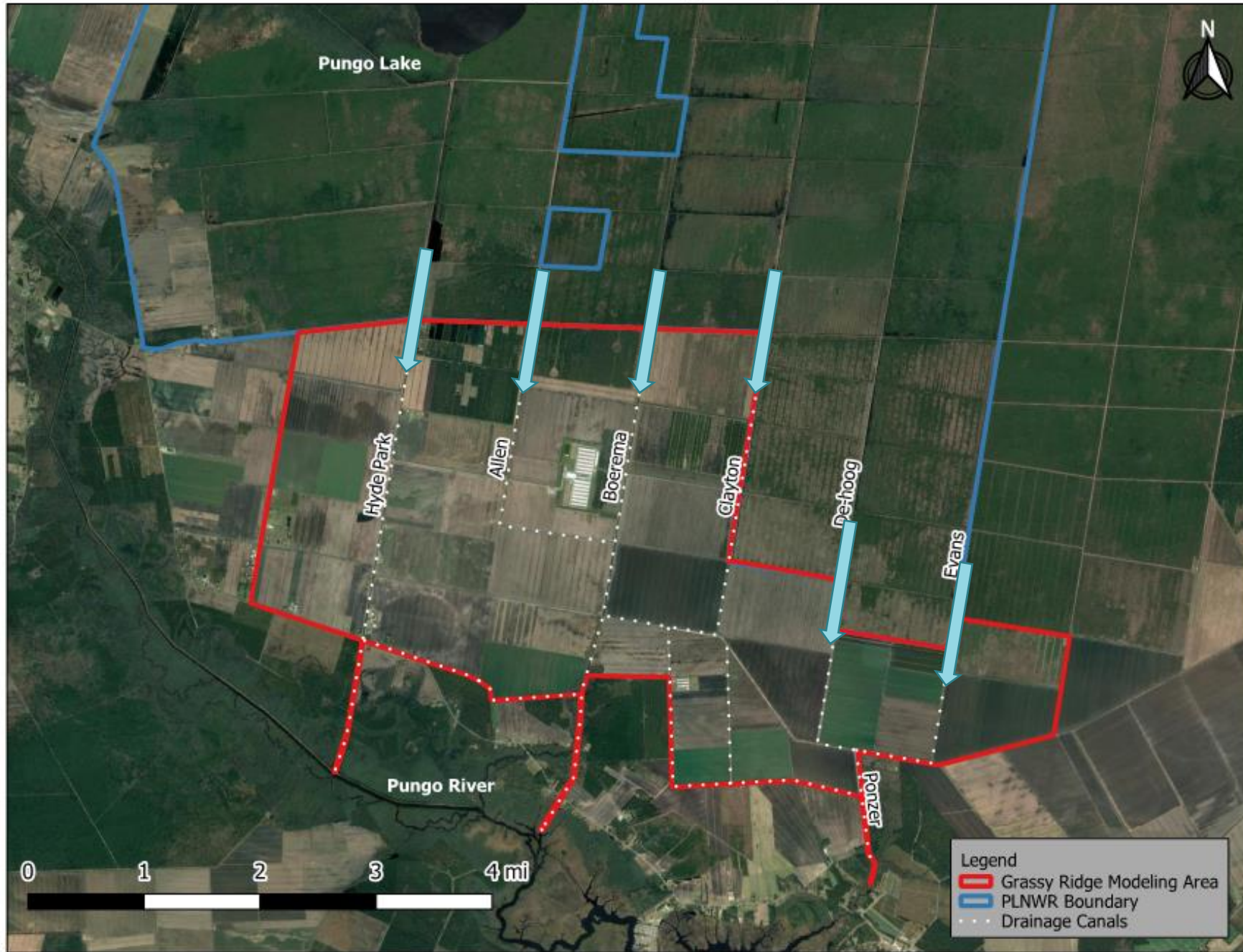




Grassy Ridge Flood Reduction Modeling

Final Results

Grassy Ridge Modeling Boundary



