

Porter to Elma Flood Mitigation Alternatives Analysis Project

Watershed Science & Engineering

Sargent Engineers

PanGEO

Confluence Consulting

Pacific Geomatic Services

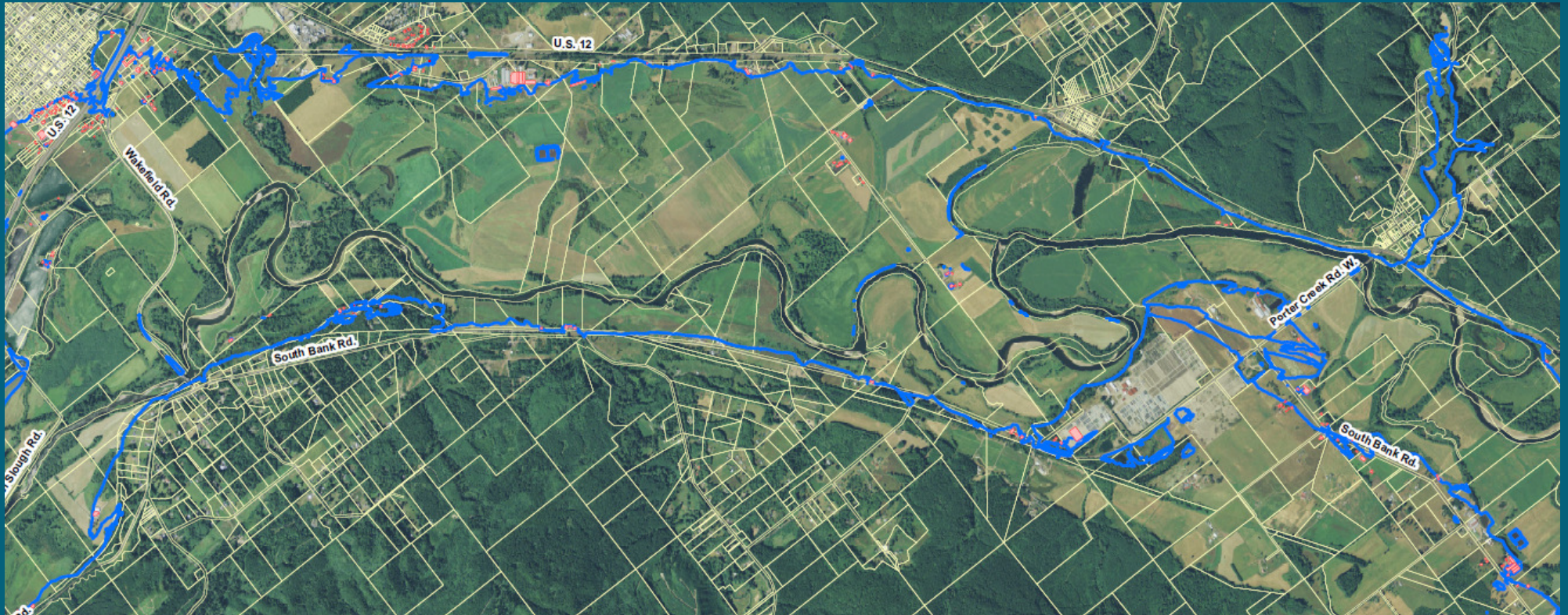
Preliminary Model
Results Meeting

21 August 2014

Agenda

- ❖ Project Scope and Status Update
- ❖ Present Baseline Model Results
- ❖ Discuss Existing Flooding Issues
- ❖ Discuss Flood Reduction Alternatives
- ❖ Questions

Study Reach – Porter to Elma



Wakefield Road to Porter Creek Road

Scope of Work

Task 1 – Project Coordination and Outreach

Task 2 – Hydraulic Modeling and Analysis

Task 3 – Engineering Design and PS&E Documents for Bridge

Task 4 – Geotechnical Engineering Services for Bridge

Task 5 – Critical Areas Review / Permitting Strategy for Bridge

Task 6 – Development and Evaluation of Additional Flood Mitigation Alternatives for Porter to Elma Reach

Task 1 – Project Coordination and Outreach

Kickoff Meeting (May 1, 2014)

Existing Conditions Analysis and Preliminary
Bridge Alternatives (tonight)

Wakefield Road Bridge Design Alternative
Analysis Presentation

Additional Flood Mitigation Alternatives
Development Meeting

Alternatives Analysis Presentation and Review

Task 2 – Hydraulic Modeling and Analysis

Bathymetric Survey (completed)

Hydraulic Model Development (completed)

