

Project: Foothill Street – Town of Yorktown, NY

Scope: Flood Analysis / Proposed New Residence

Date: October 30, 2024

Introduction:

The proposed house will be near a FEMA flood zone but not within the flood zone. A site plan was prepared to facilitate an analysis of whether the new addition would be affected by the 100-year flood and floods in excess of the 100-year event.

To analyze the effect, cross-sections were taken at several stations along the Mohegan Outlet to match the FEMA flood report. For the proposed condition, the grading in certain cross-sections was adjusted to reflect the filling needed to construct the house. Our office used US Army Corps HEC-RAS software to compute the flood elevations.

The 100-year flood elevation before and after the construction determines whether the proposed addition will affect the flood plane.

This report relies on the flows and cross sections found in FEMA's "Flood Insurance Study" for Westchester County, dated December 8, 2014. Our model recreates the flood line from the detailed contours and the FEMA estimated flows in order to more accurately define the flood extents. Based on the FEMA report, the 100-year flow is 498 cubic feet per second. The project watershed is about 995 acres. The published flood level is about 401 feet in elevation.

FEMA Flood Map:

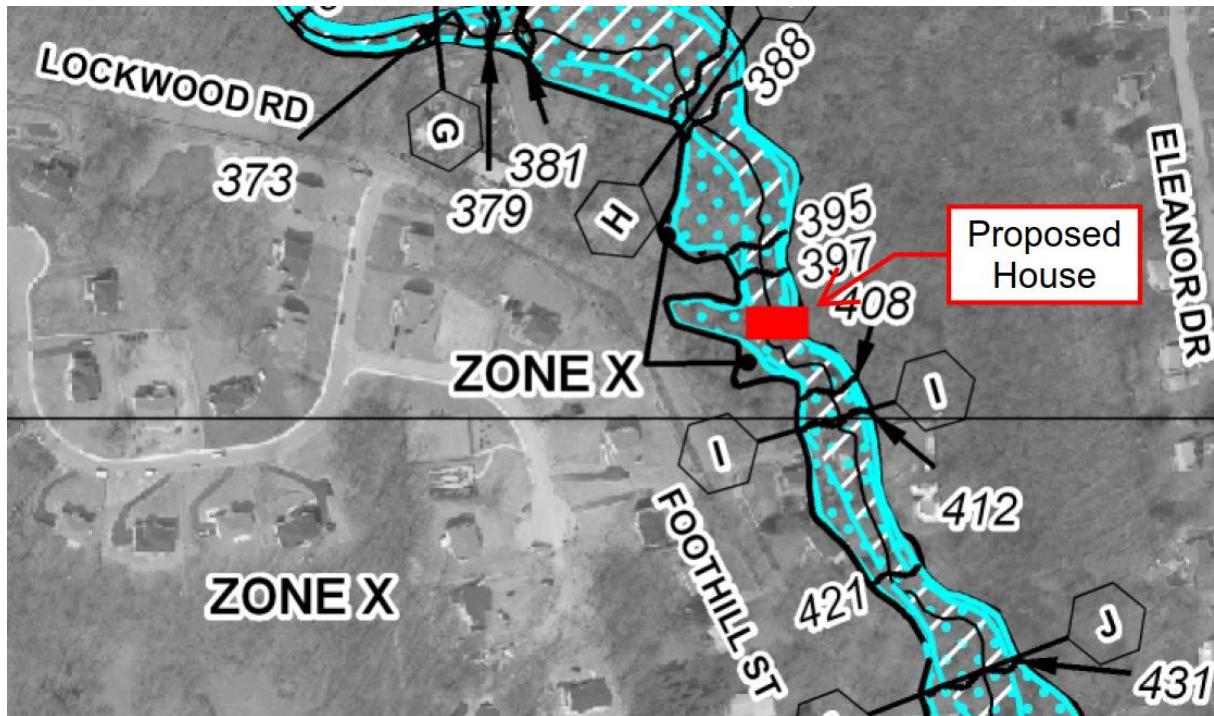
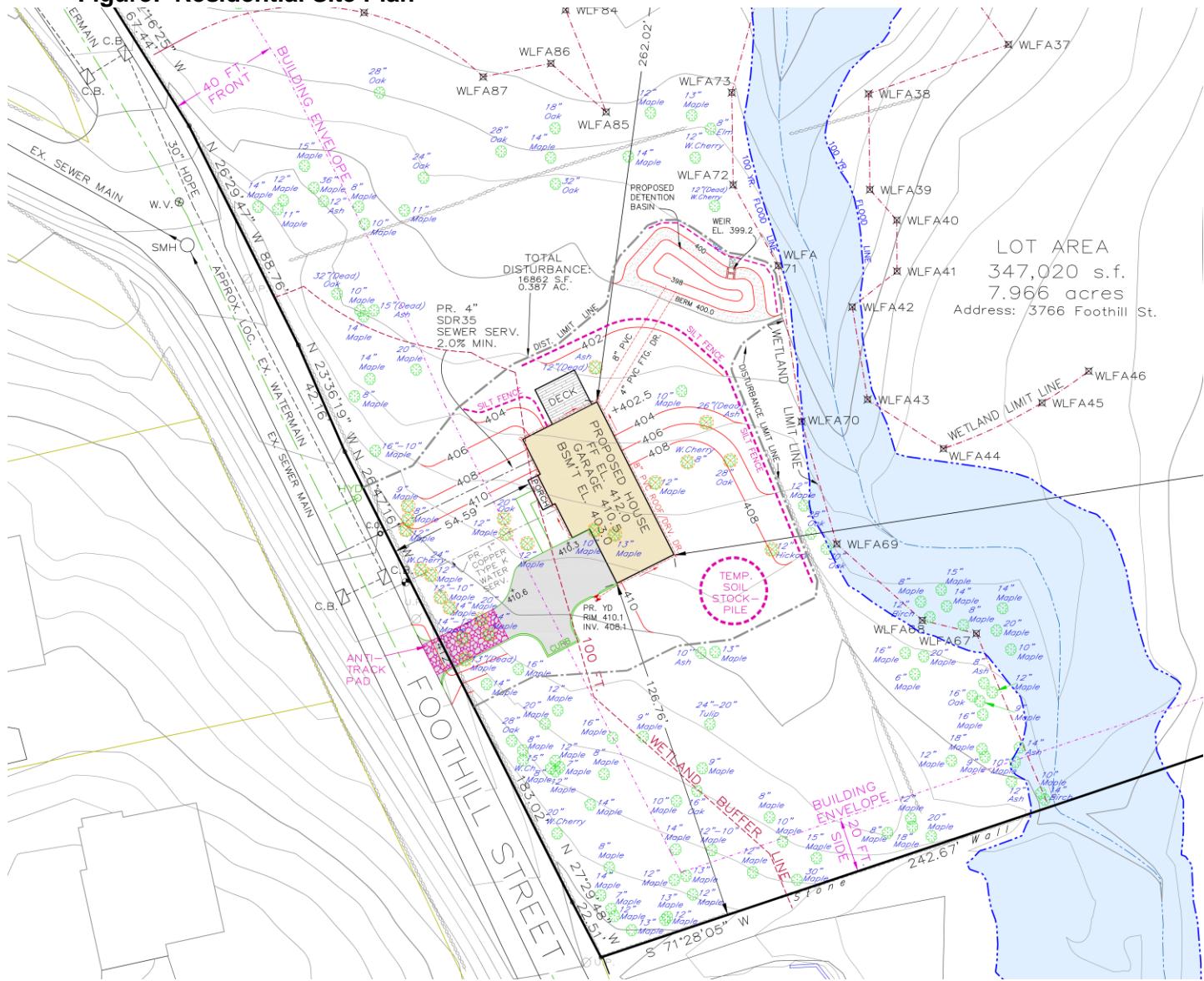


Figure: Residential Site Plan



Stormwater Control:

The roof leaders for the new addition will be directed to a stormwater basin designed to capture 1.5 inches of rainfall to mitigate runoff volume.

There is no need to provide stormwater detention due to the timing of the peak flows in this case. The site is near the flood zone, and the only relevant factor is whether there is any increase in flood elevation.

Figure: 100-Year Pre-construction HEC-RAS Cross section Layout and Flood Extents

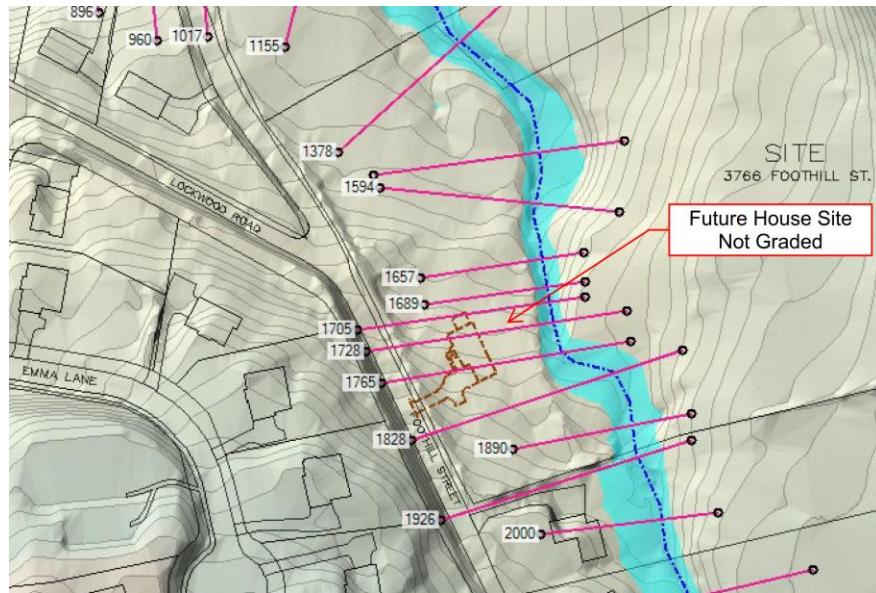


Figure: 100-Year Post-construction HEC-RAS Cross section Layout and Flood Extents

