

# EVALUATION OF HISTORICAL ALLUVIAL CHANNEL CROSSINGS

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*"The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."*



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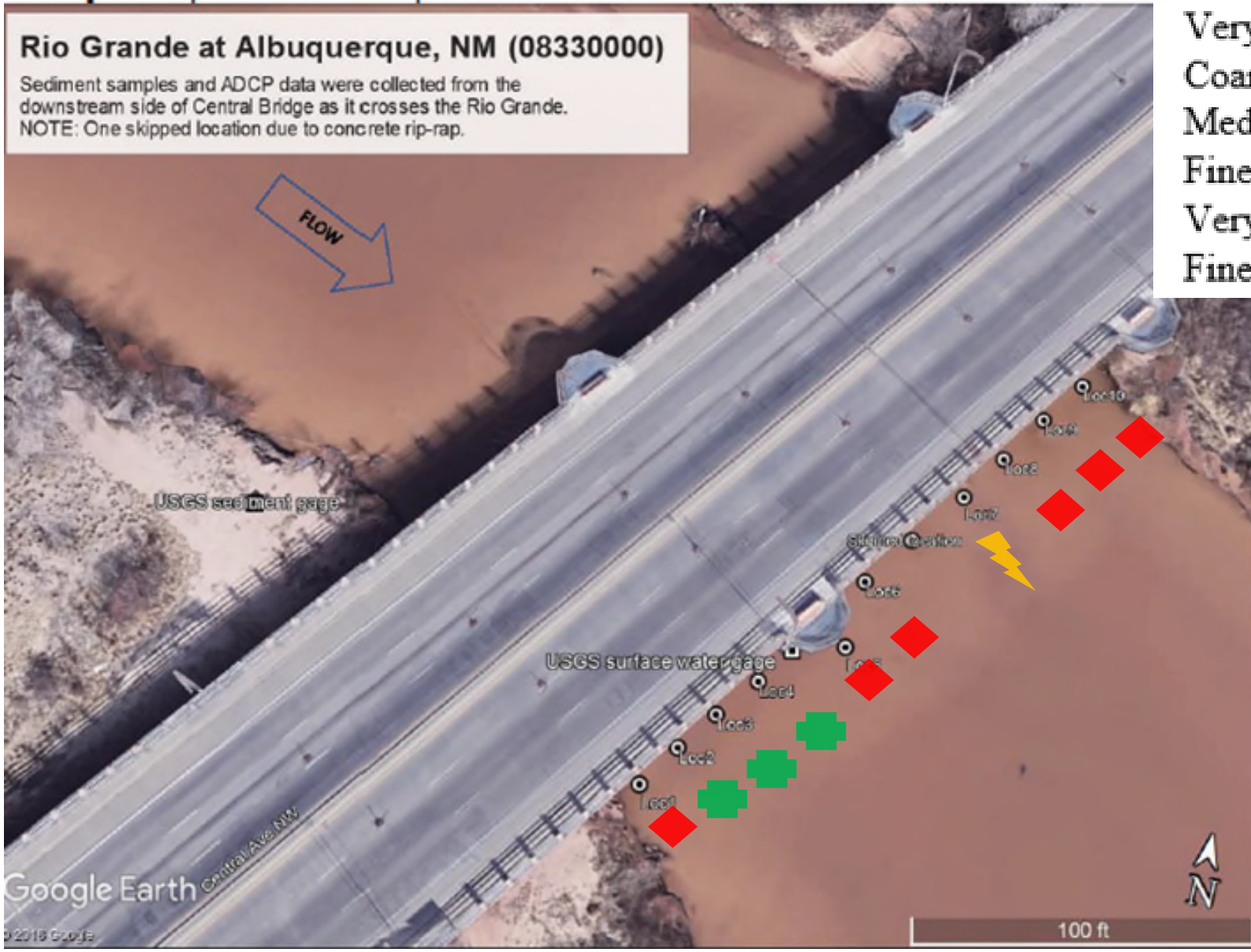
# A HISTORICAL HYPOTHESIS



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# A HISTORICAL HYPOTHESIS



**Rio Grande at Albuquerque, NM (08330000)**  
Sediment samples and ADCP data were collected from the downstream side of Central Bridge as it crosses the Rio Grande.  
NOTE: One skipped location due to concrete rip-rap.

- Very Coarse Sand (VCS): 1-2 mm ⚡
- Coarse Sand (CS): 1-0.5 mm: ■
- Medium sand (MS): 0.5-0.25 mm ◆
- Fine sand (FS): 0.25 – 0.125 mm
- Very fine sand (VFS): 0.125 – 0.0625 mm
- Fines (silts and clays): < 0.0625 mm

