

FLOOD MITIGATION TASK FORCE

Gravel Extraction Modeling Results and Initial Survey Results

07/15/2020



GRAVEL EXTRACTION MODELING RESULTS



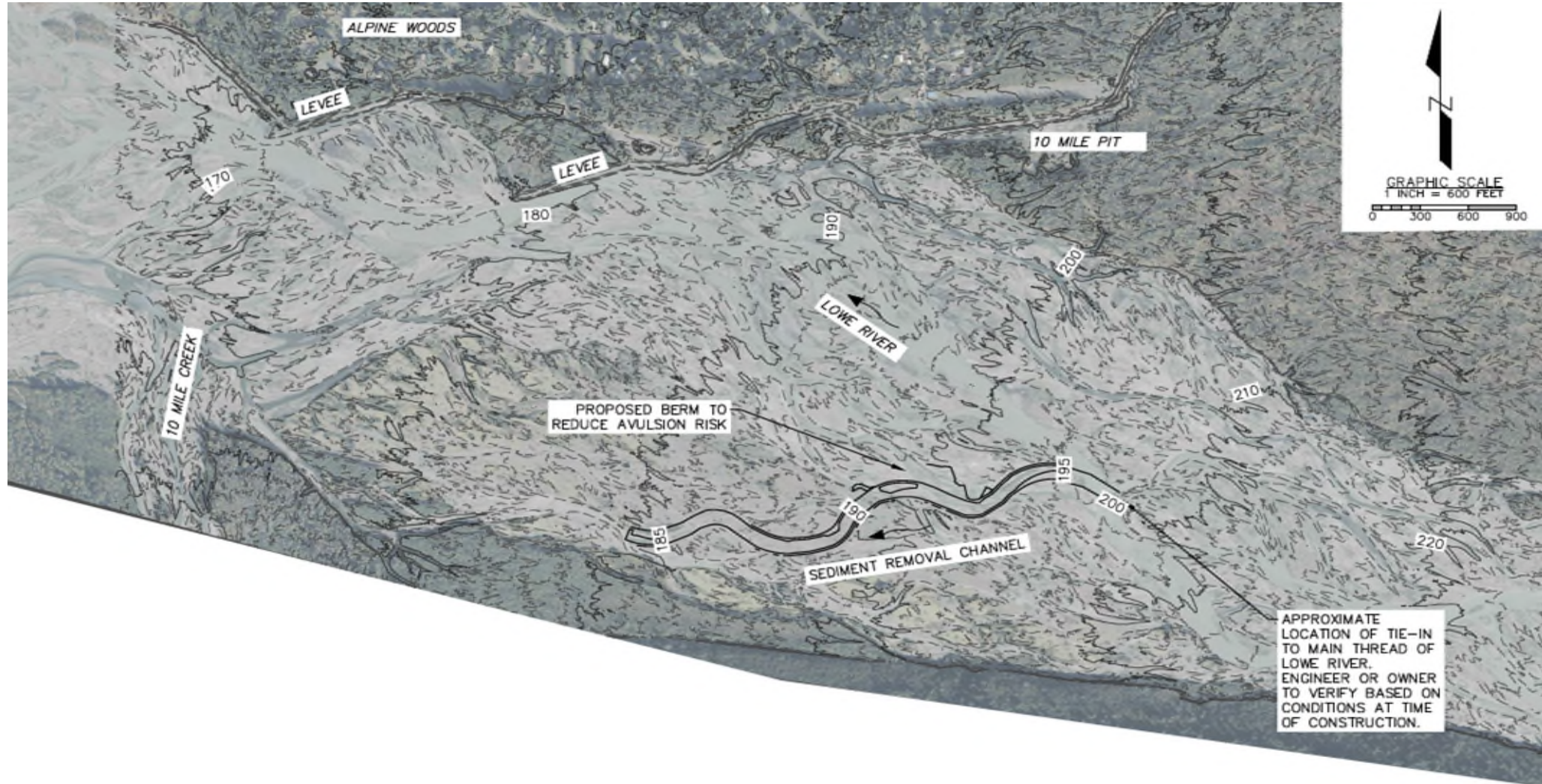
LOWE RIVER GRAVEL EXTRACTION

- What is the gravel extraction?
 - Removal of gravel from the floodplain to draw a portion of the flow away from the effected area
- What was proposed?
 - 3500 ft channel
 - Estimated volume of material removed: 100,000 CY
 - If placed on Valdez High School football field, the pile of gravel would be approx. 38 ft high
- What was modeled?
 - The existing flow conditions in the Lowe River and two concept channels in different locations
- What will I present today?
 - **Changes** in water surface elevation – i.e. How the concepts increase or decrease water level within the floodplain