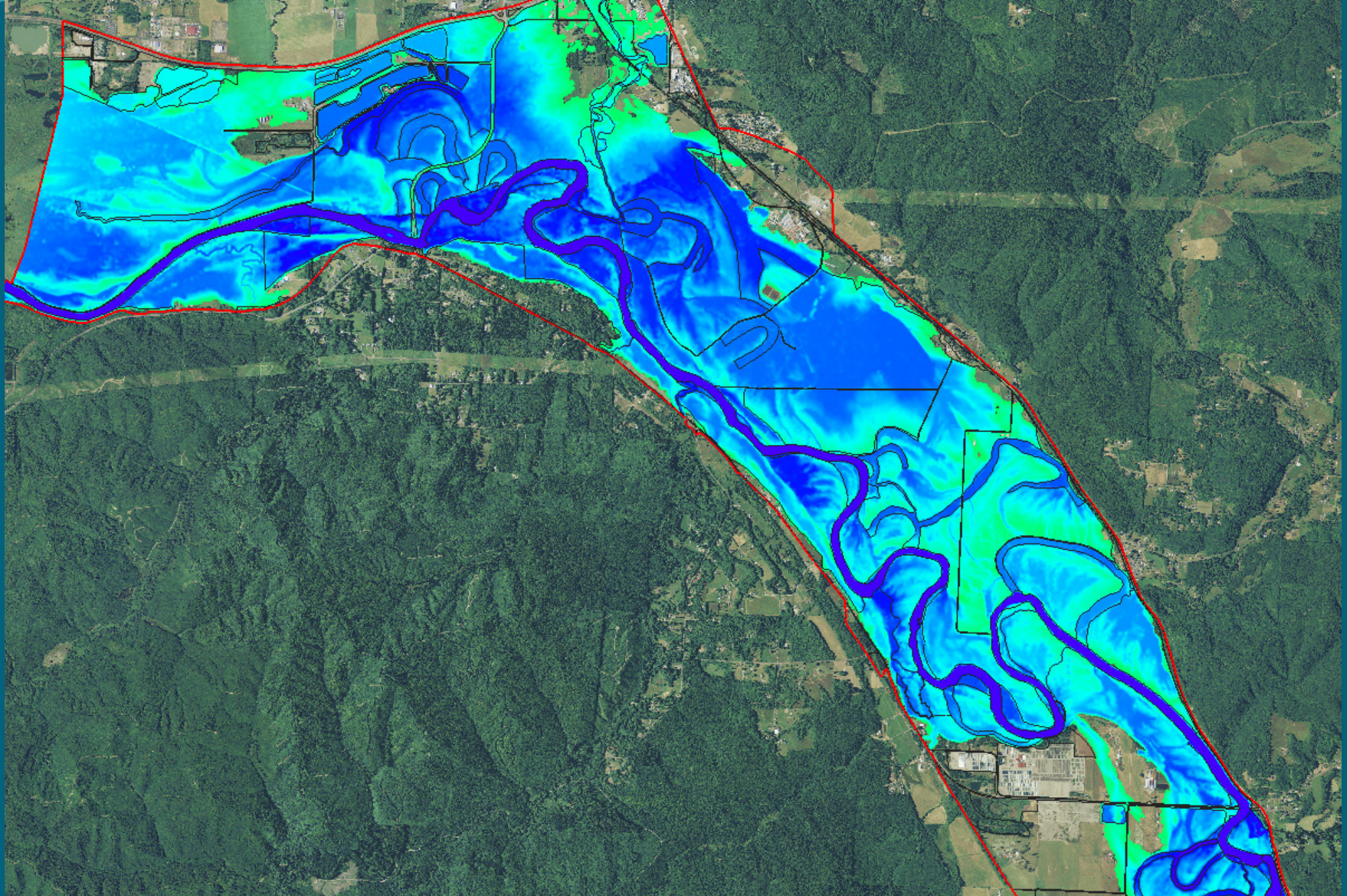
Model Calibration (completed)

Existing Conditions Analysis (in progress)

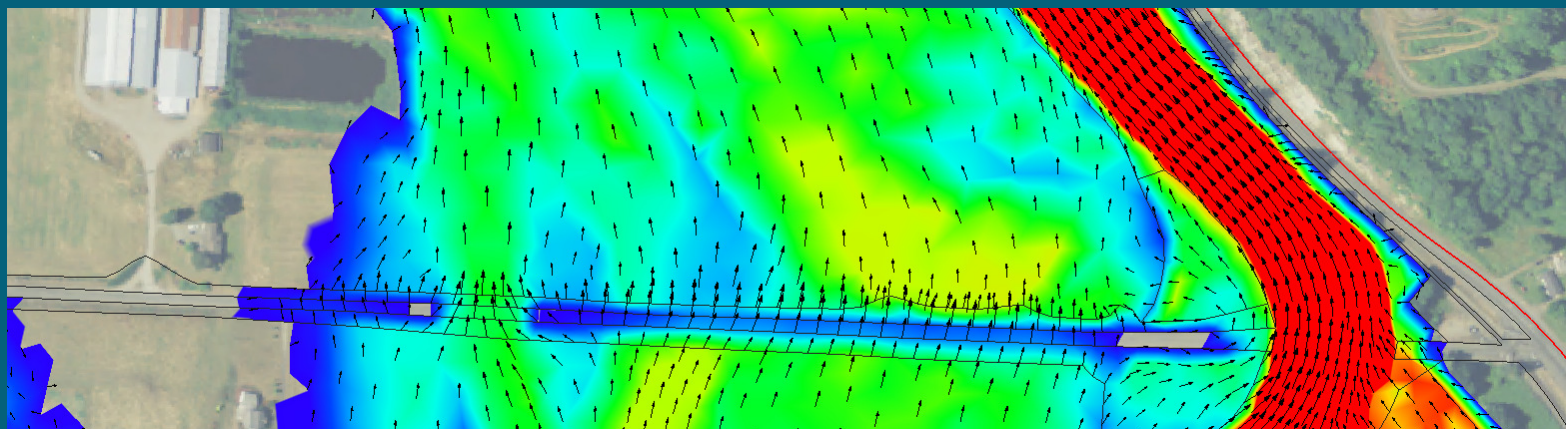