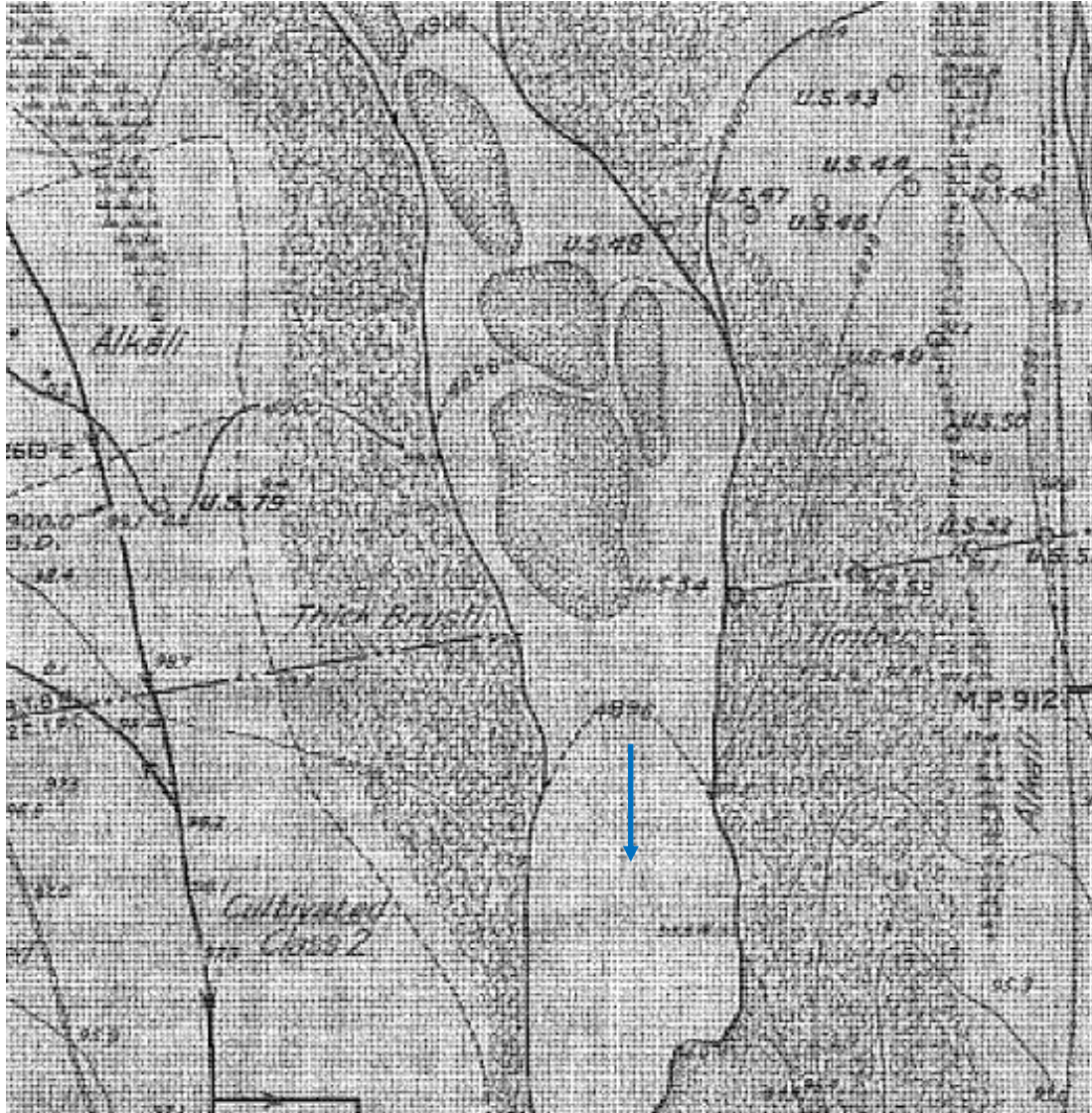


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# A HISTORICAL HYPOTHESIS



## HISTORICAL DOCUMENTATION OF MIDDLE RIO GRANDE FLOOD PROTECTION PROJECTS Corrales to San