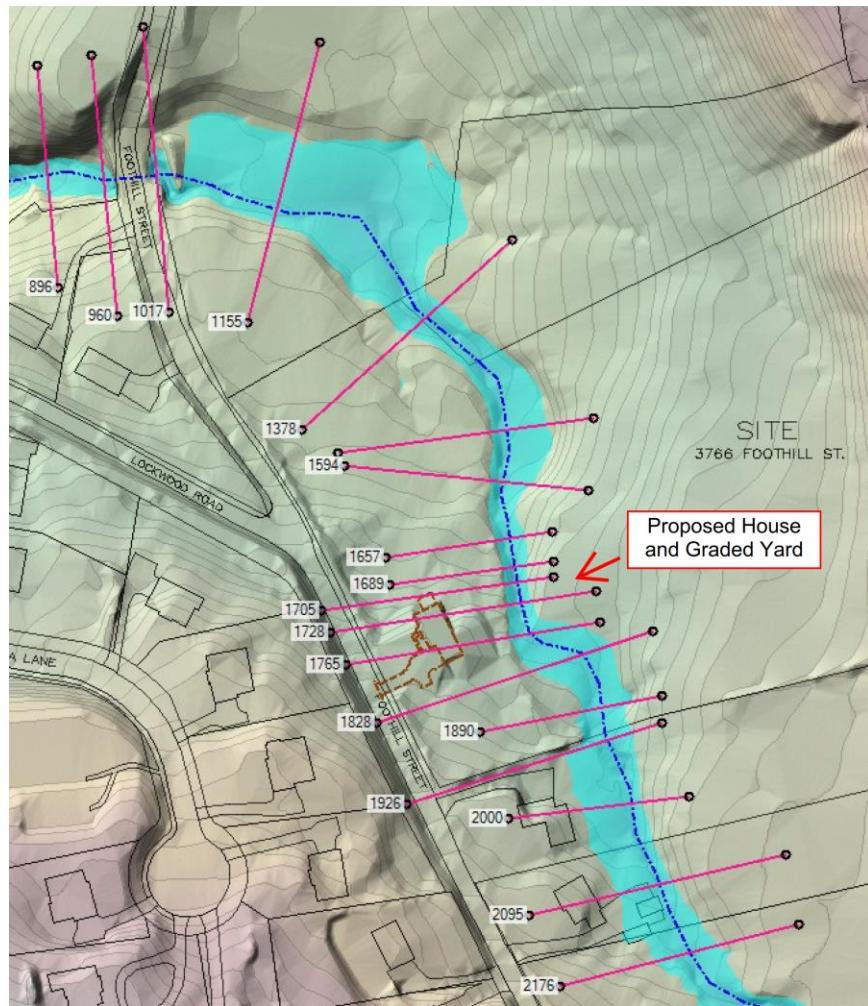


Figure: Overall Watershed to Site

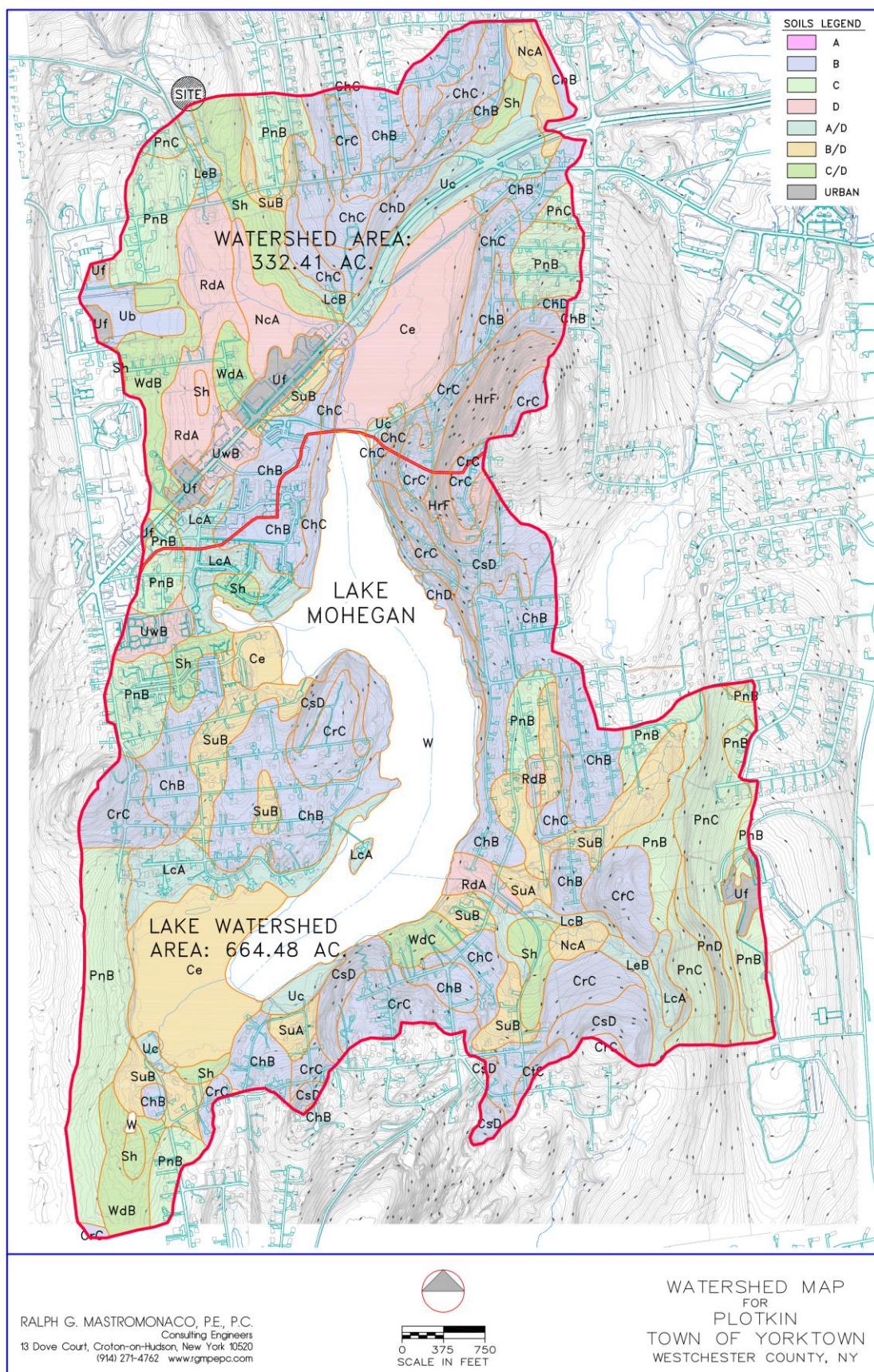
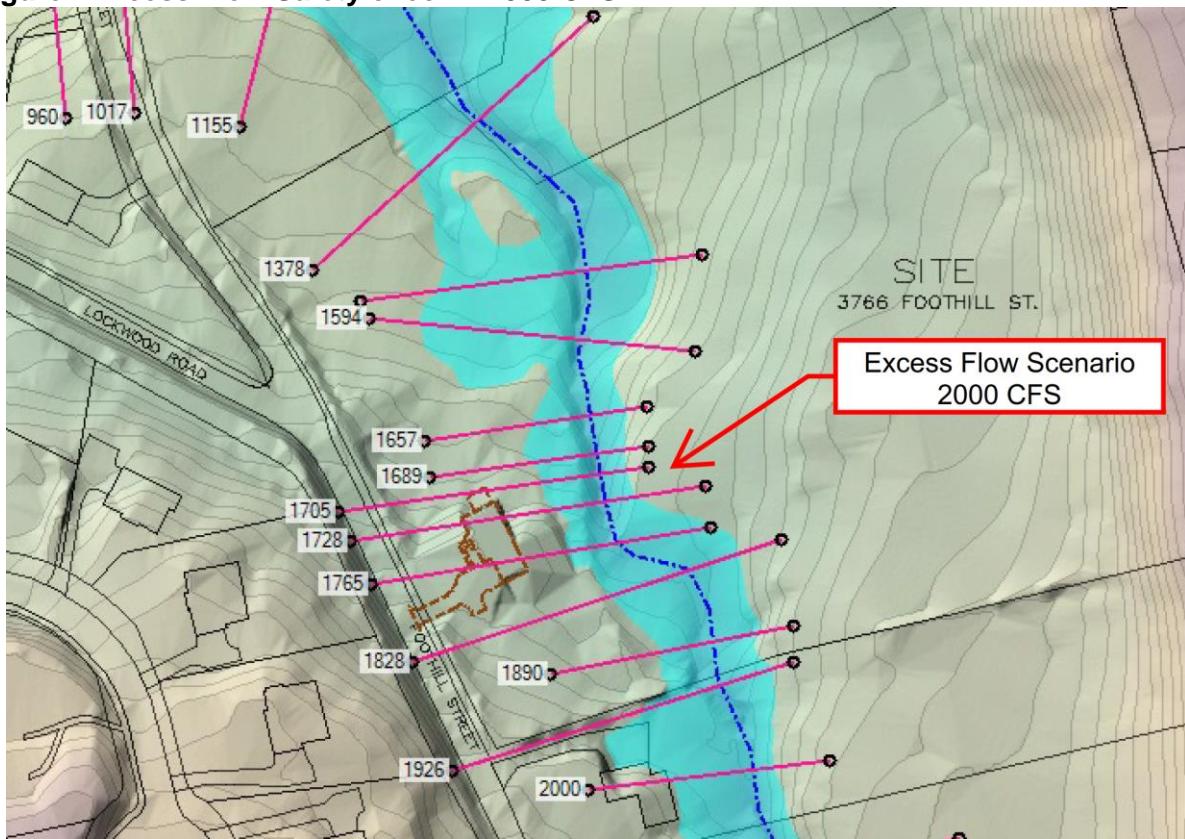


Figure: Excess Flow Safety check – 2000 CFS**Discussion:**

This report uses the cross-section stations to compute 100-year flood levels and only modifies the original FEMA cross-sections to account for the current GIS topography.

For a full safety check, we analyzed the flood levels by modeling 2000 cubic feet per second. It is noted that even this flow much higher flow will not affect the proposed house.

As a result, based on the newer GIS topography, the proposed residential addition and grading are not within the flood zone.

Conclusion:

The residential addition will not affect the flood levels in the area.

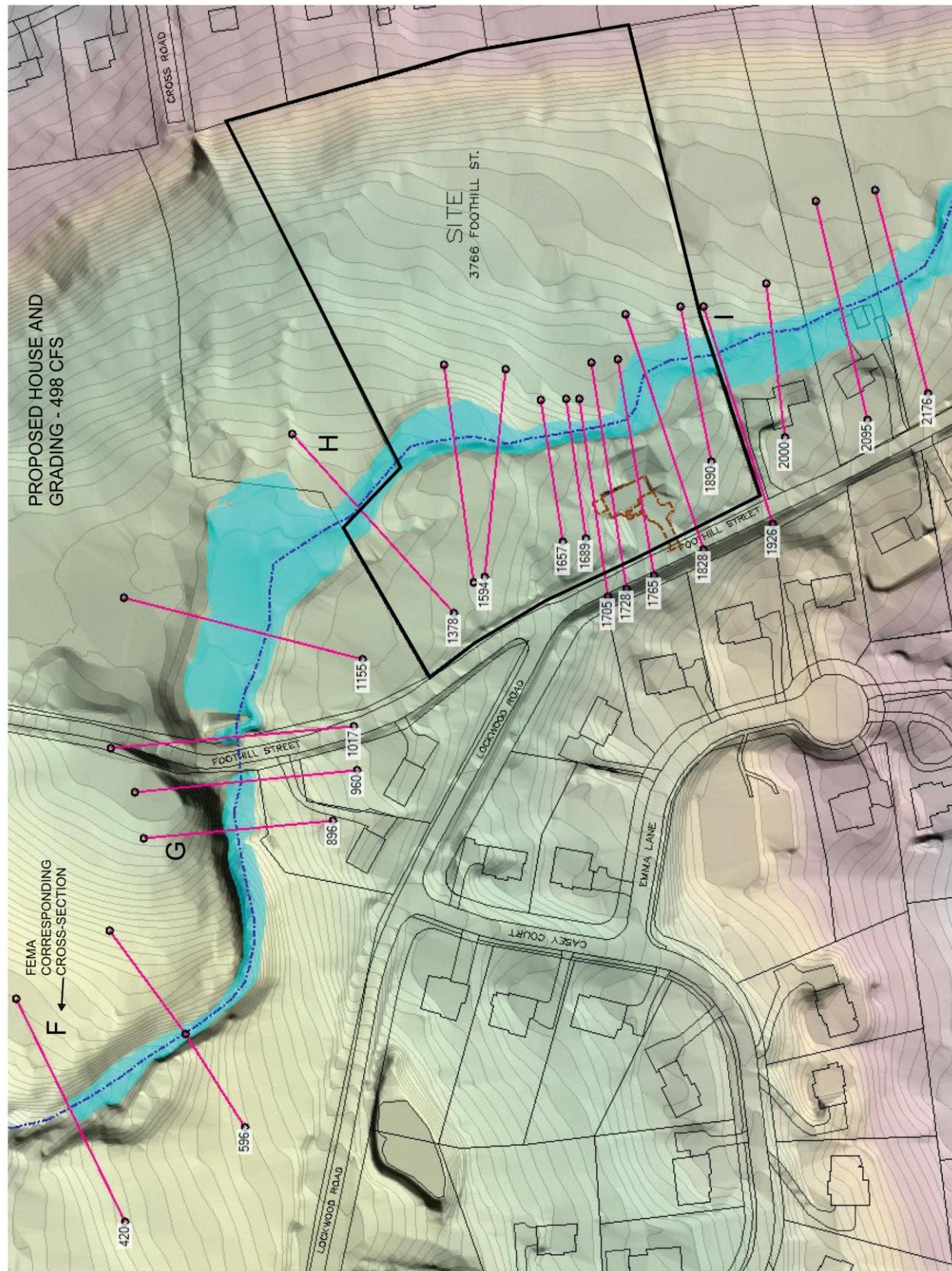
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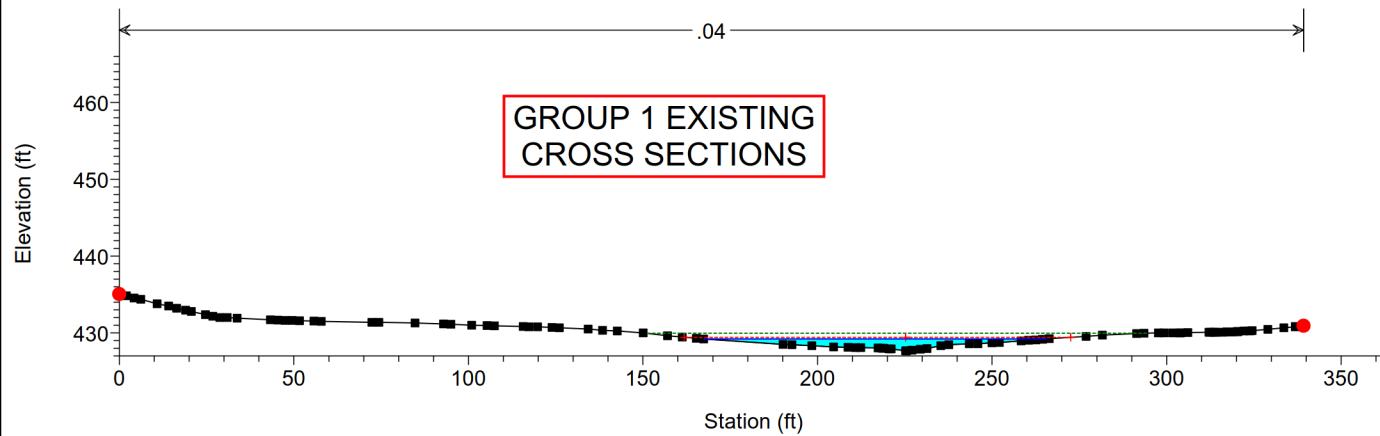
Ralph G. Mastromonaco, PE