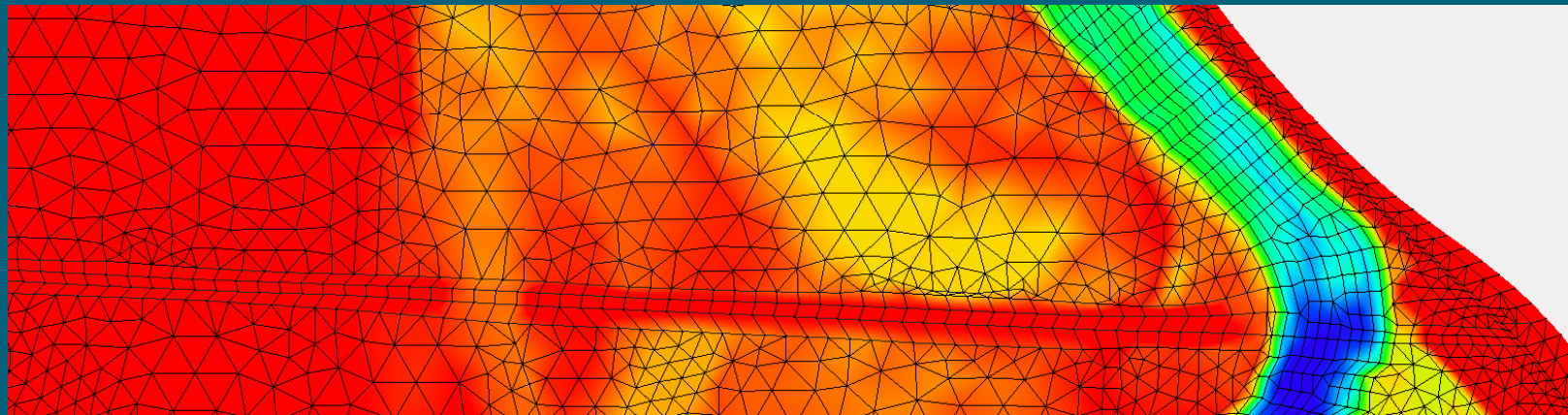
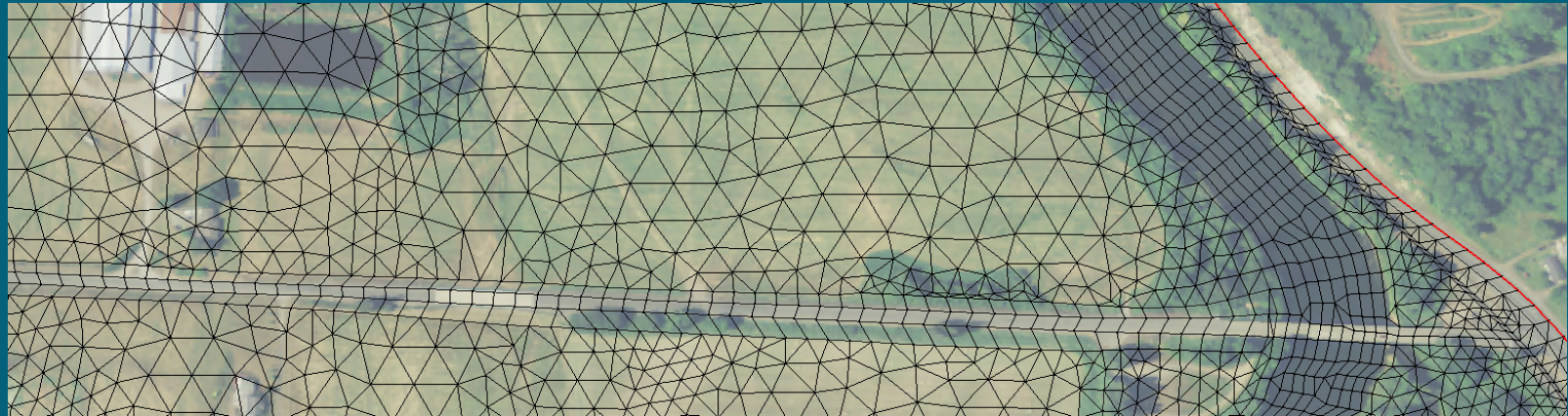
Evaluation of Wakefield Road Bridge Alternatives
(in progress)

