FIGURES

Figure 1. Head-of-Old River (HOR) Scour Hole Location Map

cbec project No. 21-1024	Created By: cbec

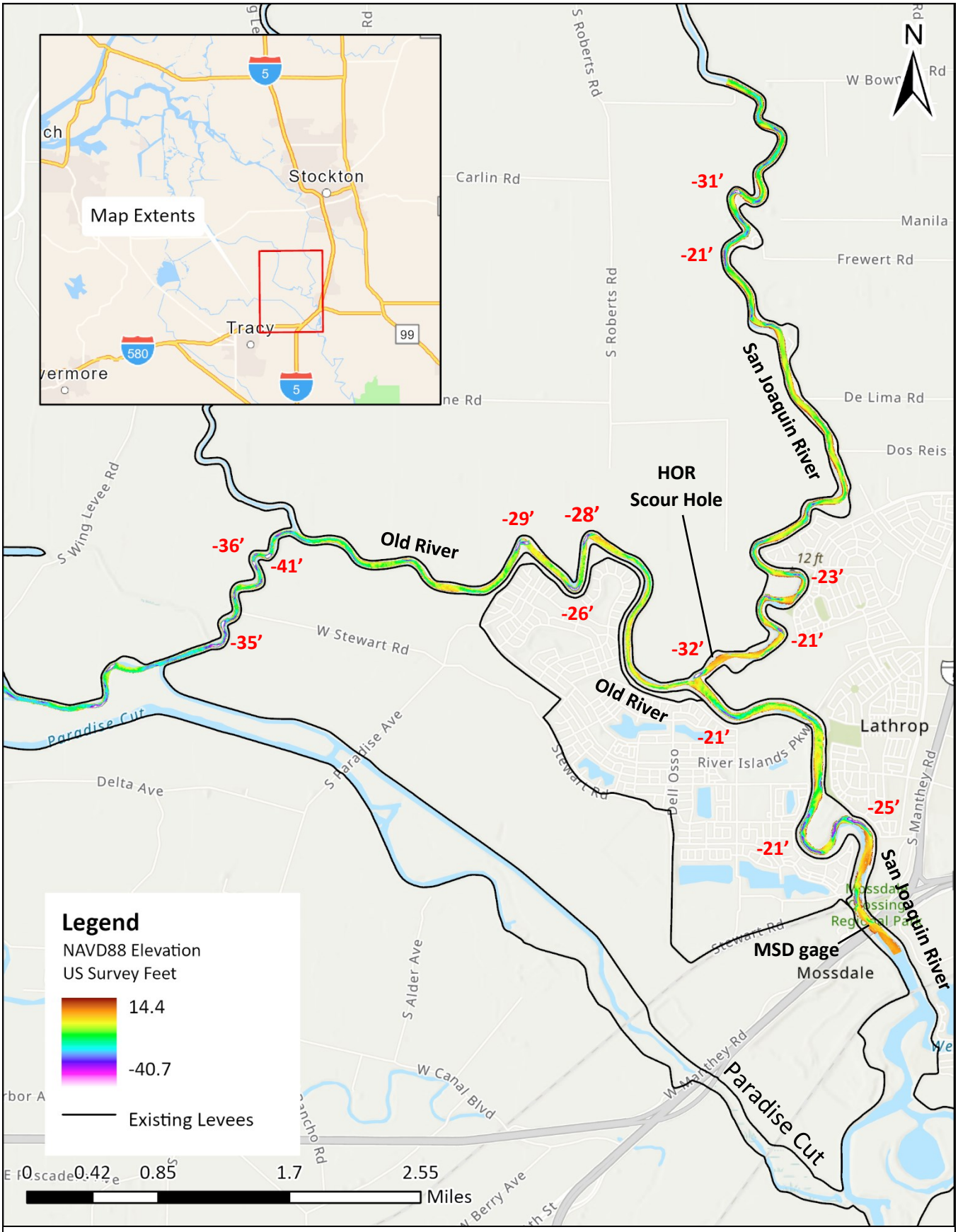

Figure 2. Map and bathymetry in the HOR Scour Hole area. Red numbers denote minimum elevations in the outside of bends in feet NAVD88.

cbec project No. 21-1024	Created By: cbec

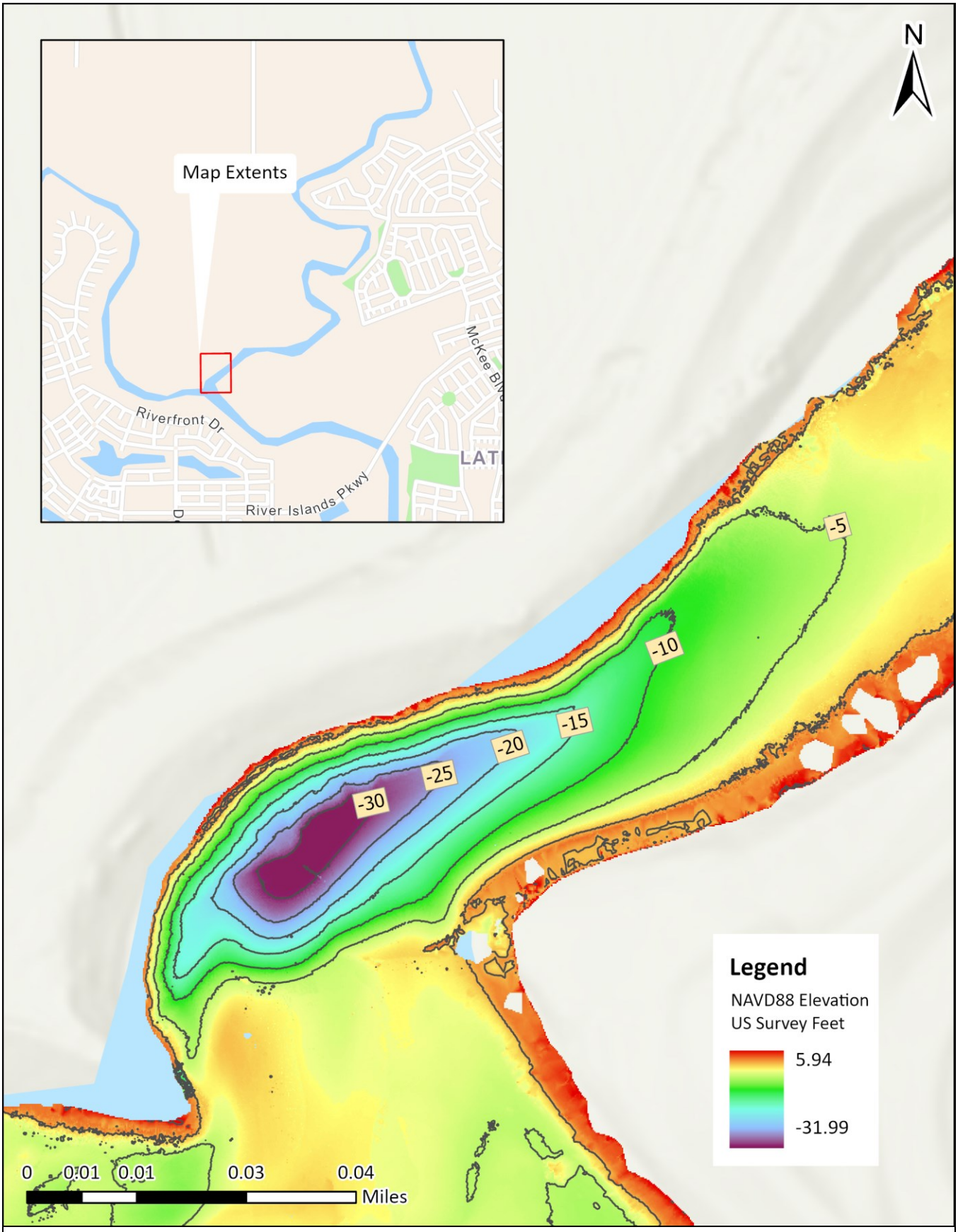

Figure 3. Zoomed-in view of the existing bathymetry of the HOR Scour Hole

cbec project No. 21-1024	Created By: cbec

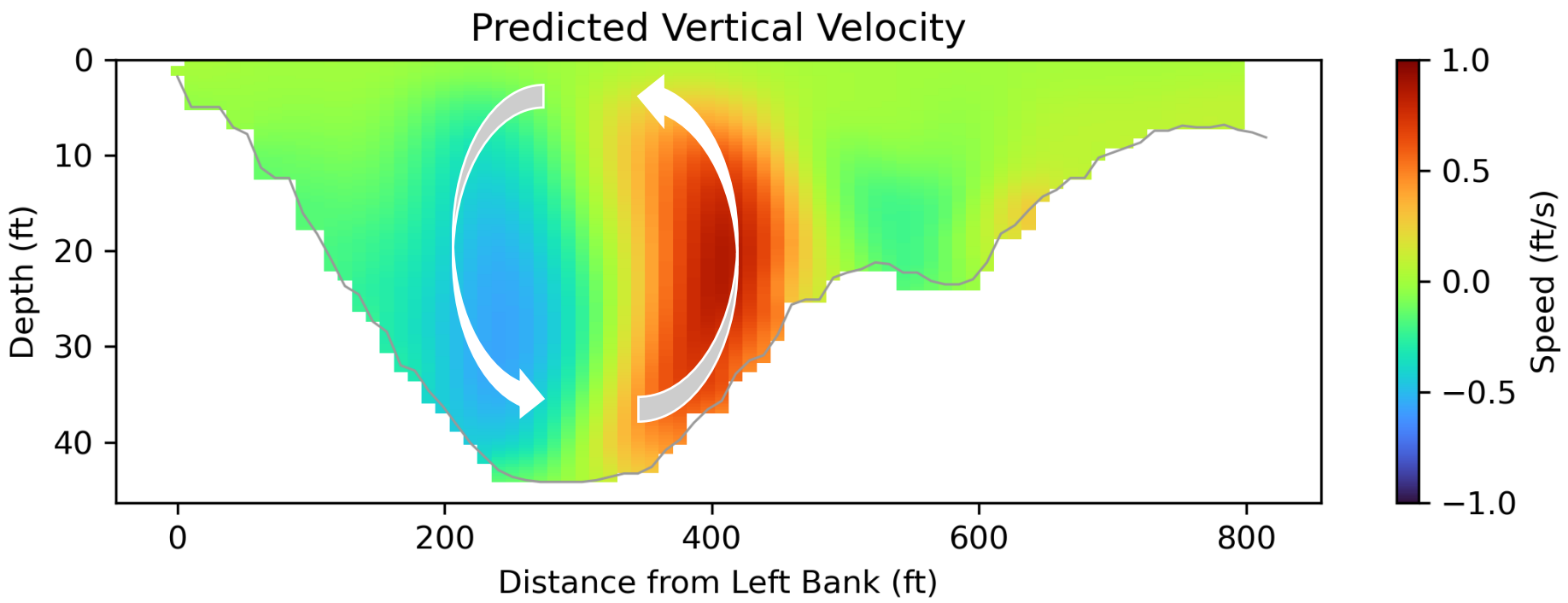

Figure 4. Modeled vertical velocities at a cross-section through the scour hole (looking downstream) illustrating the downwelling (outer bank) and upwelling (inner bank) that constitutes the helical flow structure that develops in the sharp bend.

cbec project No. 21-1024	Created By: RMA

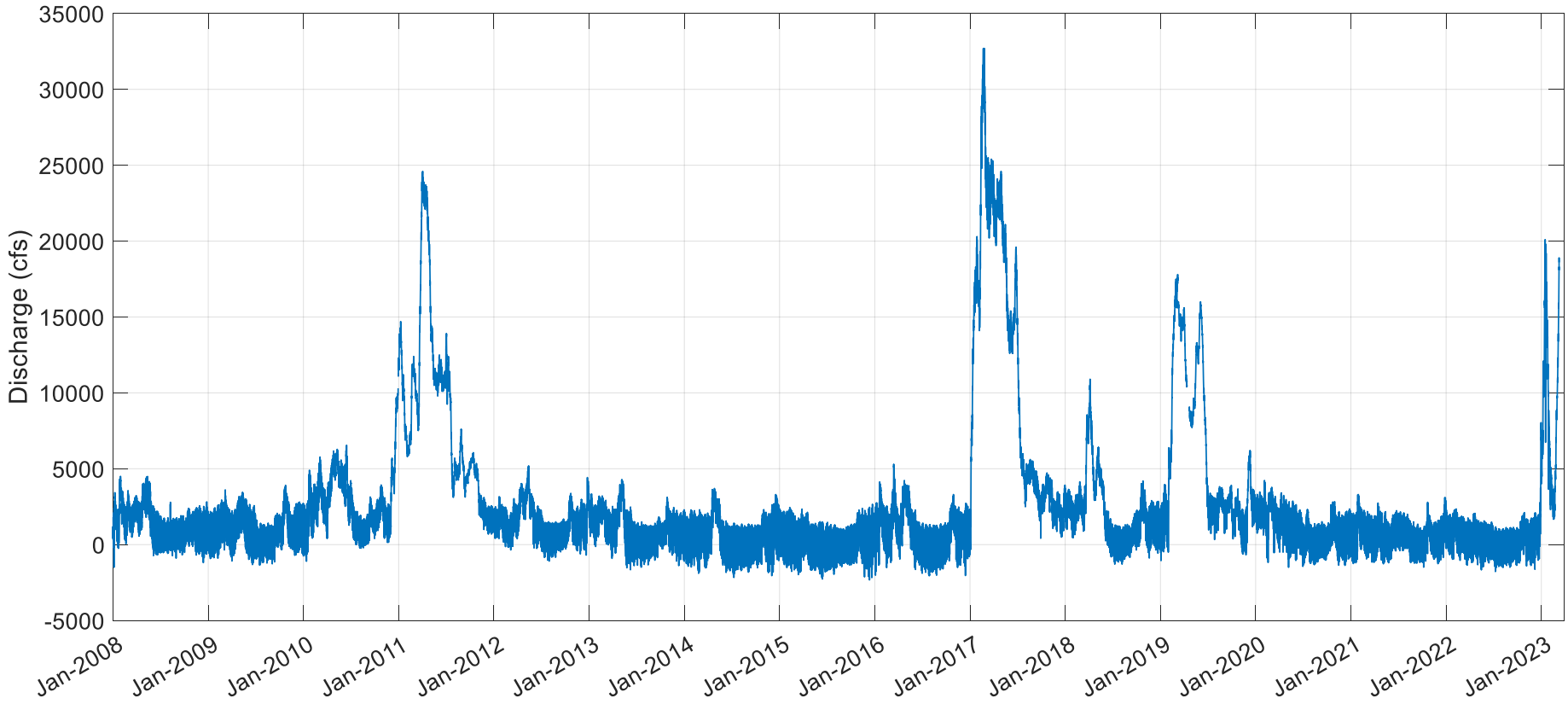

Figure 5. Discharge history at the San Joaquin River at Mossdale Bridge gage, 2008 – 2023