Marcial



K. Lynn Berry and Karen Lewis

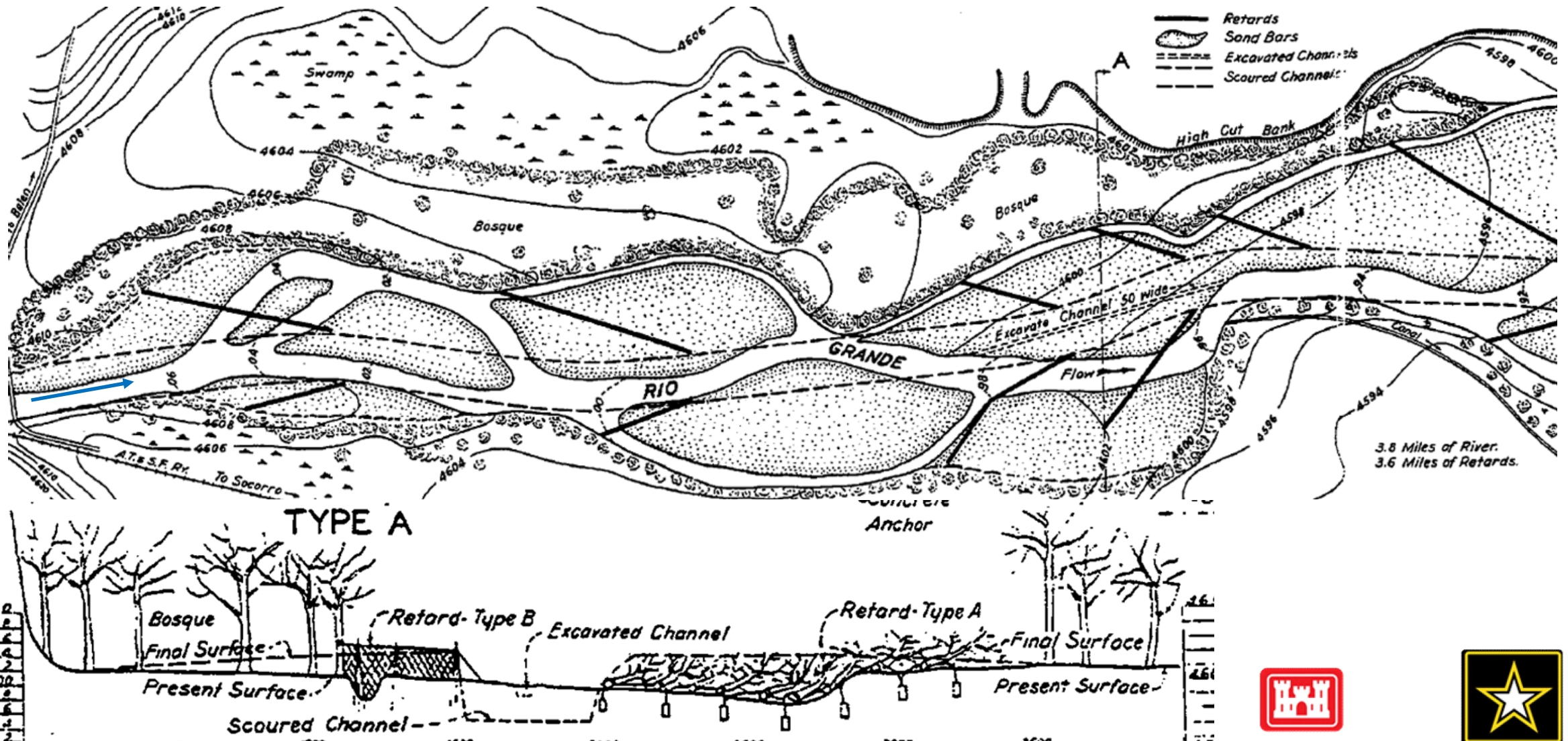
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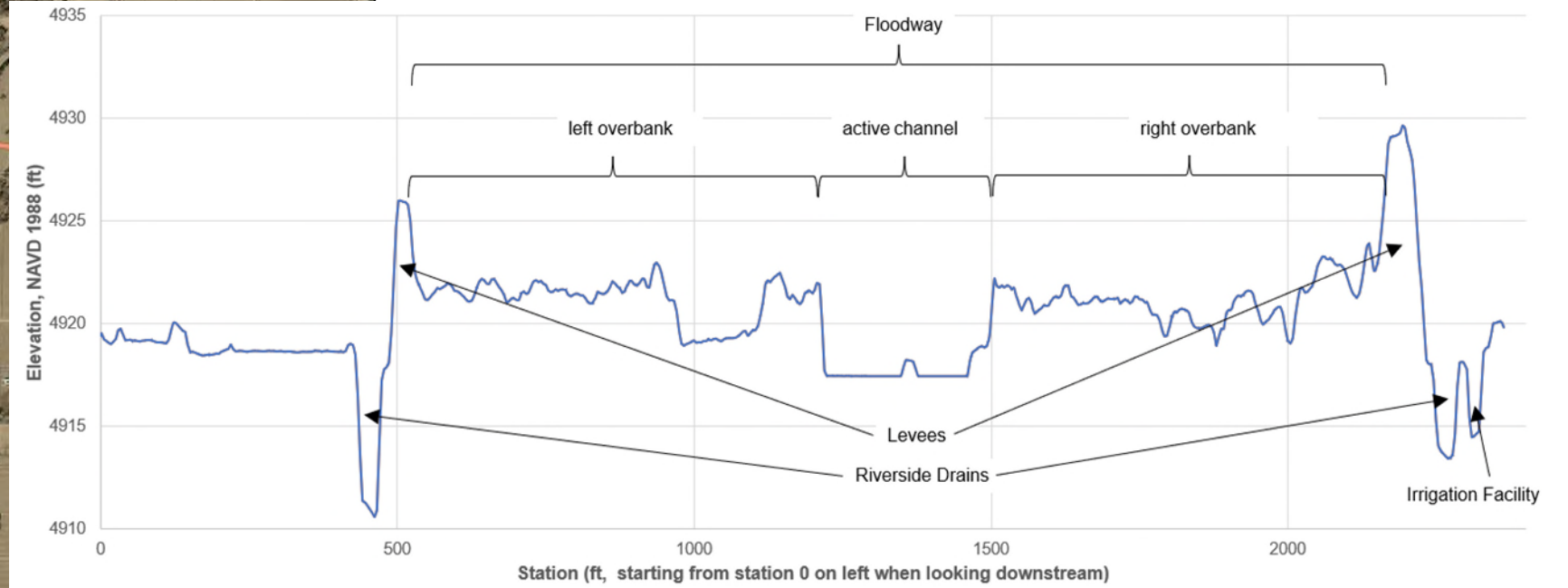
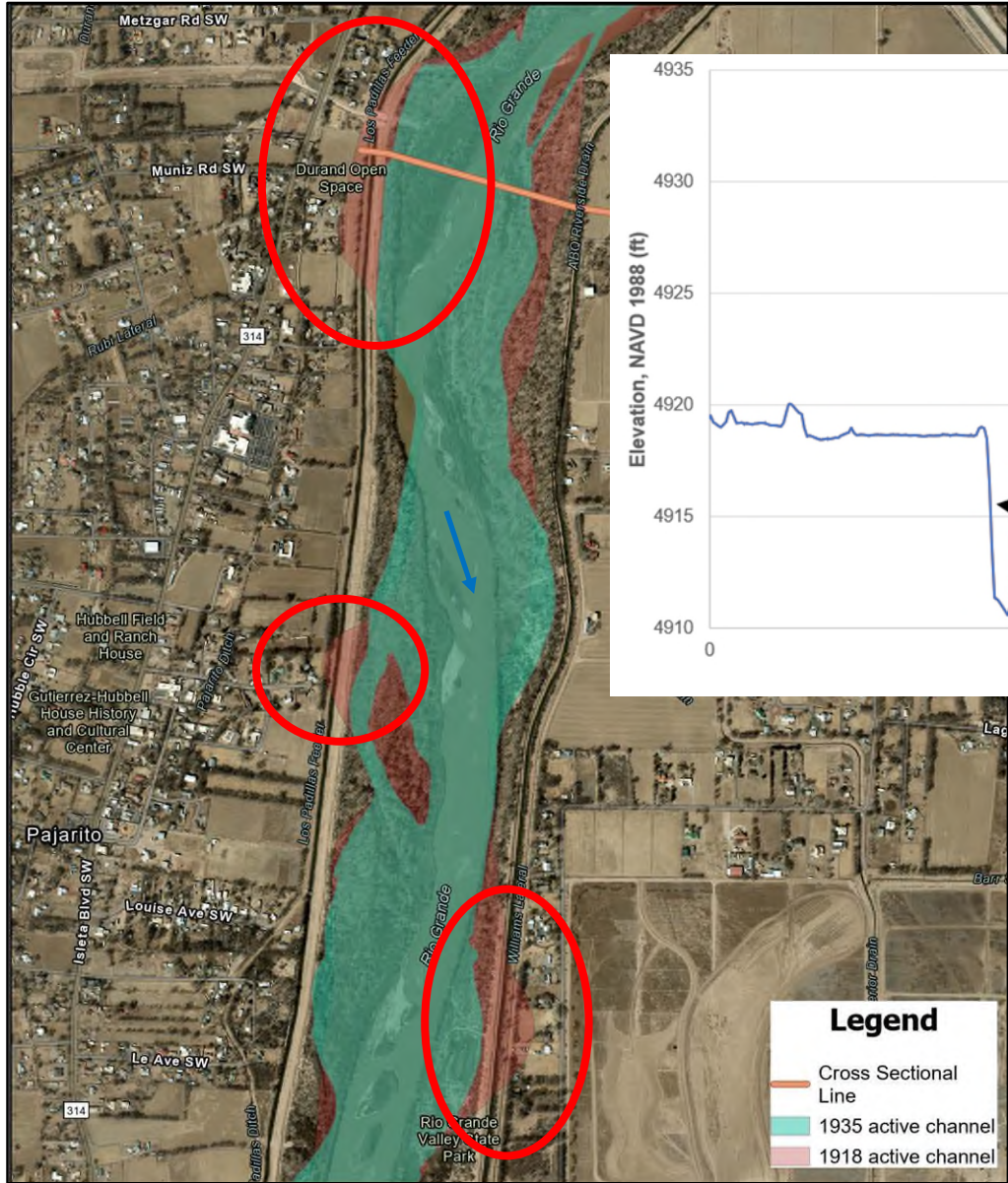