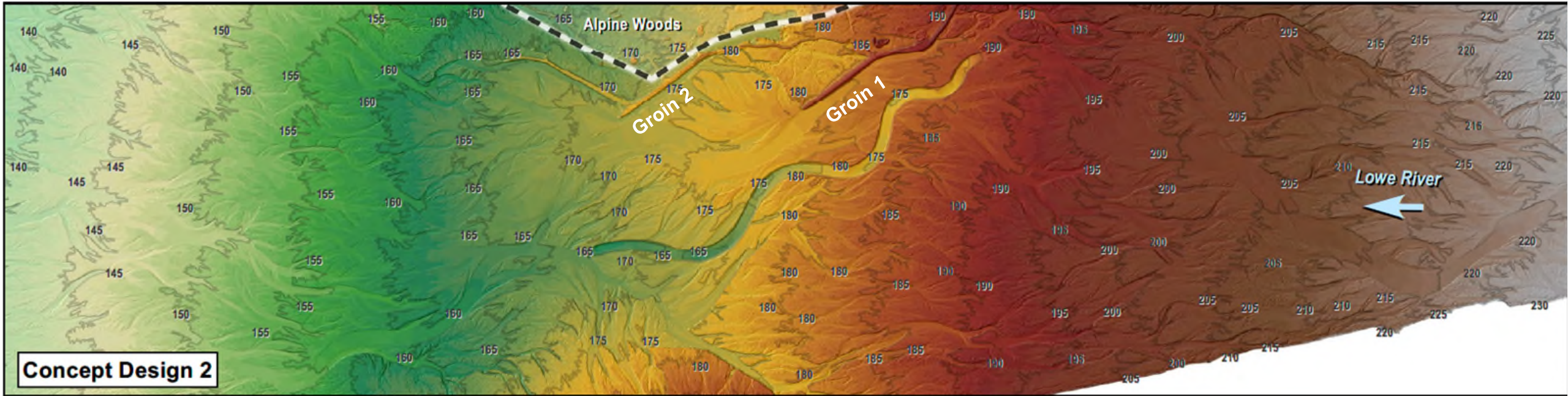
CHANNEL CONCEPT DESIGN

- Concept Design 1
 - Optimal plan for reducing the water surface elevation at the dikes
 - Designed to pull flow away from the (river) right side of the floodplain
 - Design based on regime analysis using the 2019 topographical survey data
- Concept Design 2
 - Based on FMT comments
 - The original concept was a straight, deep channel in the center of the floodplain
 - NHC didn't model a straight channel as it would not be stable
 - A stable channel was modeled in the center of the floodplain, making it a more realistic comparison to Concept Design 1