cbec project No. 21-1024	Created By: cbec

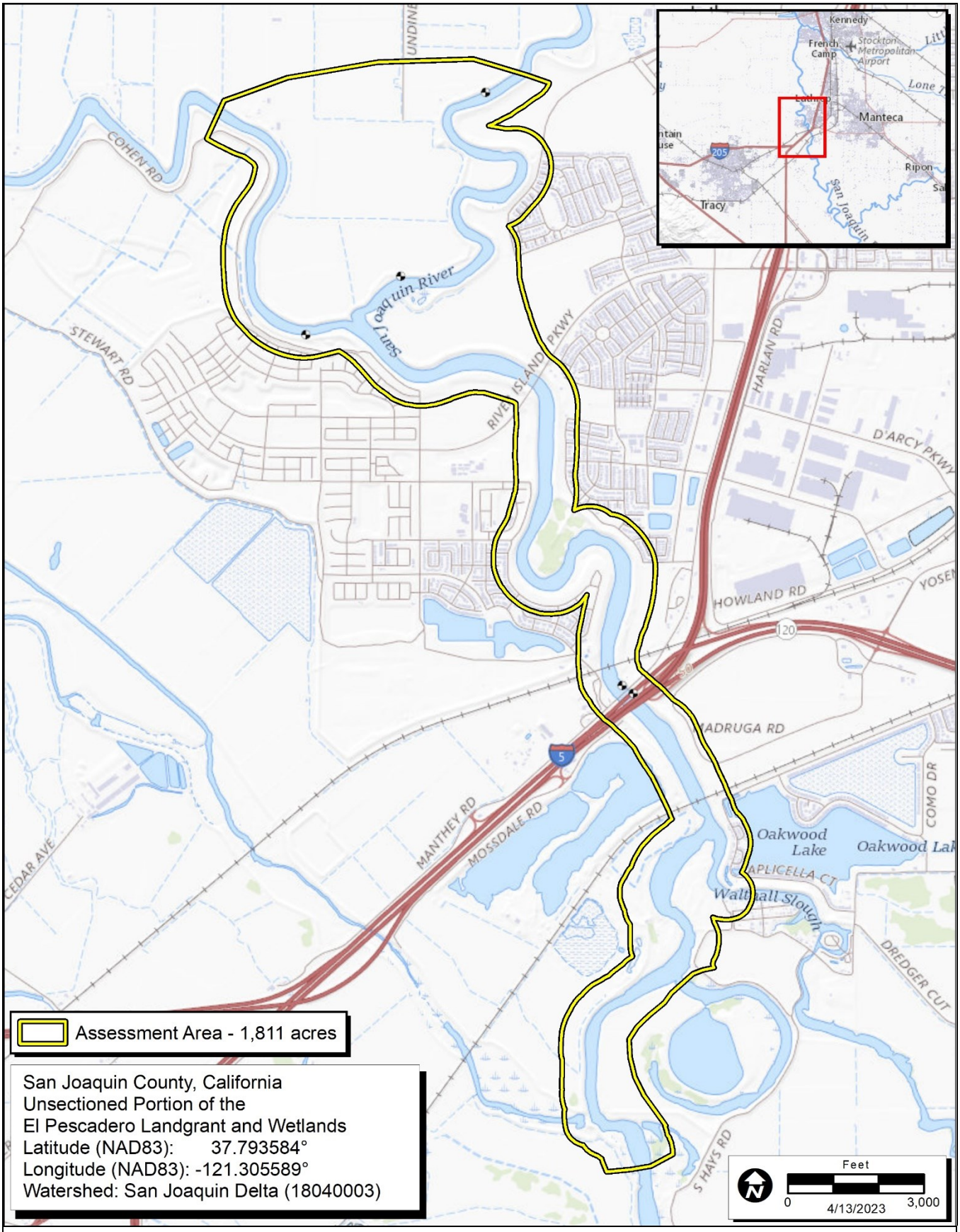

Figure 6. Map of the Biological Resources Study Area

cbec project No. 21-1024	Created By: ECORP

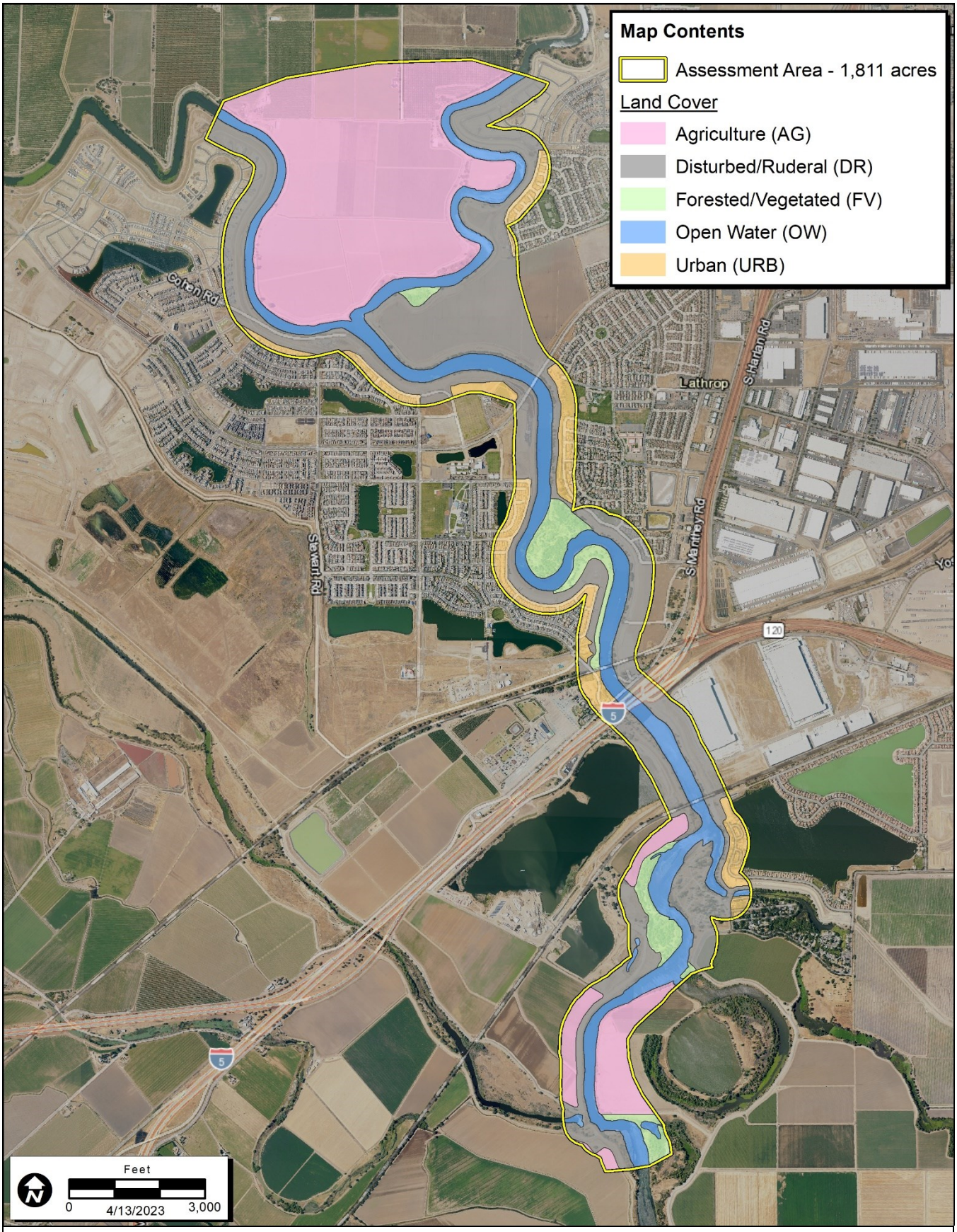

Figure 7. Map of Land Cover in the Biological Resources Study Area

cbec project No. 21-1024	Created By: ECORP

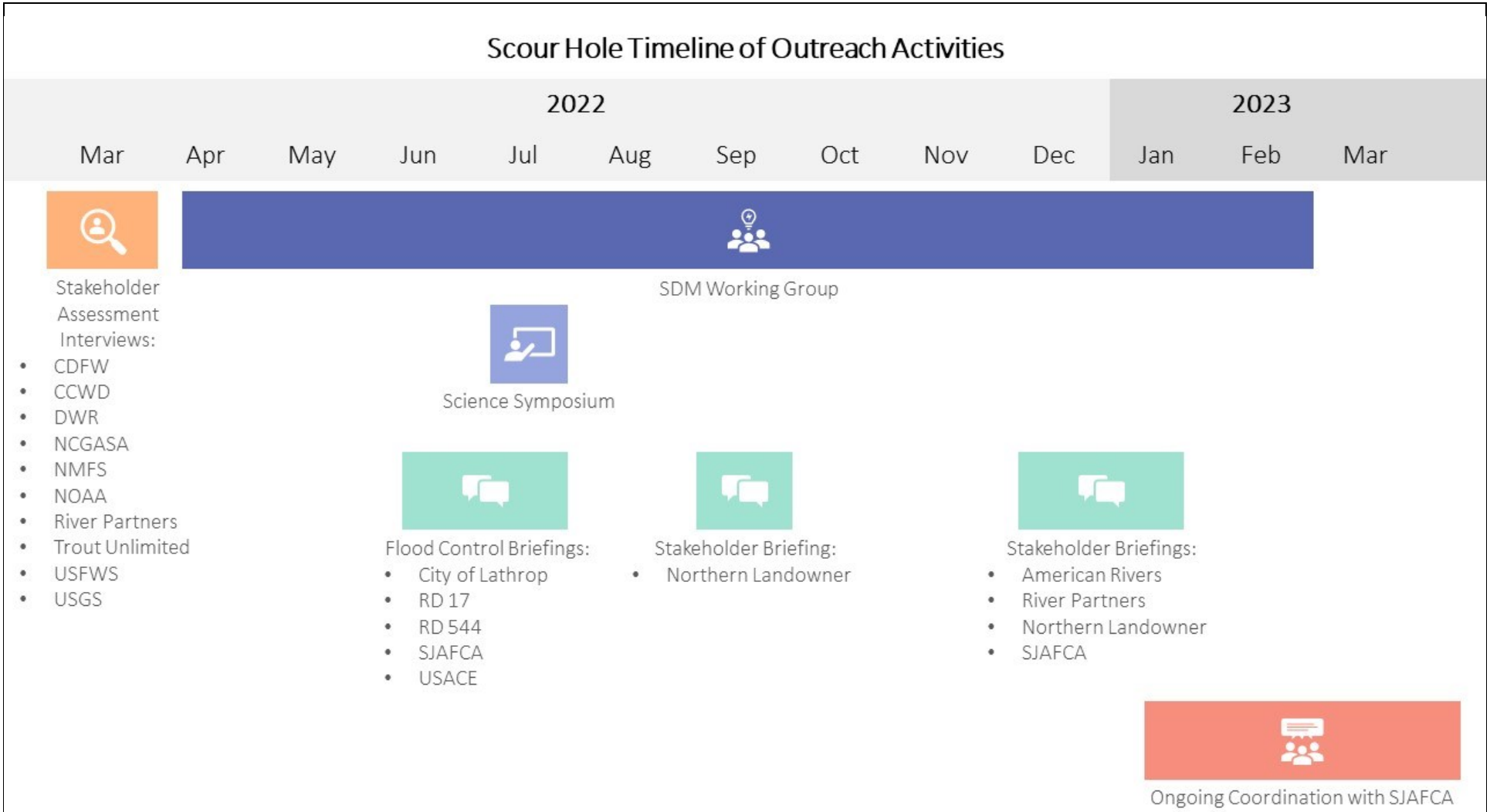

Figure 8. Schedule of Stakeholder Outreach

cbec project No. 21-1024	Created By: Kearns & West	

Figure 9. Concept Diagram for Initial Option 1

cbec project No. 21-1024	Created By: cbec

Figure 10. Concept Diagram for Initial Option 2

cbec project No. 21-1024	Created By: cbec

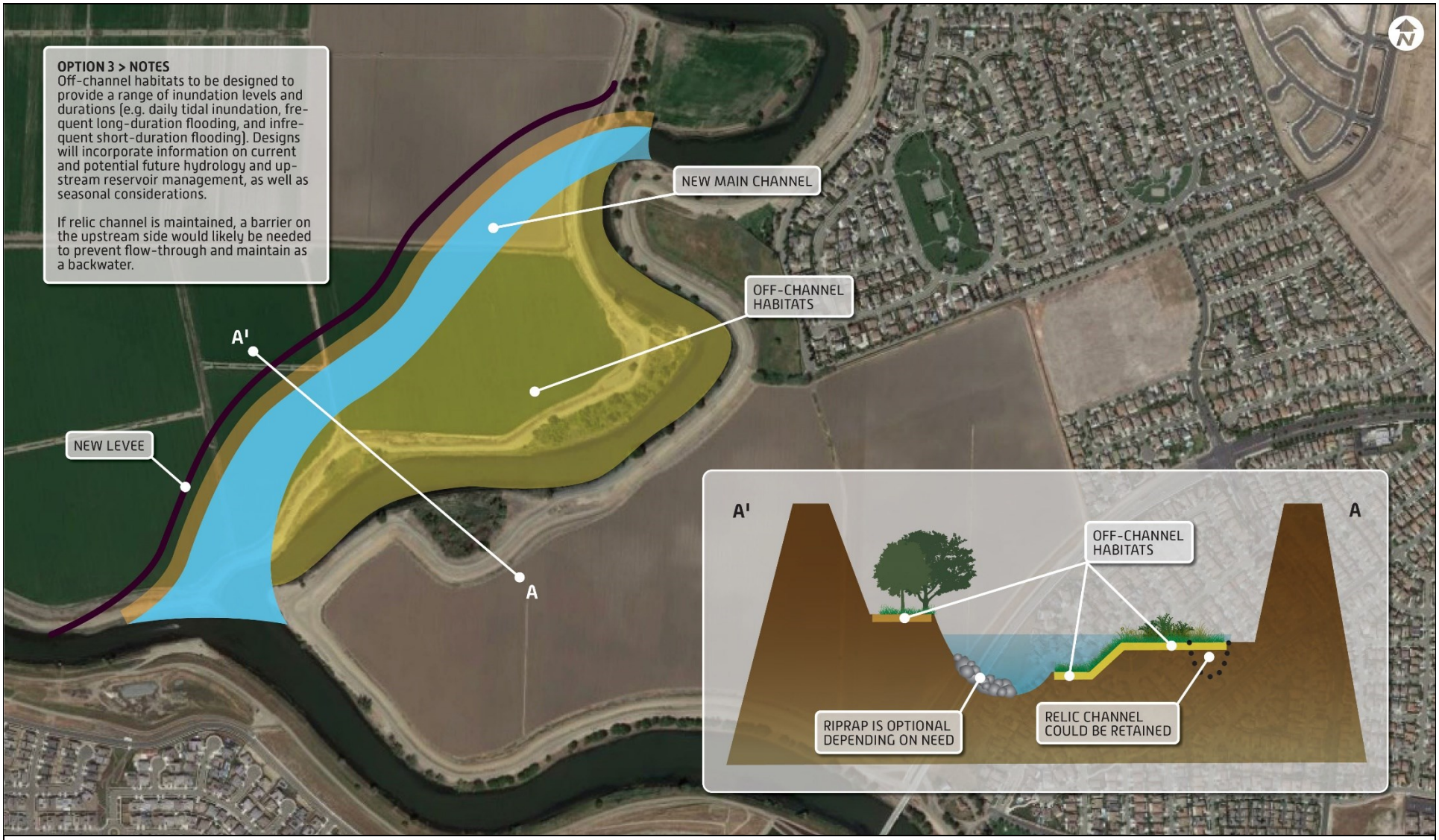

Figure 11. Concept Diagram for Initial Option 3

cbec project No. 21-1024	Created By: cbec

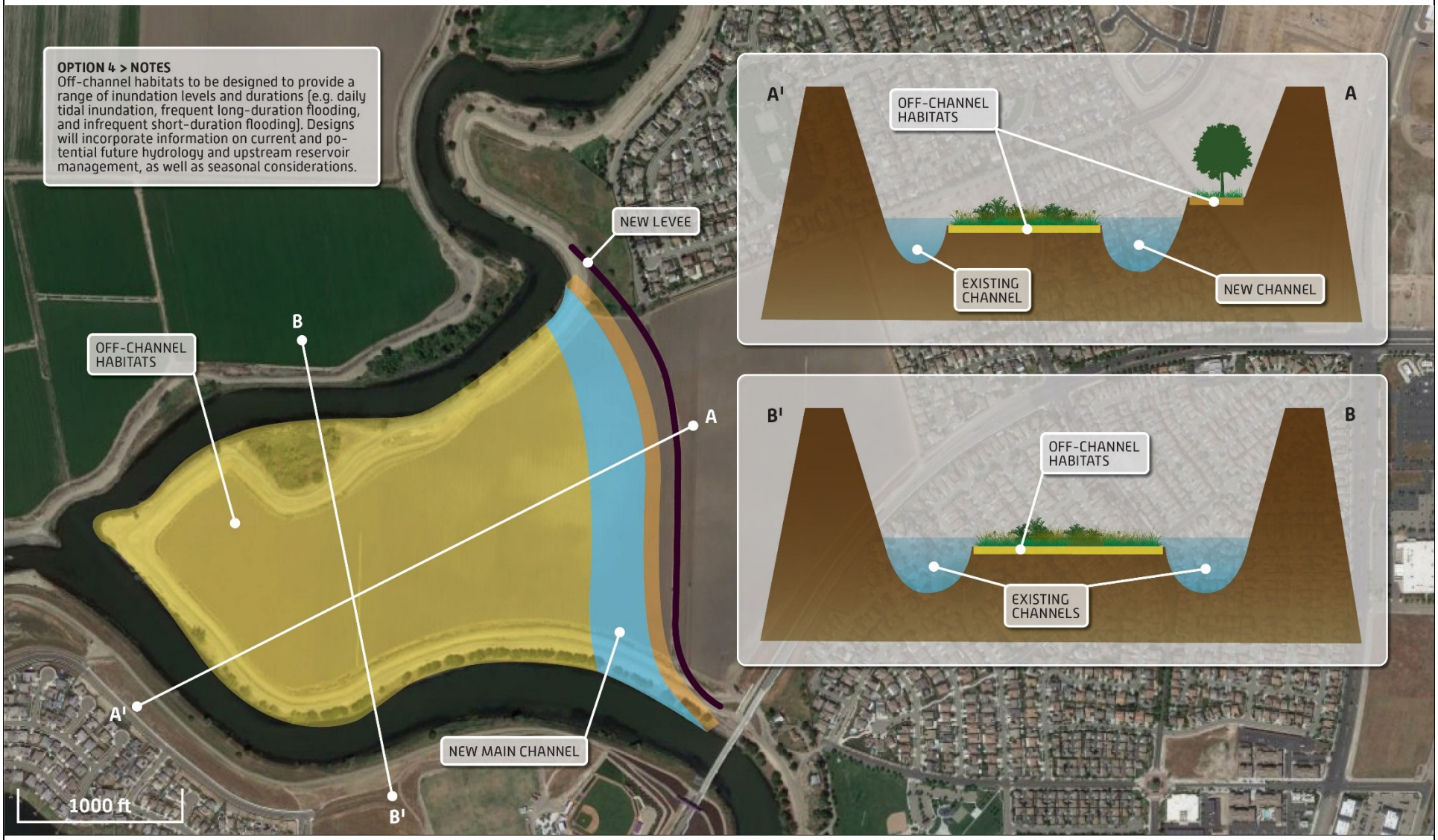

Figure 12. Concept Diagram for Initial Option 4

cbec project No. 21-1024	Created By: cbec

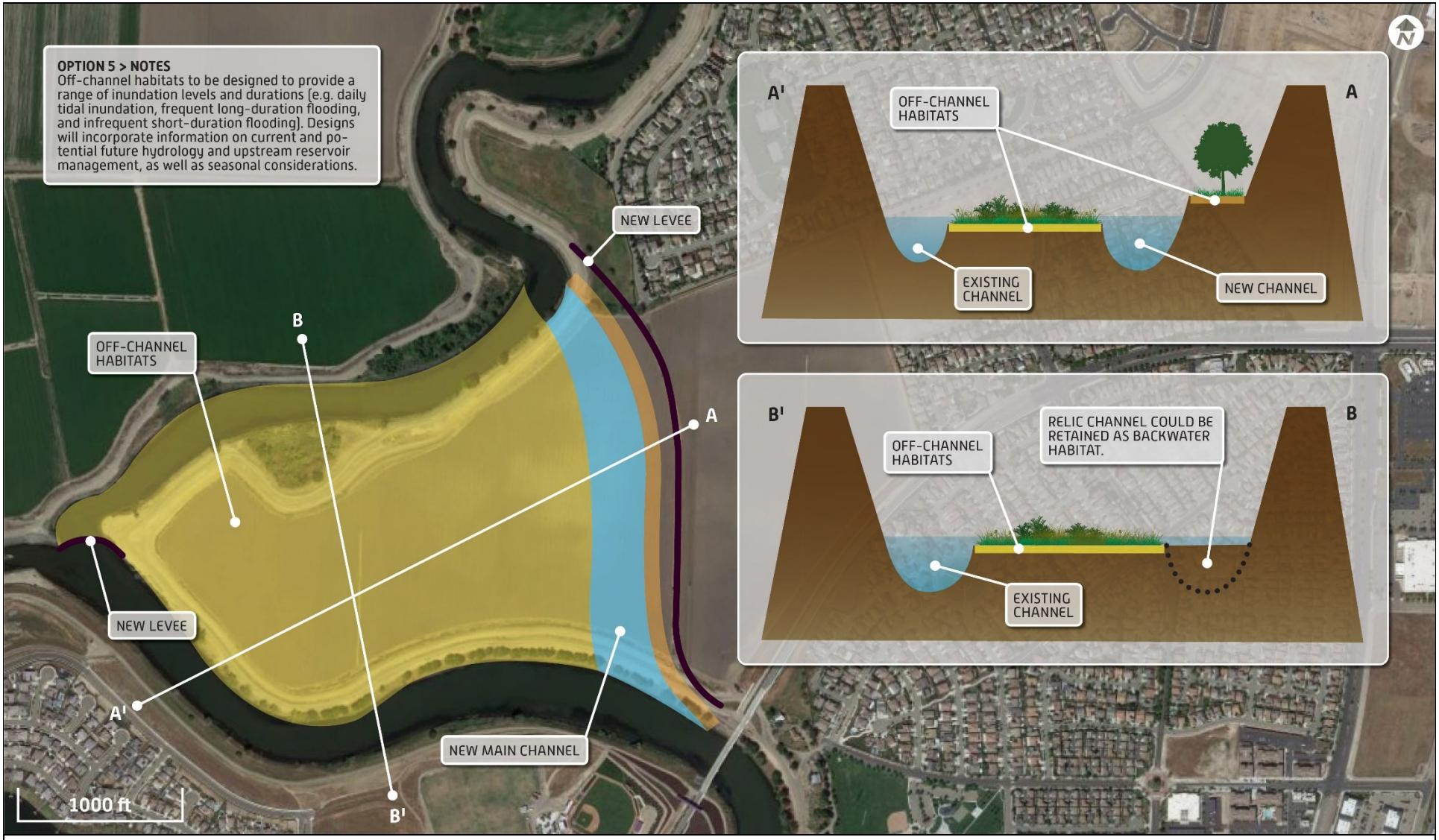

Figure 13. Concept Diagram for Initial Option 5

cbec project No. 21-1024	Created By: cbec

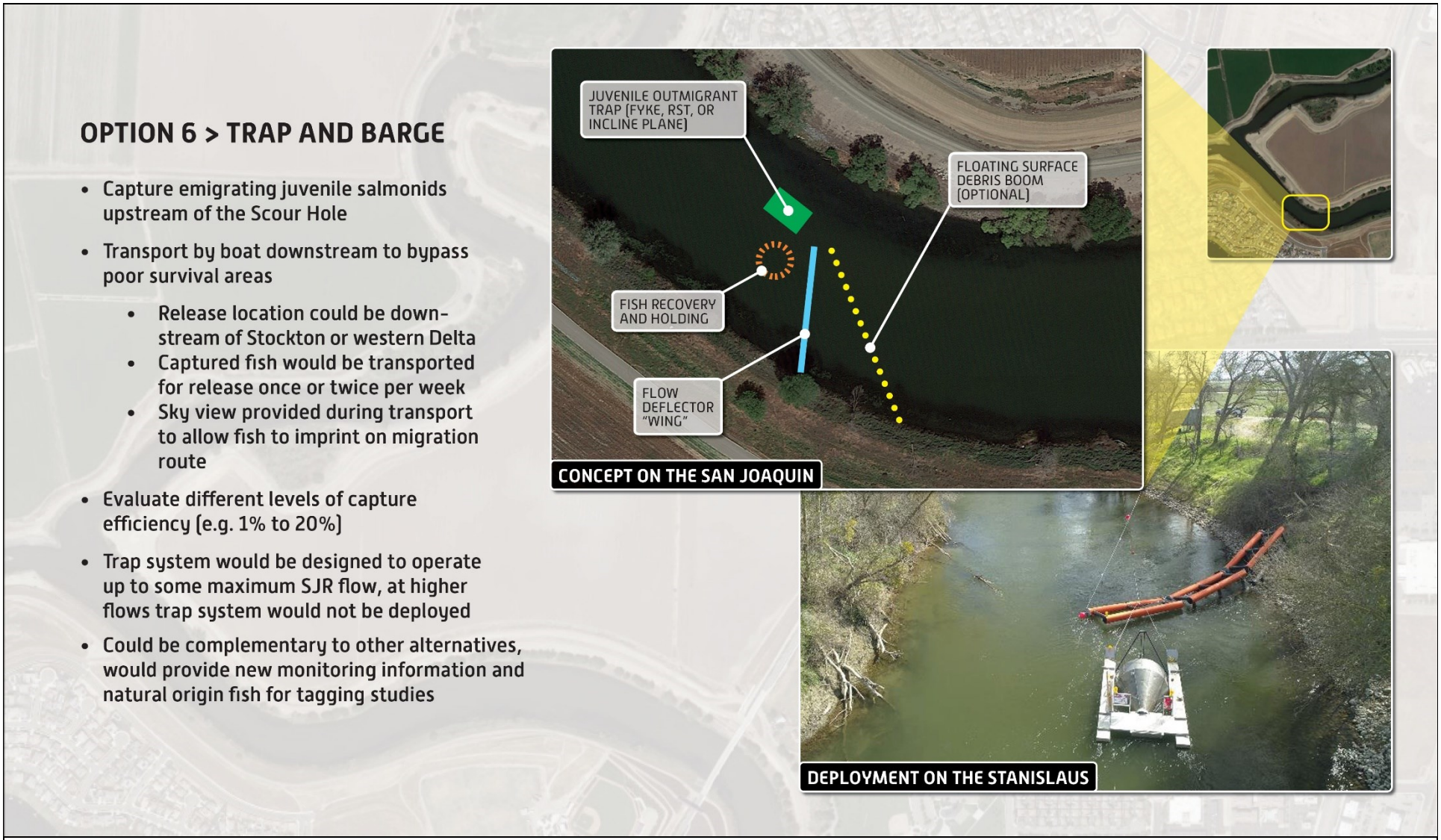

Figure 14. Concept Diagram for Initial Option 6

cbec project No. 21-1024	Created By: CFS and cbec

Figure 15. Existing Conditions Digital Terrain Model at the HOR Scour Hole location

