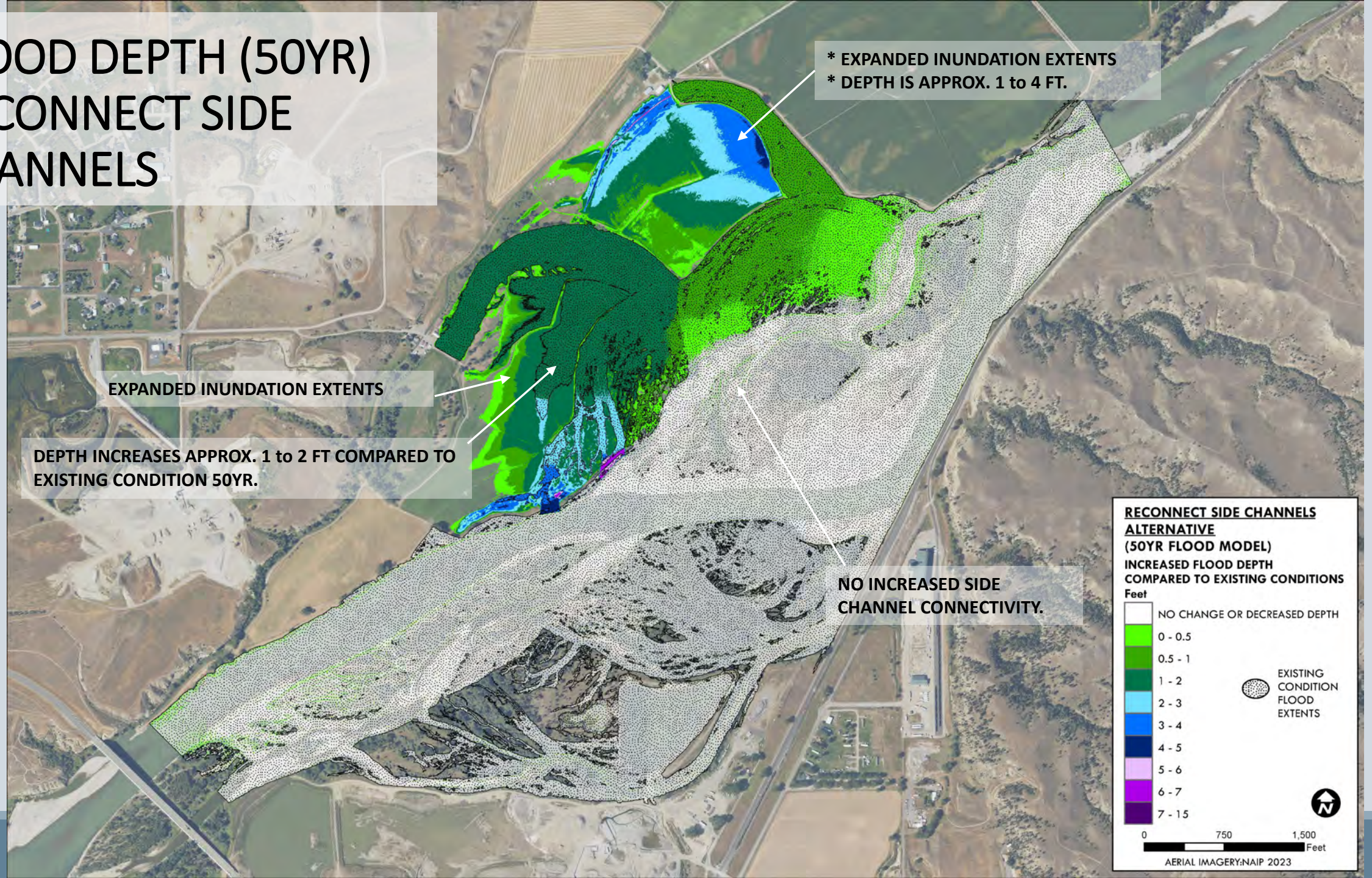
FLOOD DEPTH (2YR) RECONNECT SIDE CHANNELS