Stream Cross Sections Follow

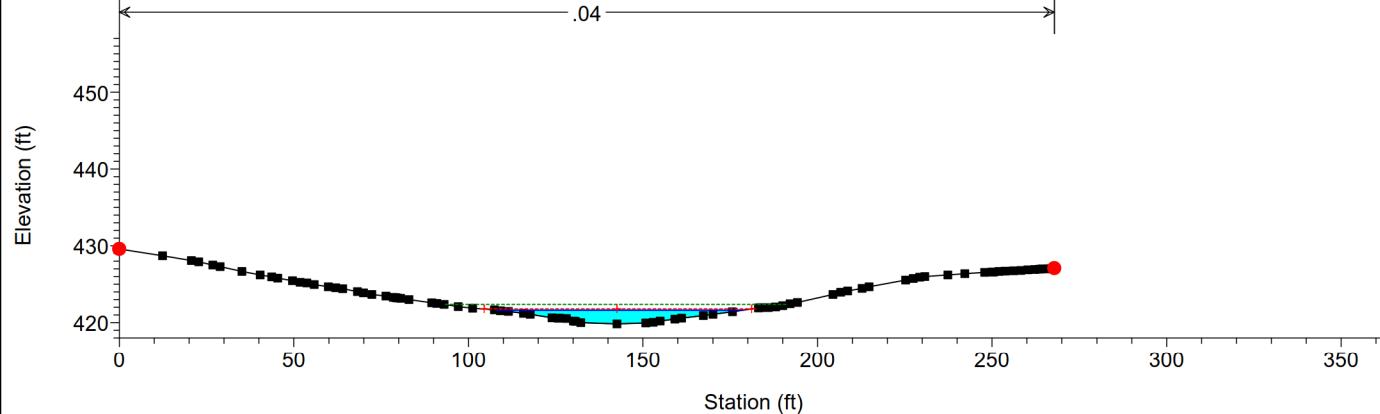
Figure: Overall Map of Stream Cross Sections Matching FEMA Stations