cbec project No. 21-1024	Created By: cbec

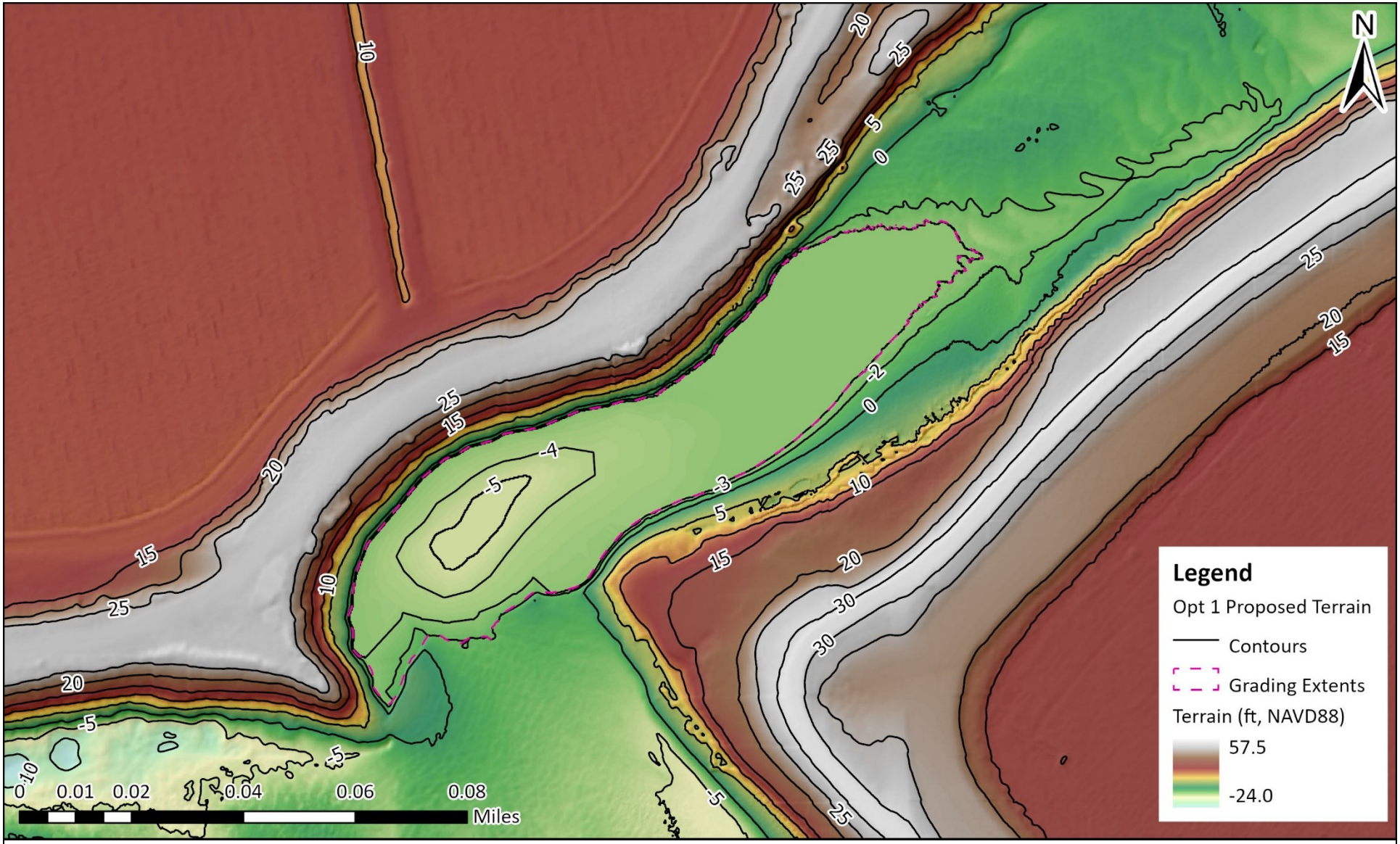

Figure 16. Option 1 Digital Terrain Model

cbec project No. 21-1024	Created By: cbec

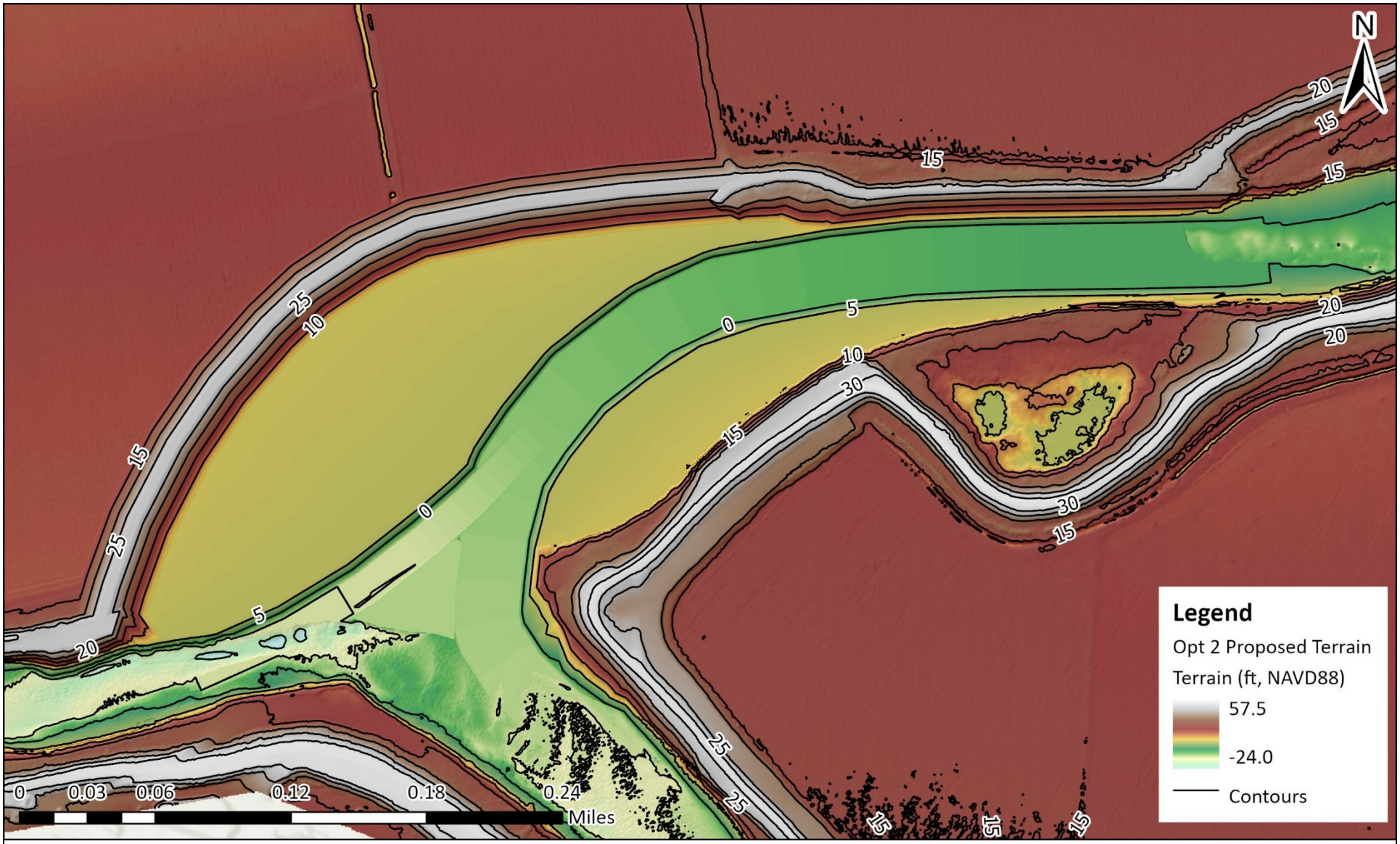

Figure 17. Option 2 Digital Terrain Model

cbec project No. 21-1024	Created By: cbec

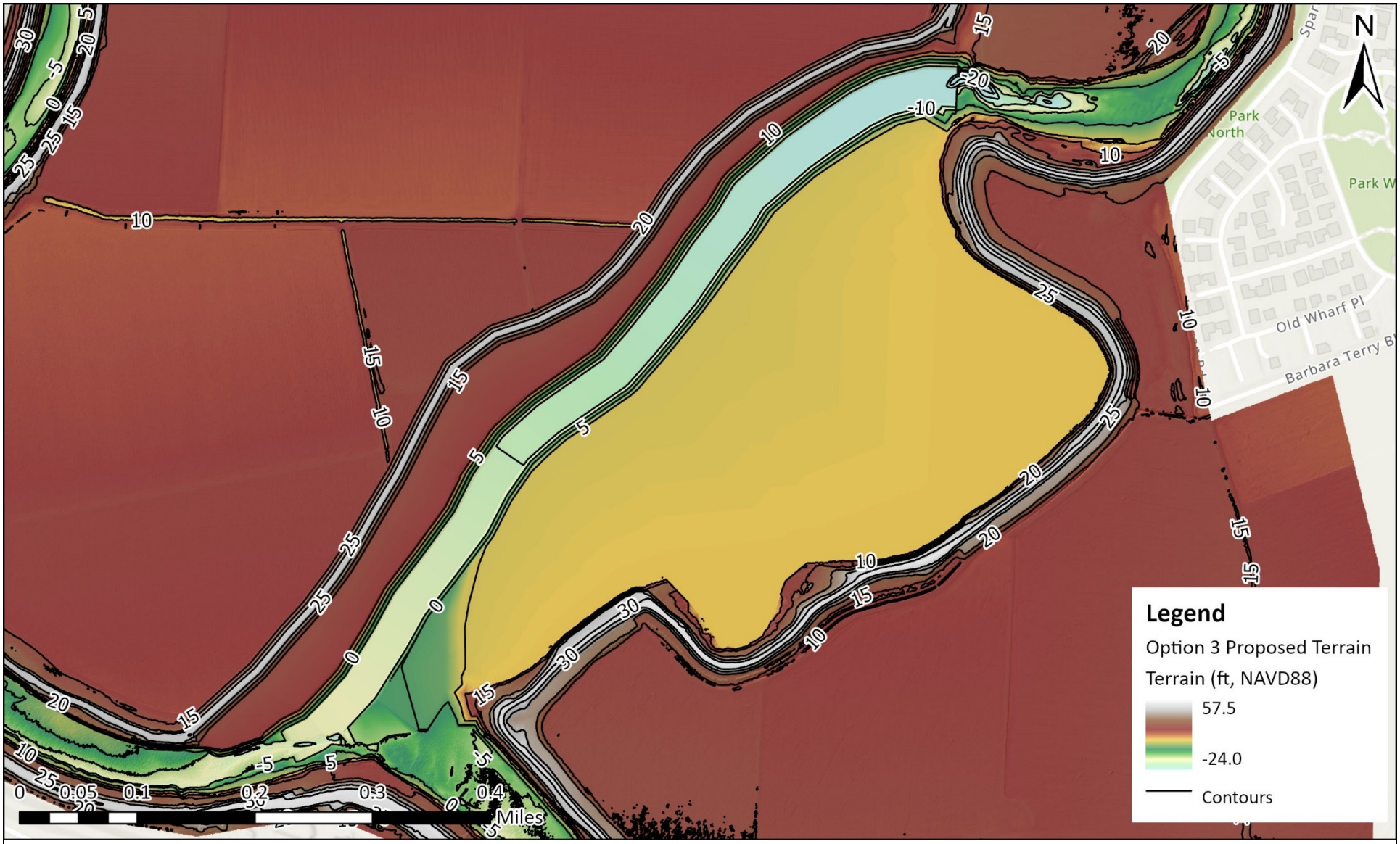

Figure 18. Option 3 Digital Terrain Model

cbec project No. 21-1024	Created By: cbec

Figure 19. Option 4 Digital Terrain Model

cbec project No. 21-1024	Created By: cbec

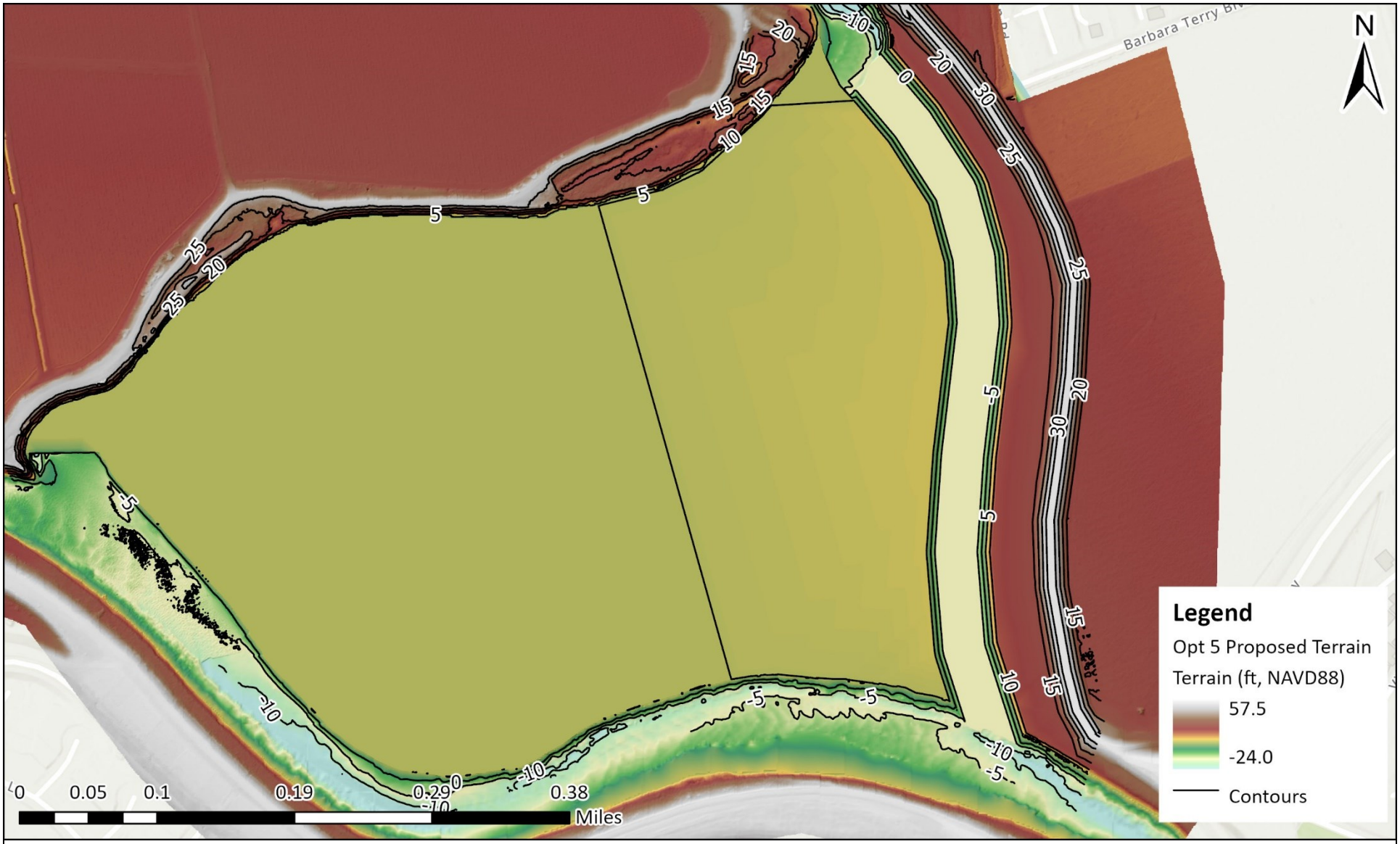

Figure 20. Option 5 Digital Terrain Model

cbec project No. 21-1024	Created By: cbec

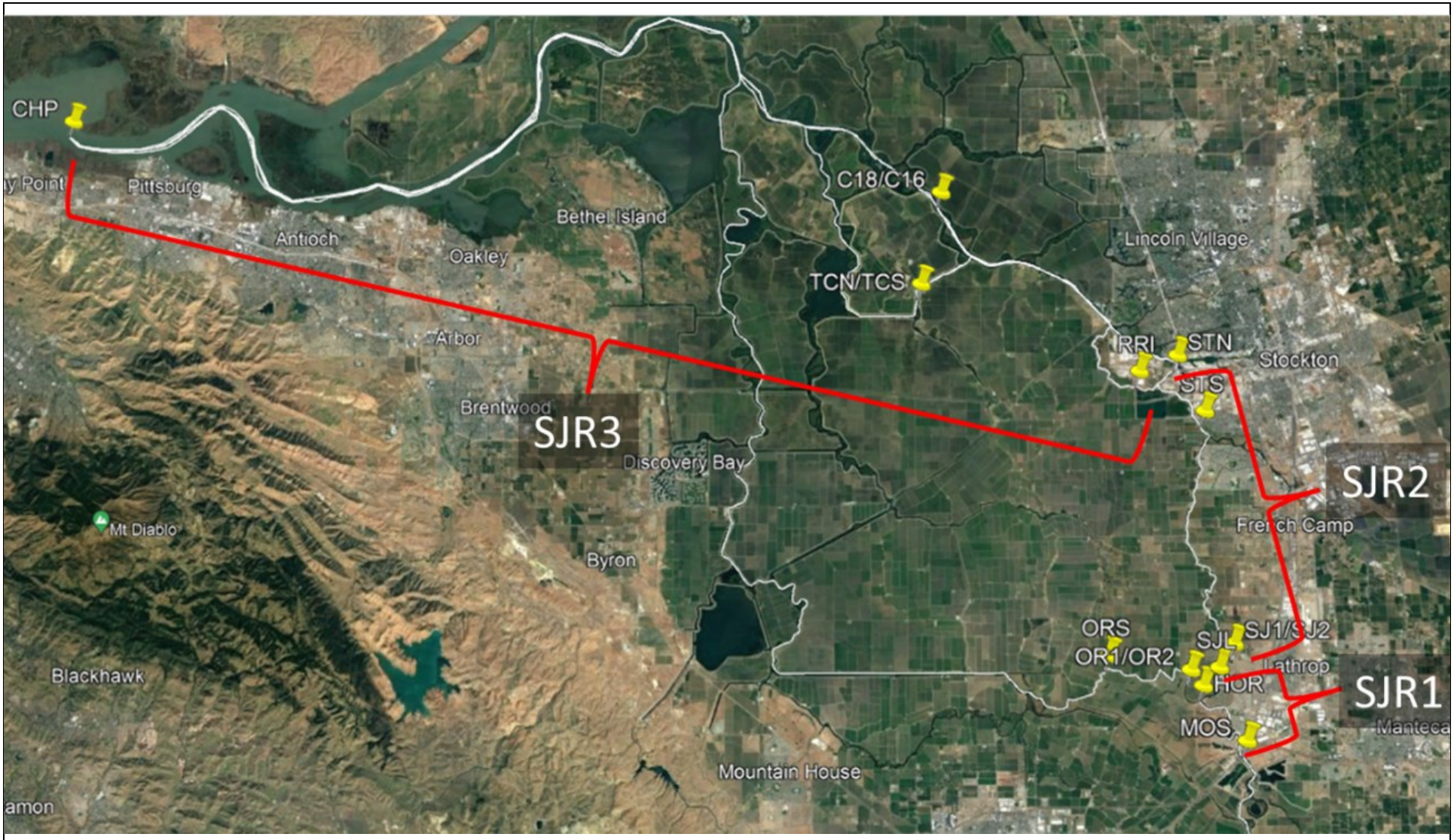

Figure 21. Reaches from acoustic tagging studies used to evaluate survival benefits associated with Initial Options. Yellow pins indicate locations of acoustic receiver arrays.