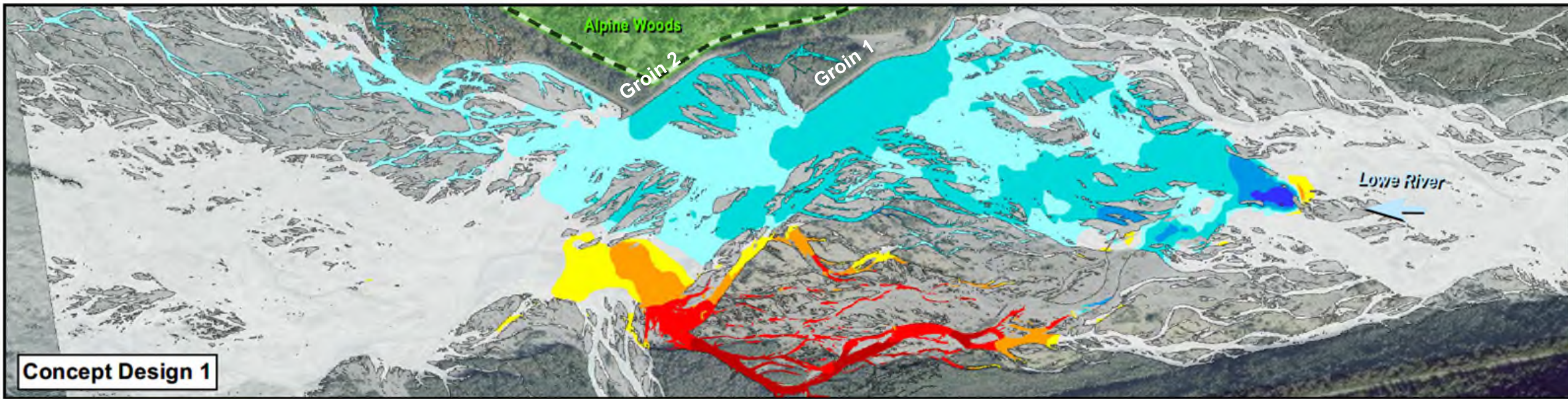
CONCEPT DESIGN 1: LOCATION



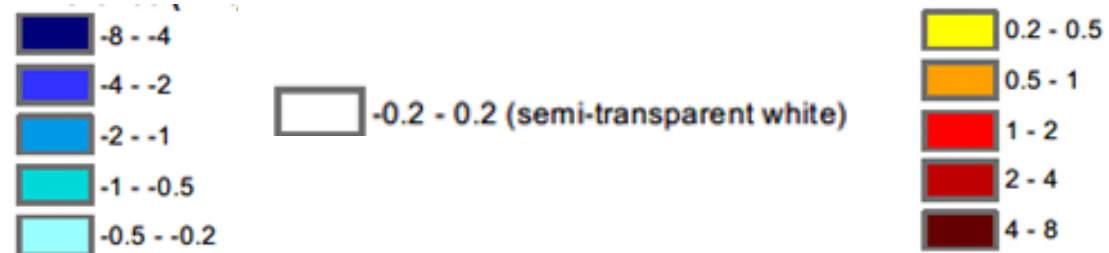
CONCEPT DESIGN 2: LOCATION



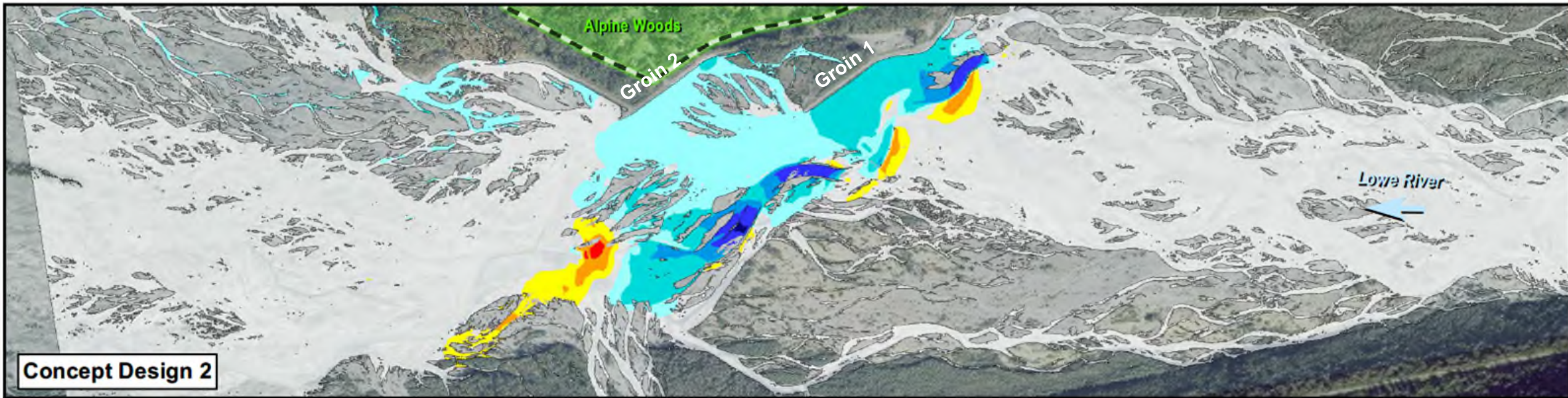
CONCEPT DESIGN 1: DAILY FLOW (Q_2)



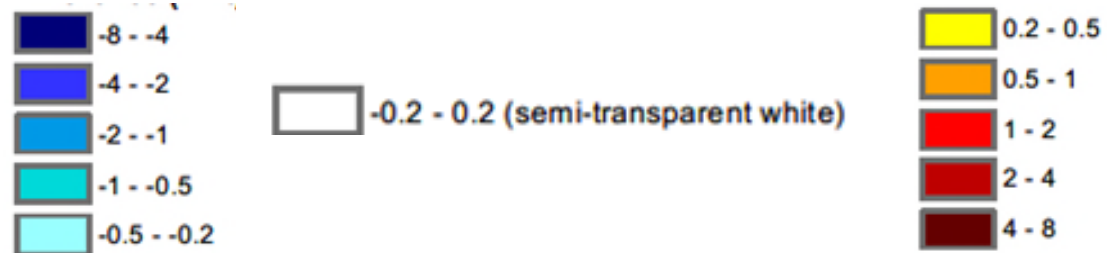
Water Surface Elevation Difference (feet)



CONCEPT DESIGN 2: DAILY FLOW (Q₂)



Water Surface Elevation Difference (feet)



COMPARISON OF CHANNELS FOR DAILY FLOW (Q_2)

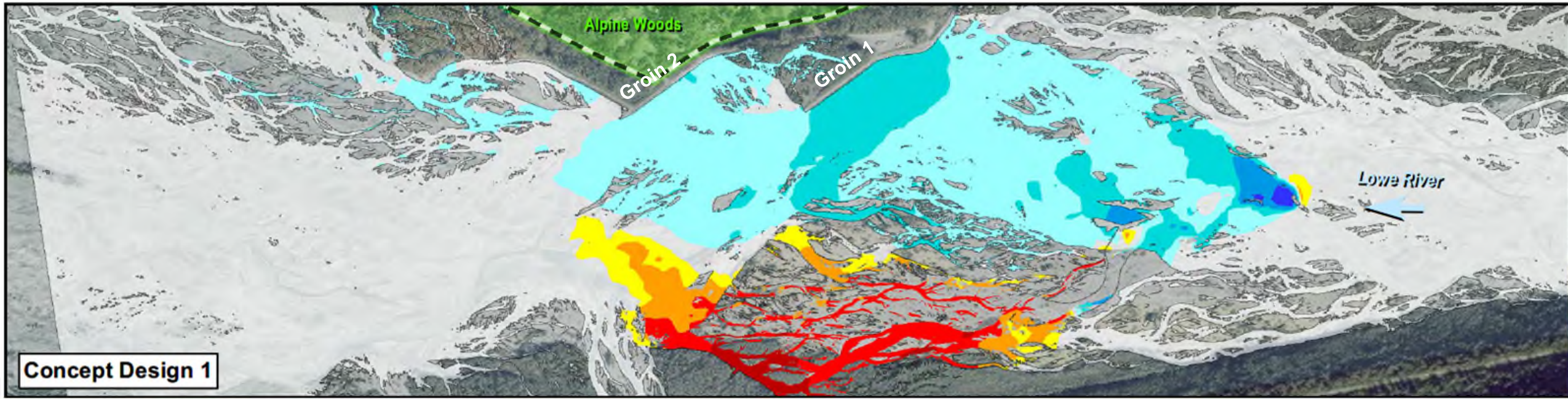
Comparison of Flow Transfer for Q_2

Location	Concept Design 1	Concept Design 2
Upstream of Groin 1	40%	0%
Between Groin 1 & Groin 2	24%	17%