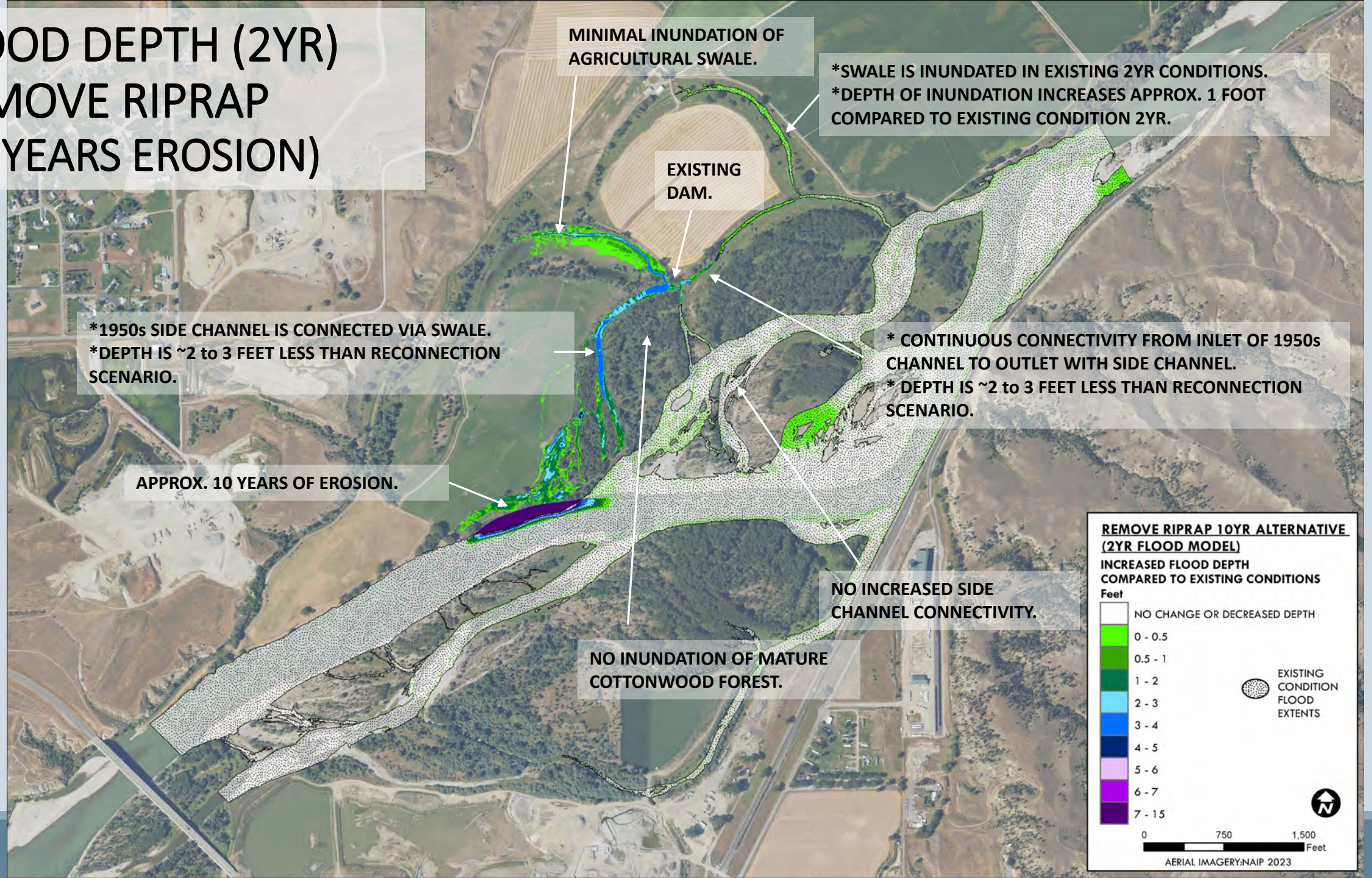
FLOOD DEPTH (10YR) RECONNECT SIDE CHANNELS



FLOOD DEPTH (50YR) RECONNECT SIDE CHANNELS



FLOOD DEPTH (2YR)
REMOVE RIPRAP
(10 YEARS EROSION)



WETLAND DELINEATION

- Additional evidence of loss of connectivity
- Soil redox features found on high surfaces