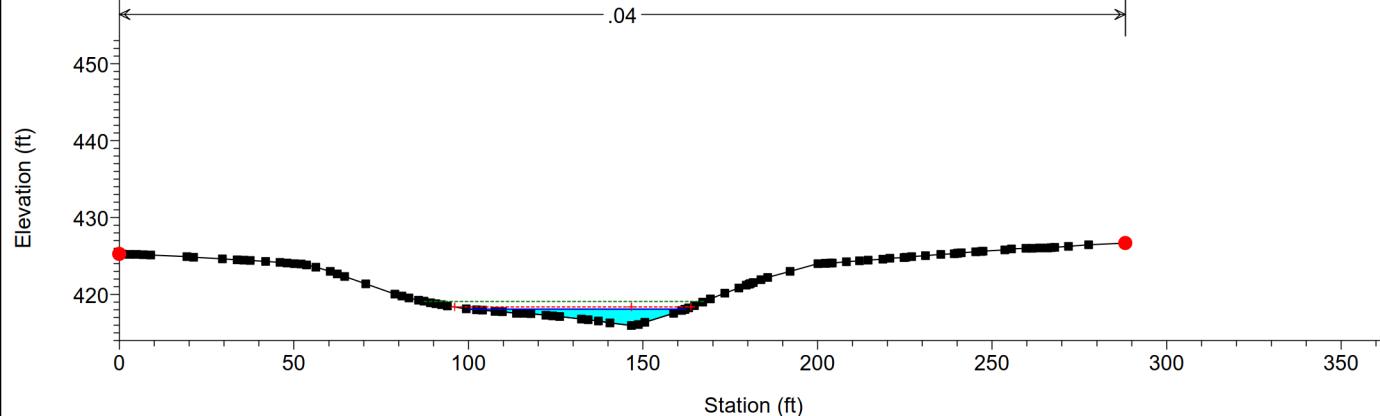
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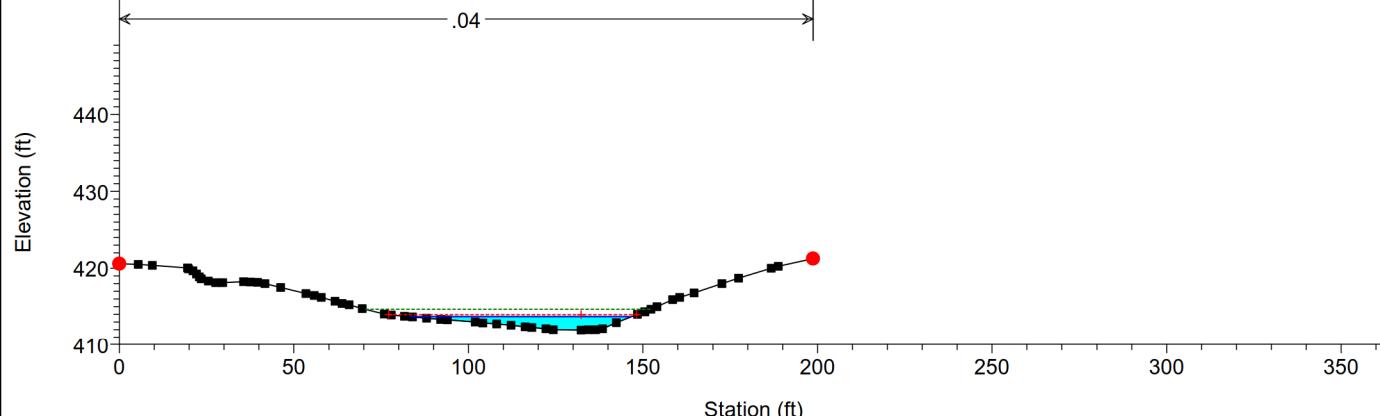
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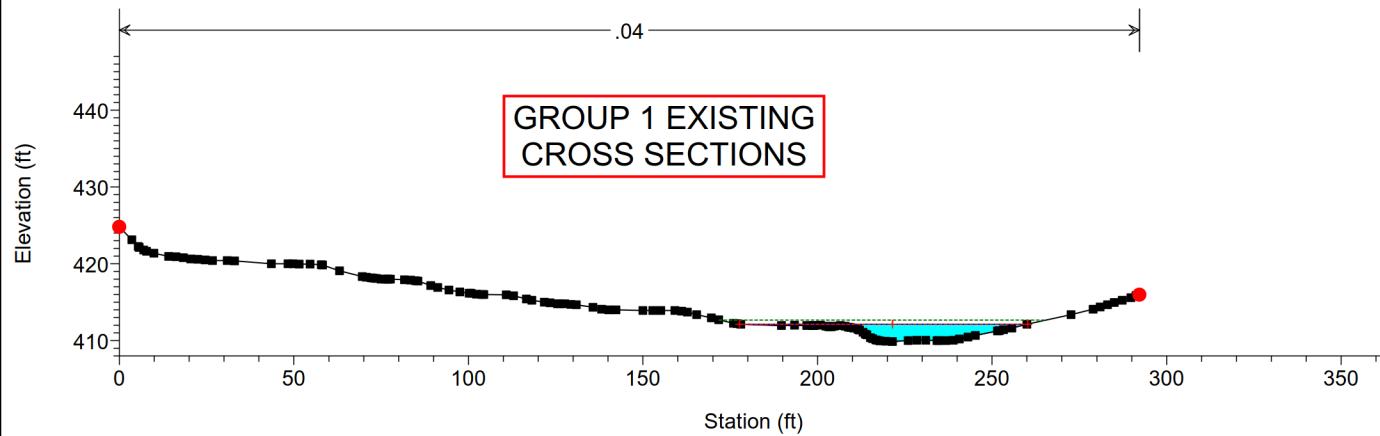
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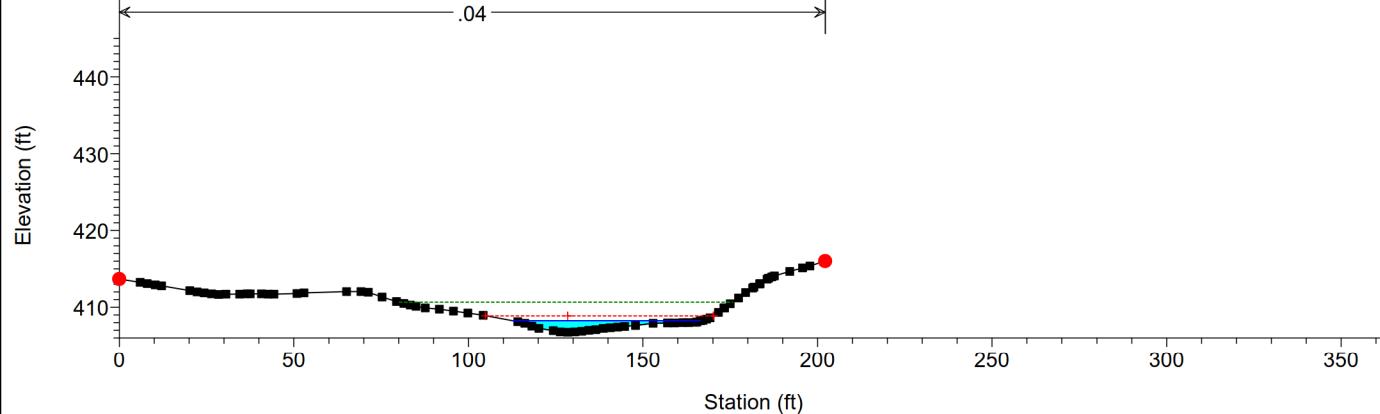
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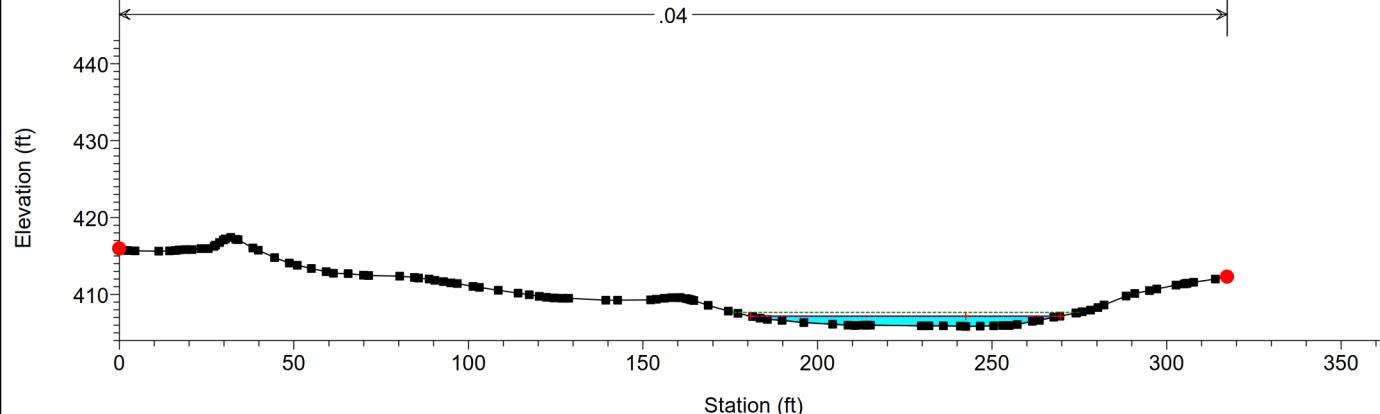
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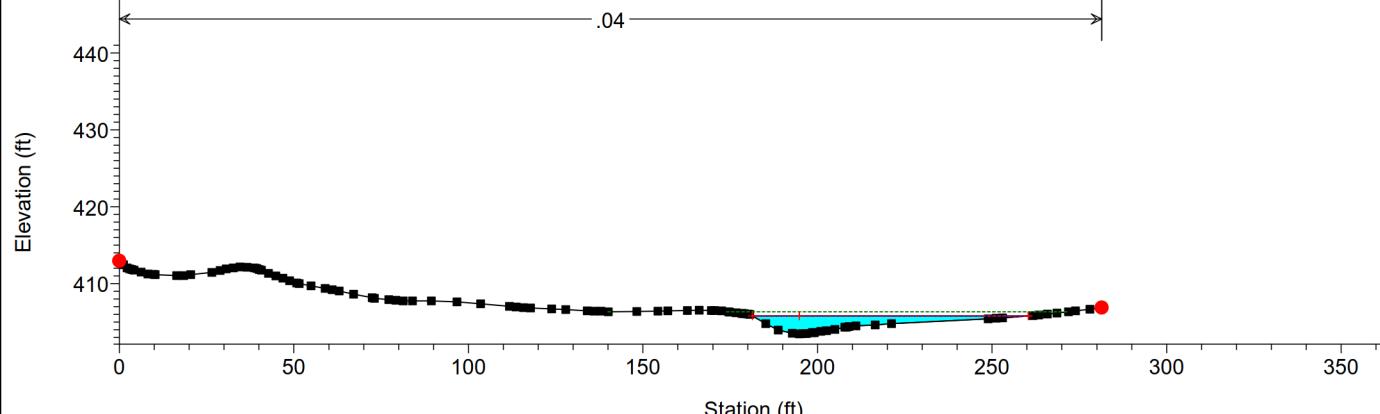
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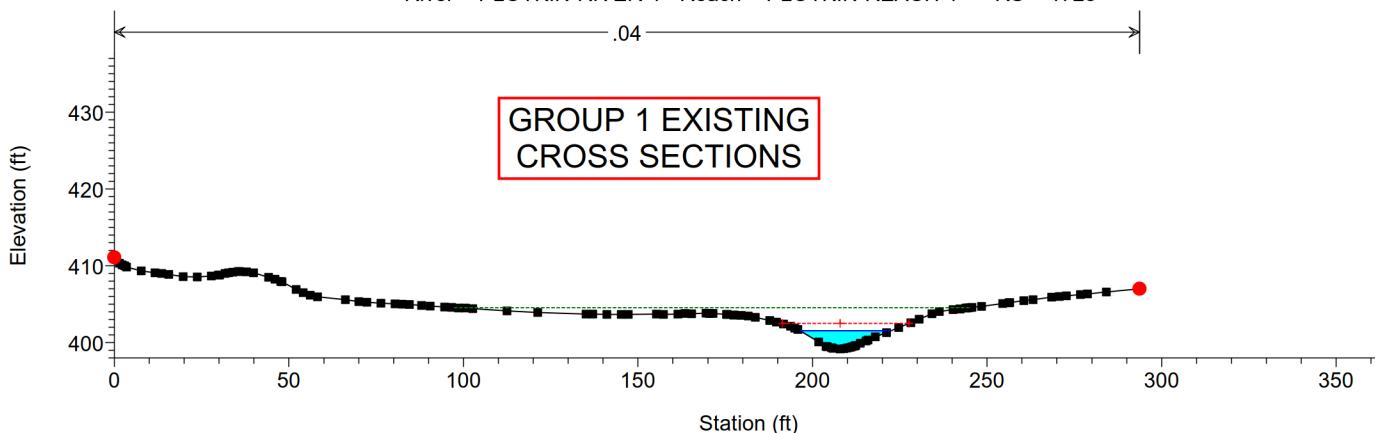
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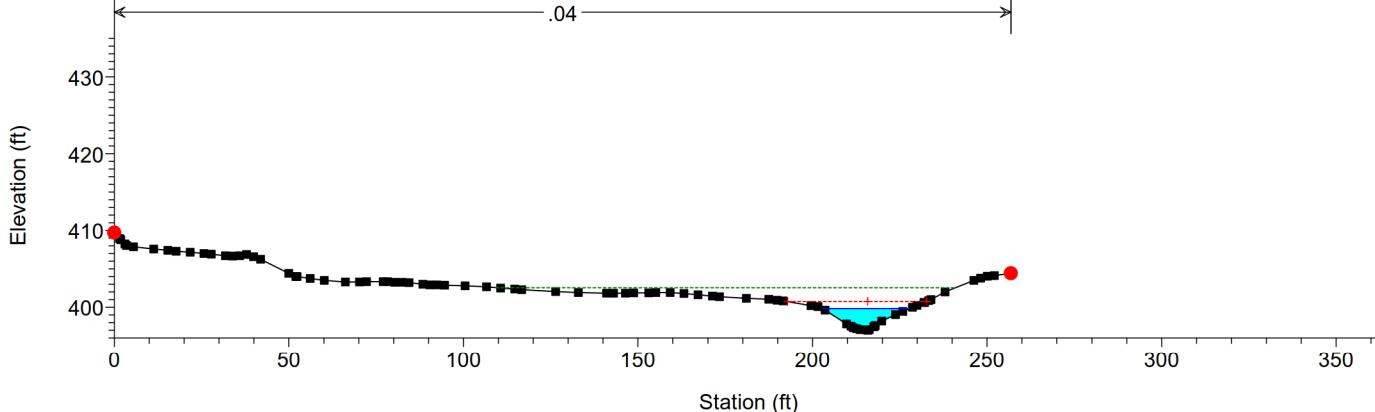
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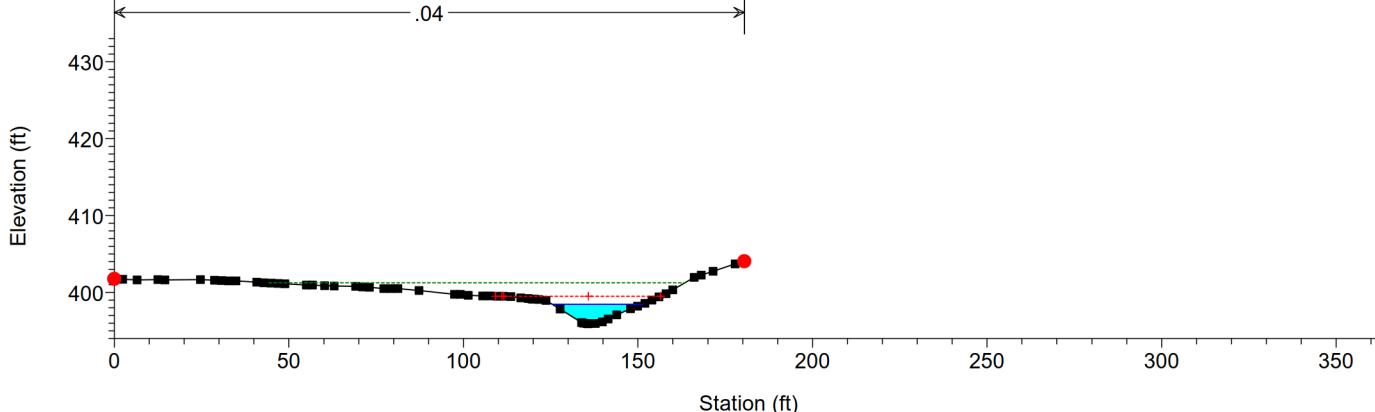
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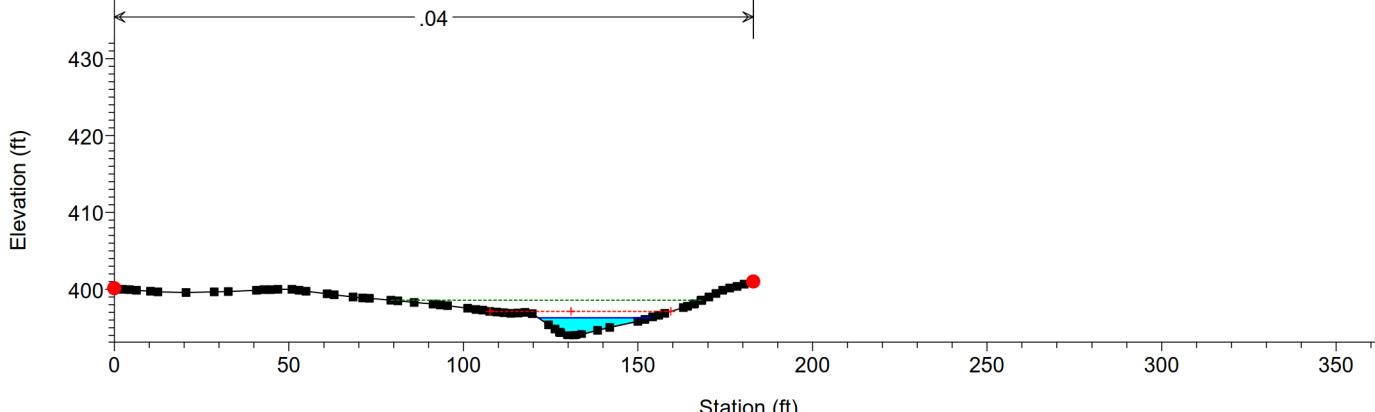