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# A HISTORICAL HYPOTHESIS



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# A HISTORICAL HYPOTHESIS



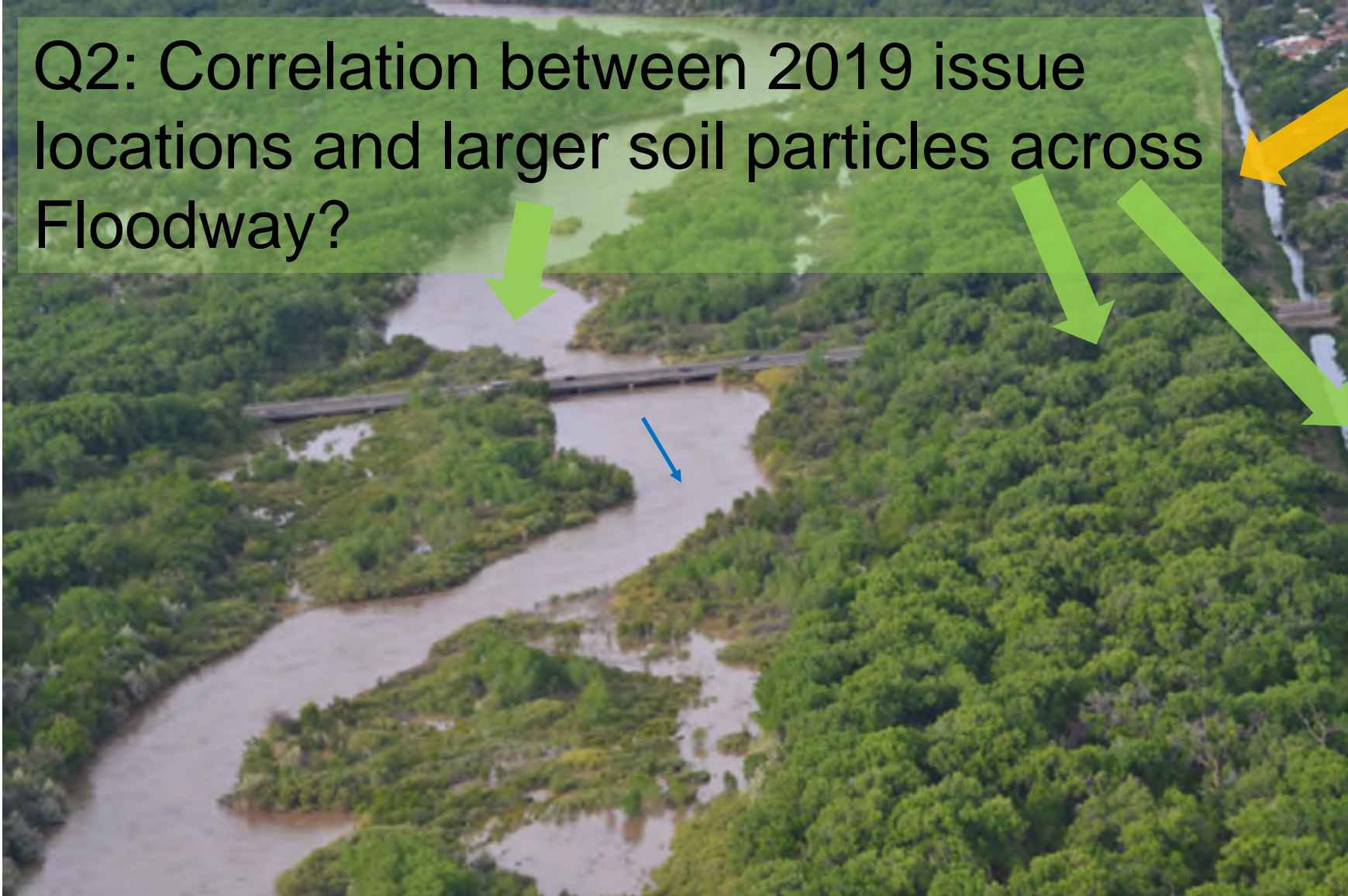
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# A HISTORICAL HYPOTHESIS

Q2: Correlation between 2019 issue locations and larger soil particles across Floodway?

Q1: Correlation between 2019 issue locations and historical alluvial channels?