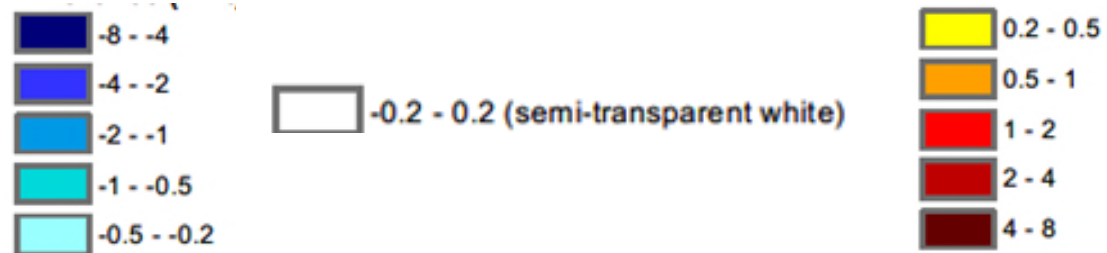
Note:

- Approximate reduction in water surface elevation at the dikes is 0.5ft to 1ft for Design Concept 1
- Concept Design 2 does not have the same ability to reduce water surface elevation at Groin 2 and Groin 4
- Concept 1 directs more of the flow towards the left side of the floodplain

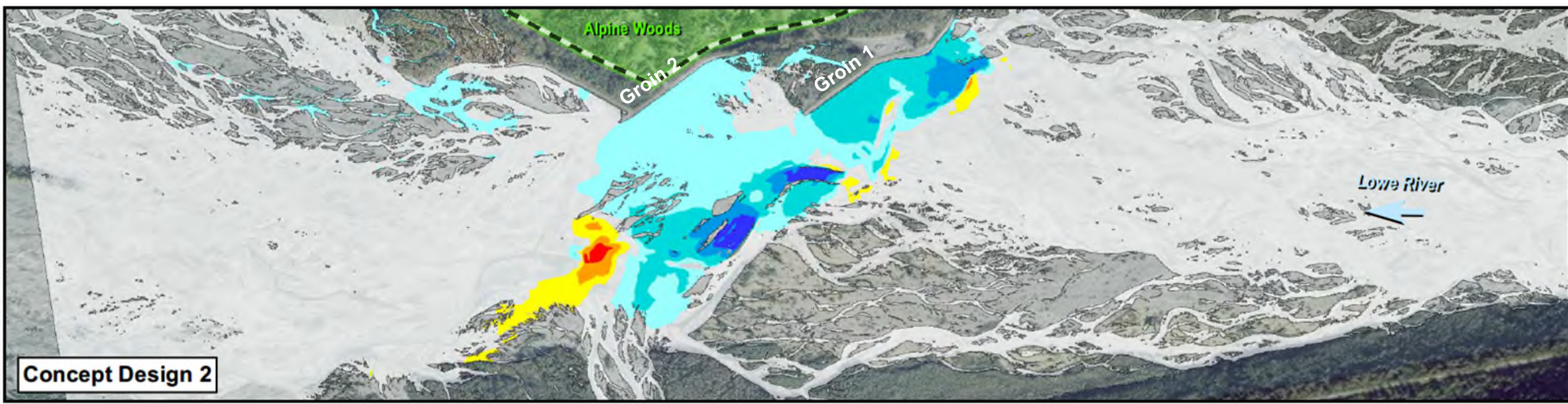
CONCEPT DESIGN 1: 10% EXCEEDANCE STORM (Q_{10})



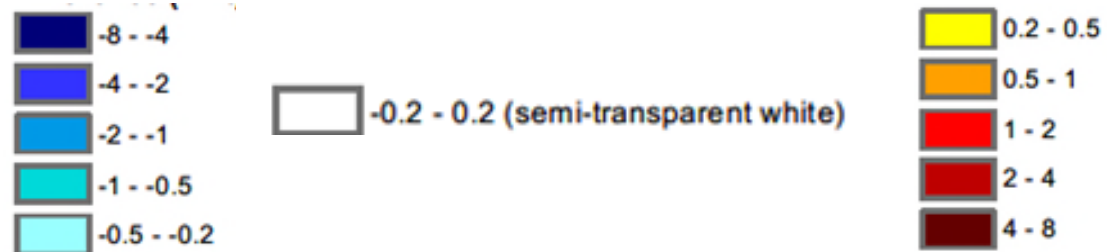
Water Surface Elevation Difference (feet)