KRIS BASS
ENGINEERING

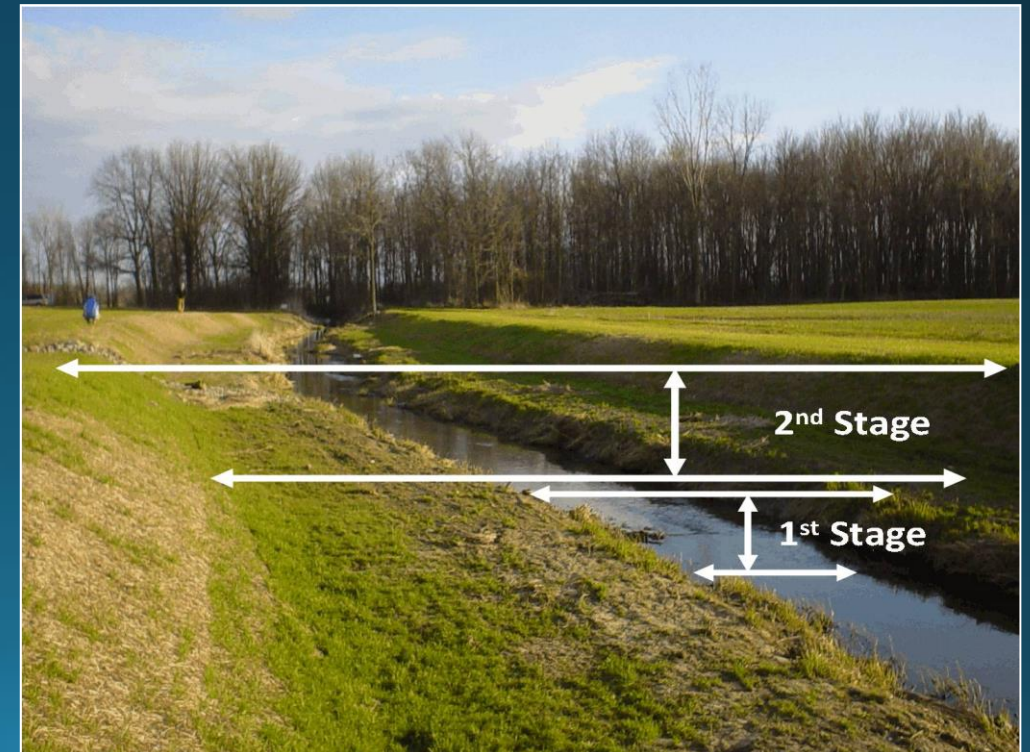
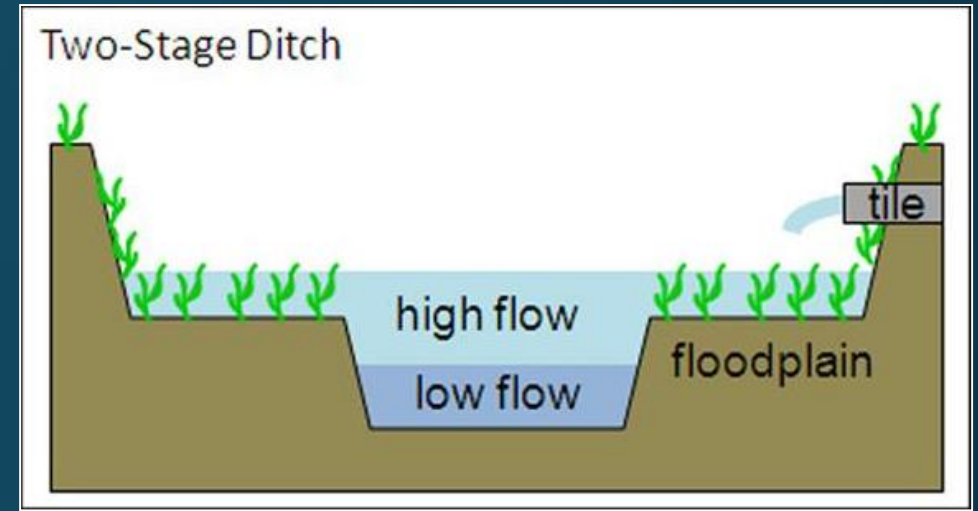
Grassy Ridge Flood Reduction