DESIGN UPDATES

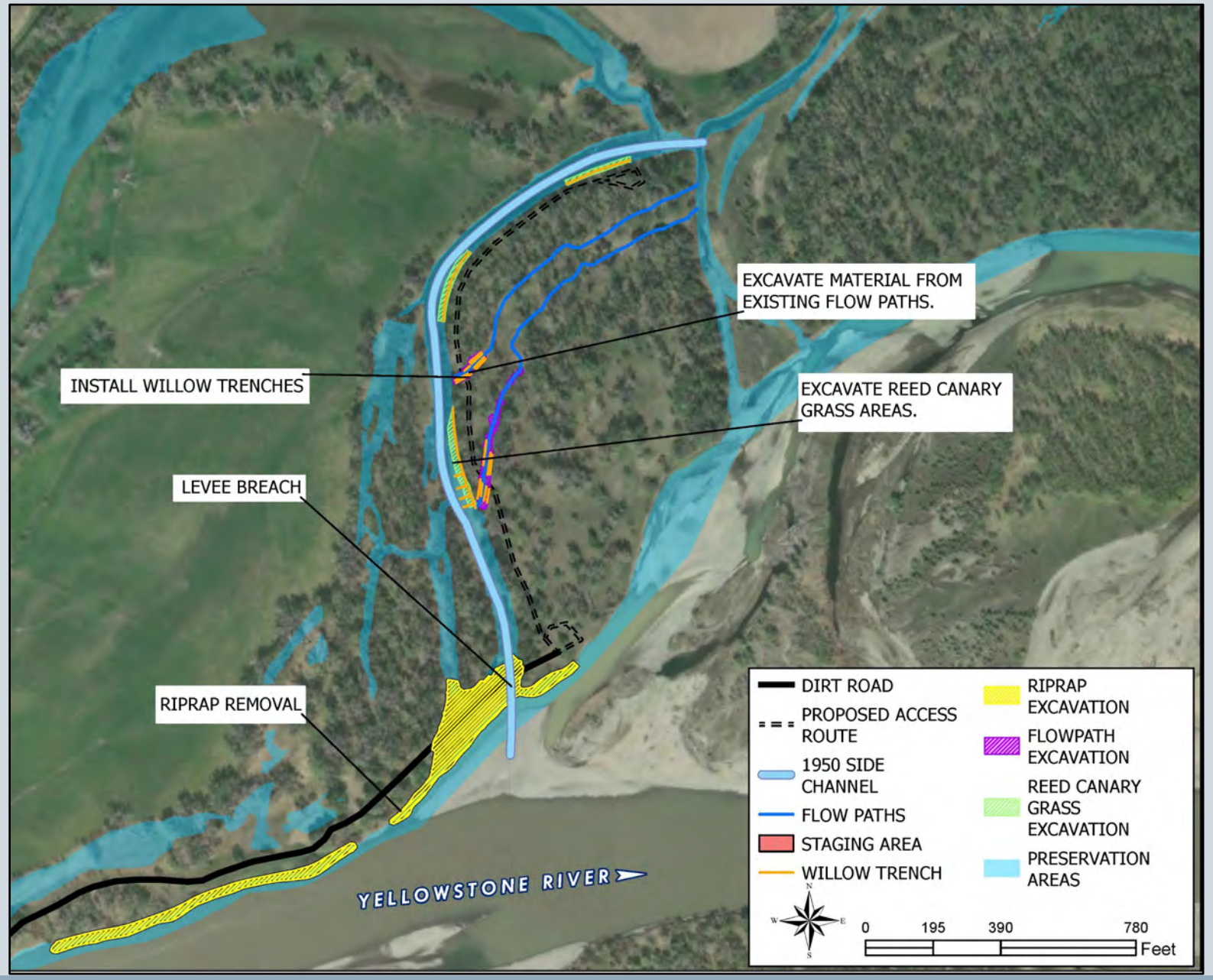
1950’s side channel activation at 1.5 year return flow

DESIGN UPDATES

Excavation of flow path entrances to distribute flows across the mature cottonwood forest

Installation of willow trenches

Potential reed canary grass removal



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