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# HYPOTHESIS TESTING

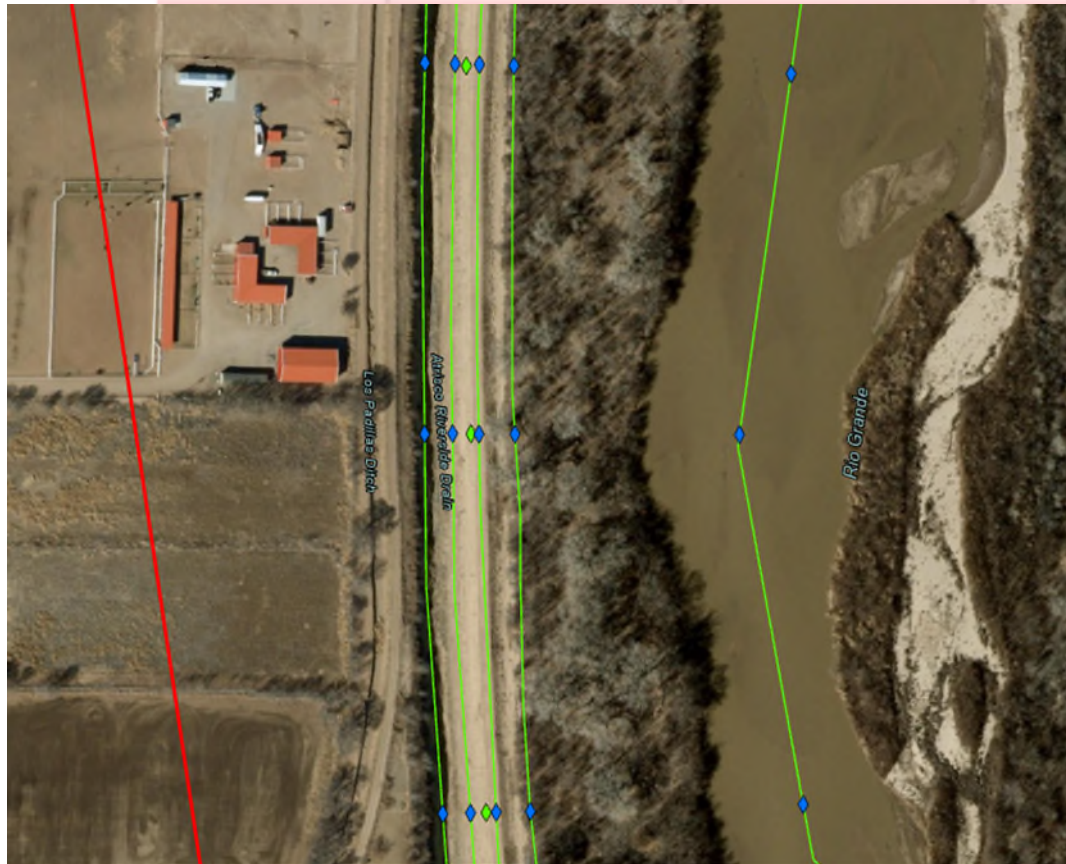
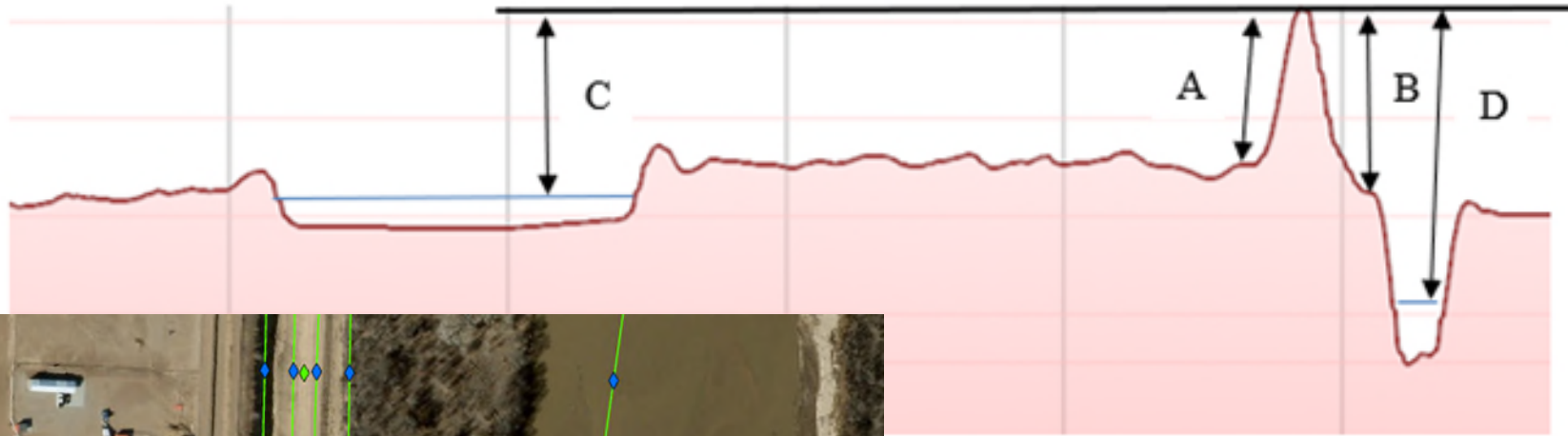