Hyde County, NC

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919.960.1552

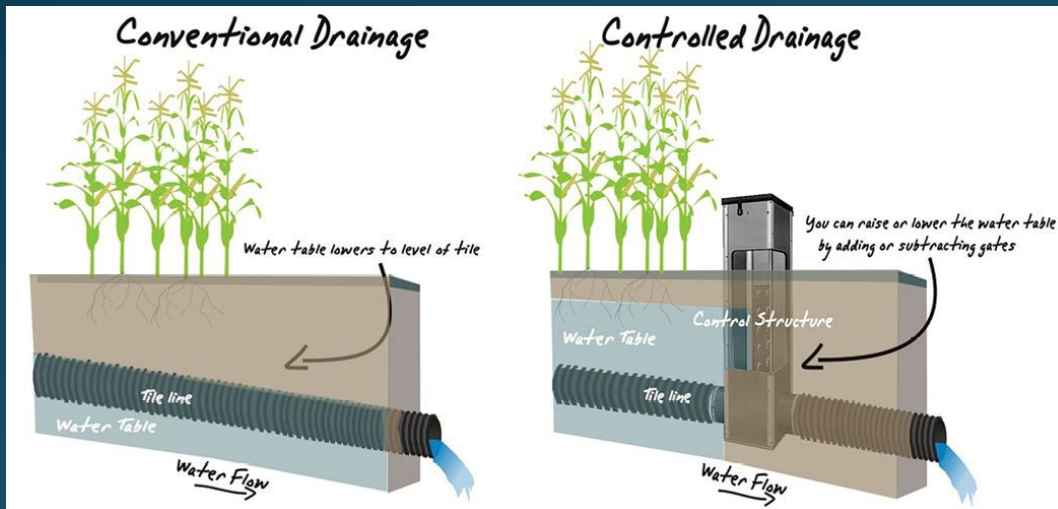
Research and Analysis

- Land Management Effects
 1. Conservation tillage (10% runoff reduction)
 2. Controlled drainage (10% runoff reduction)
- Canal Geometry Modifications
 3. Dredging
 4. Two-stage canals