Evaluation of other Flood Mitigation Alternatives

Task 2 – Hydraulic Modeling and Analysis

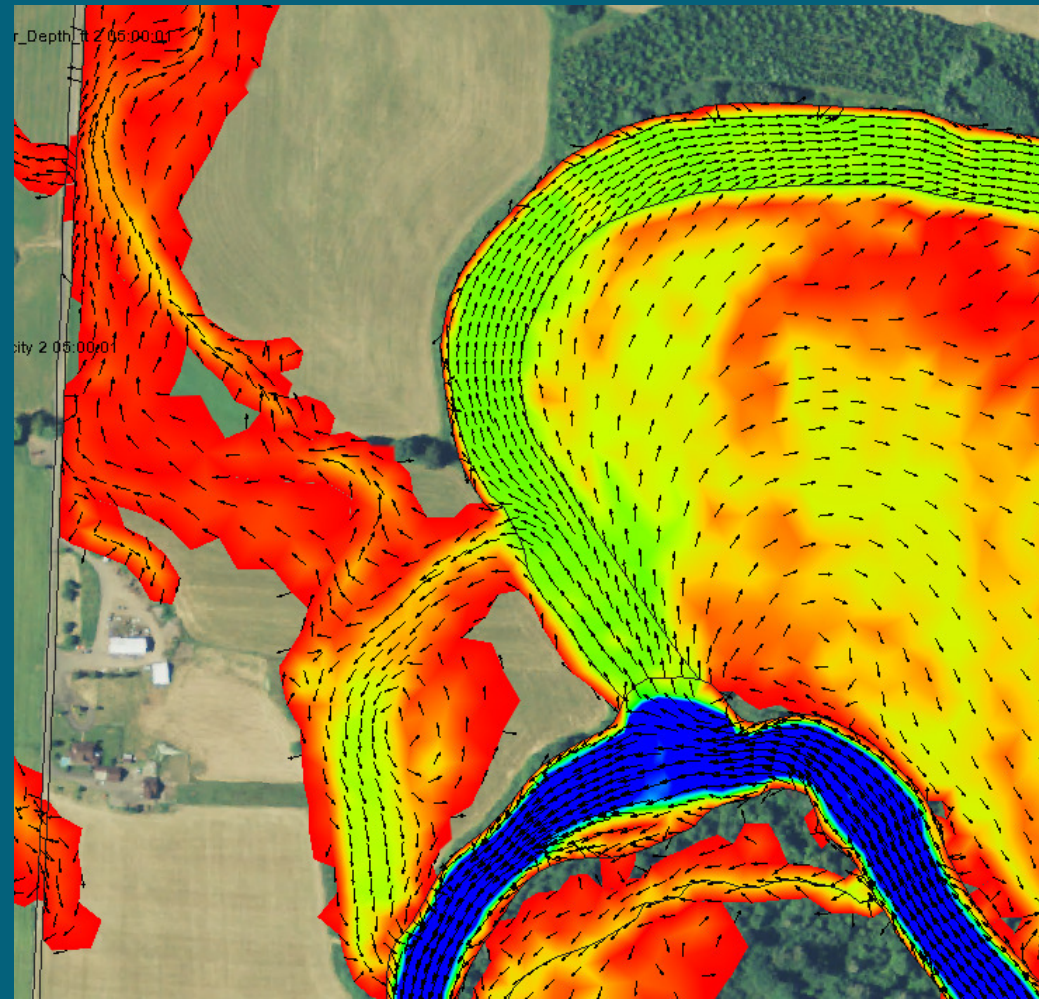


Task 2 – Hydraulic Modeling and Analysis

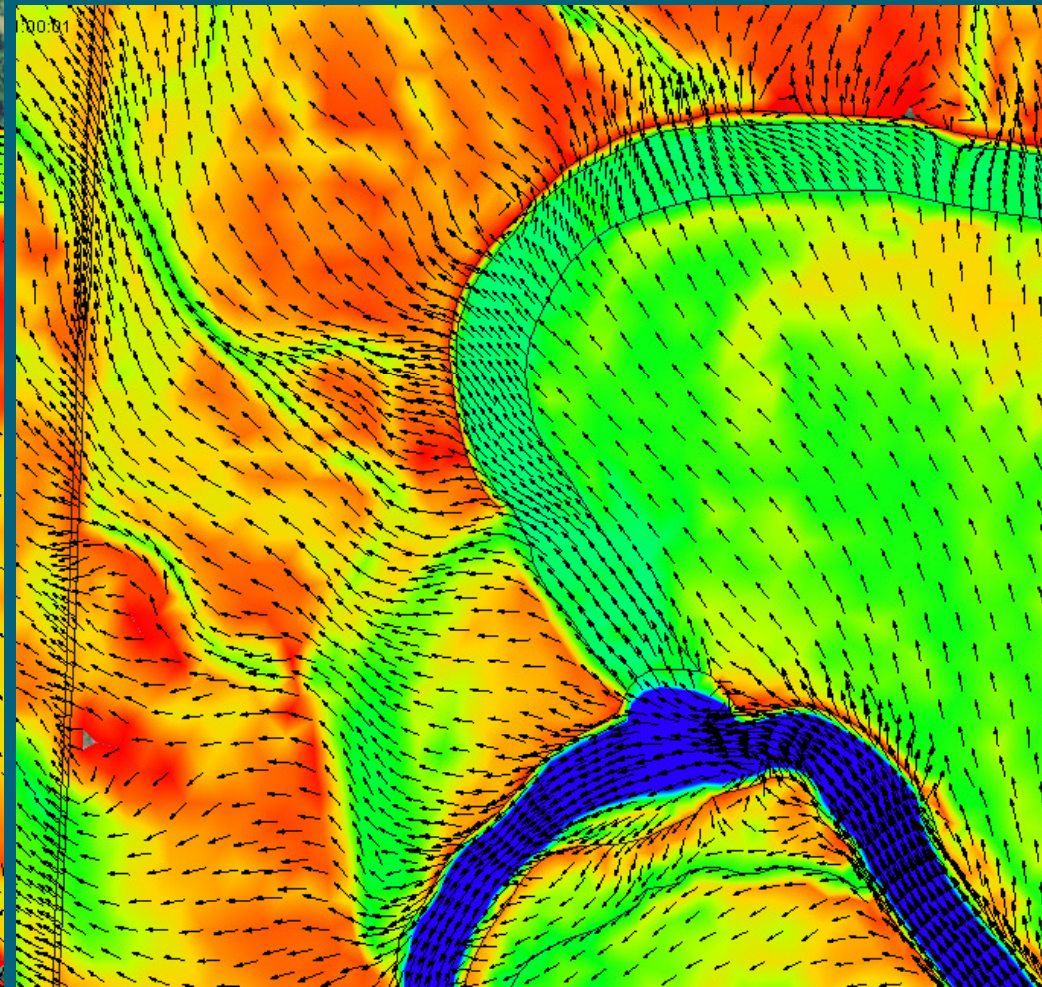