CONCEPT DESIGN 2: 10% EXCEEDANCE STORM (Q₁₀)



Water Surface Elevation Difference (feet)



COMPARISON OF CHANNELS FOR Q_{10}

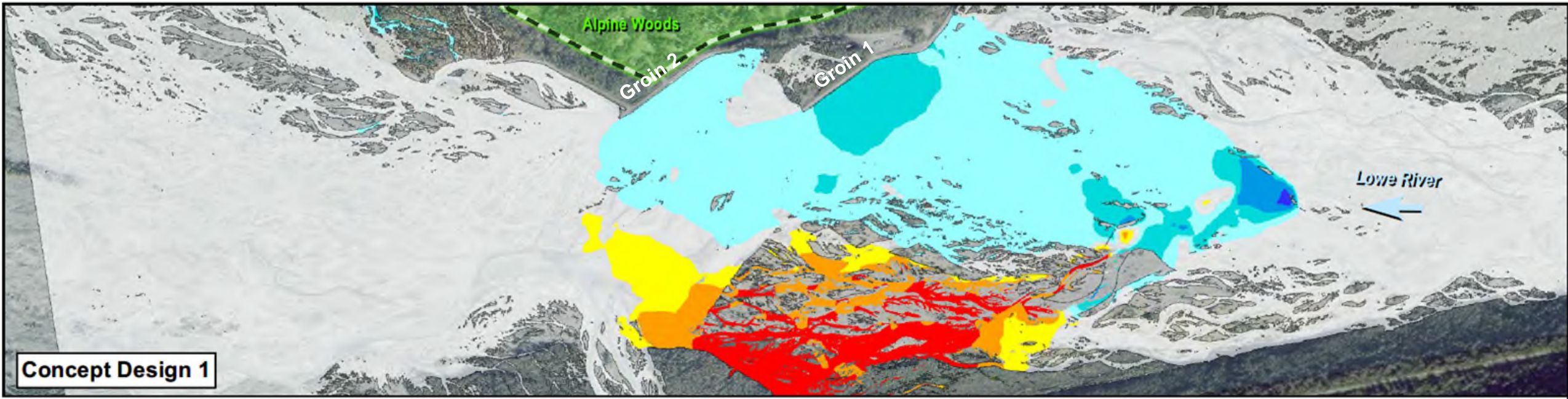
Comparison of Flow Transfer for Q_{10}

Location	Concept Design 1	Concept Design 2
Upstream of Groin 1	28%	0%
Between Groin 1 & Groin 2	16%	14%

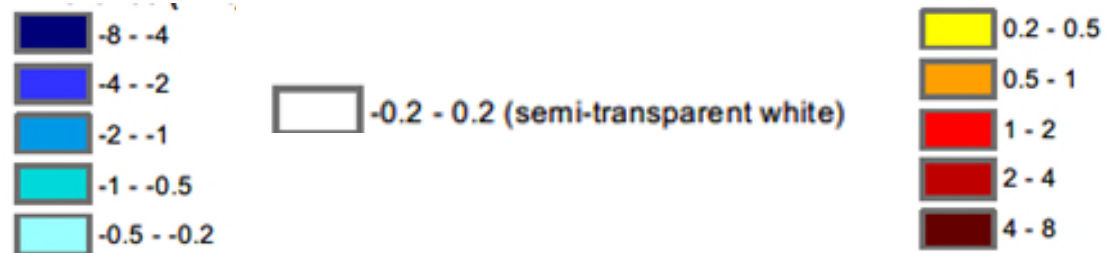
Note:

- Approximate reduction in water surface elevation at the dikes for Concept Design 1 is:
 - 0.5ft to 1ft for Groin 1
 - 0.2ft to 0.5ft for Groin 2
- Concept Design 2 reduces the water surface more in the center of the floodplain than at the dikes
- Concept Design 1 reduces the water surface elevation over a greater area, downstream of Groin 4

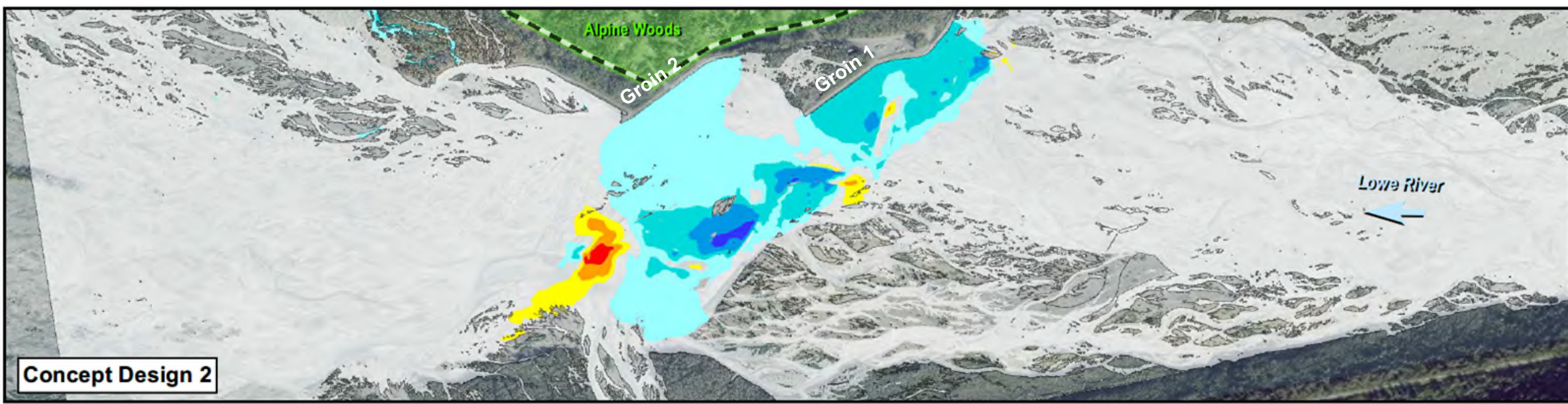
CONCEPT DESIGN 1: 1% EXCEEDANCE STORM (Q_{100})