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# HYPOTHESIS TESTING



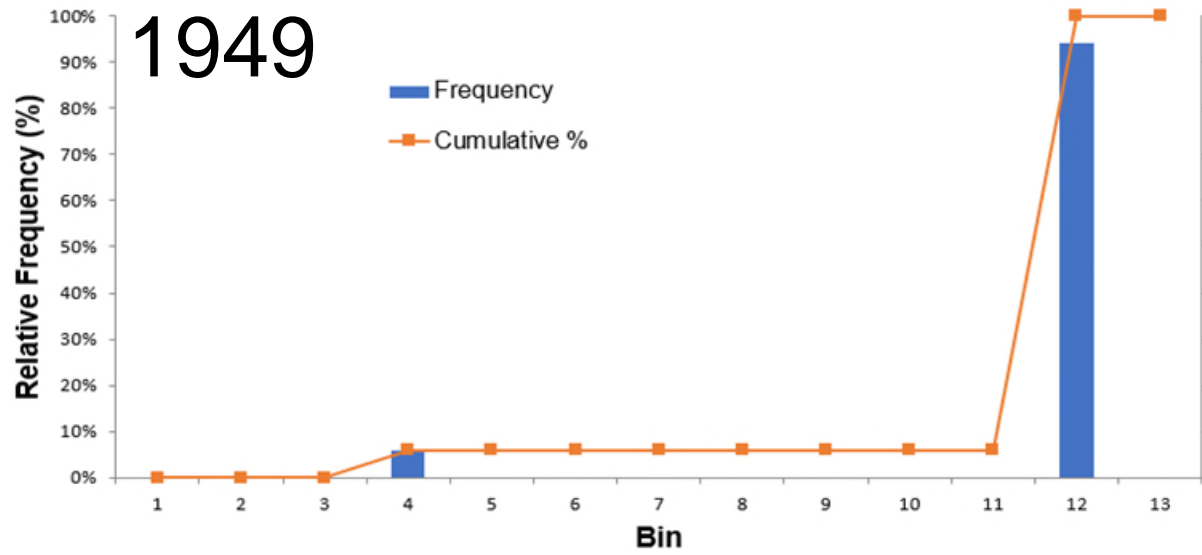
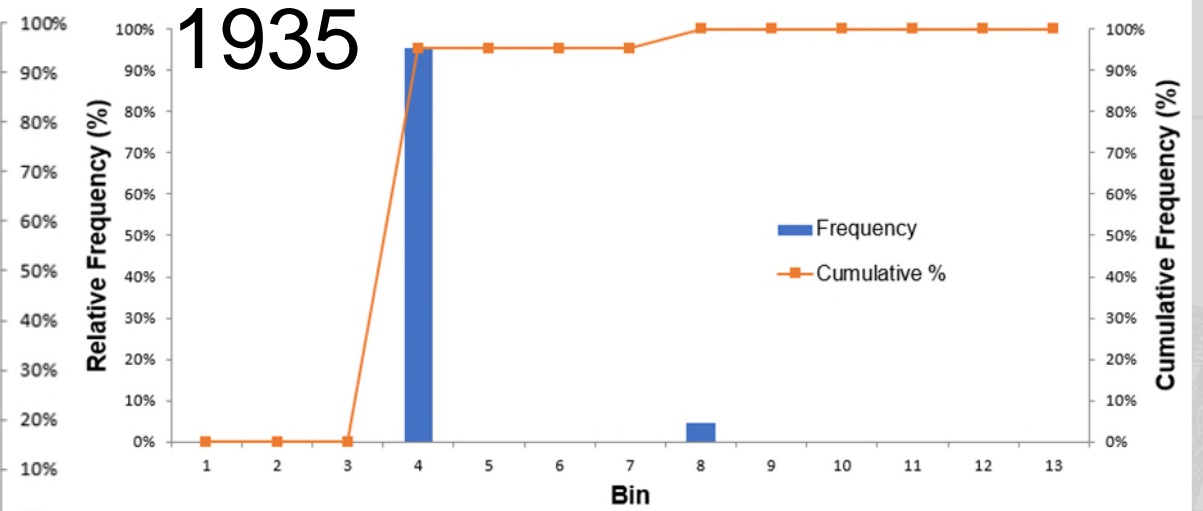
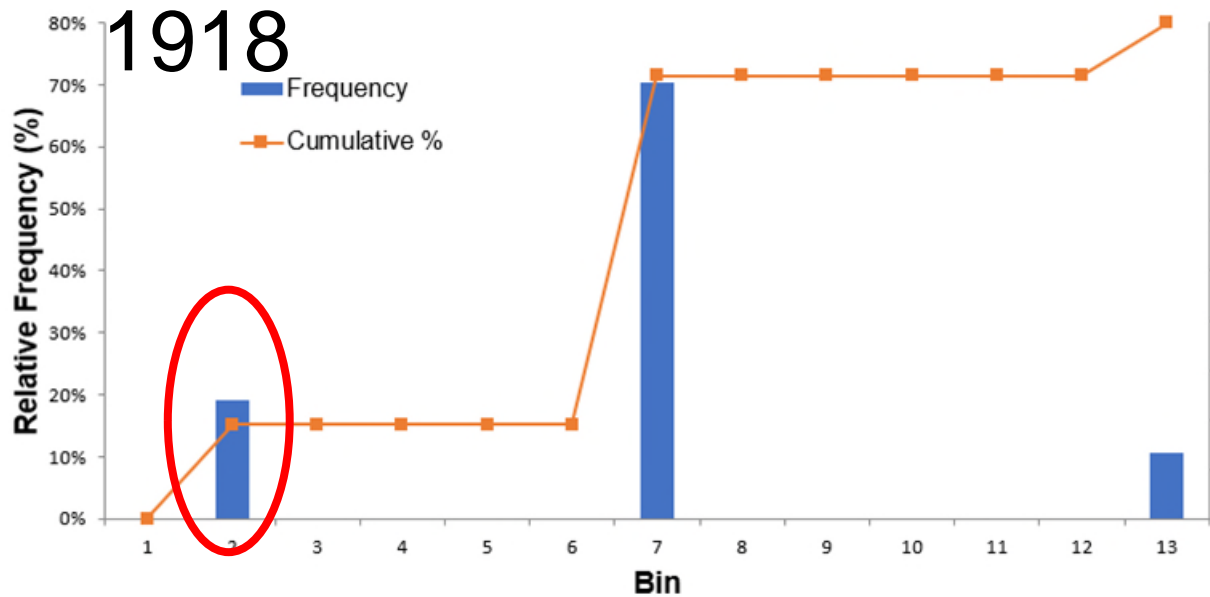
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# HYPOTHESIS TESTING