Task 2 – Hydraulic Modeling and Analysis

~20,000cfs



~86,000cfs

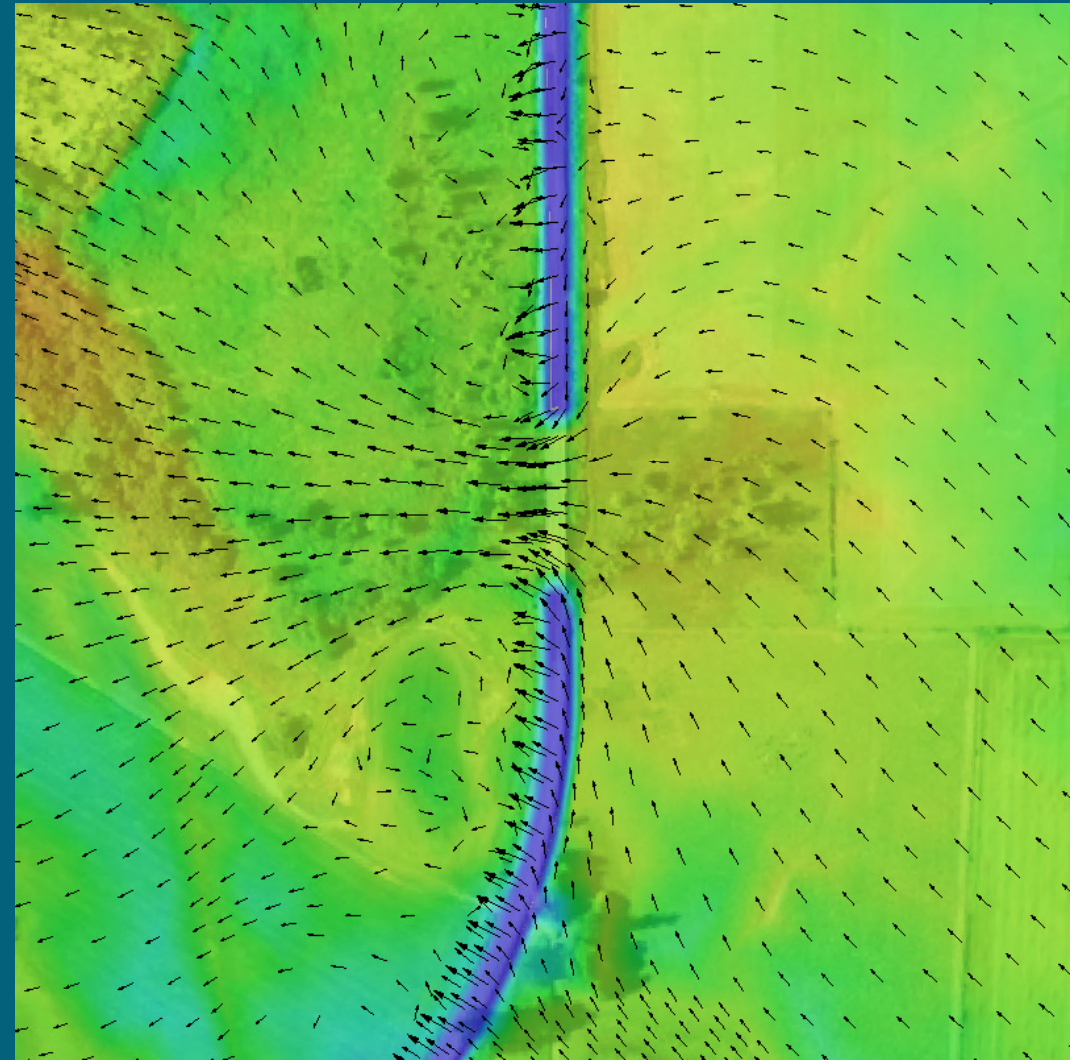


Task 2 – Hydraulic Modeling and Analysis

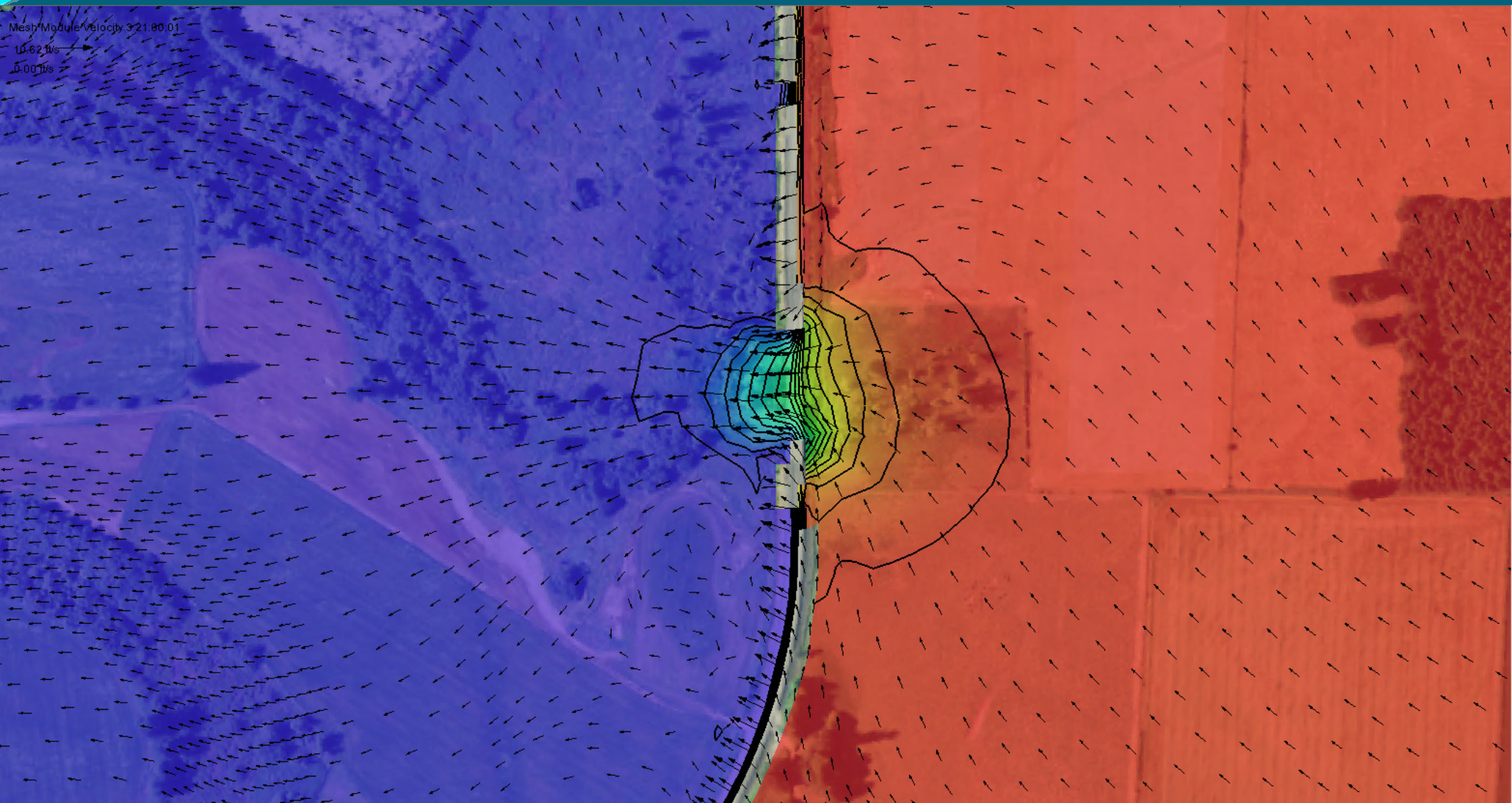
~20,000cfs



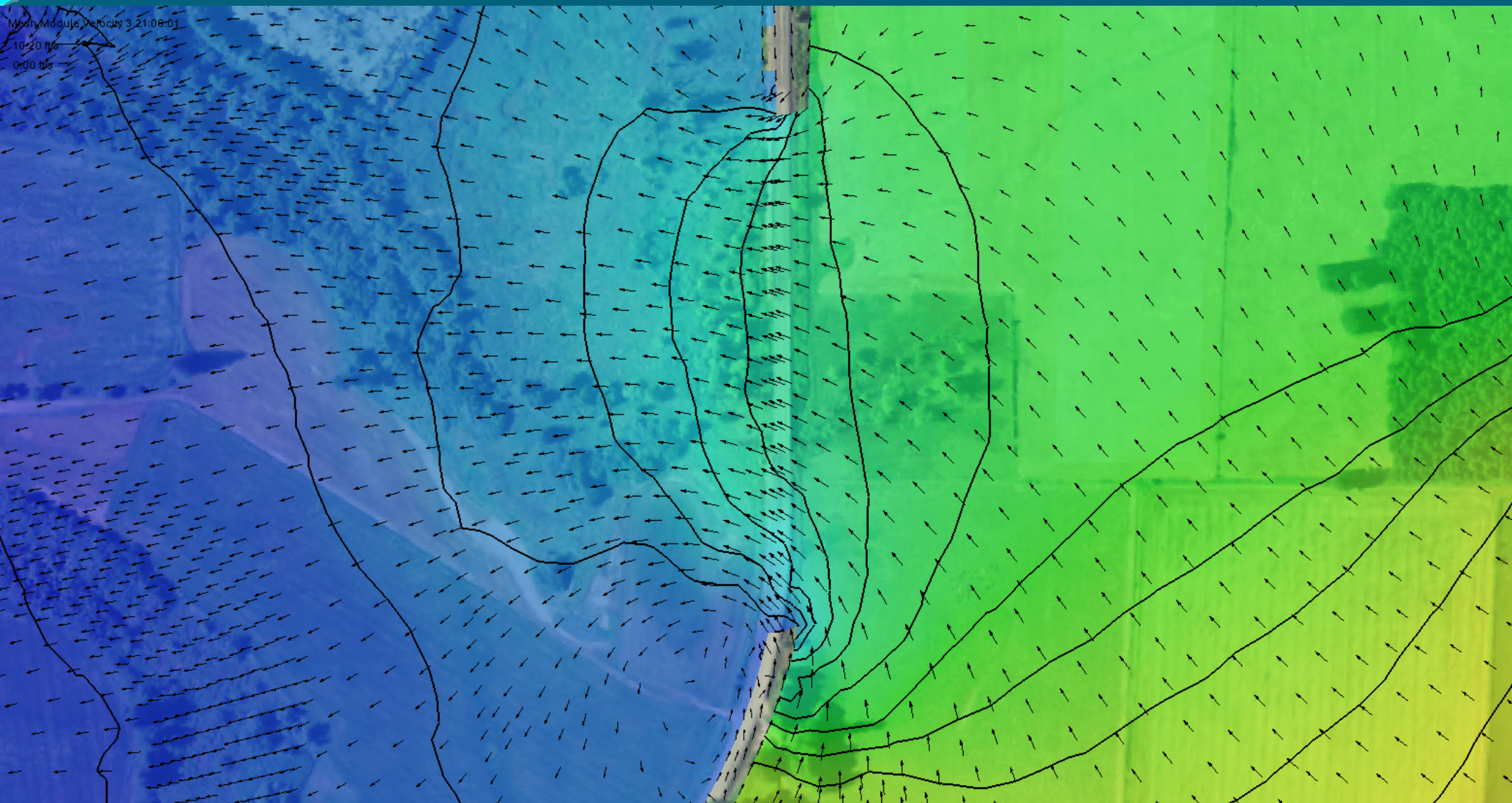