cbec project No. 21-1024	Created By: CFS

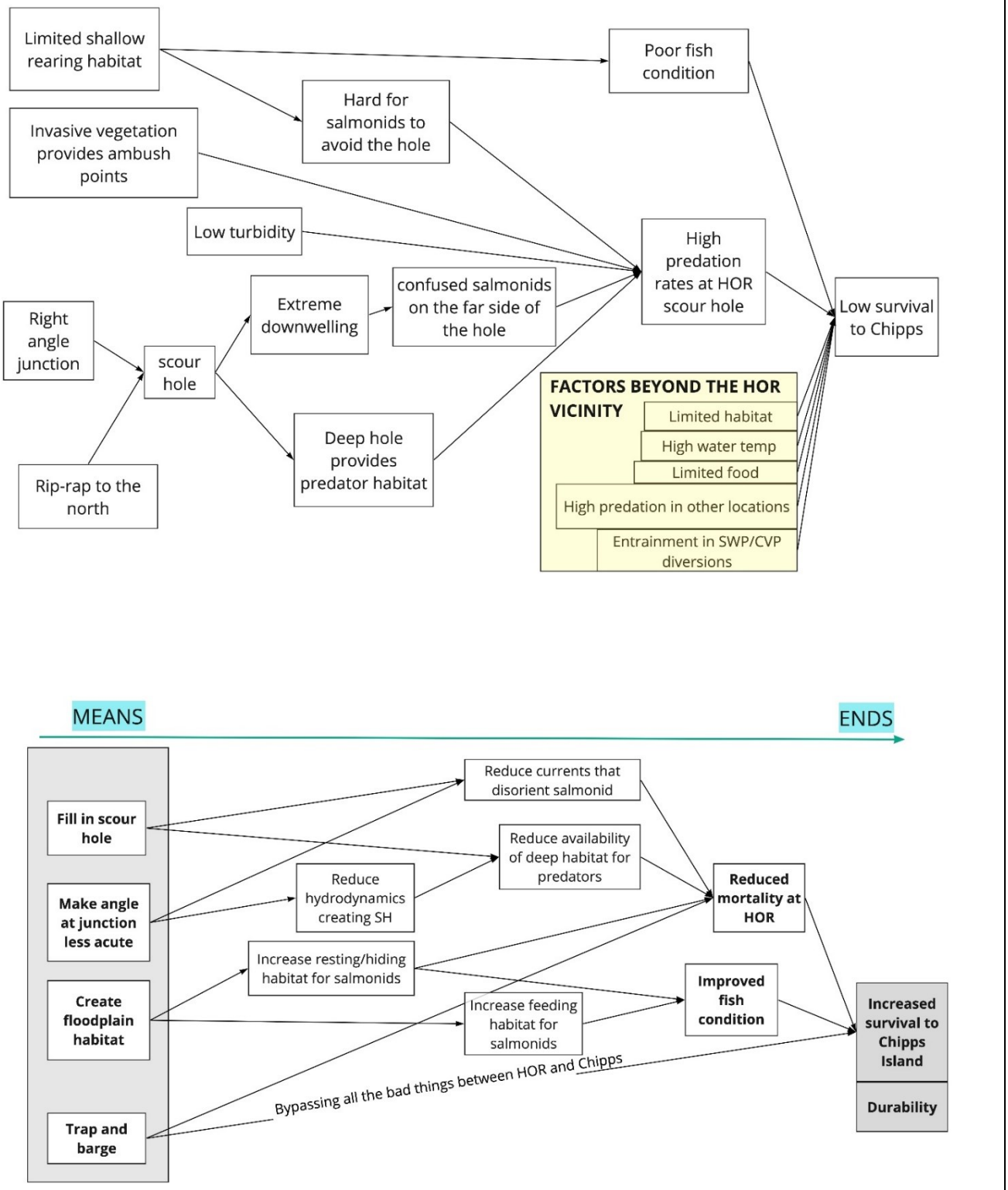

Figure 22. Conceptual models of the factors leading to low survival to Chipps Island (top) and the linkages between proposed actions and survival to Chipps Island (bottom)

cbec project No. 21-1024	Created By: Kearns & West

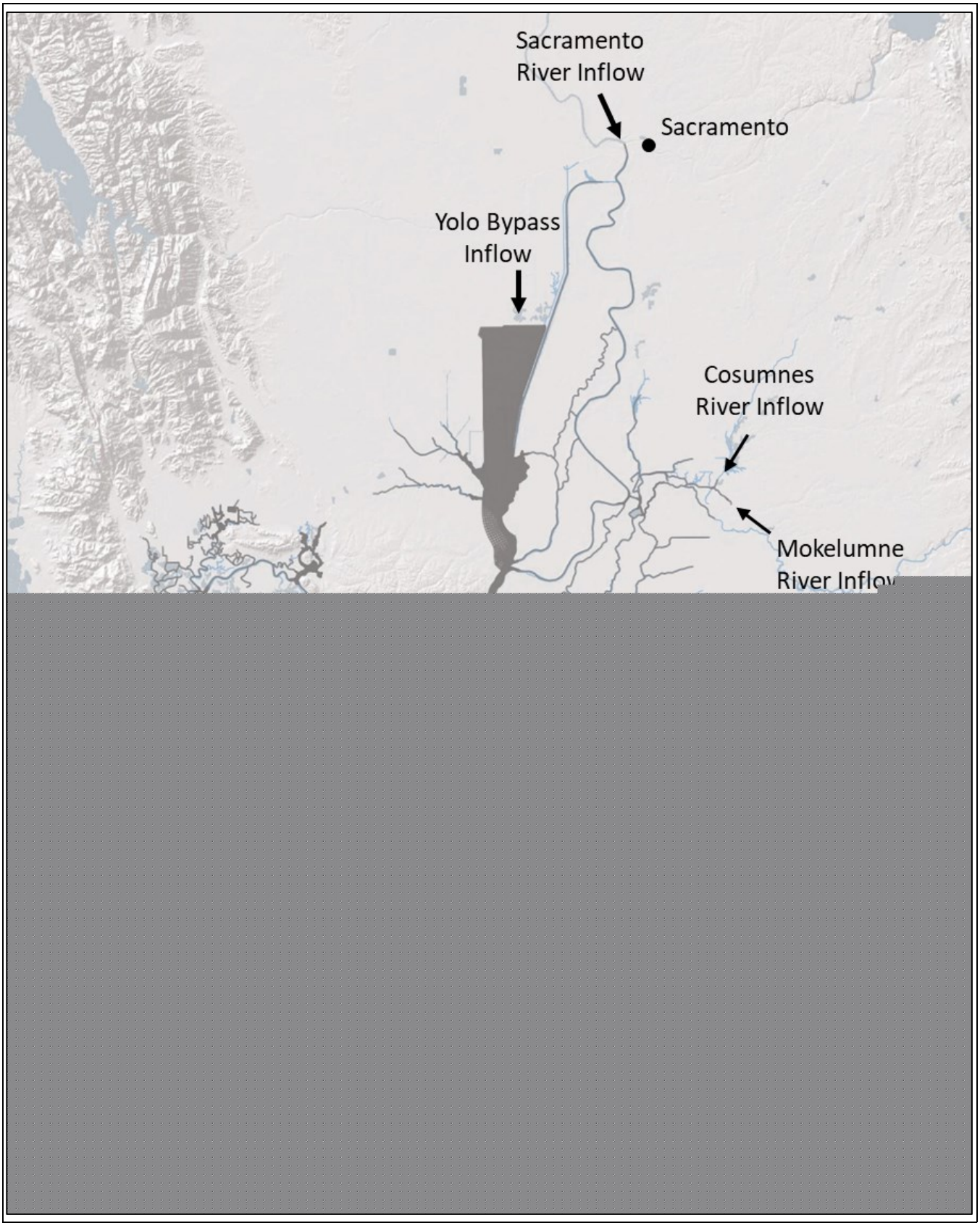

Figure 23. Delta boundary conditions and model grid for the flood flow analysis.

cbec project No. 21-1024	Created By: RMA

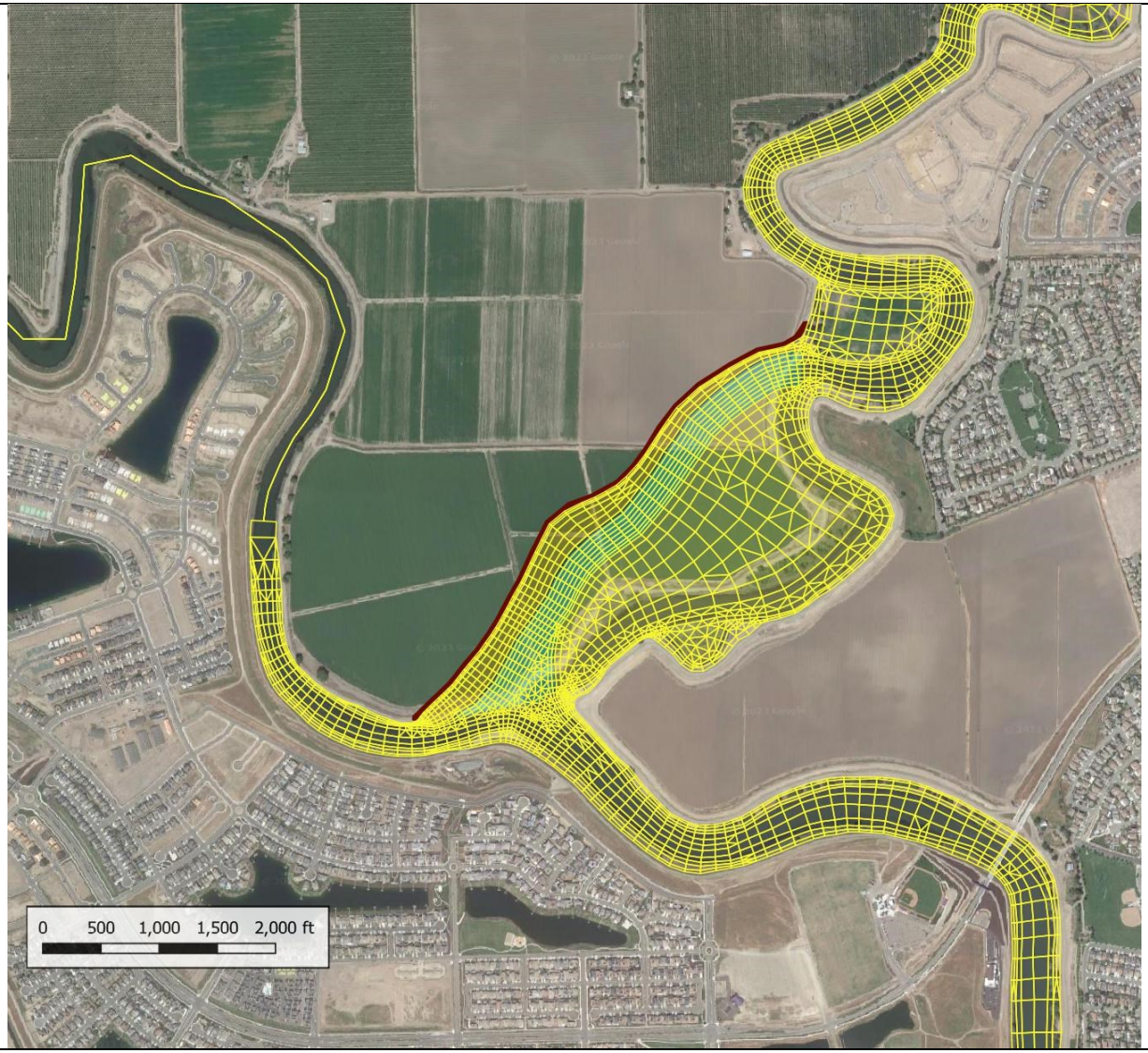

Figure 25. Grid geometry for Option 3 in the HOR Scour Hole study area

cbec project No. 21-1024	Created By: RMA

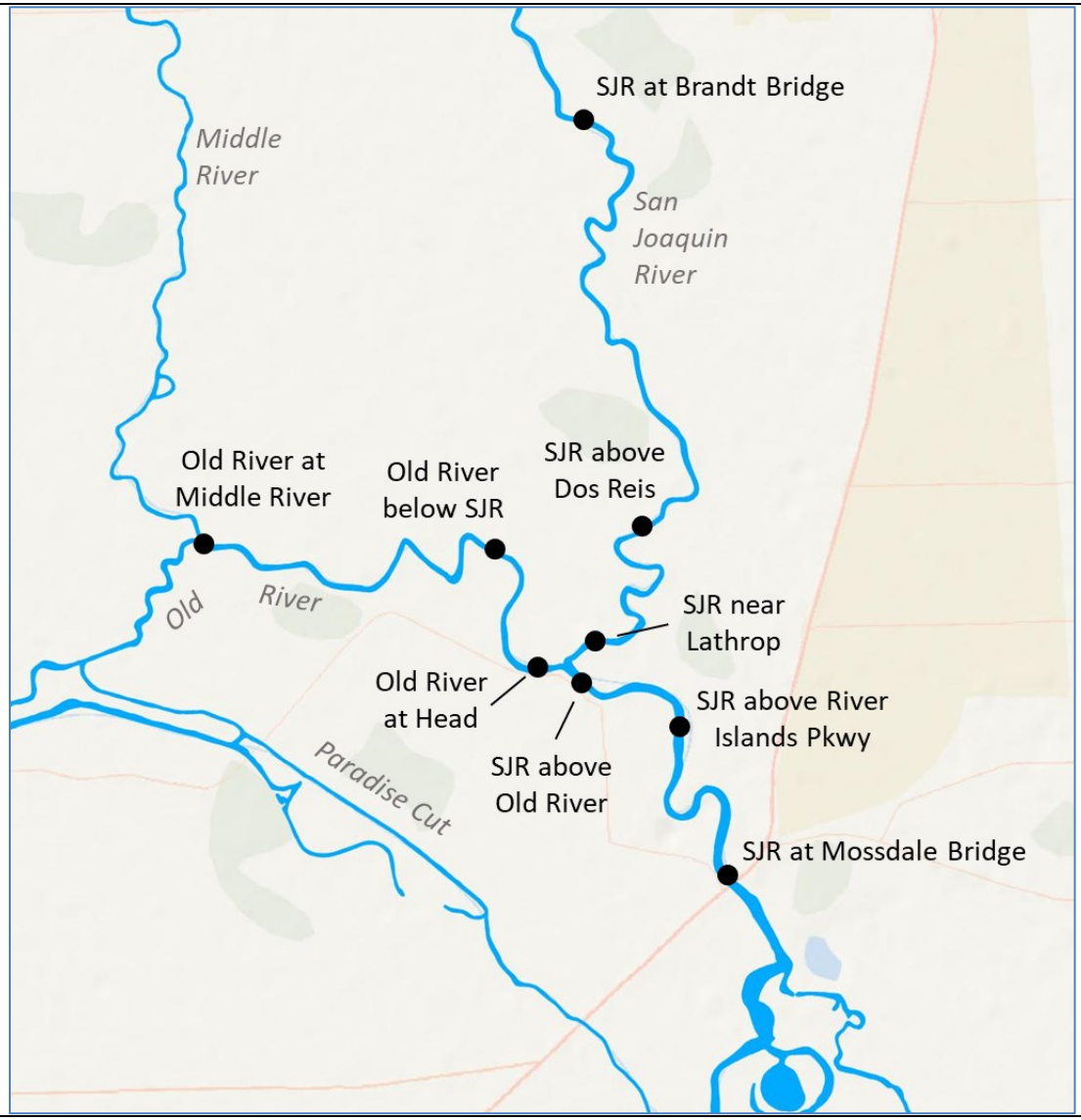

Figure 26. Reference locations along the San Joaquin River and Old River for evaluating changes in peak WSE for the Initial Options

cbec project No. 21-1024	Created By: RMA

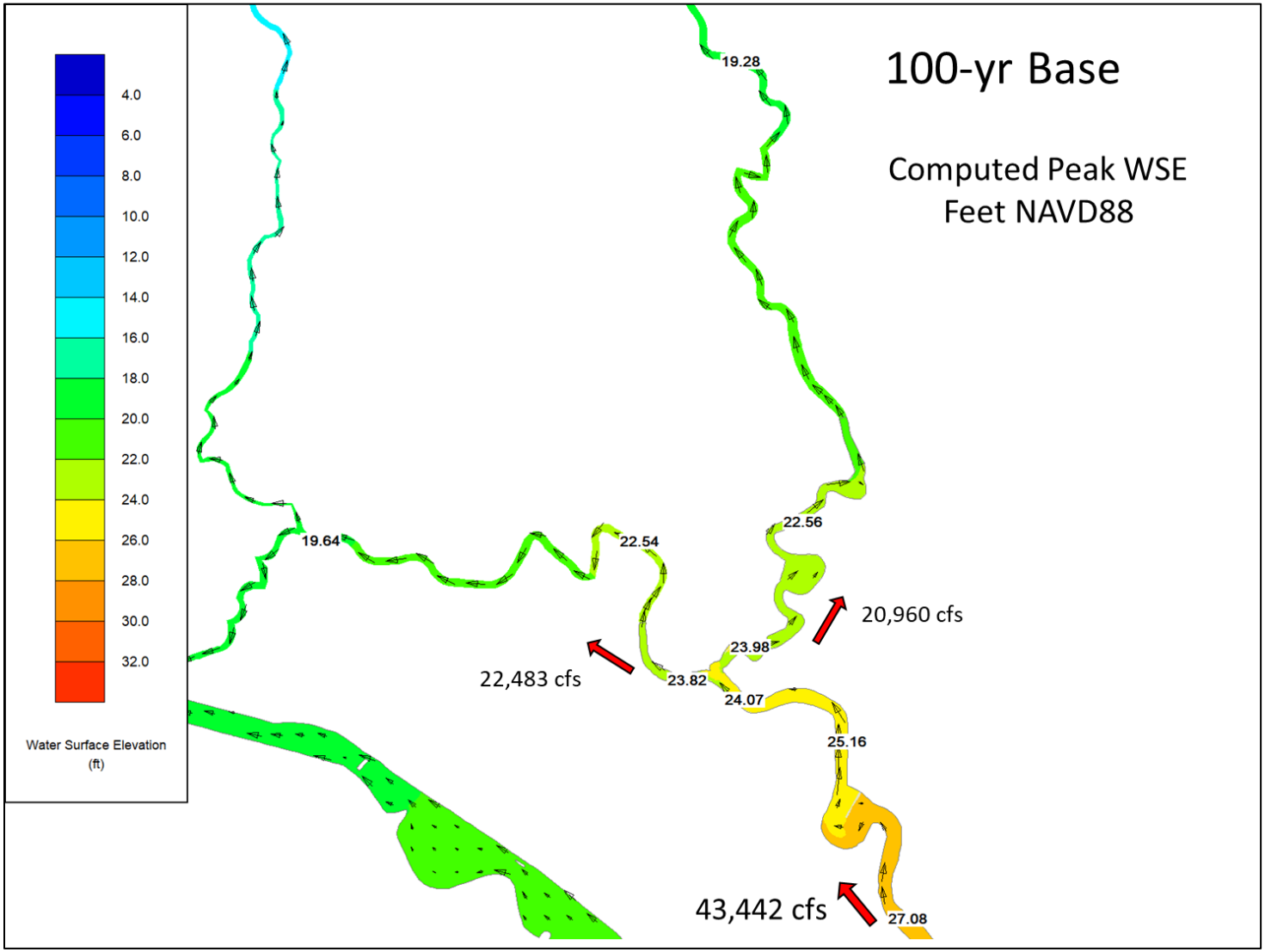

Figure 27. Base conditions peak WSE and flow splits for the San Joaquin River and Old River reaches for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

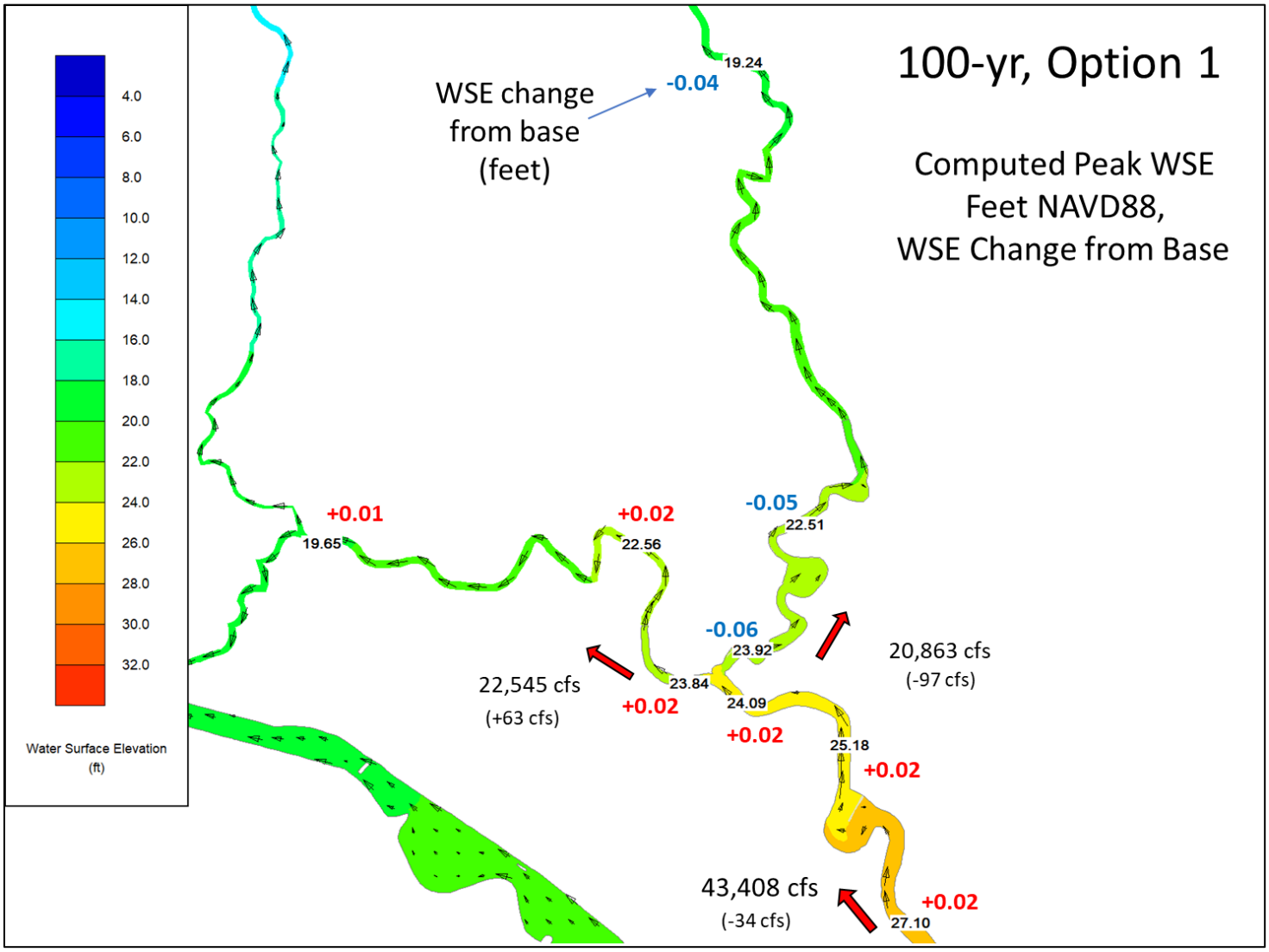

Figure 28. Option 1, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River reaches for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