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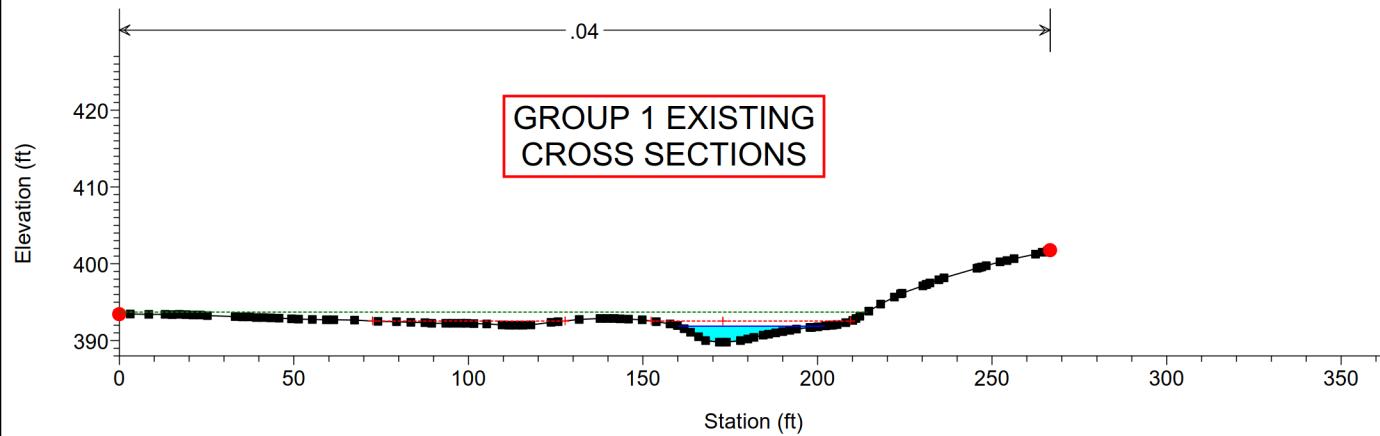
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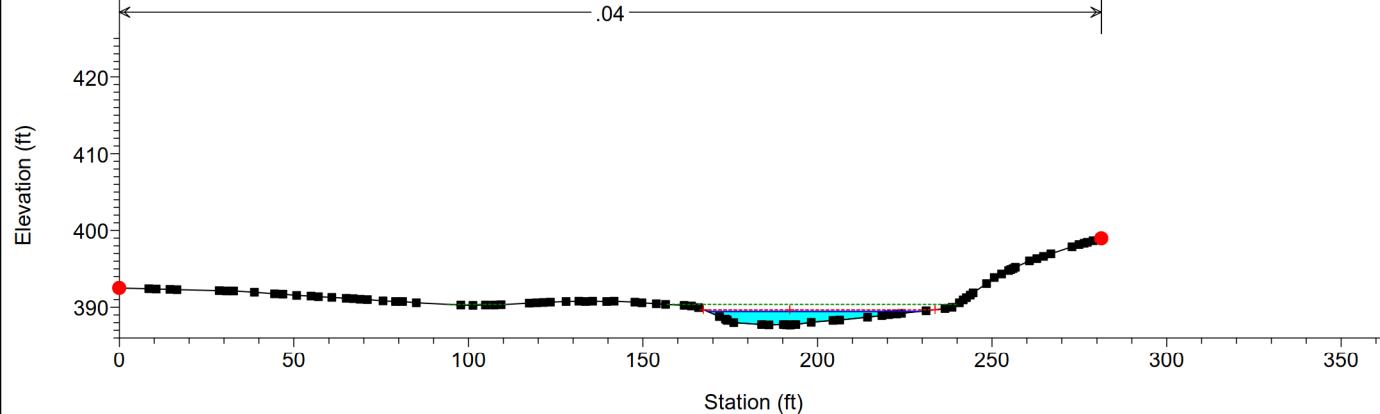
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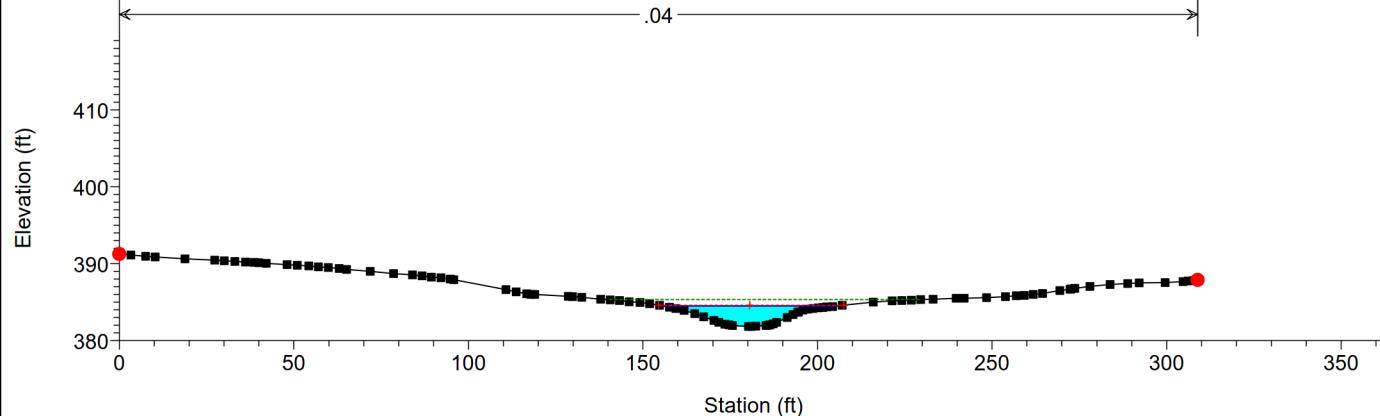
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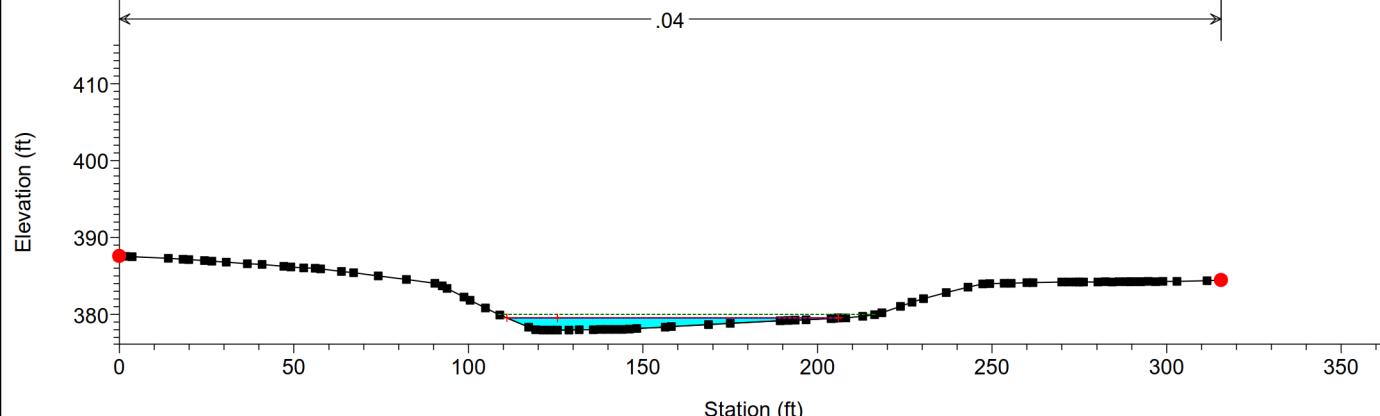
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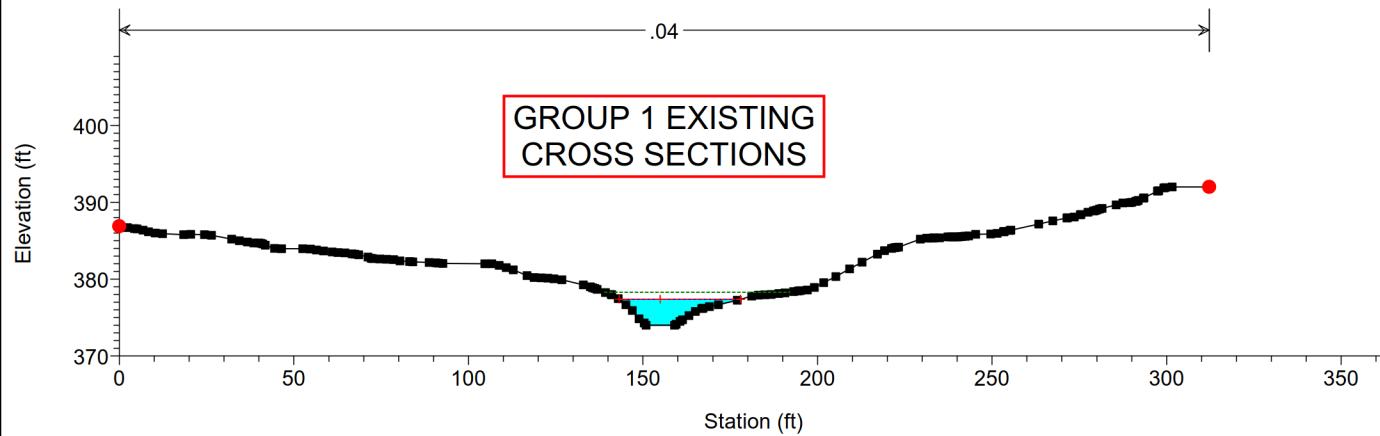
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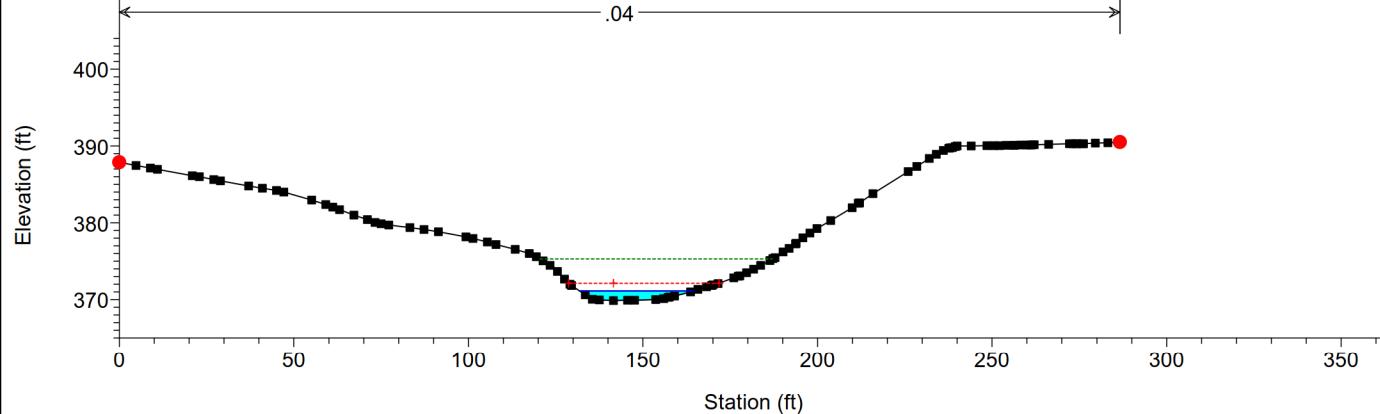
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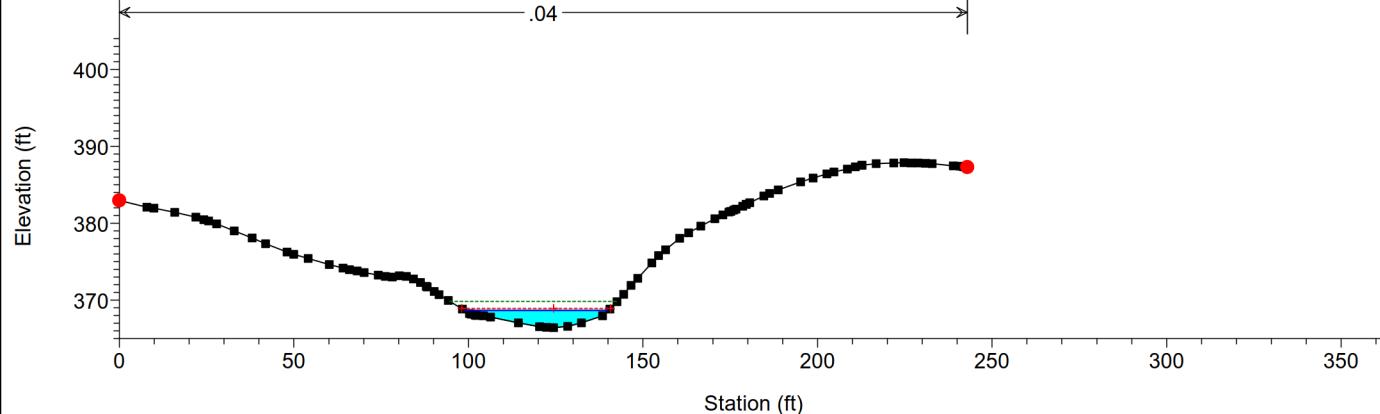
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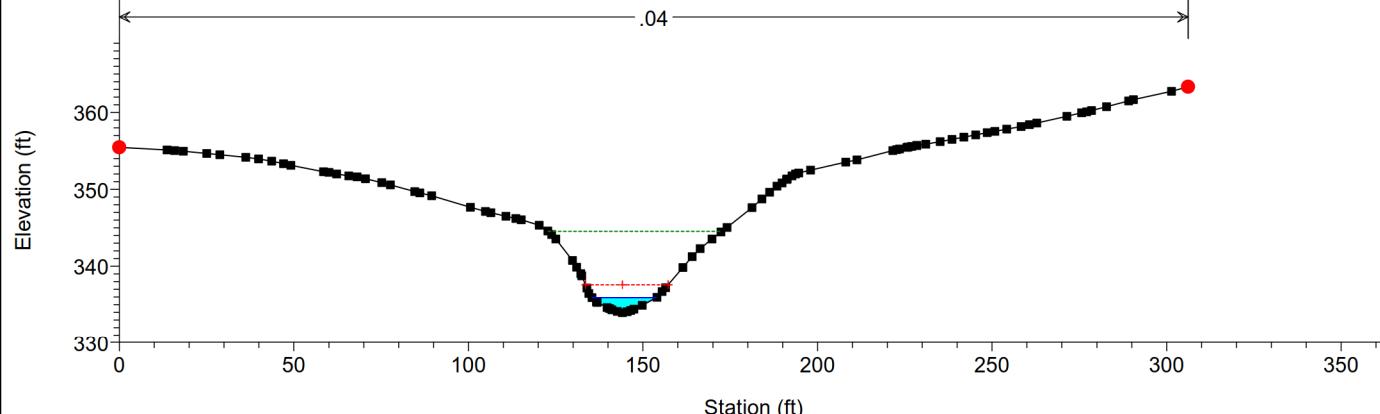
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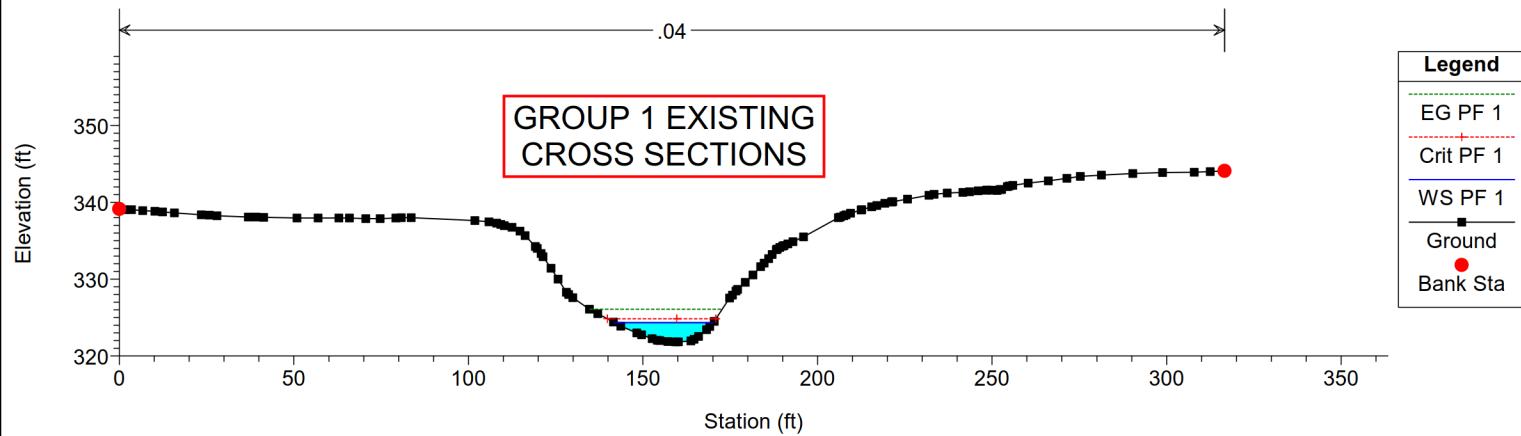