~86,000cfs



Task 2 – Hydraulic Modeling and Analysis

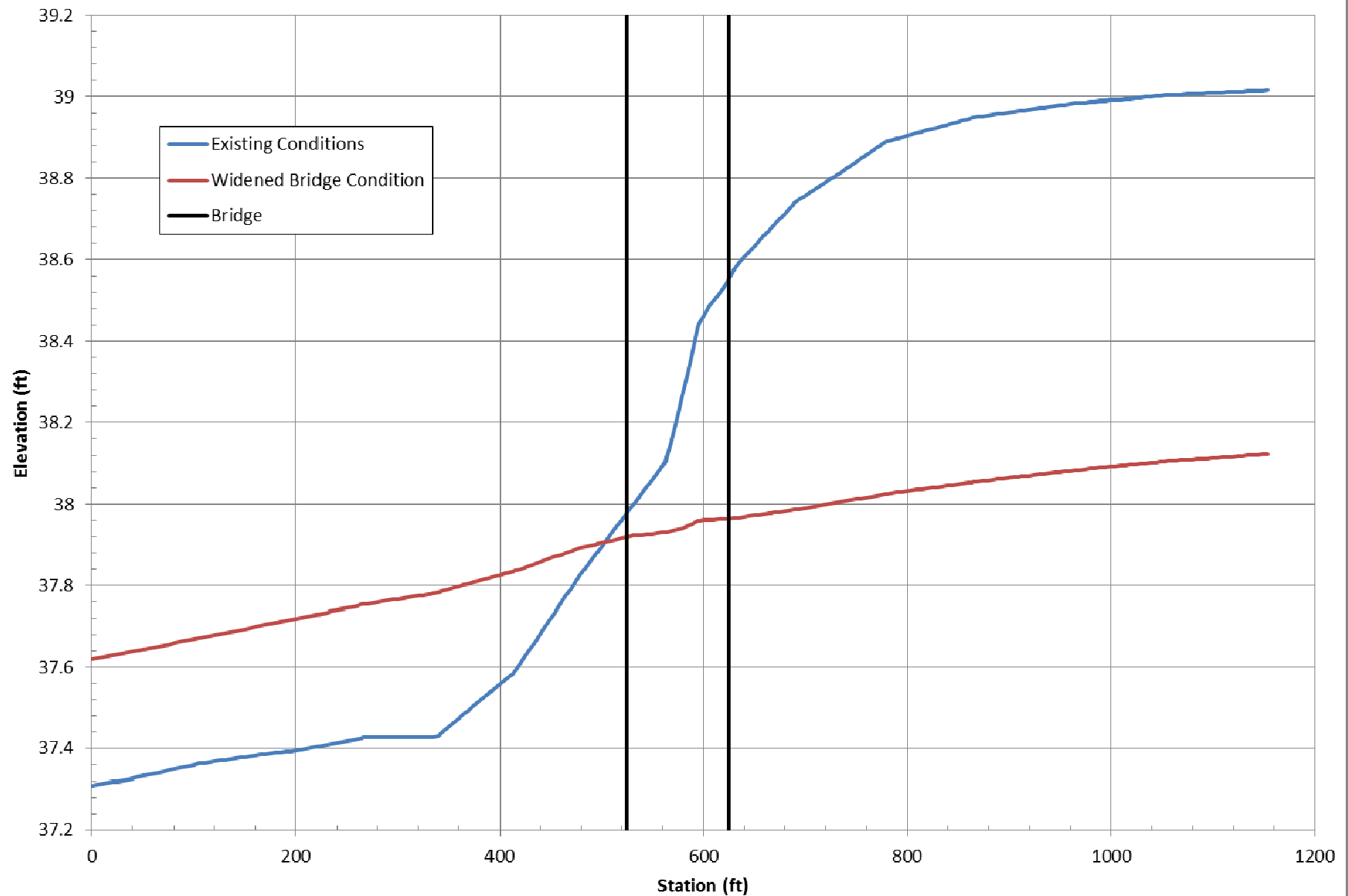


Task 2 – Hydraulic Modeling and Analysis

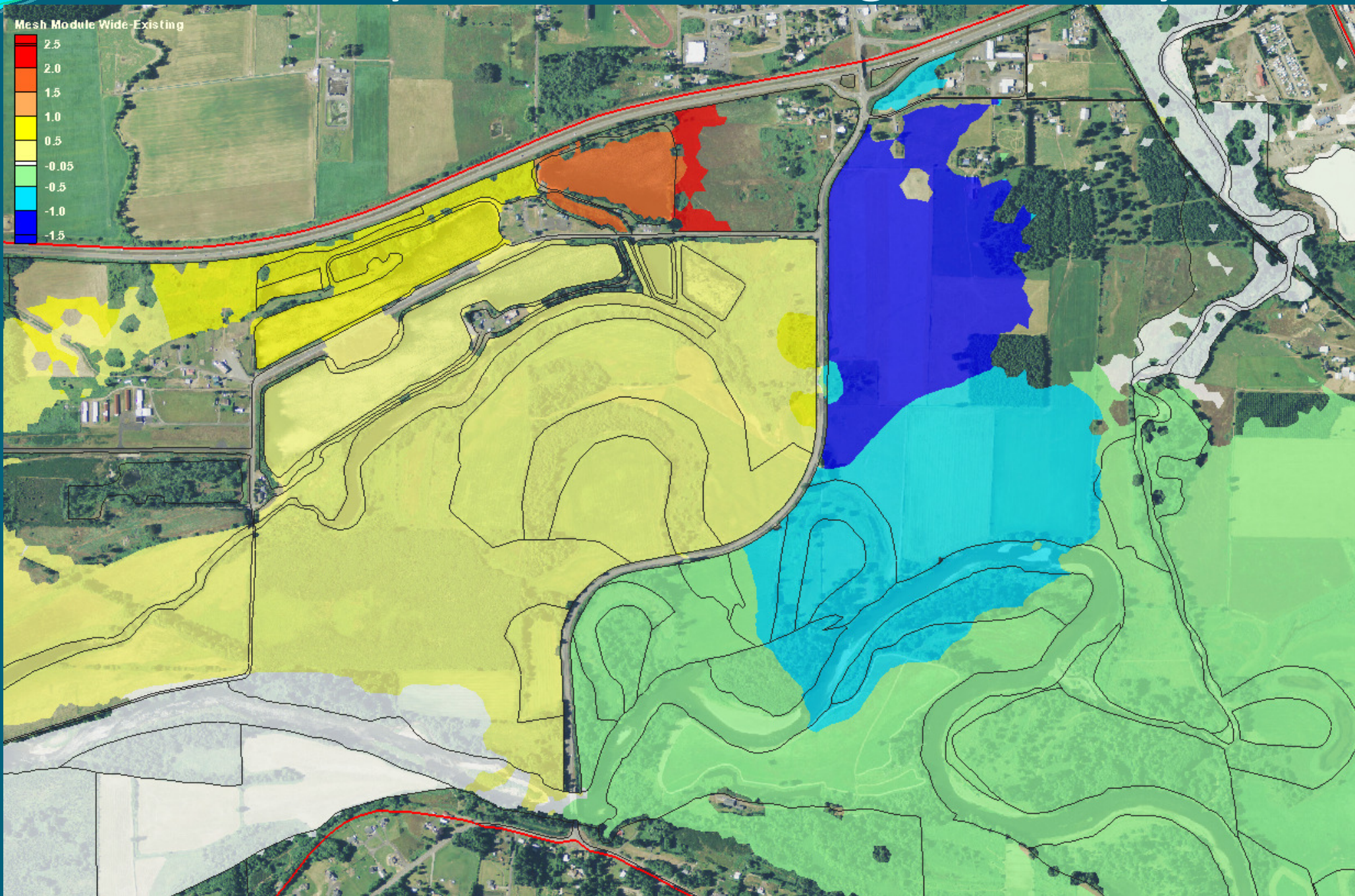


Task 2 – Hydraulic Modeling and Analysis

WSE Profiles Through Wakefield Road Bridge



Task 2 – Hydraulic Modeling and Analysis



Task 2 – Hydraulic Modeling and Analysis

- Calibration Summary

Survey Data		
Flow (cfs)	Average Error	RMSE
4,150	-0.18	0.58
5,150	-0.03	0.40
12,300	0.48	0.59