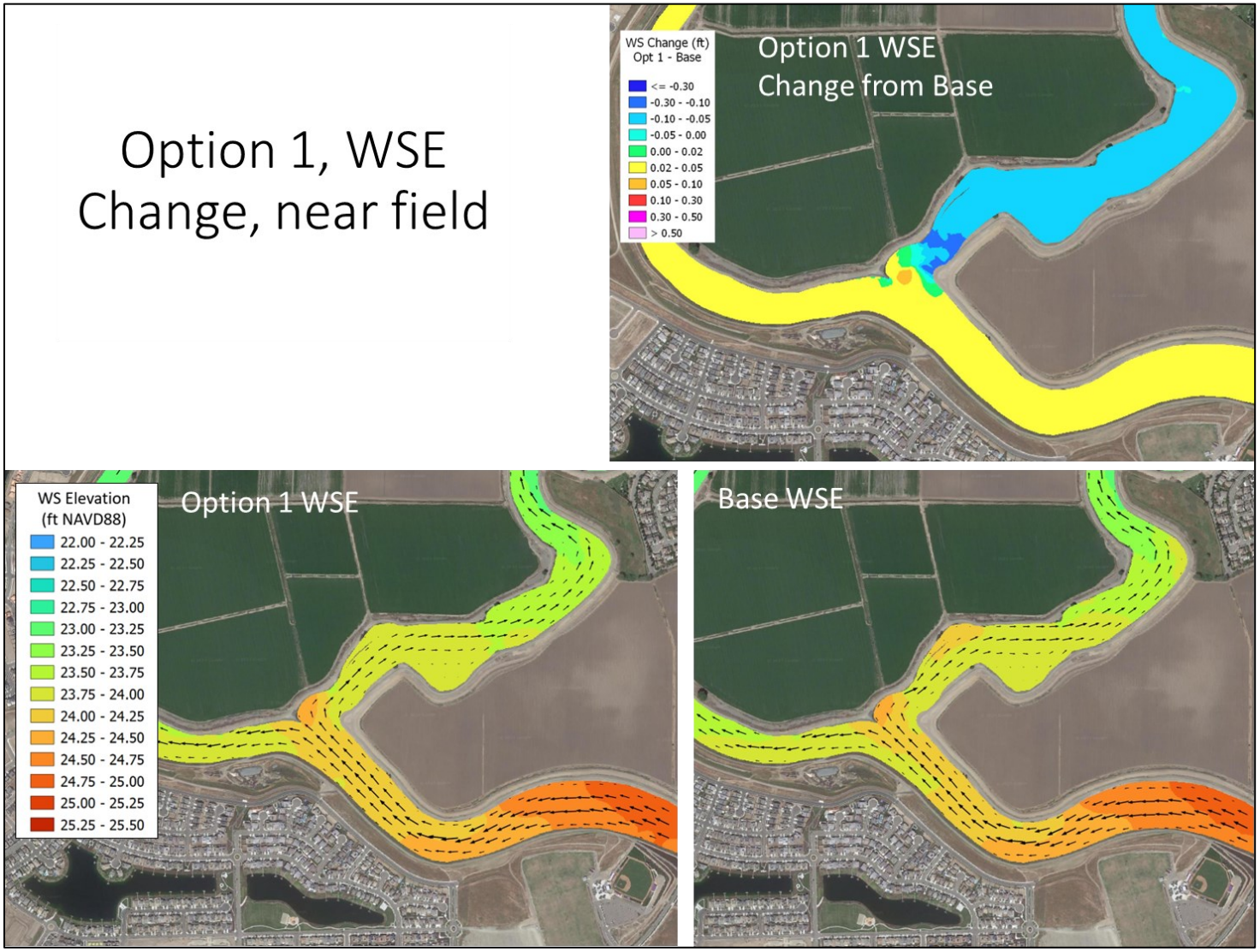

Figure 29. Comparison of the predicted peak WSE for the Option 1 and Base conditions for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

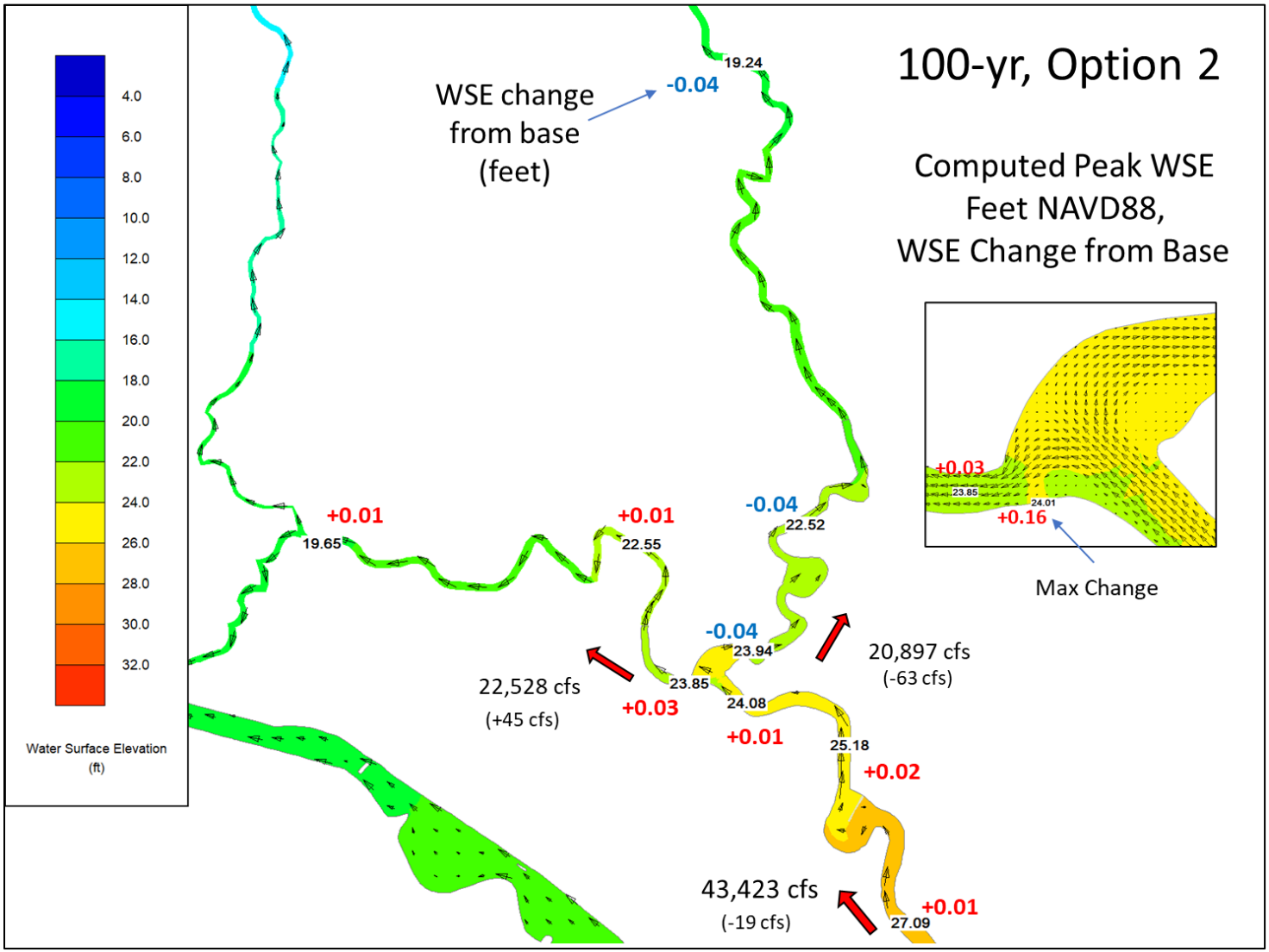

Figure 30. Option 2, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River reaches for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

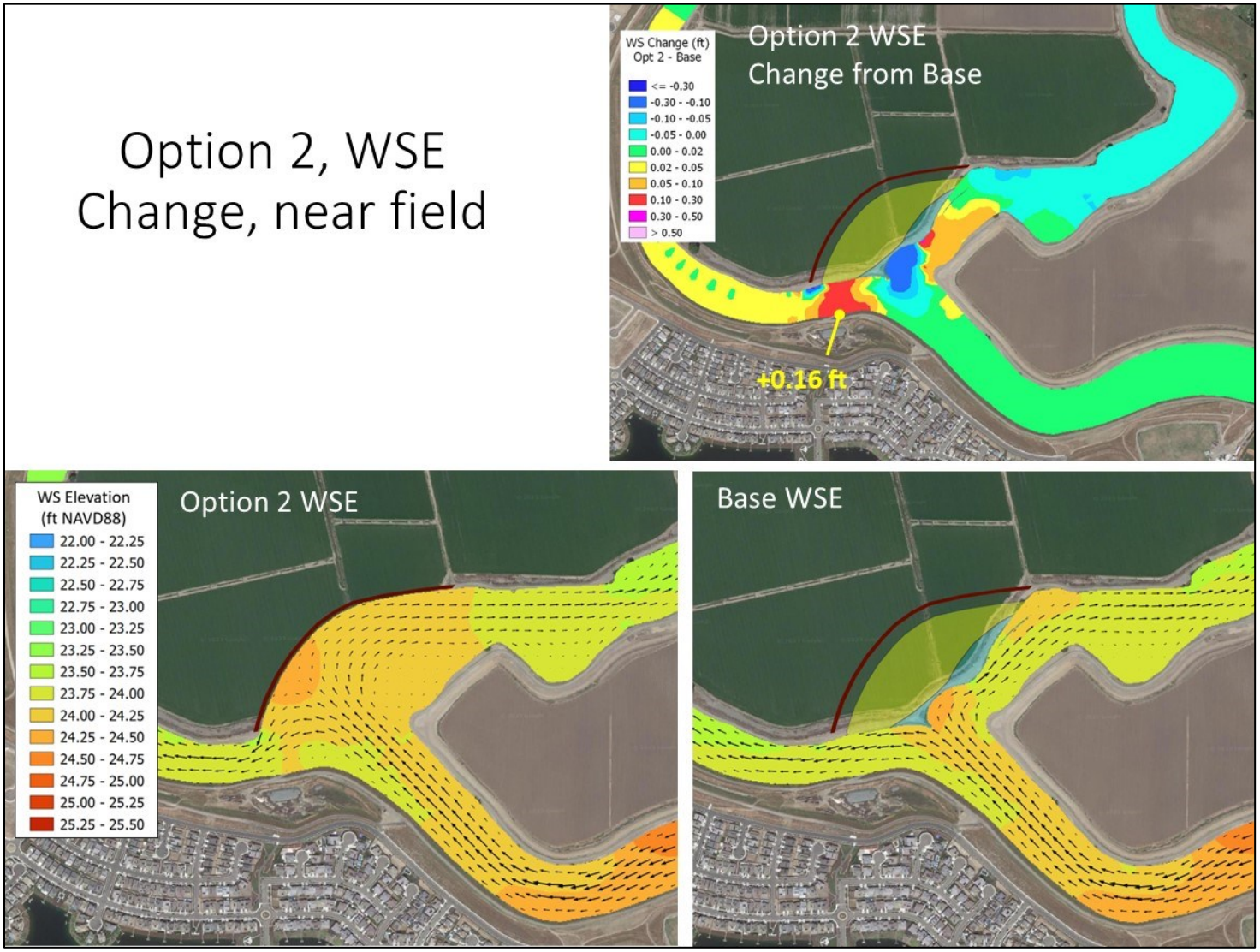

Figure 31. Comparison of the predicted peak WSE for the Option 2 and Base conditions for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

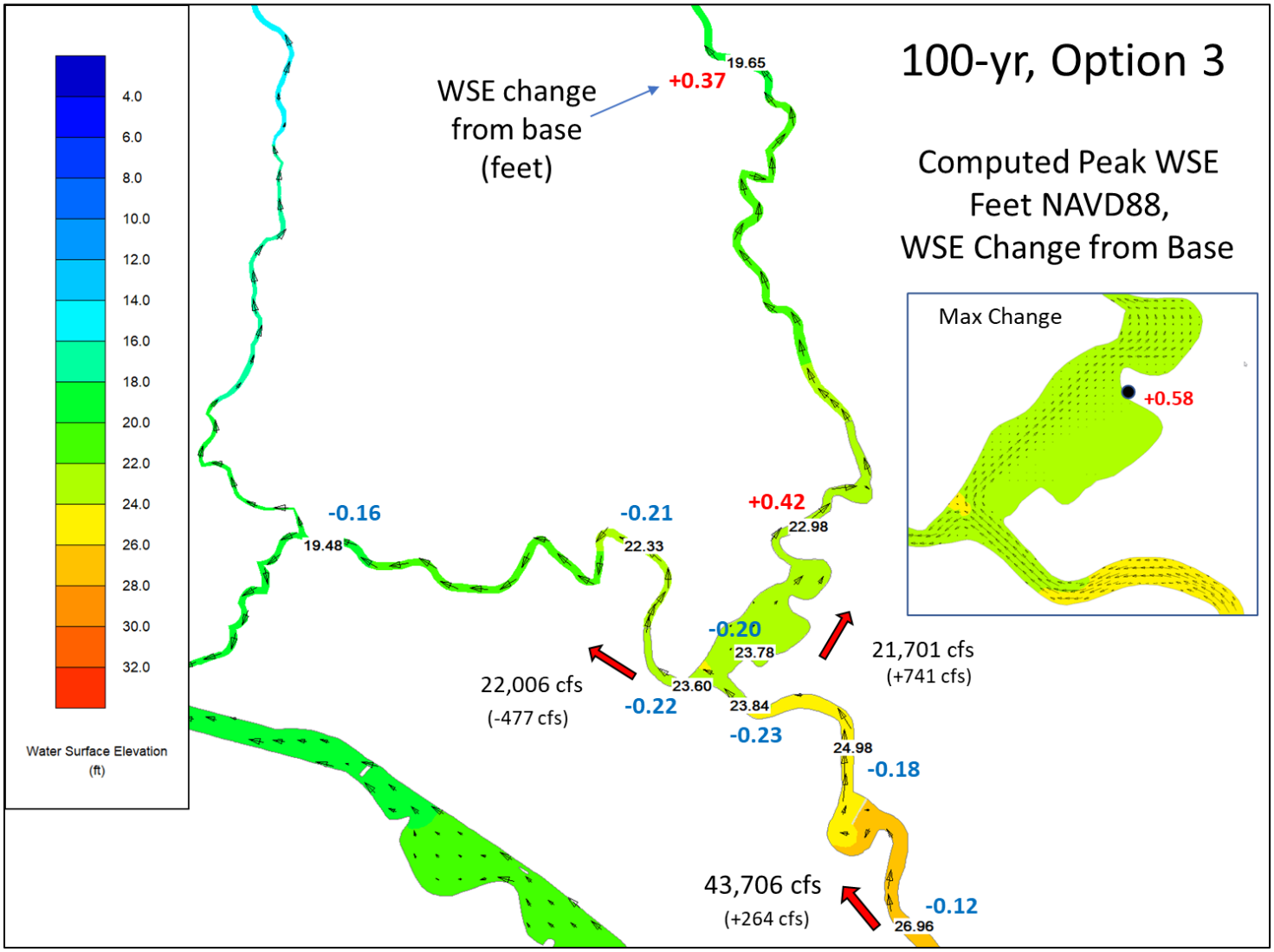

Figure 32. Option 3, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River reaches for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

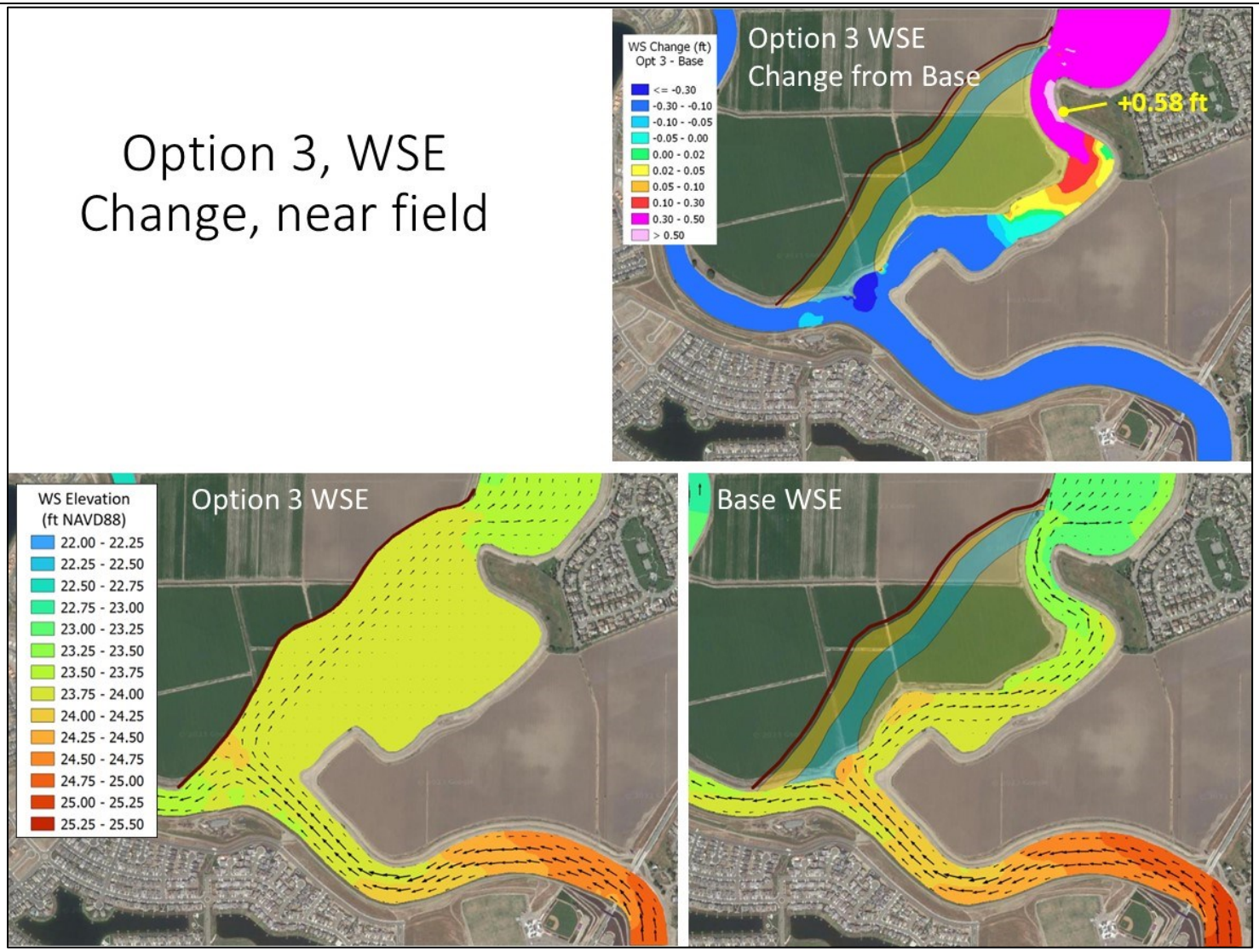

Figure 33. Comparison of the predicted peak WSE for the Option 3 and Base conditions for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