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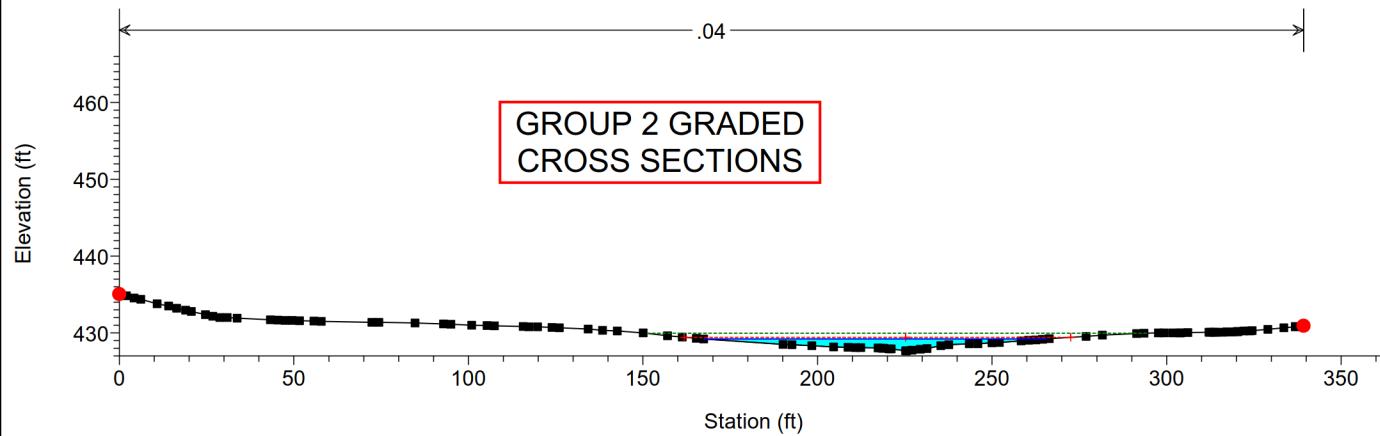