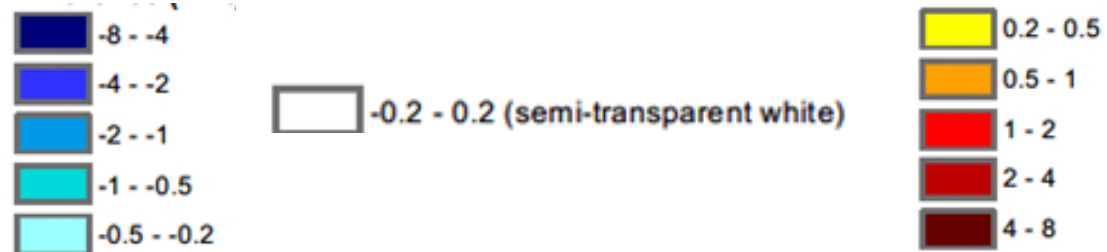
Water Surface Elevation Difference (feet)



CONCEPT DESIGN 2: 1% EXCEEDANCE STORM (Q_{100})



Water Surface Elevation Difference (feet)



COMPARISON OF CHANNELS FOR Q_{100}

Comparison of Flow Transfer for Q_{100}

Location	Concept Design 1	Concept Design 2
Upstream of Groin 1	20%	0%
Between Groin 1 & Groin 2	11%	11%

Note:

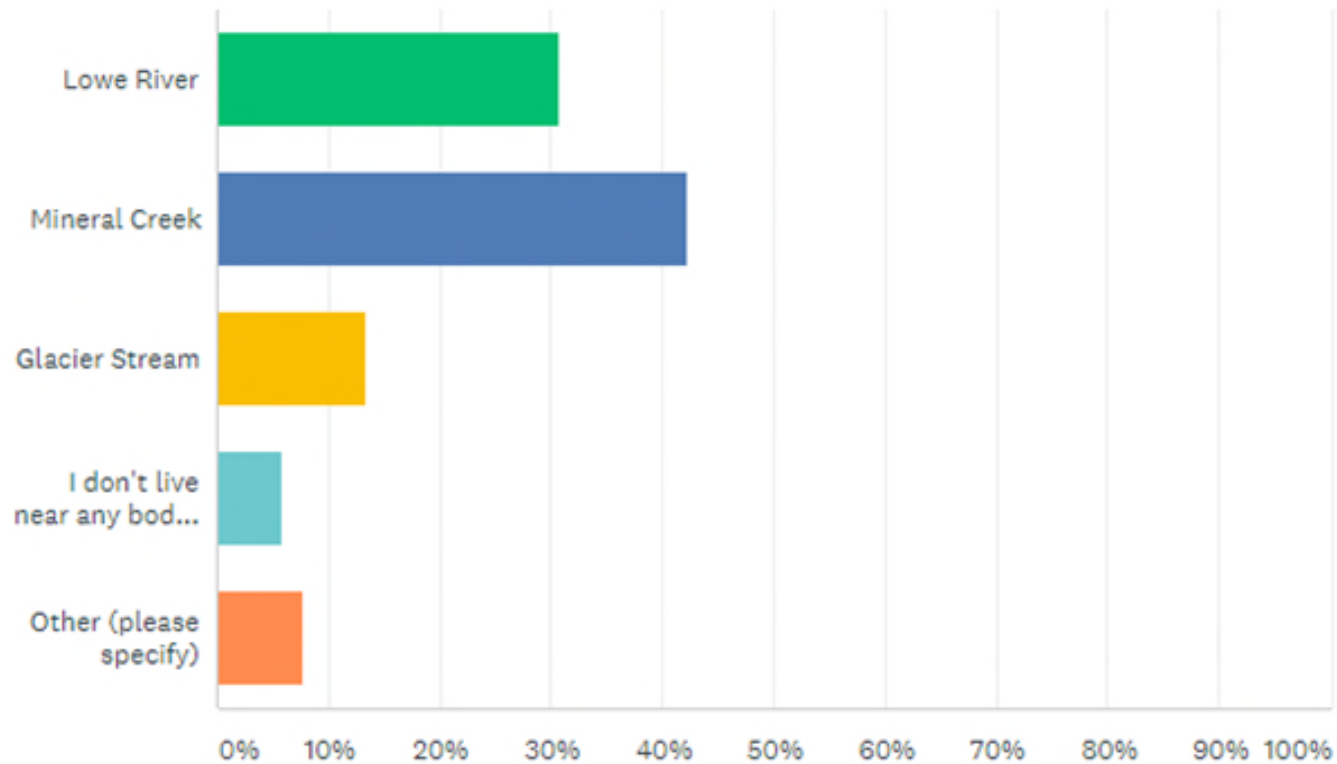
- Approximate reduction in water surface elevation at the dikes for both Groin 1 and Groin 2:
 - 0.5ft to 1ft for Groin 1
 - 0.2ft to 0.5ft for Groin 2