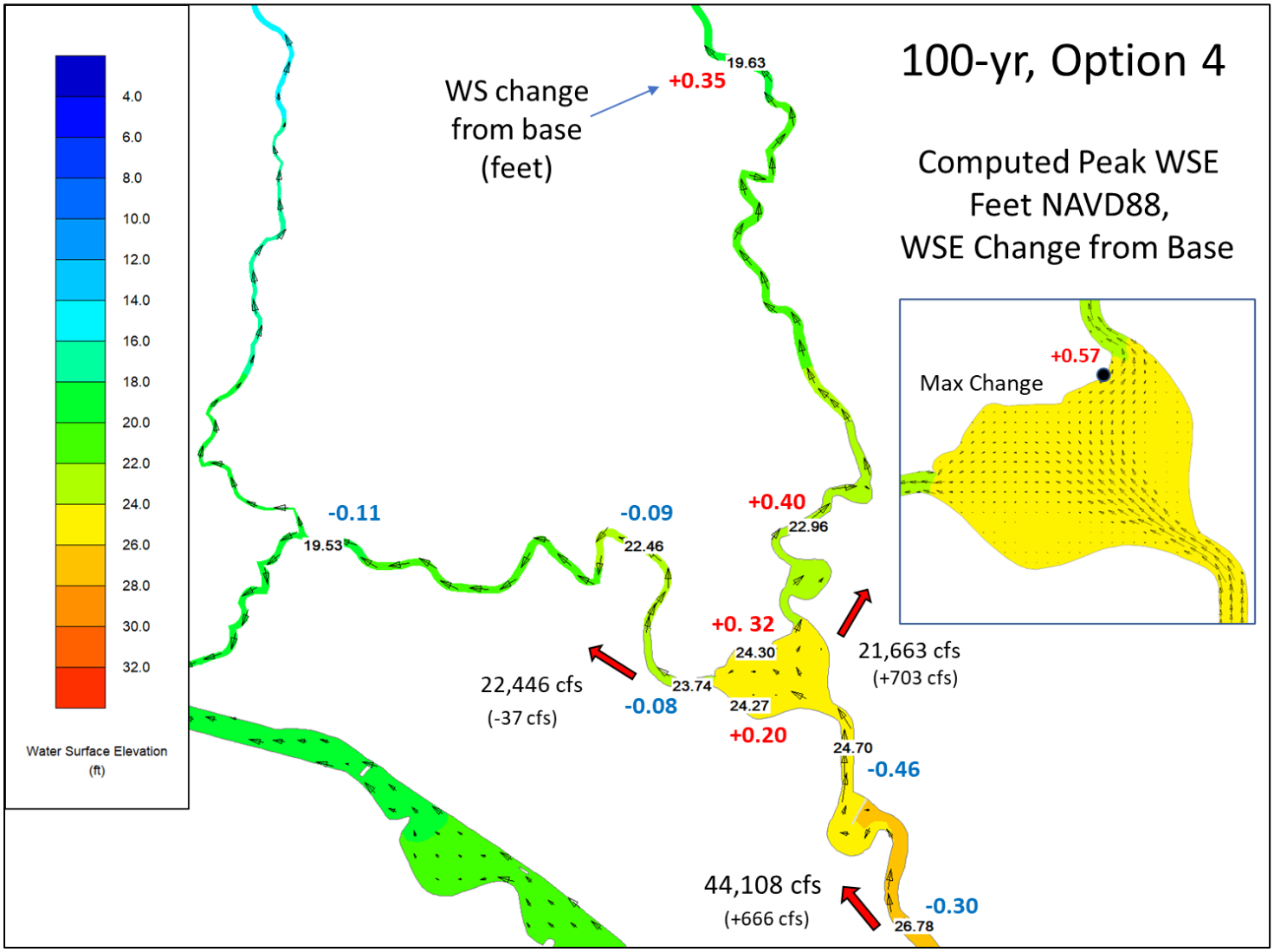

Figure 34. Option 4, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River reaches for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

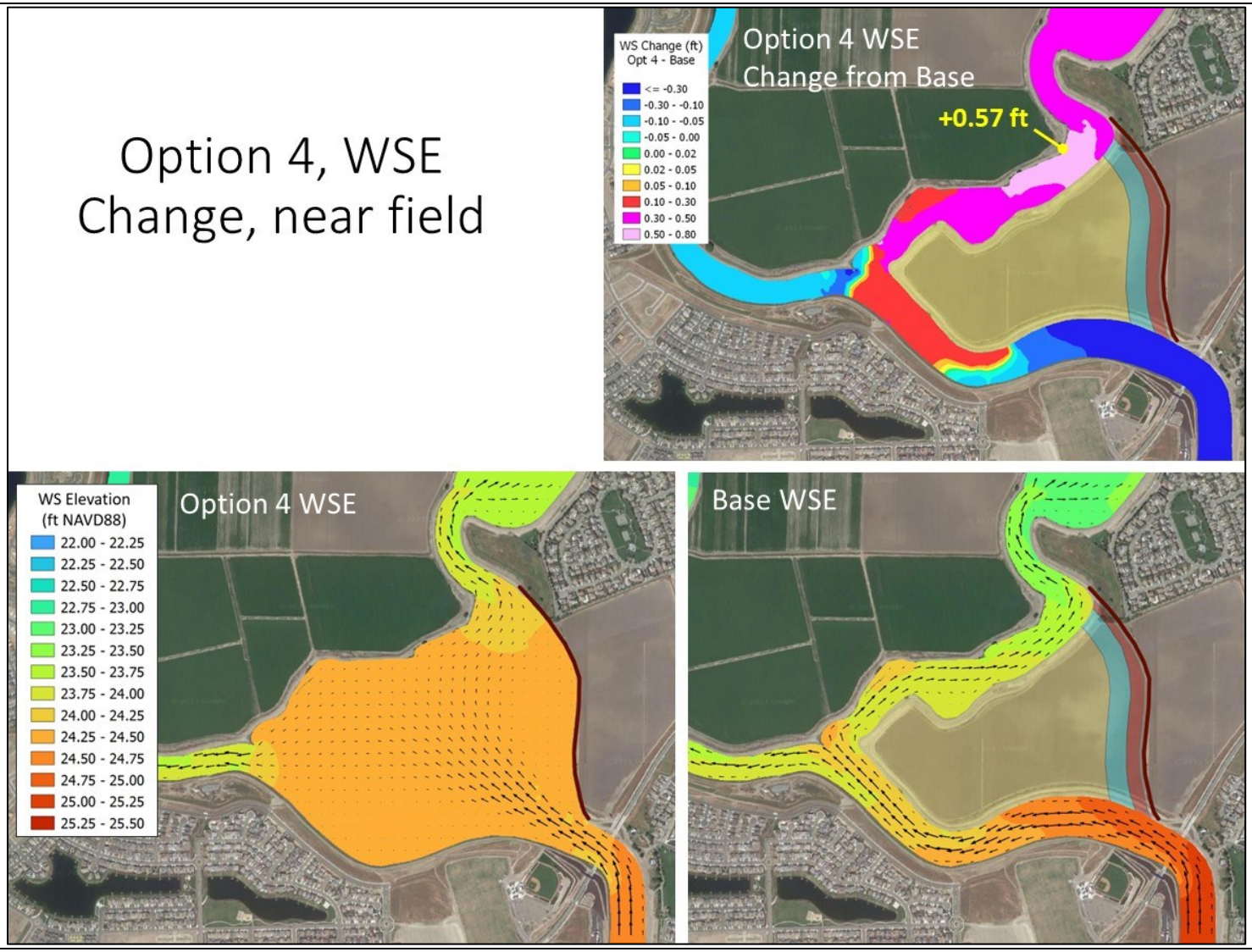

Figure 35. Comparison of the predicted peak WSE for the Option 4 and Base conditions for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

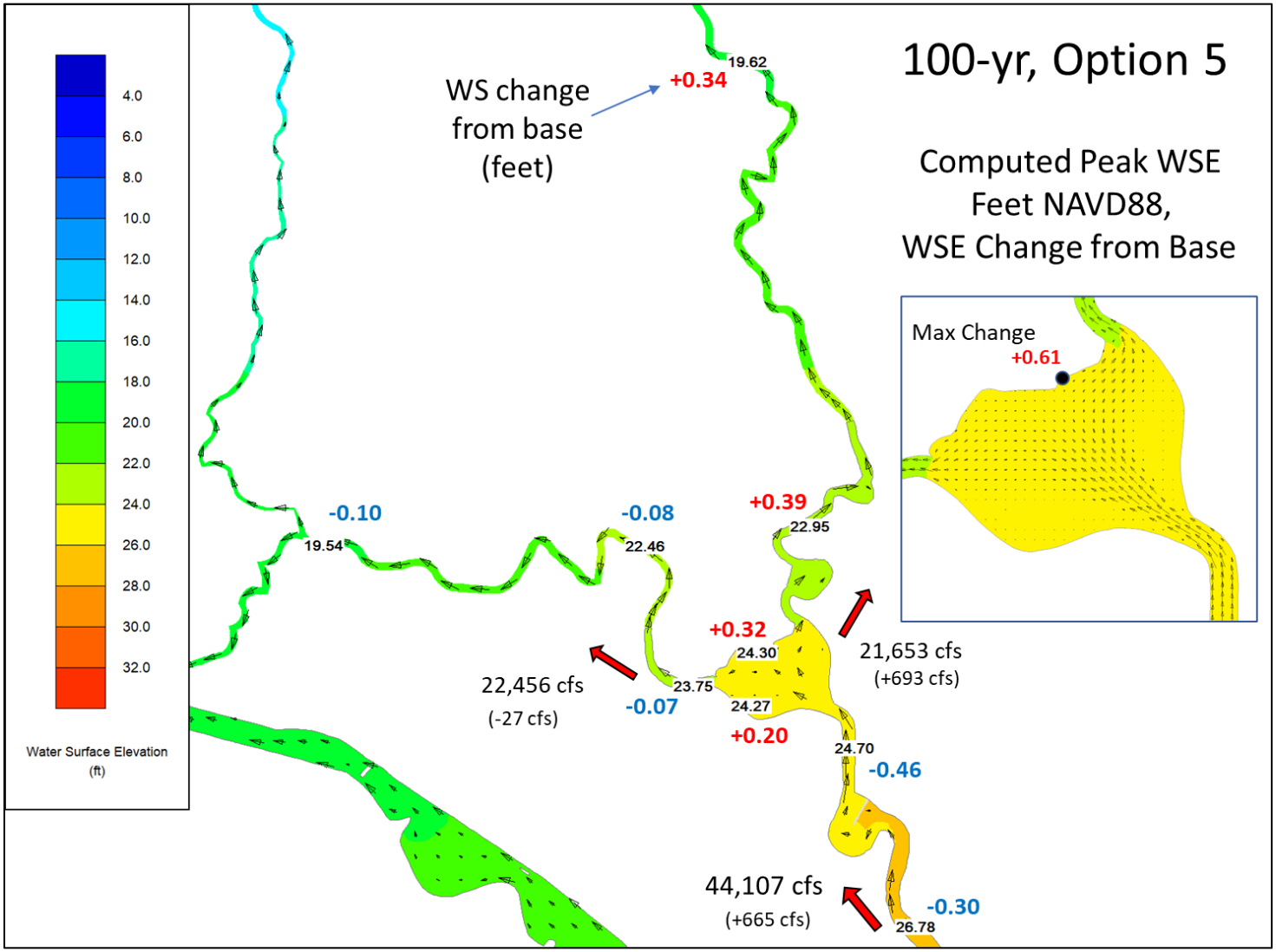

Figure 36. Option 5, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River reaches for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

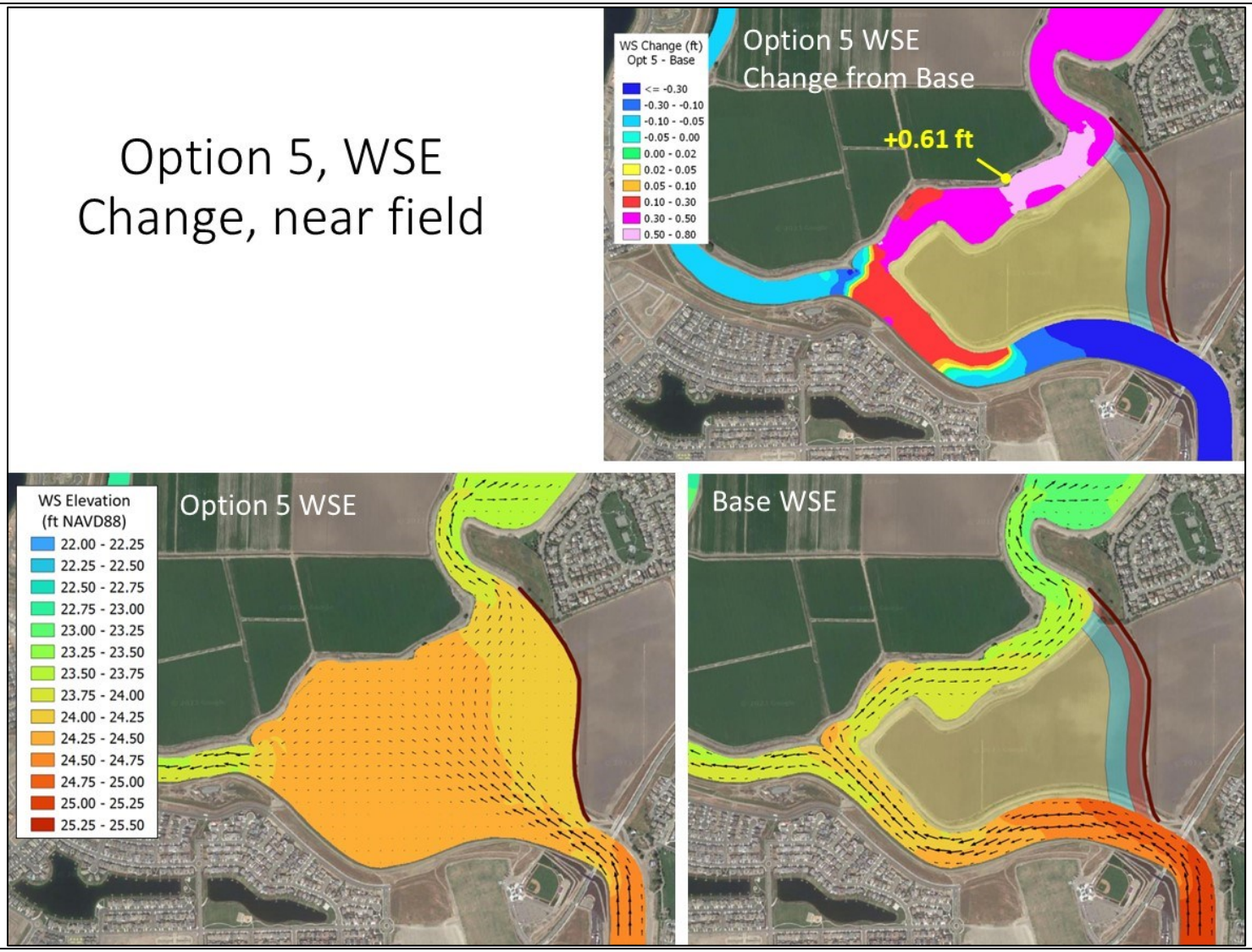

Figure 37. Comparison of the predicted peak WSE for the Option 5 and Base conditions for Scenario 1 (SJR inflow at Vernalis) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

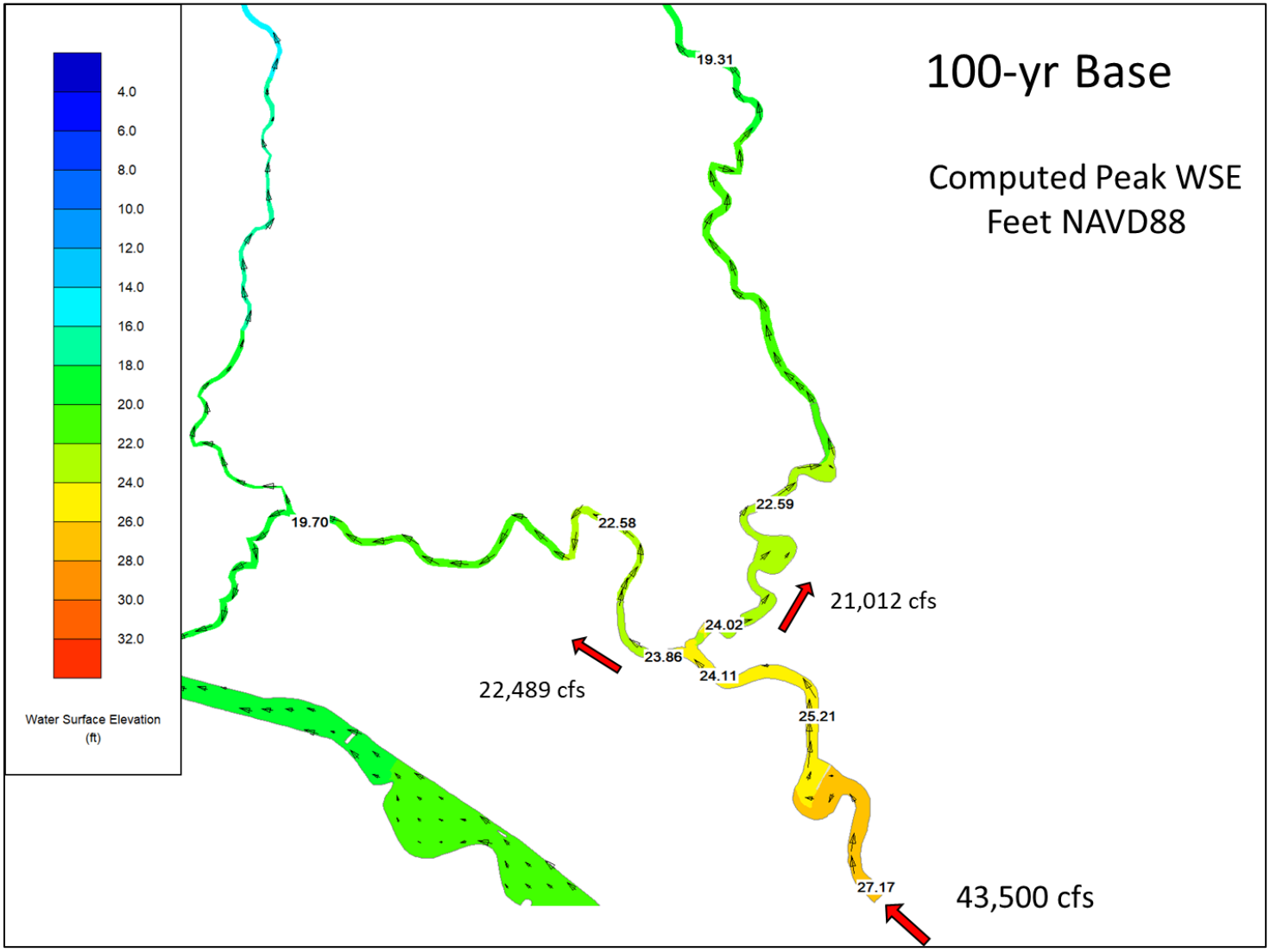

Figure 38. Base conditions peak WSE and flow splits for the San Joaquin River and Old River reaches for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

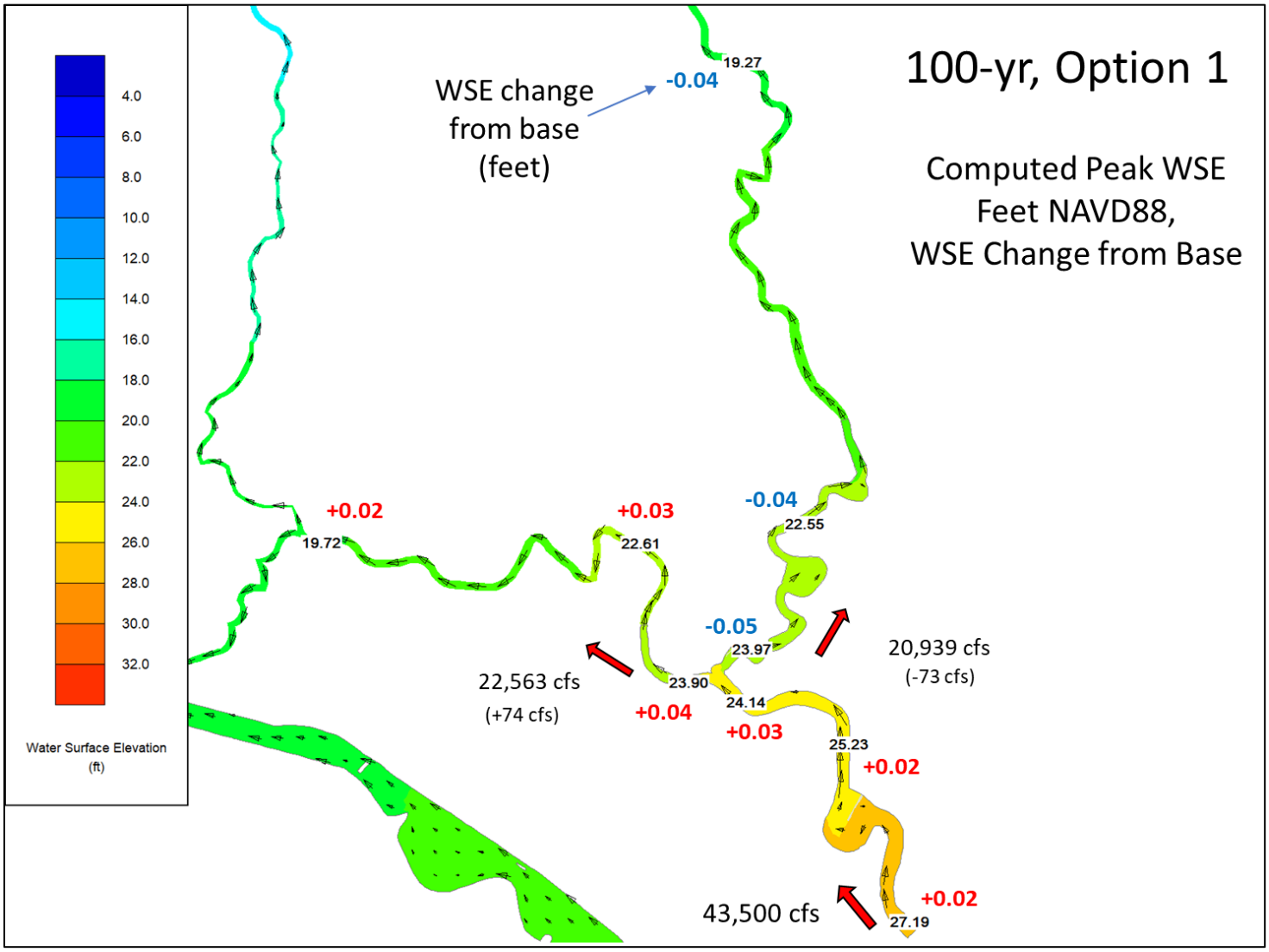

Figure 39. Option 1, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River reaches for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow.