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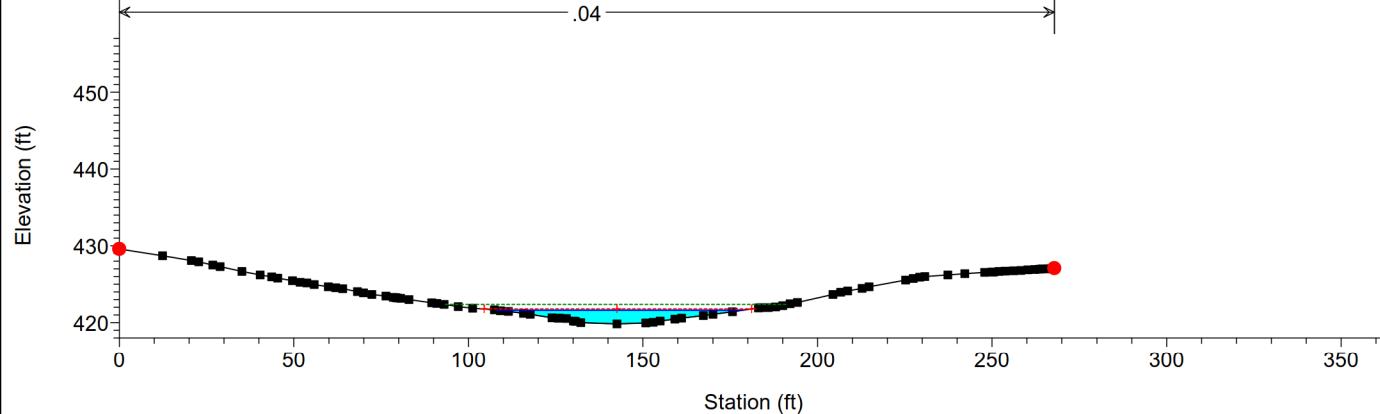