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# HYPOTHESIS TESTING

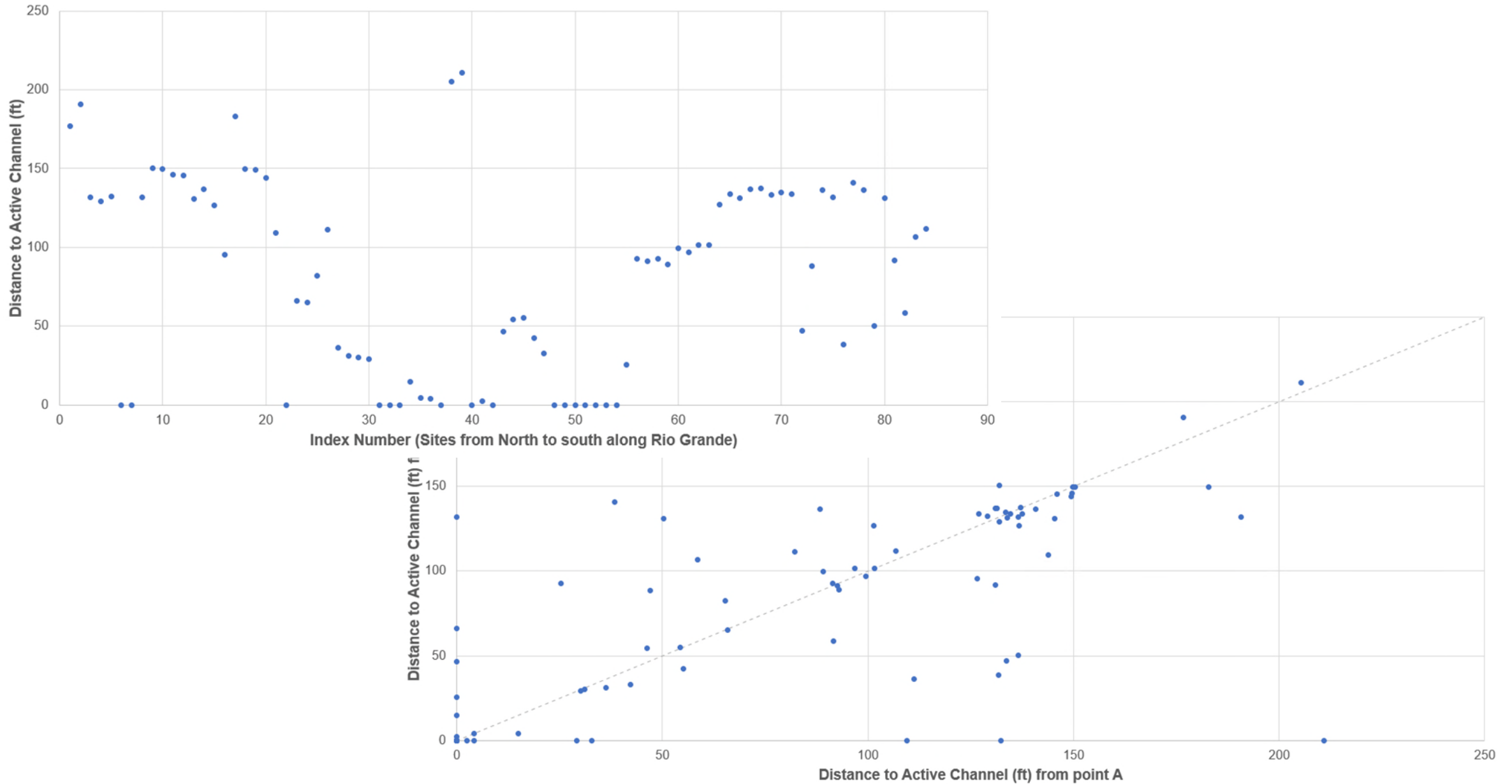
Statistic	Riverside Drain	Landside Levee Toe	Levee Centerline	Riverside Levee Toe	River Centerline
<b>d<sub>16</sub></b>					
Median	VFS	Fines	Fines	Fines	Fines
Tukey's Trimean	VFS	Fines	Fines	Fines	Fines
Q1/Q3	Fines to FS	Fines	Fines to VFS	Fines to VFS	Fines to FS
<b>d<sub>50</sub></b>					
Median	FS	VFS	FS	FS	FS
Tukey's Trimean	FS	VFS	FS	FS	FS
Q1/Q3	VFS to MS	VFS to FS	VFS to FS	FS	VFS to MS
<b>d<sub>84</sub></b>					
Median	MS	MS	MS	MS	MS
Tukey's Trimean	MS	MS	MS	MS	MS
Q1/Q3	MS to CS	MS	MS to CS	MS to CS	MS to VCS



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# HYPOTHESIS TESTING



# RESULTS

Q1: Correlation between 2019 issue locations and historical alluvial channels?

- Trend: active channel to upland
- 2019 locations: moderate distance to historical channels
- Plots indicate correlation
- Different trend for correlated borehole to historical channels