cbec project No. 21-1024	Created By: RMA

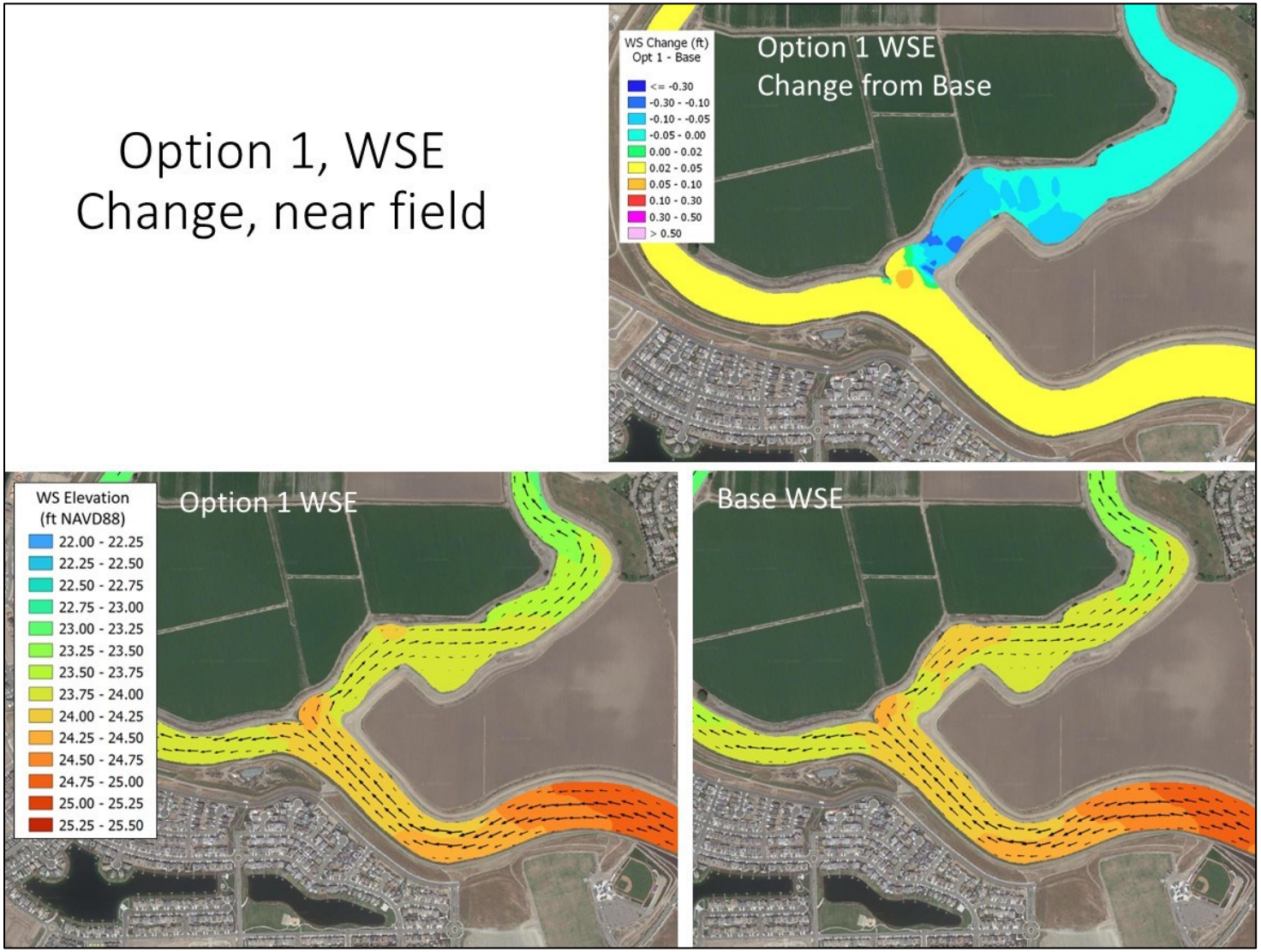

Figure 40. Comparison of the predicted peak WSE for the Option 1 and Base conditions for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

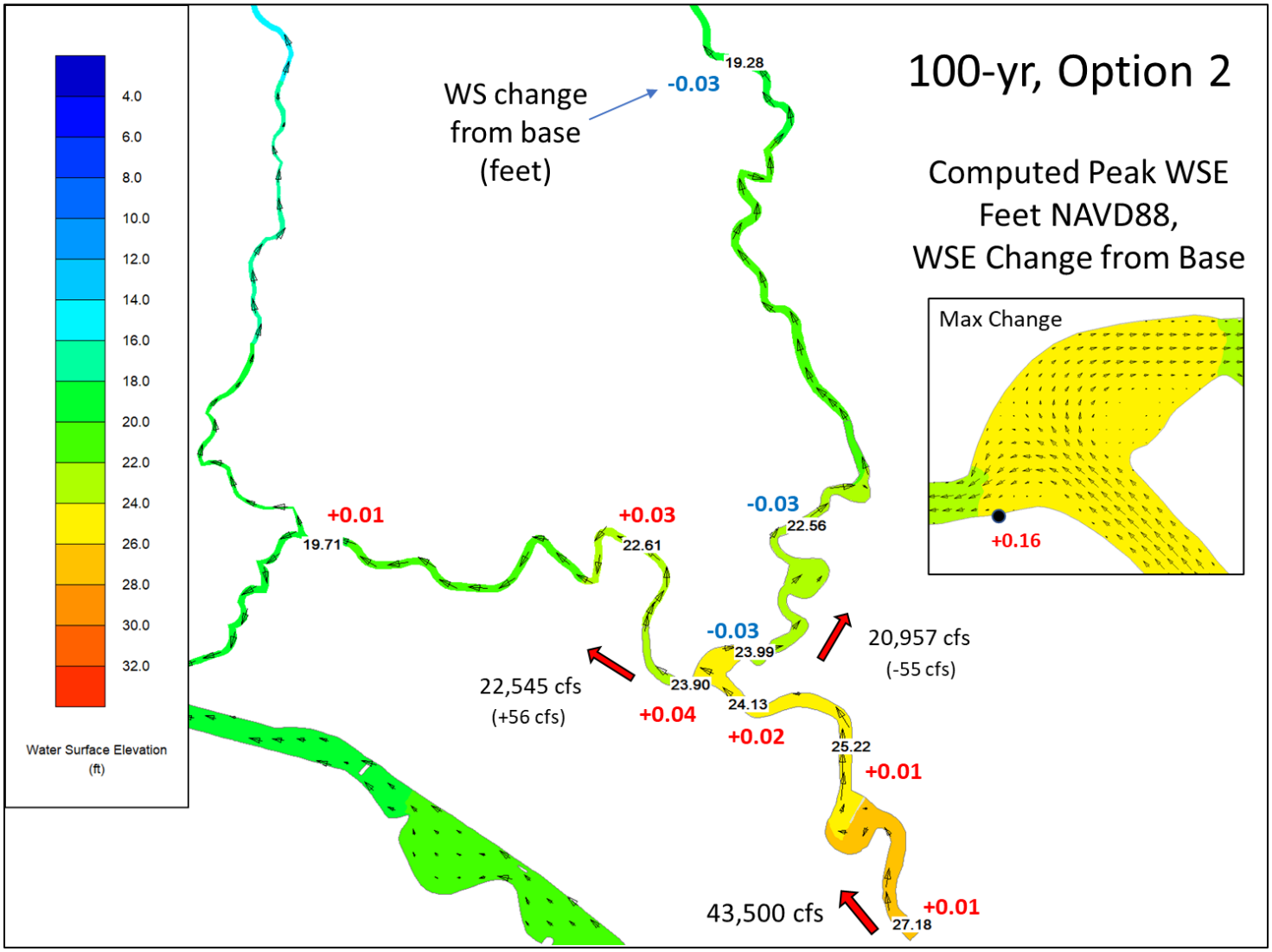

Figure 41. Option 2, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

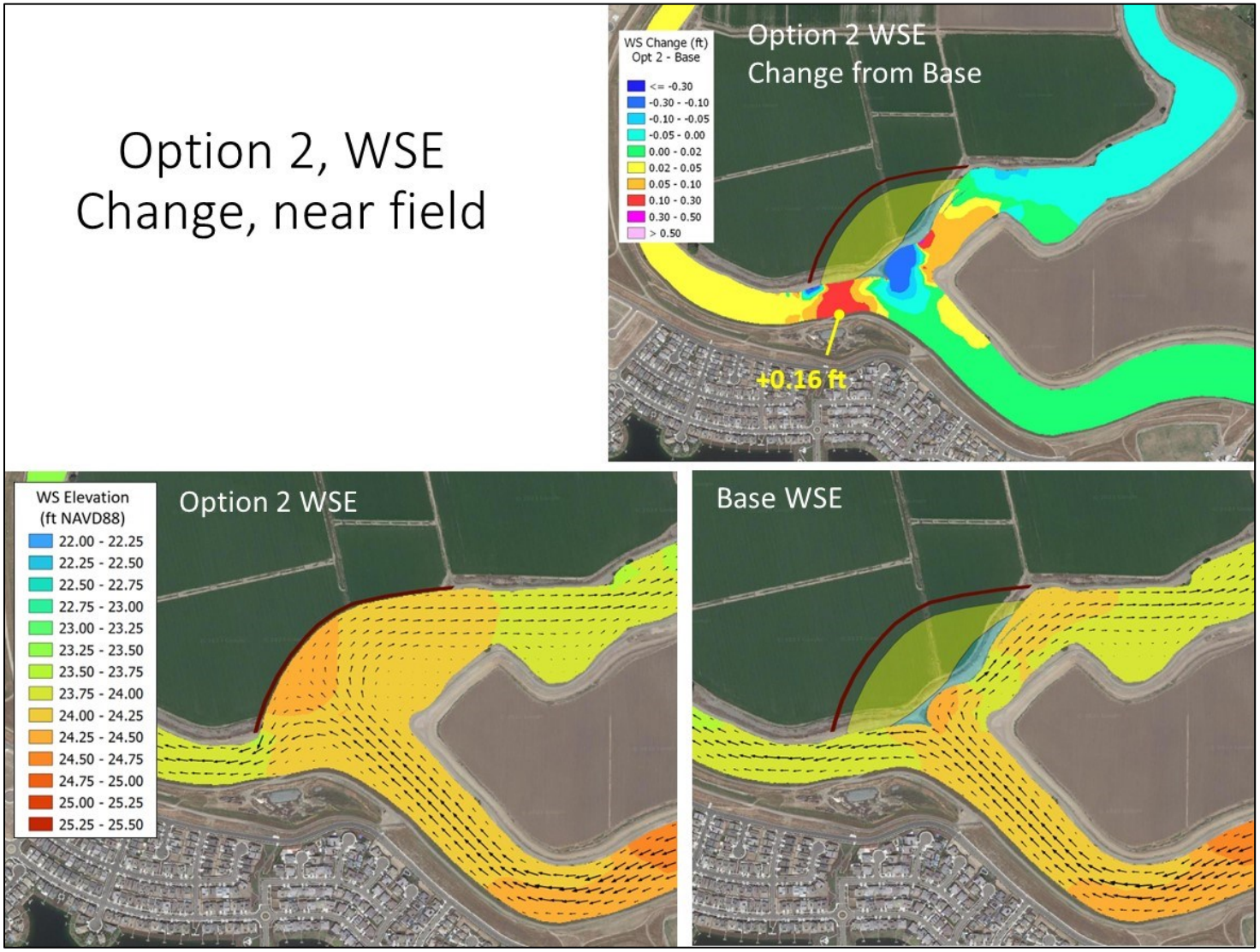

Figure 42. Comparison of the predicted peak WSE the Option 2 and Base conditions for Scenario 2 with the (SJR inflow at the Mossdale Bridge) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

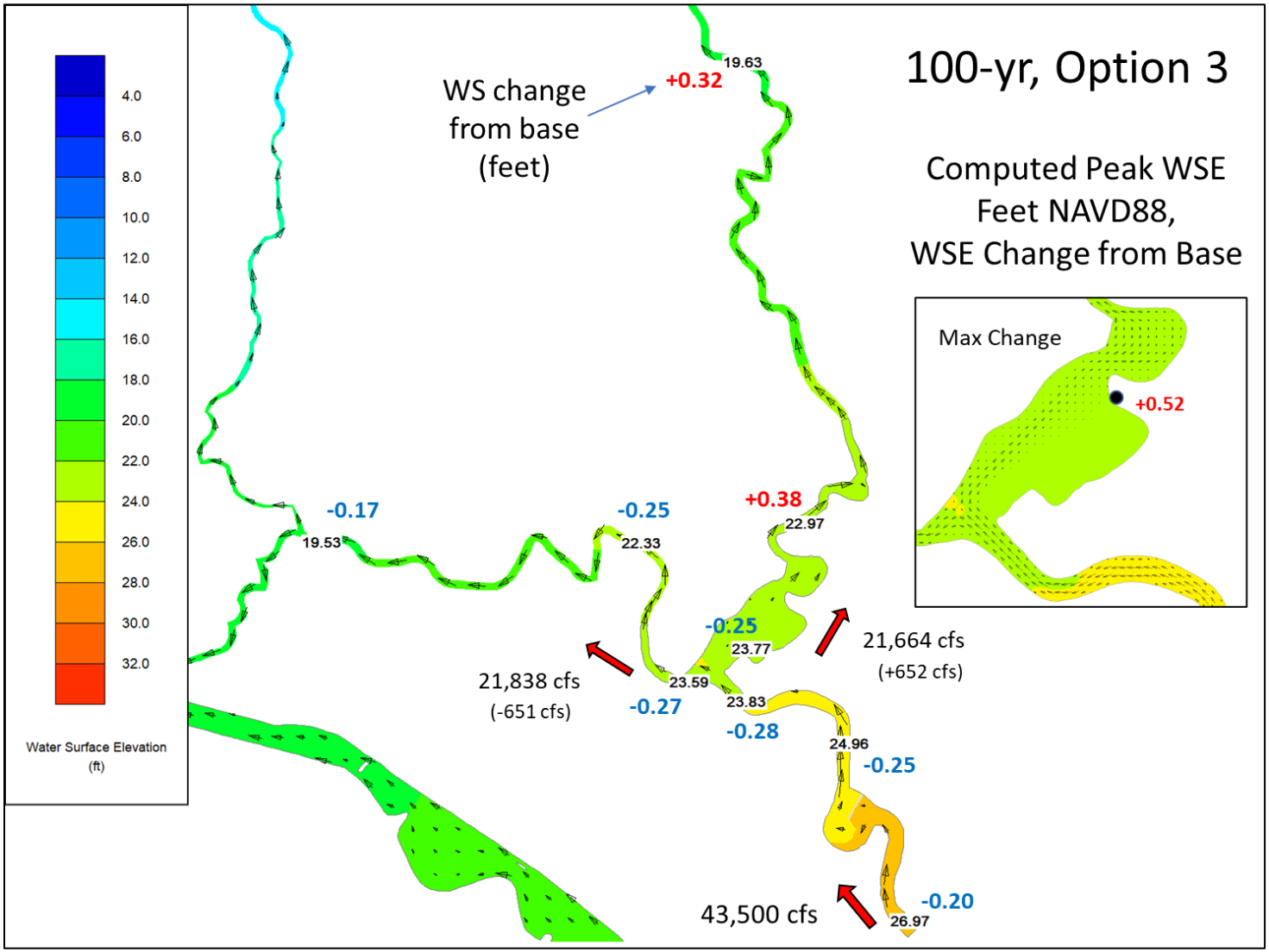

Figure 43. Option 3, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River reaches for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow.

cbec project No. 21-1024	Created By: RMA

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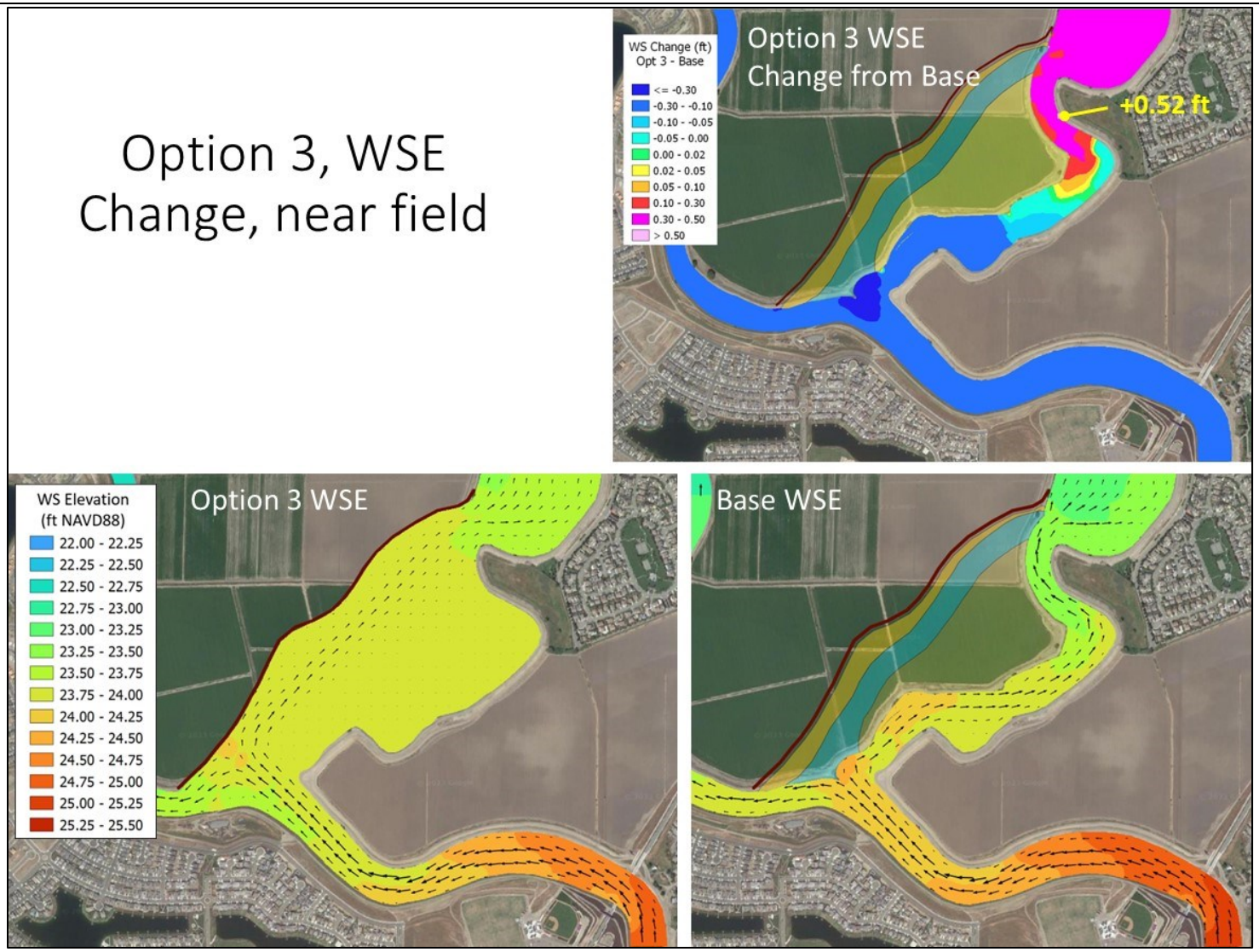


Figure 44. Comparison of the predicted peak WSE for the Option 3 and Base conditions for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