INITIAL SURVEY RESULTS

STAKEHOLDER SURVEY – PRELIMINARY RESULTS

NEAR WHICH WATERBODY DO YOU MOST CLOSELY LIVE?

Answered: 52 Skipped: 0



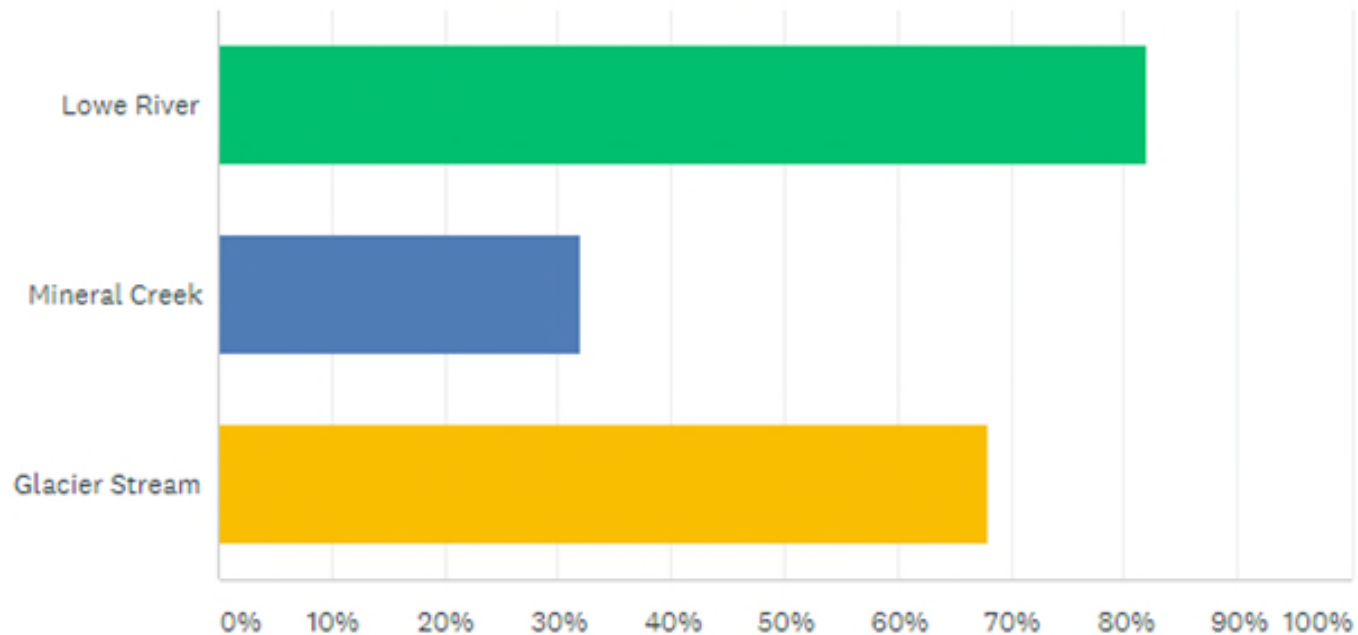
STAKEHOLDER SURVEY – PRELIMINARY RESULTS

DO YOU THINK FLOODING IS A PROBLEM IN VALDEZ?

78% SAID YES.

WHERE IS FLOODING A PROBLEM IN VALDEZ? CHECK ALL THAT APPLY.