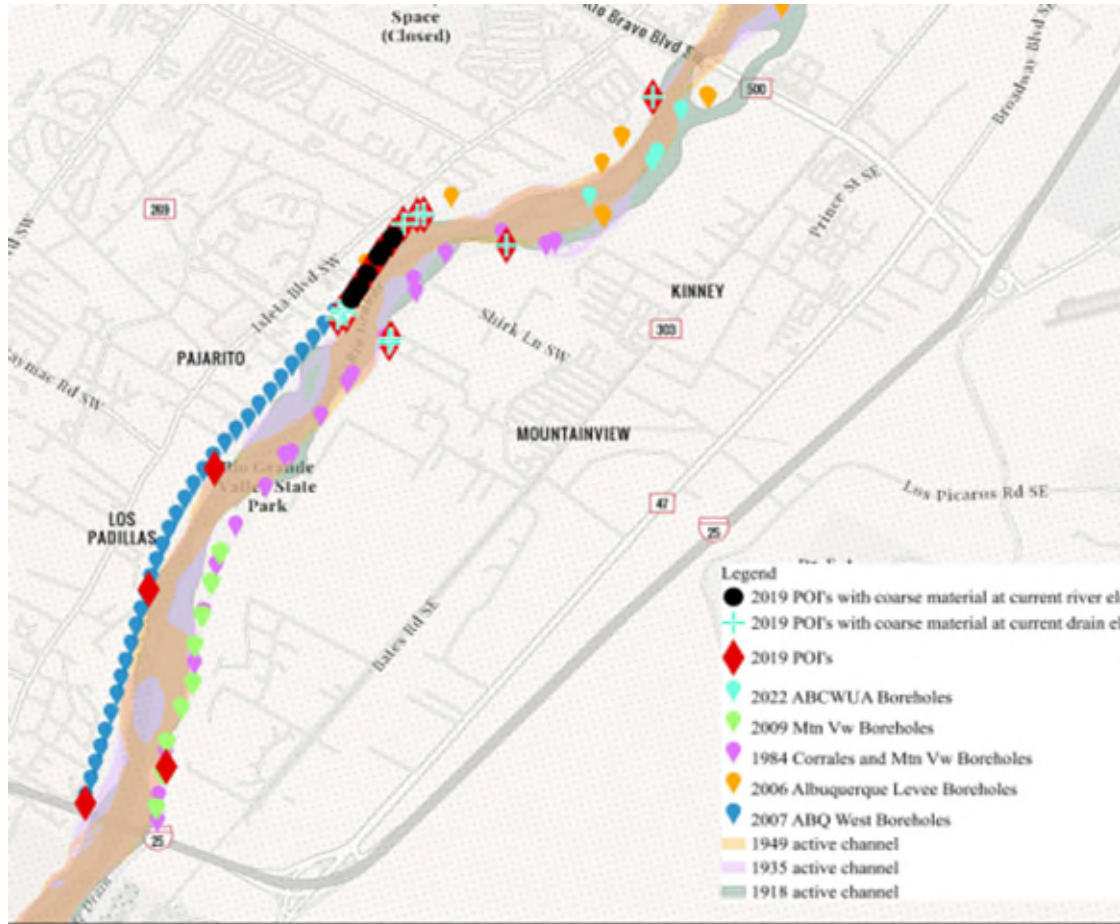


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# RESULTS

## Q2: Correlation between 2019 issue locations and larger soil particles across Floodway?



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# TAKE AWAYS

- Observable links between historical channels and groundwater movement is possible
- Potentially better connection if:
  - Better morphological description
  - Closer stratigraphy information

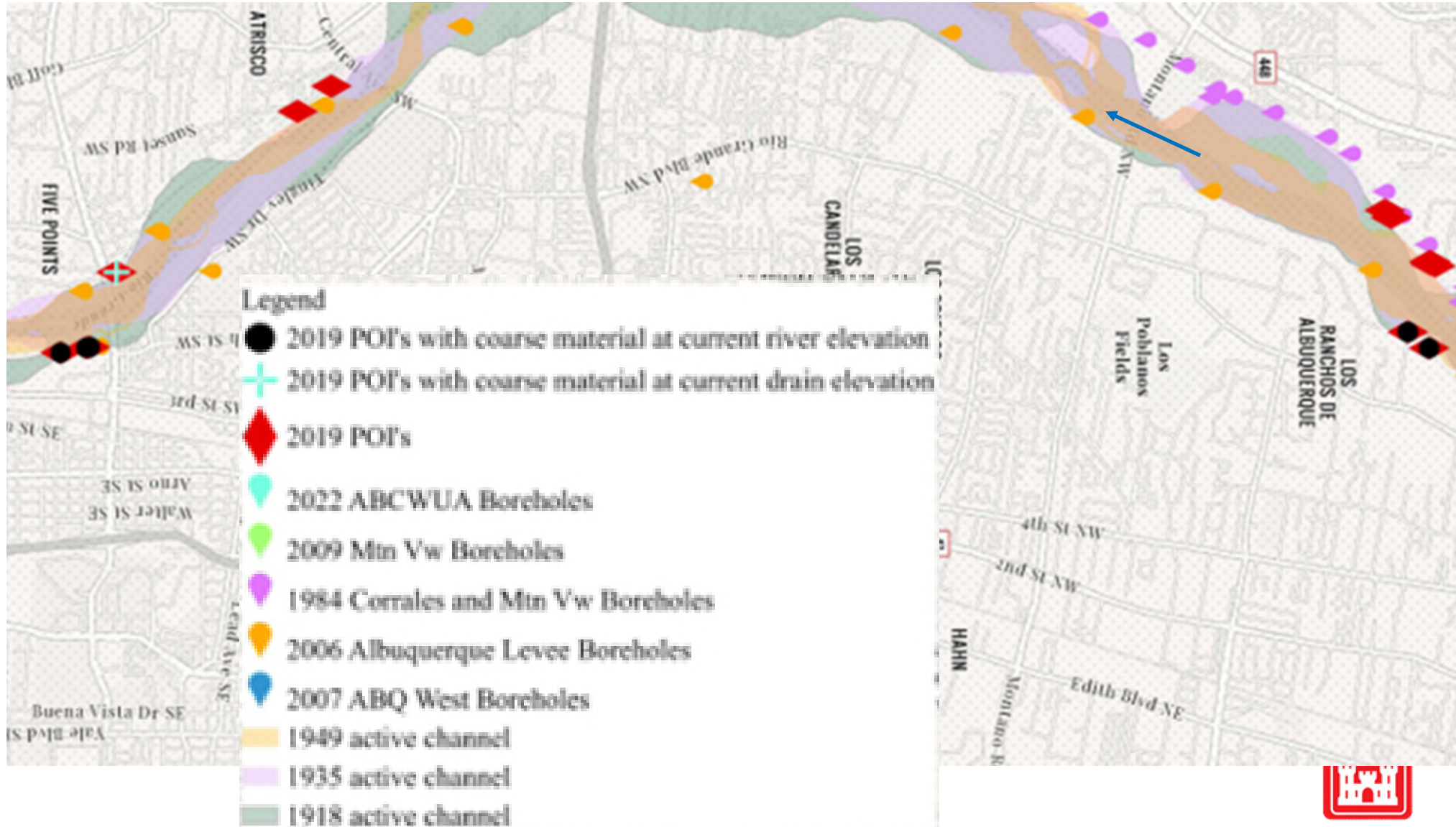


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# QUESTIONS



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