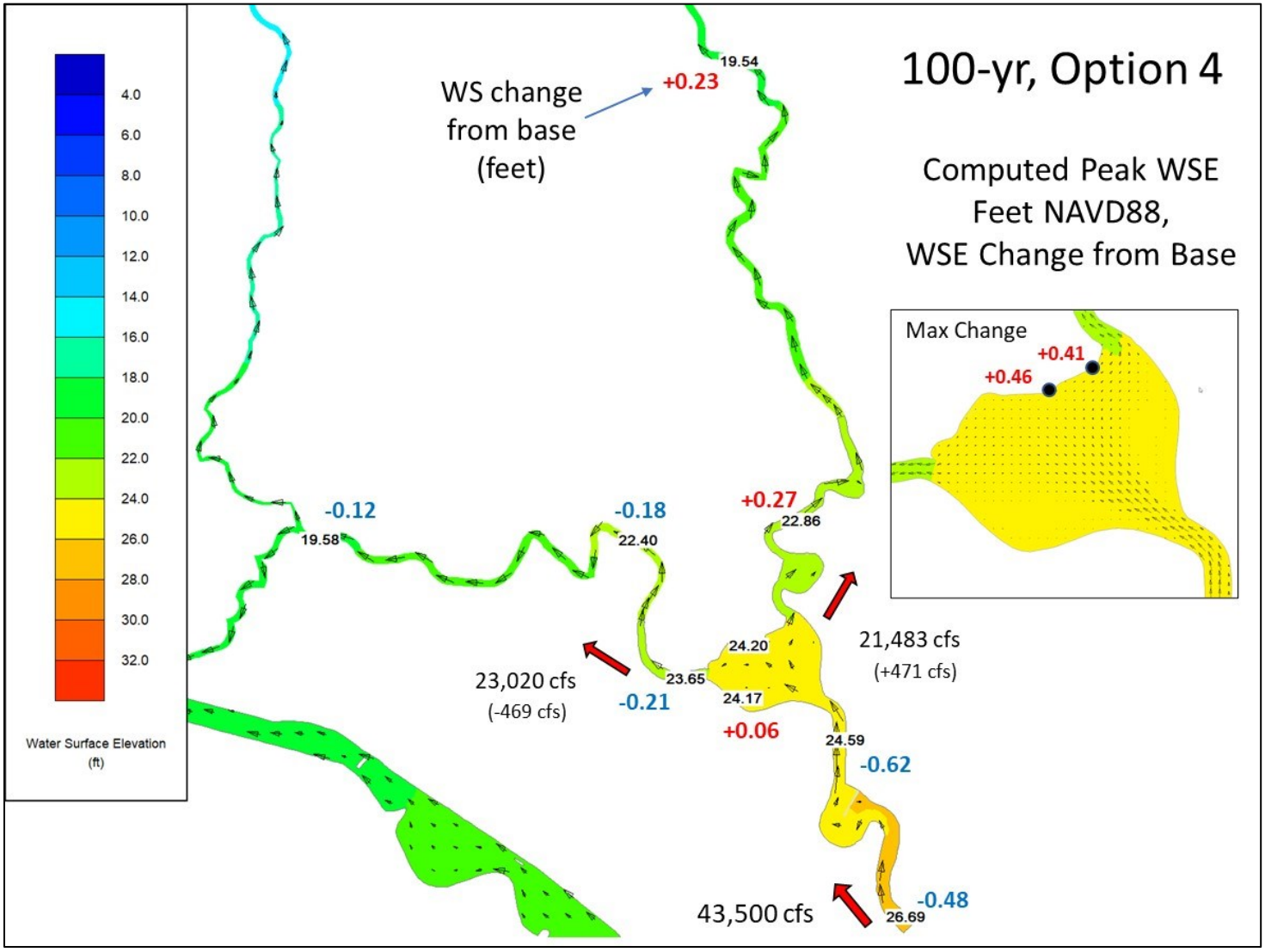


Figure 45. Option 4, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River reaches for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

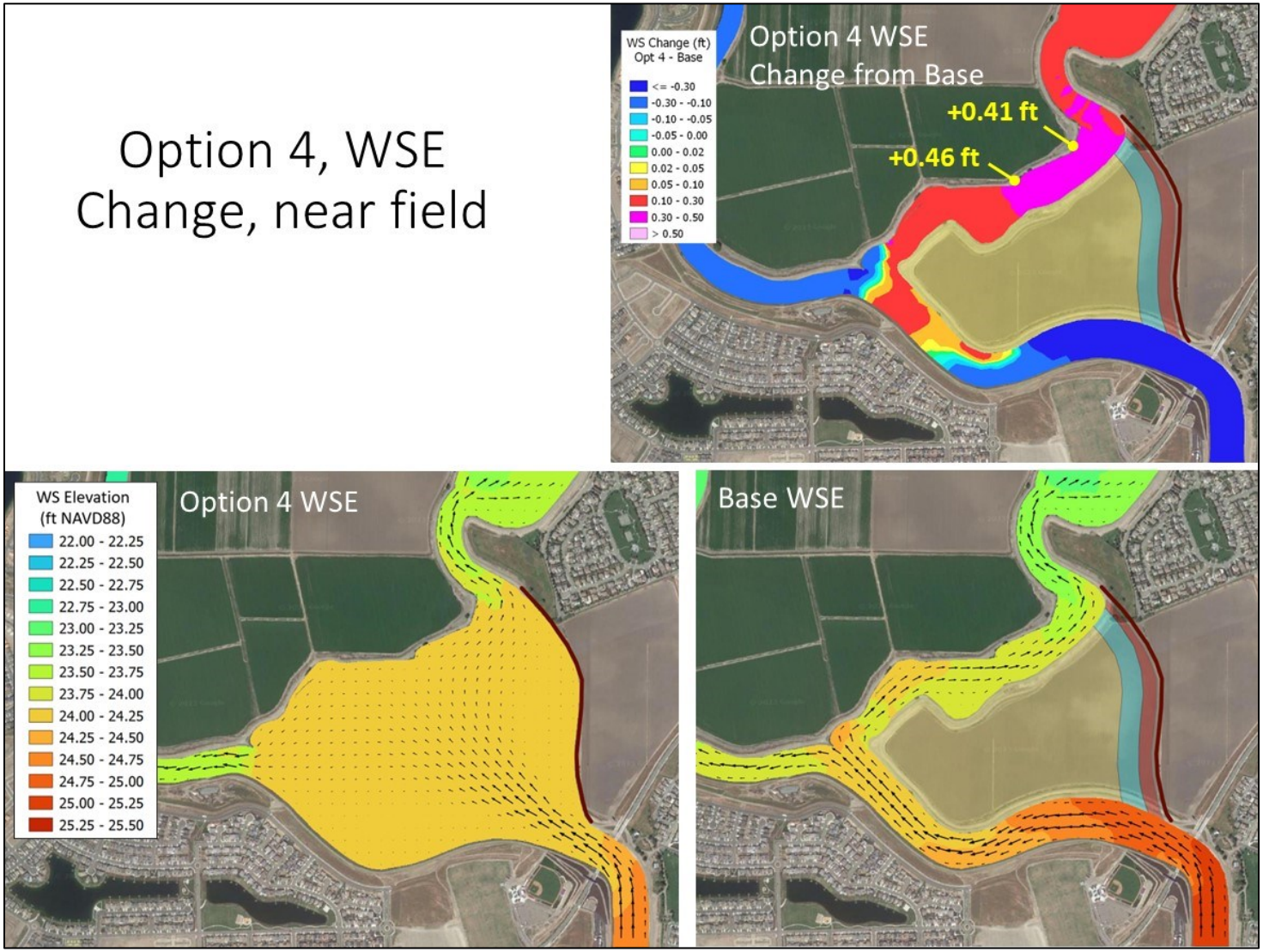


Figure 46. Comparison of the predicted peak WSE for the Option 4 and Base conditions for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

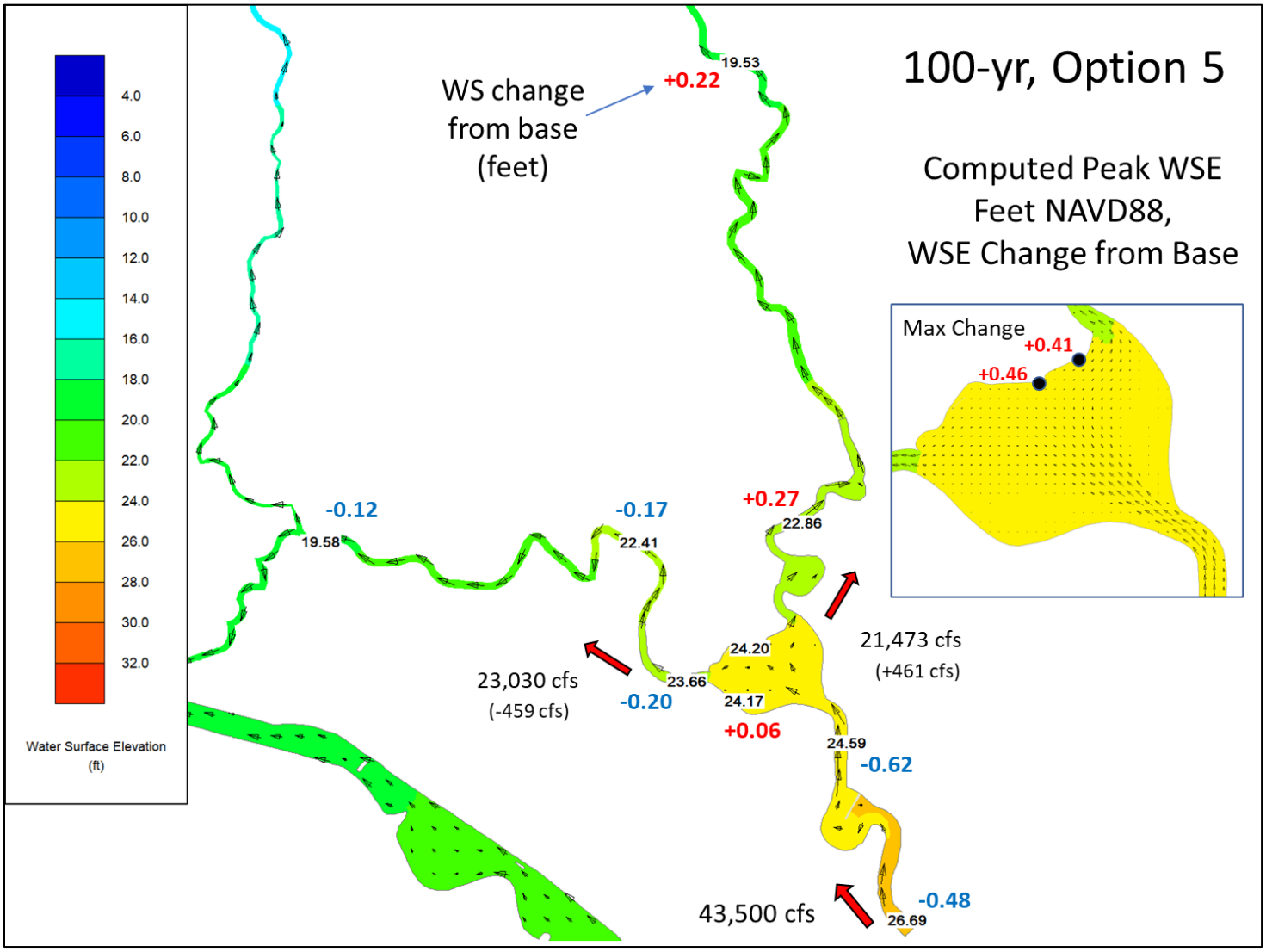


Figure 47. Option 5, peak WSE and WSE change from the Base conditions for the San Joaquin River and Old River reaches for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow

cbec project No. 21-1024	Created By: RMA

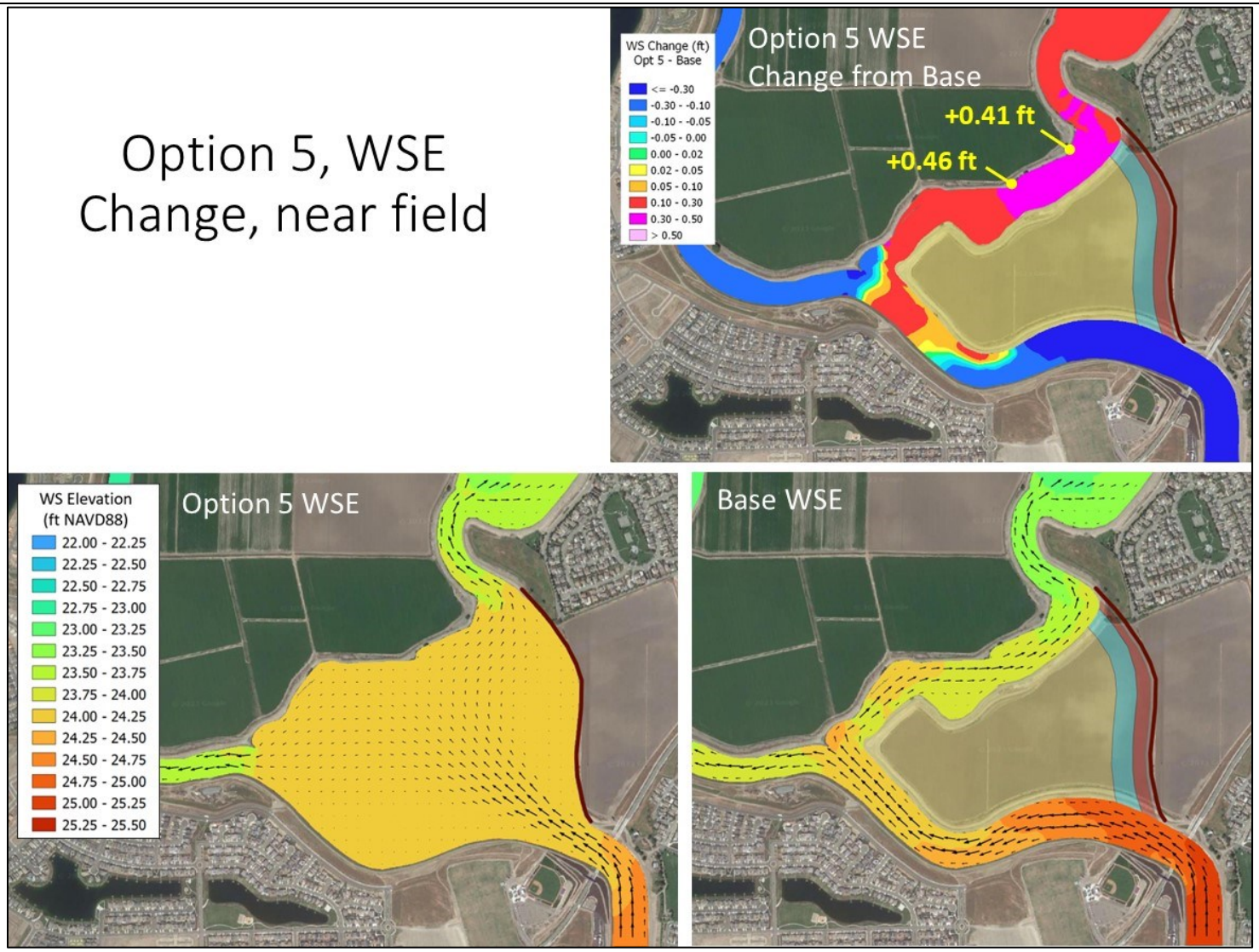
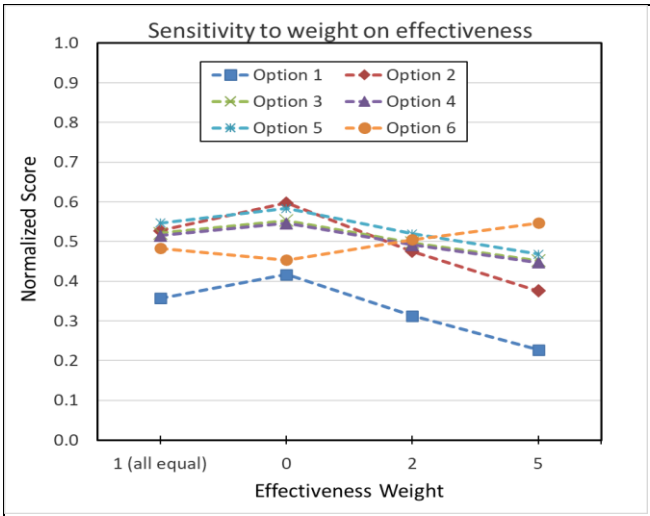
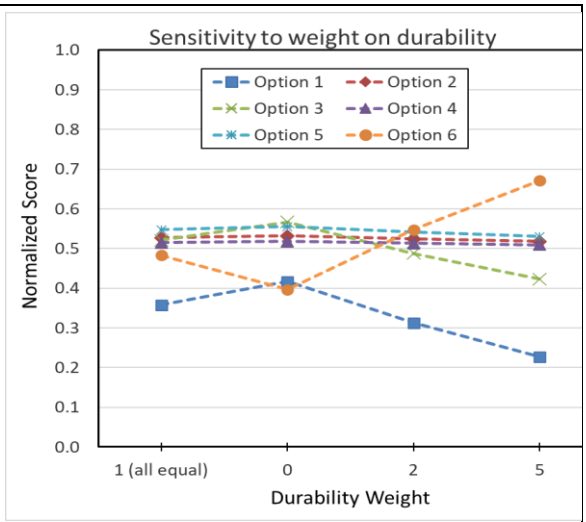
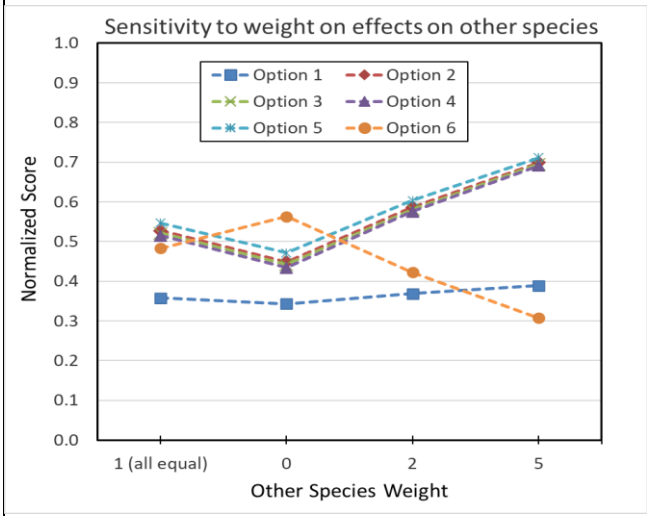


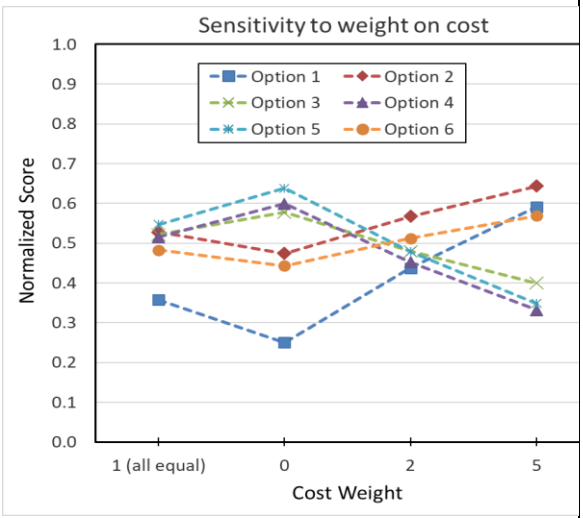
Figure 48. Comparison of the predicted peak WSE for the Option 5 and Base conditions for Scenario 2 (SJR inflow at the Mossdale Bridge) for the 100-year event flow

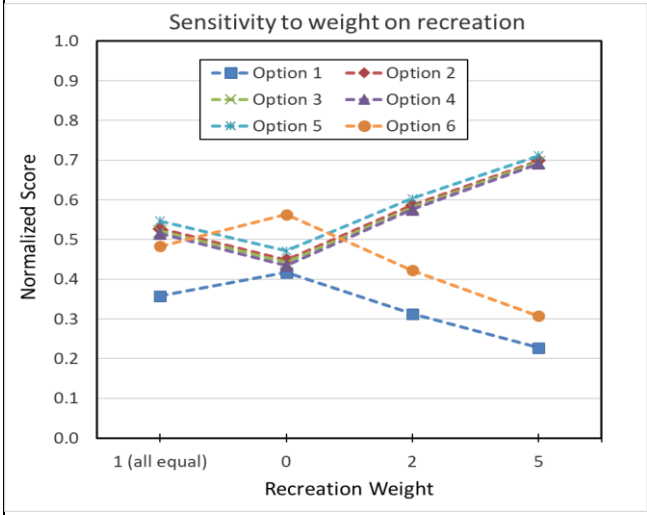
cbec project No. 21-1024	Created By: RMA











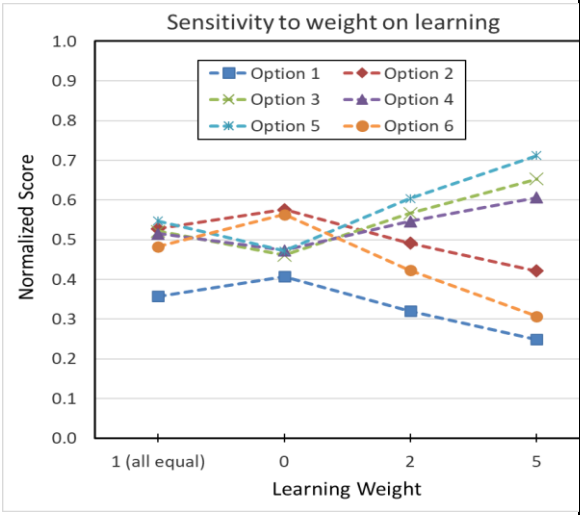


Figure 49. Sensitivity of option ranks to weighting factors on individual objectives

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