Other Calibration Points				
Description of Point	Flow (cfs)	Observed WSE (ft)	Simulated WSE (ft)	Error (ft)
Porter Gage	4,150	36.4	36.10	-0.3
	5,150	37.5	37.3	-0.2
	12,300	43	44.1	1.1
	86,500	53.2	53.3	0.1
54 Dunlap Road	86,500	42.7	42.1	-0.6
Power Pole	86,500	43.5	41.5	-2
Wakefield Road	86,500	38.2	38.23	0.03

Task 2 – Hydraulic Modeling and Analysis

- Review Floodplain Mapping using SMS

Scope of Work

(Design of Wakefield Road Bridge)

Task 2 –Complete Hydraulic Analysis

Task 3 –Engineering Design and PS&E Documents

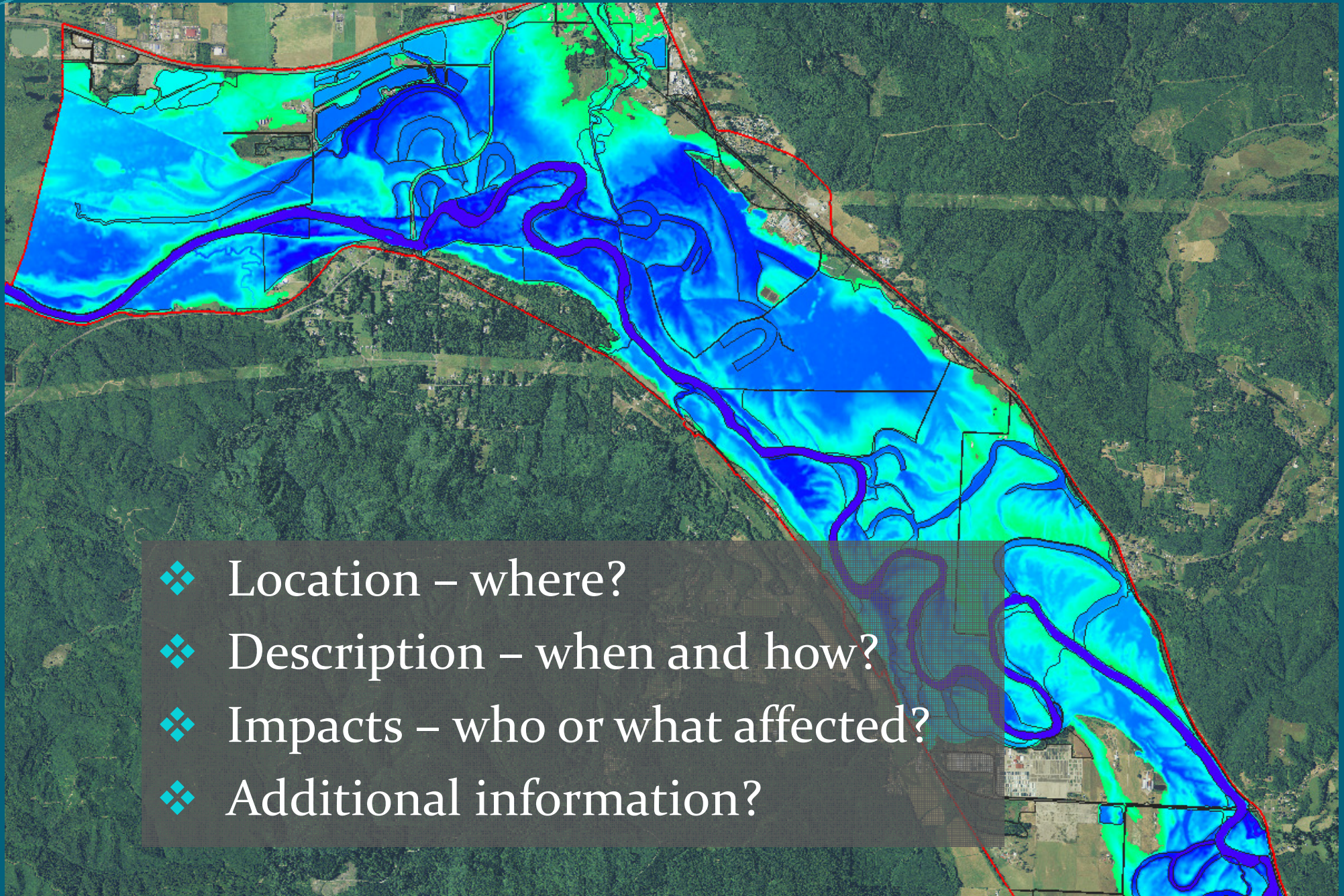
Task 4 – Geotechnical Engineering Services

Task 5 – Critical Areas Review / Permitting Strategy

Task 6 –Development and Evaluation of Additional Flood Mitigation Alternatives for Porter to Elma Reach

- ❖ Understand Baseline Flooding Issues
- ❖ Develop List of Potential Alternatives
- ❖ Develop Criteria for Evaluating Alternatives
- ❖ Preliminary Evaluation of Alternatives
- ❖ Alternatives Review Meeting
- ❖ Finalize Evaluation of Alternatives
- ❖ Reporting

Task 6 – Understand Baseline Flooding Issues



- ❖ Location – where?
- ❖ Description – when and how?
- ❖ Impacts – who or what affected?
- ❖ Additional information?

Task 6 – Potential Flood Mitigation Alternatives

- ❖ Location
- ❖ Description
- ❖ Has any work been done already?
- ❖ What flood problem does it address?
- ❖ Additional information?



Questions ?

Larry Karpack
(206) 521-3000
larry@watershedse.com