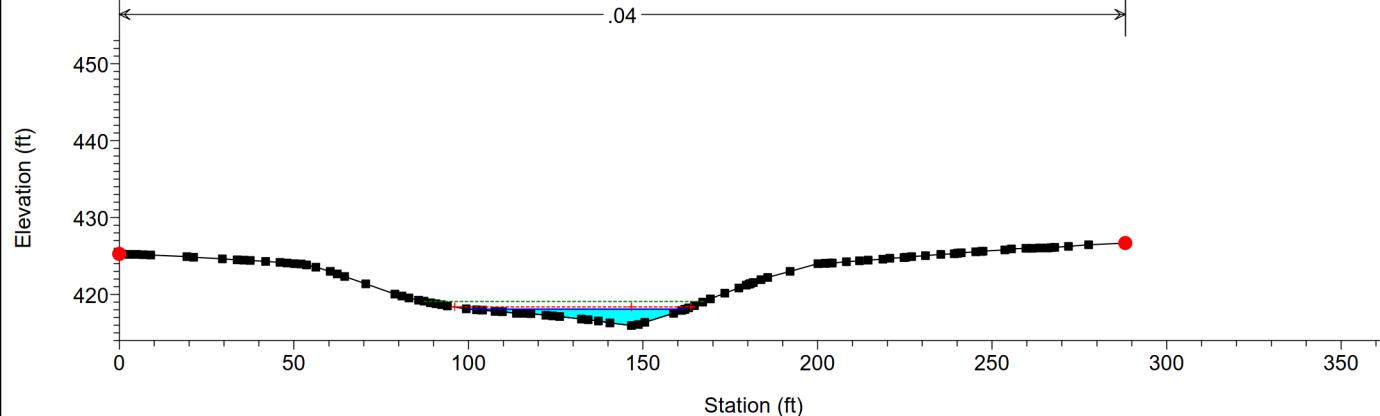
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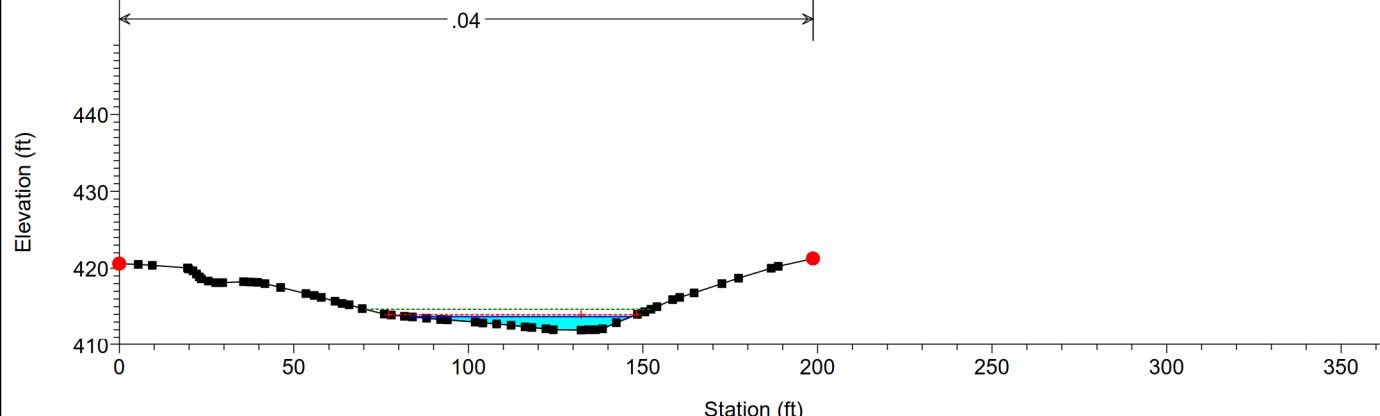
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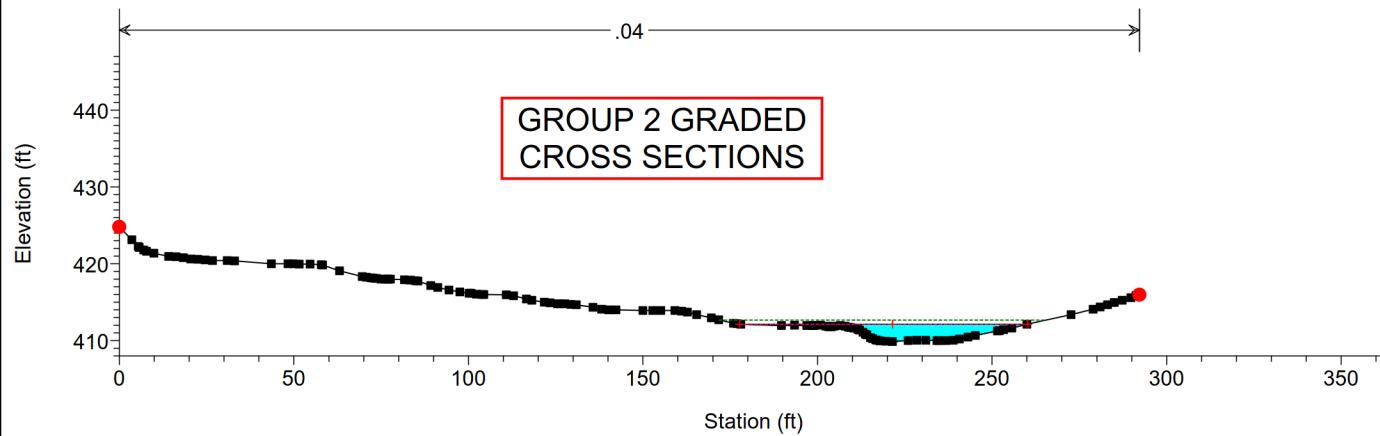
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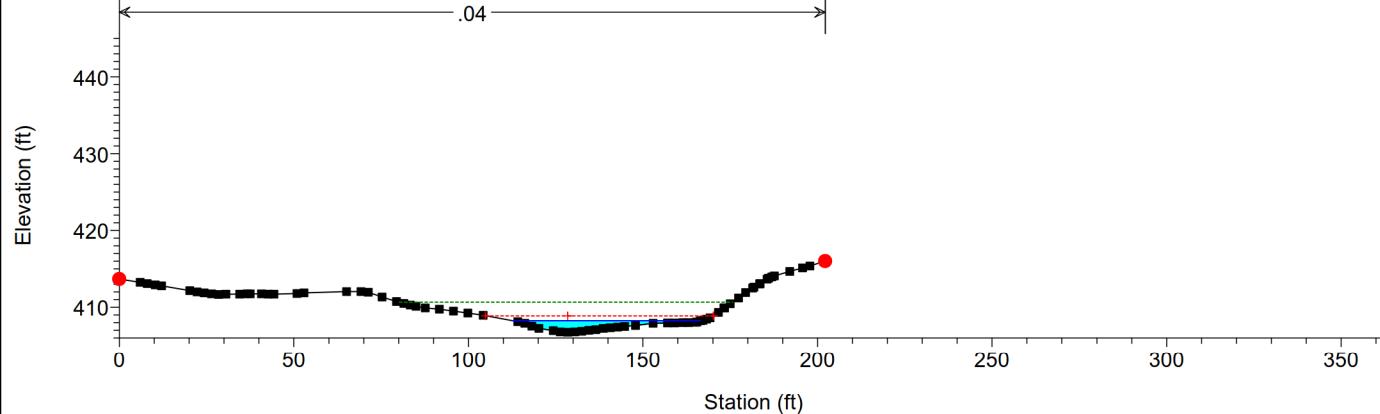
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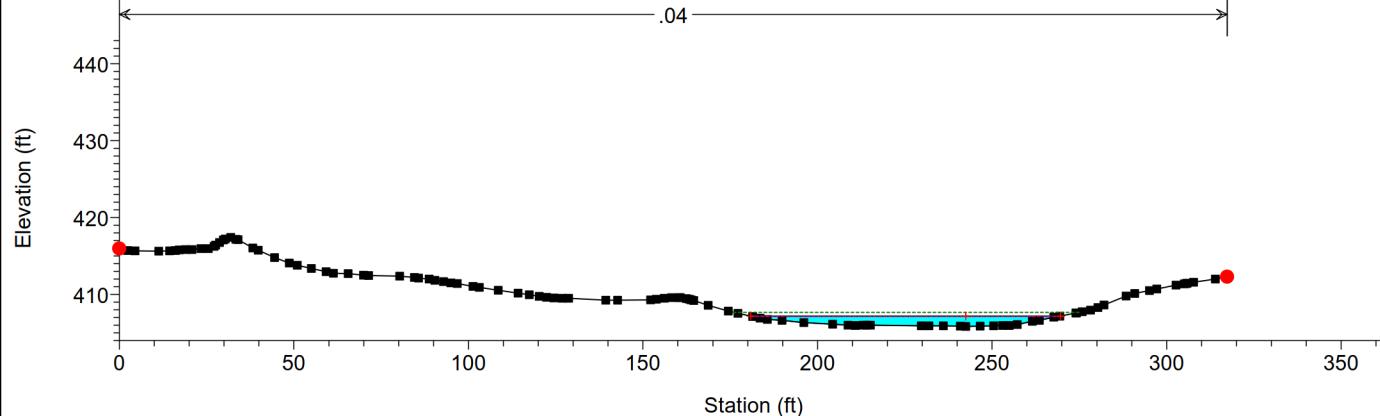
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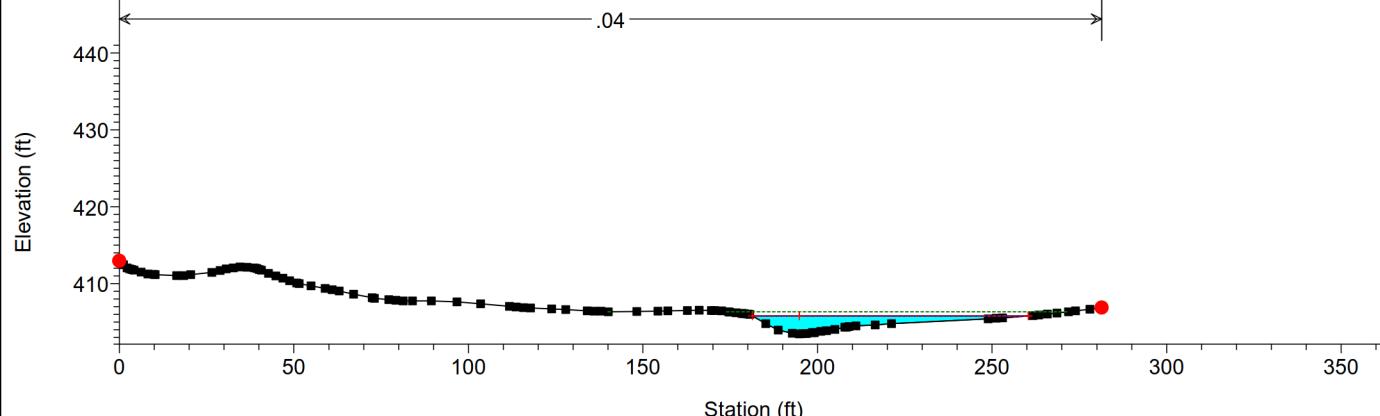
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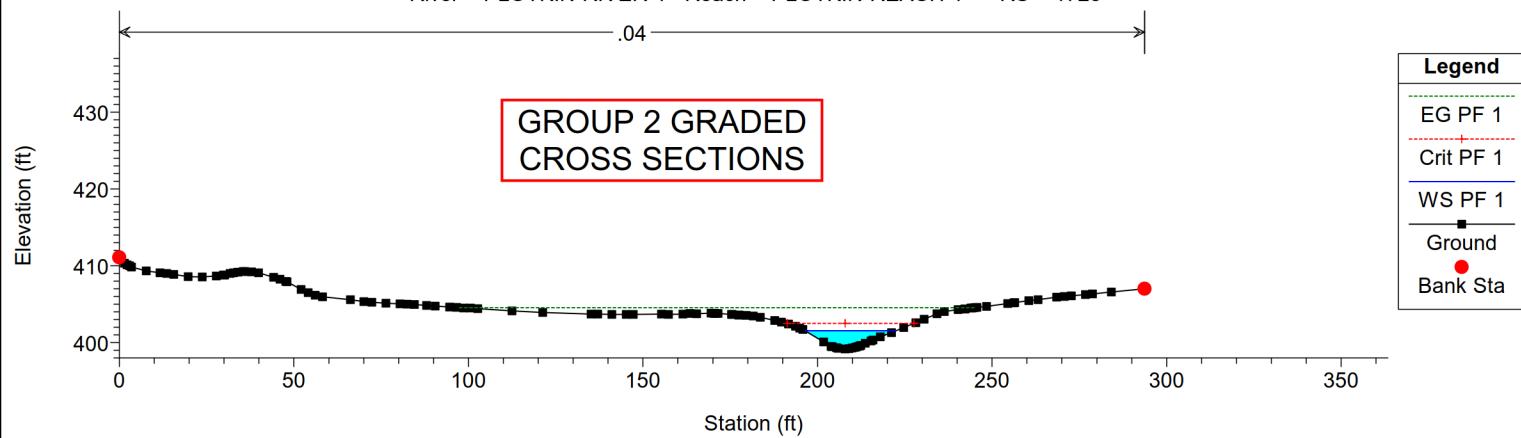
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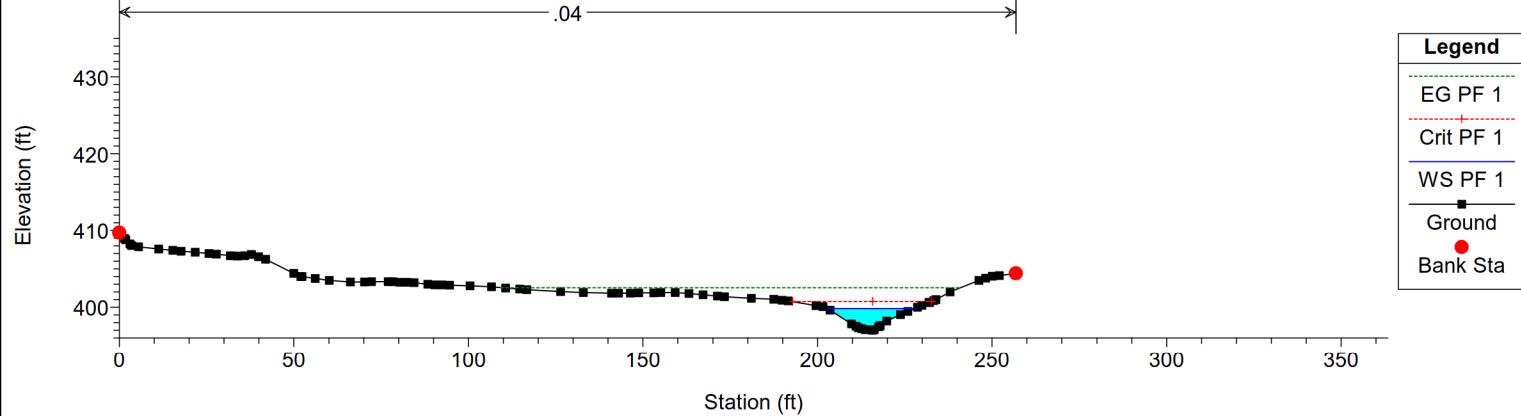
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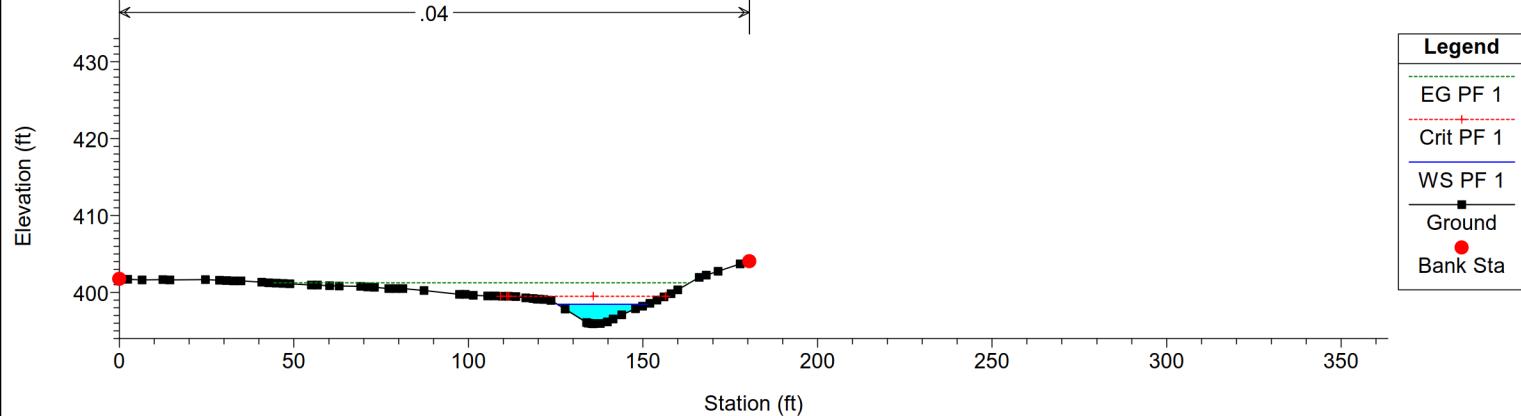
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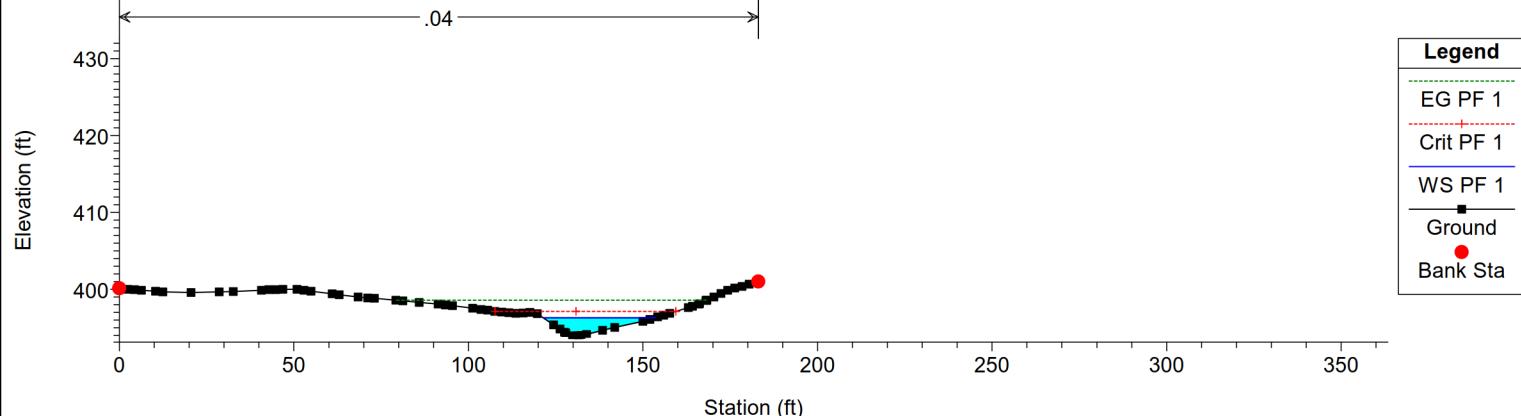
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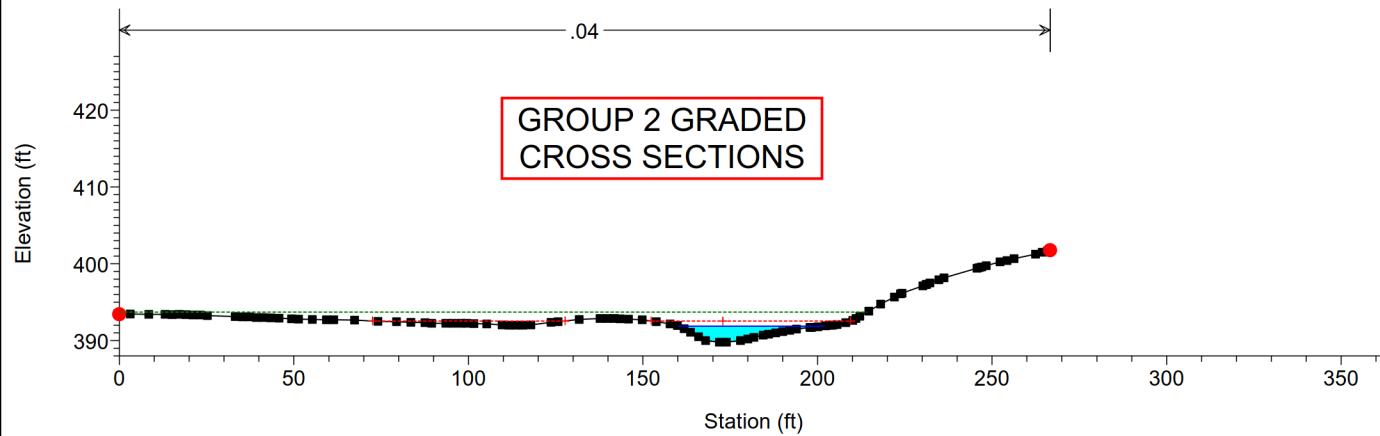
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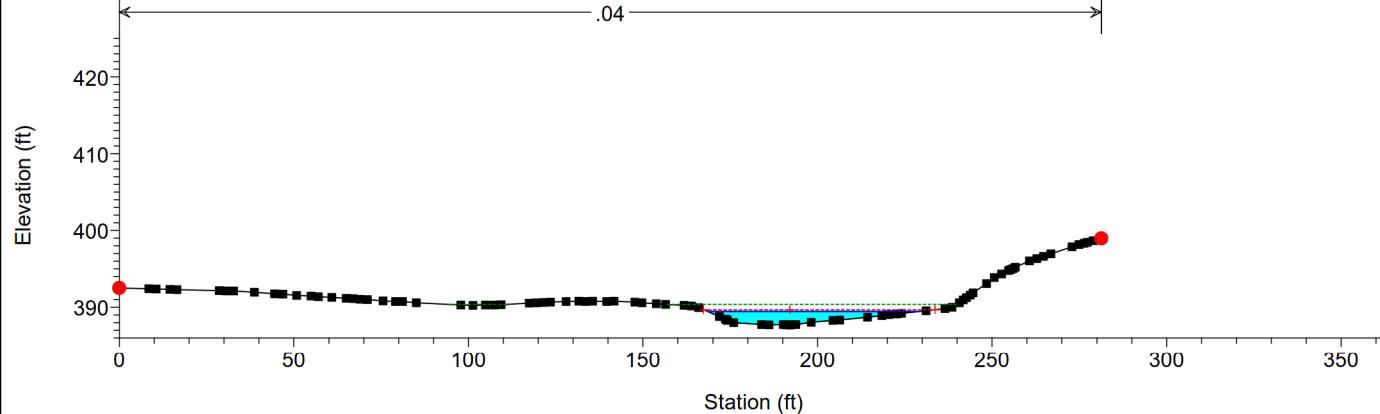
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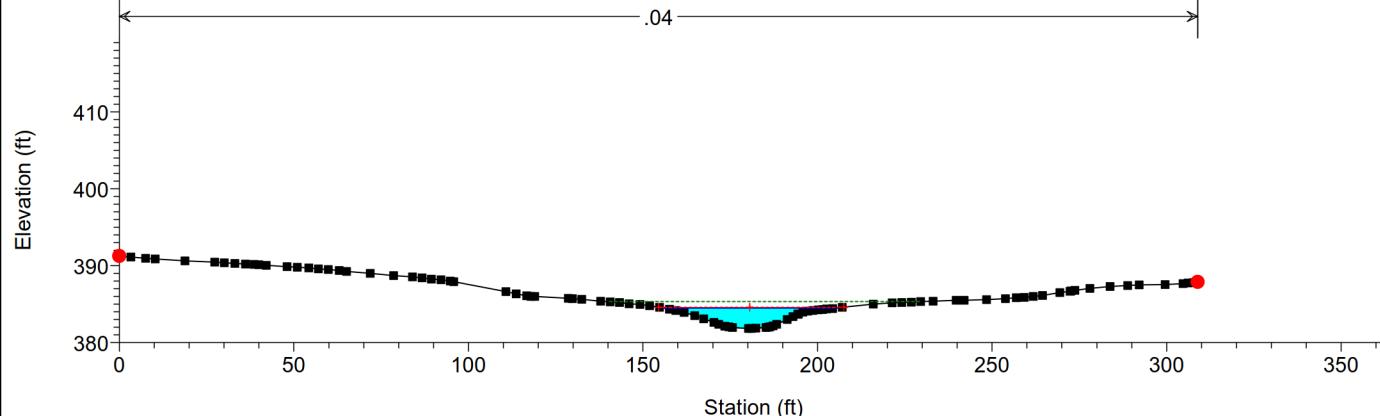
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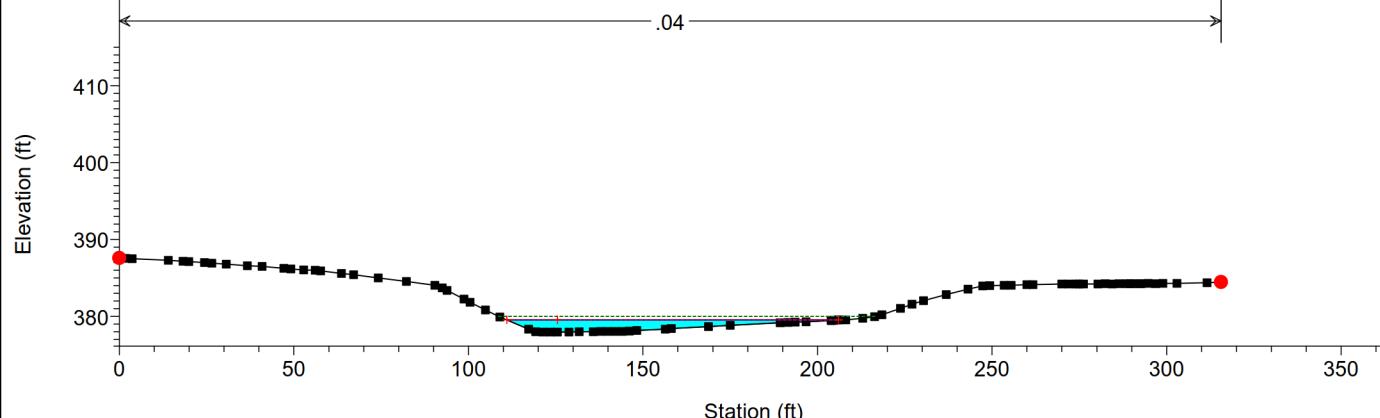
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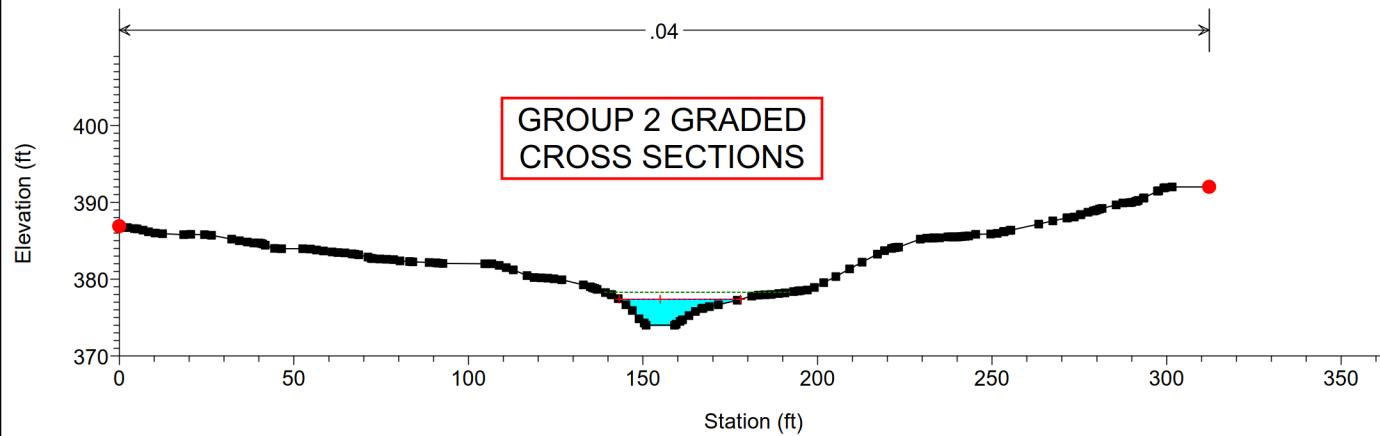
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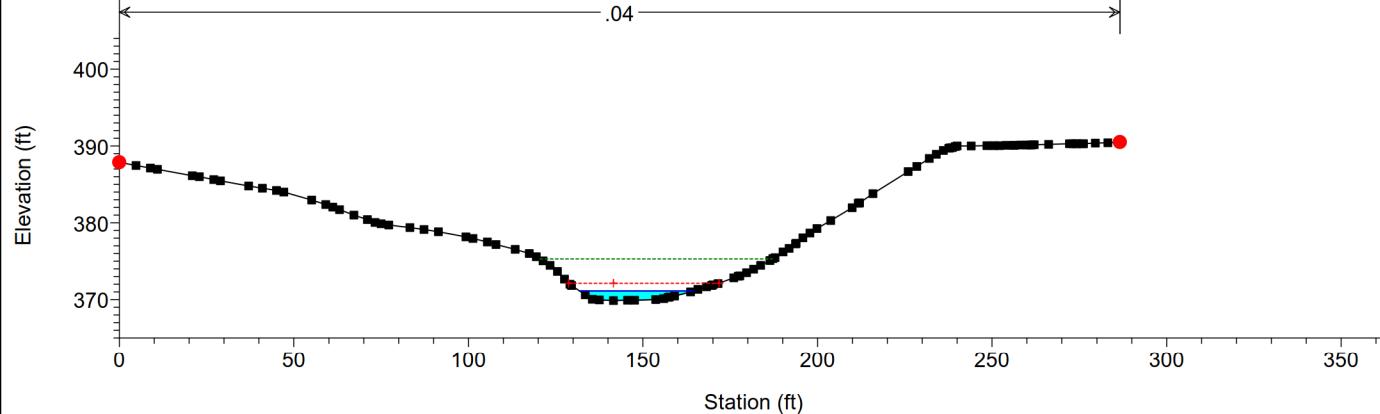
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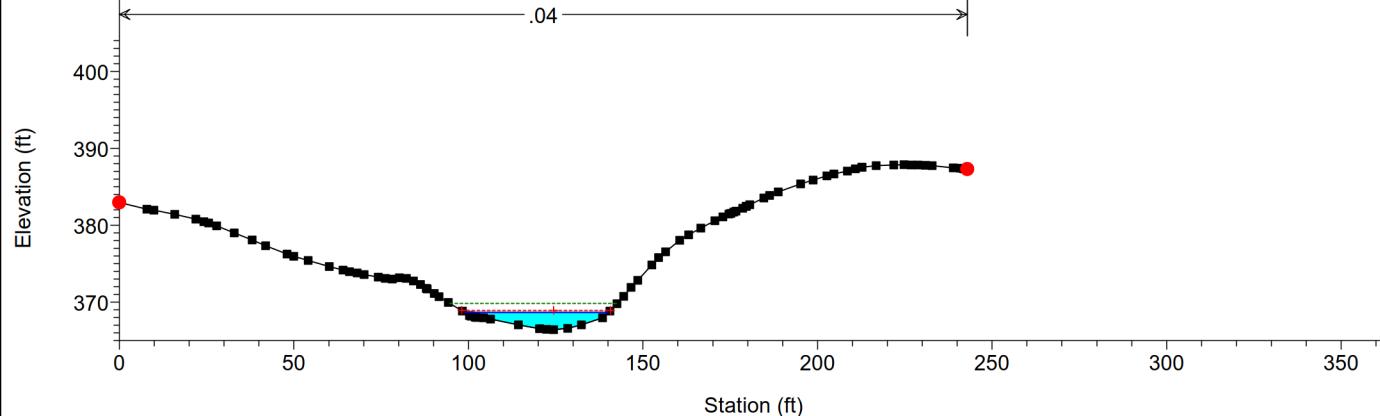
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PLOTKIN-FOOTHILL Plan: Plan 03 9/24/2024
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