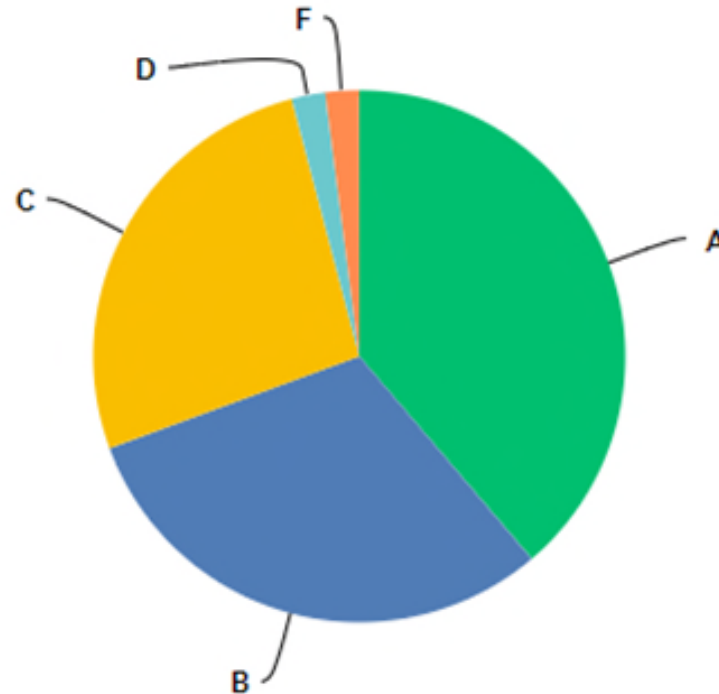
Answered: 50 Skipped: 2



STAKEHOLDER SURVEY – PRELIMINARY RESULTS

DO YOU FEEL FLOOD MITIGATION EFFORTS FOR THE WATERBODY YOU REFERENCED ABOVE ARE SUFFICIENT? PLEASE ASSIGN THE GRADE YOU FEEL REFLECTS THE CITY'S EFFORTS AND EFFECTIVENESS IN MITIGATING FLOODING.

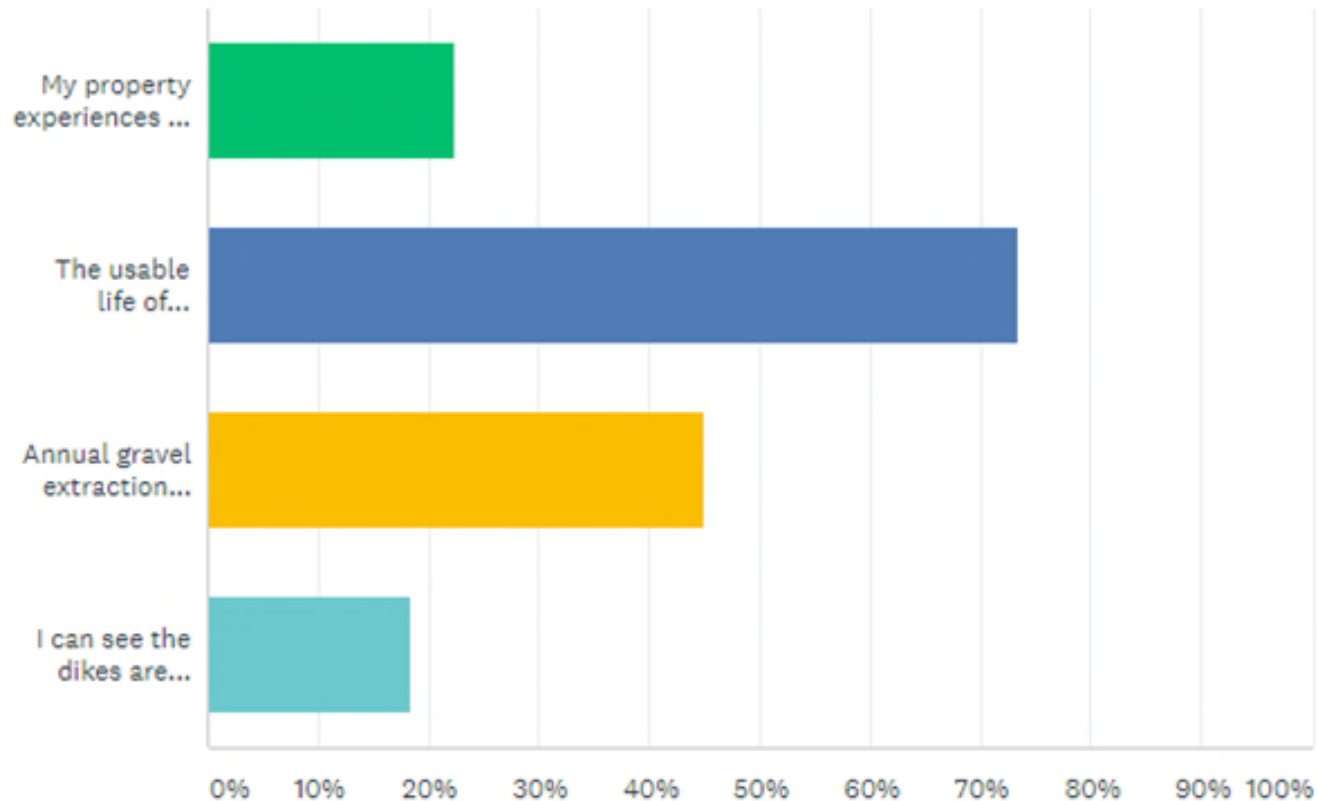
Answered: 49 Skipped: 3



STAKEHOLDER SURVEY – PRELIMINARY RESULTS

WHAT WOULD BE APPROPRIATE MEASURES OF SUCCESSFUL FLOOD MITIGATION EFFORTS? PLEASE CHECK ALL THAT APPLY.

Answered: 49 Skipped: 3



STAKEHOLDER SURVEY – PRELIMINARY RESULTS

Primary Takeaways from the Survey:

- Flooding is perceived as a problem that needs additional correction, particularly within the 10-mile area
- One of the most important considerations in flood mitigation is in efficient management of public funds to get the full usable life out of infrastructure
- The feasibility study coming later this summer will not be impacted by these results; the survey lends support to the current mitigation plan