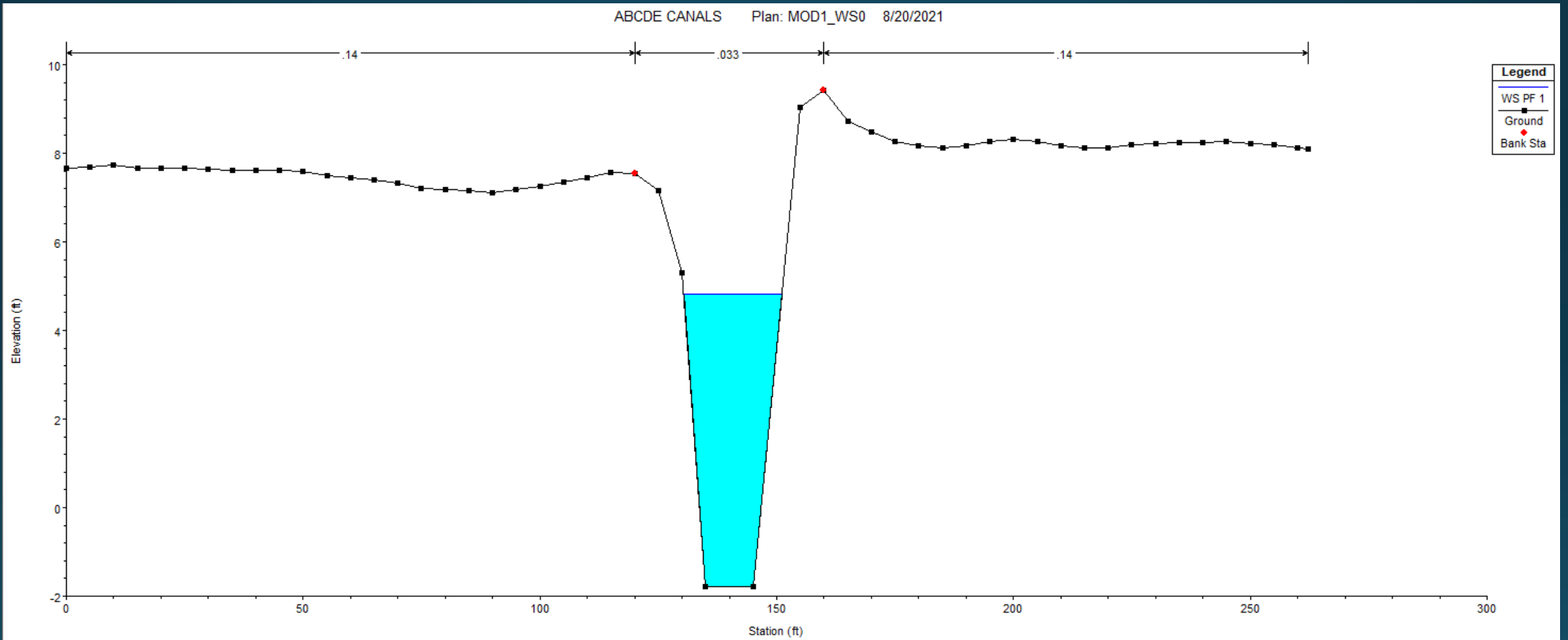


Land Management Results

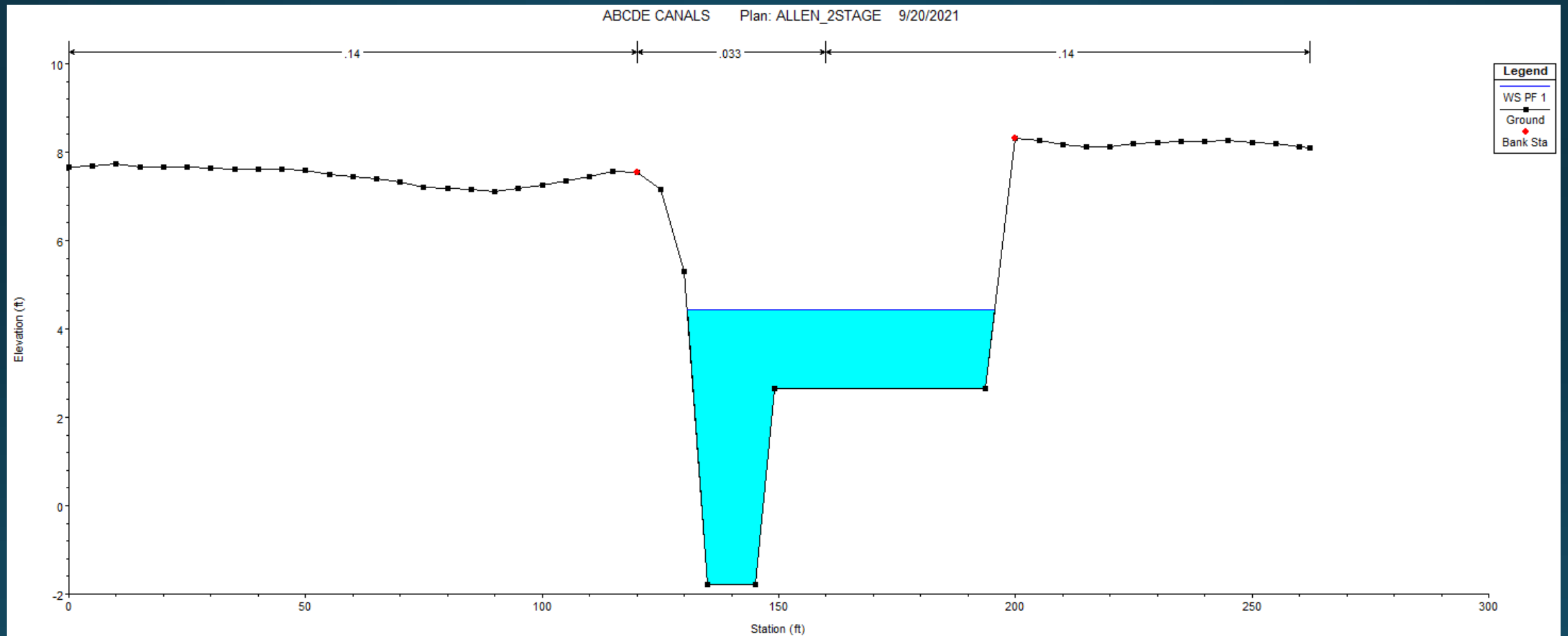
- No till or controlled drainage reduce flood magnitude by up to 1.75'
 - Largest benefits occur farthest upstream
 - Flood reduction benefit decreases as you move downstream
- No till and control drainage **double** flood reduction benefit



Canal Geometry Modifications



Canal Geometry Modifications



Canal Geometry Final Results

- 2 stage canal provides additional capacity within the canal banks and provides benefit upstream
 - Benefits can be achieved wherever this is implemented
 - Compound moving upstream
- Magnitude of benefit is influenced by slope
 - Ponzer & HP have greater flood reduction benefits
 - Start where flooding is an issue and where land owners are interested
- Boerema
 - Far DS will not provide the best results (Pungo River influence)
 - Start around Hwy 45, work upstream
- Ponzer & HP
 - Start downstream, working upstream

Final Results

- BMPs can improve Grassy Ridge farms resilience to flooding and drought.
- Conservation tillage and controlled drainage implementation can have meaningful benefits on canal flows.
- 2 stage canals can improve drainage capacities.
 - Benefits are most evident directly adjacent to the improvements, but also extend upstream.
- Upsize crossings to 7' minimum or install a bridge.