

# Active and Passive Surface Wave Testing: Addressing Uncertainty using Open-Source Tools

## Overview of MASW & MAM Field-Testing Demonstration

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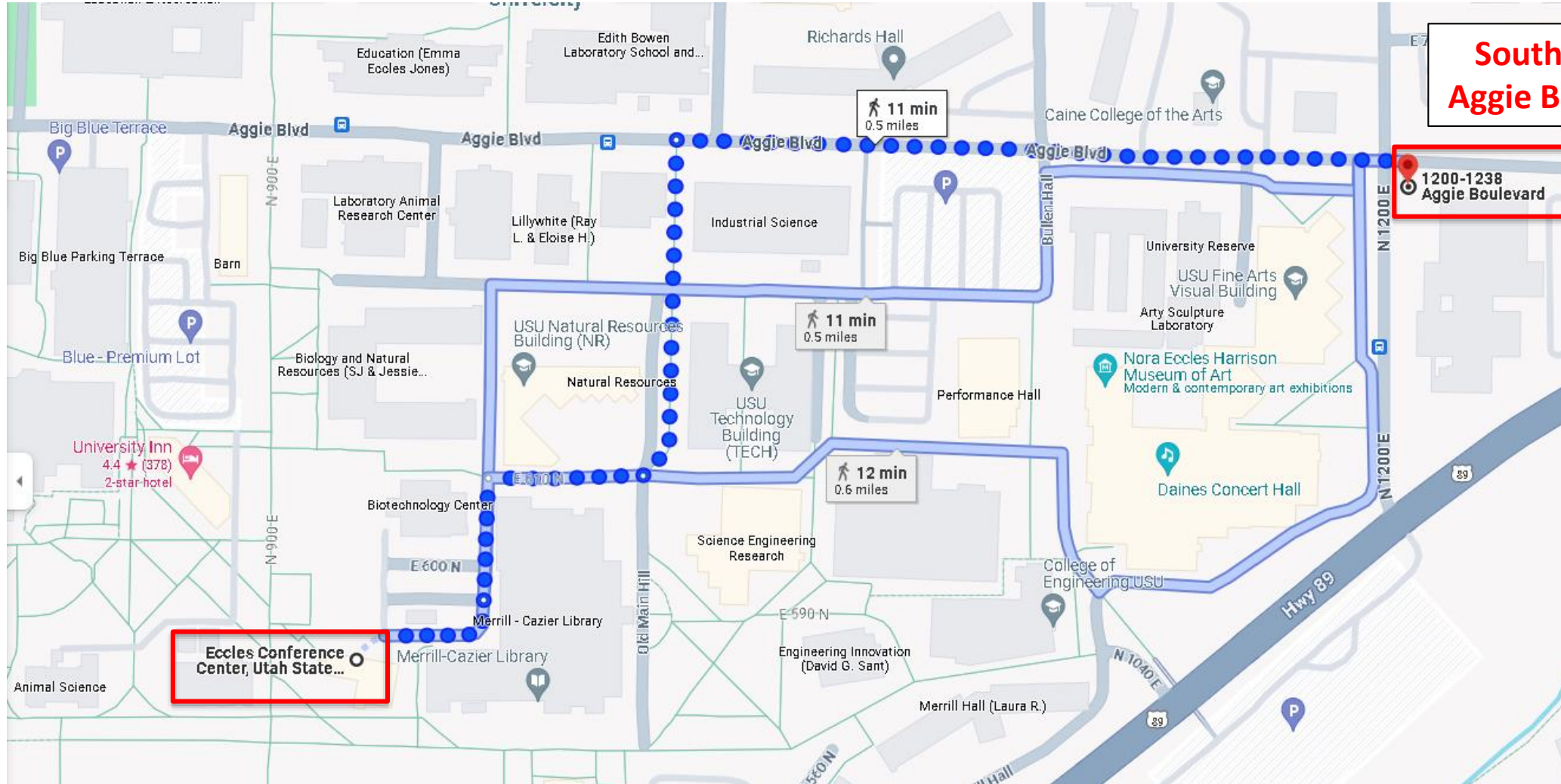
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Utah State University, Logan, Utah; 29 July – 1 August 2024



# Location





# Location



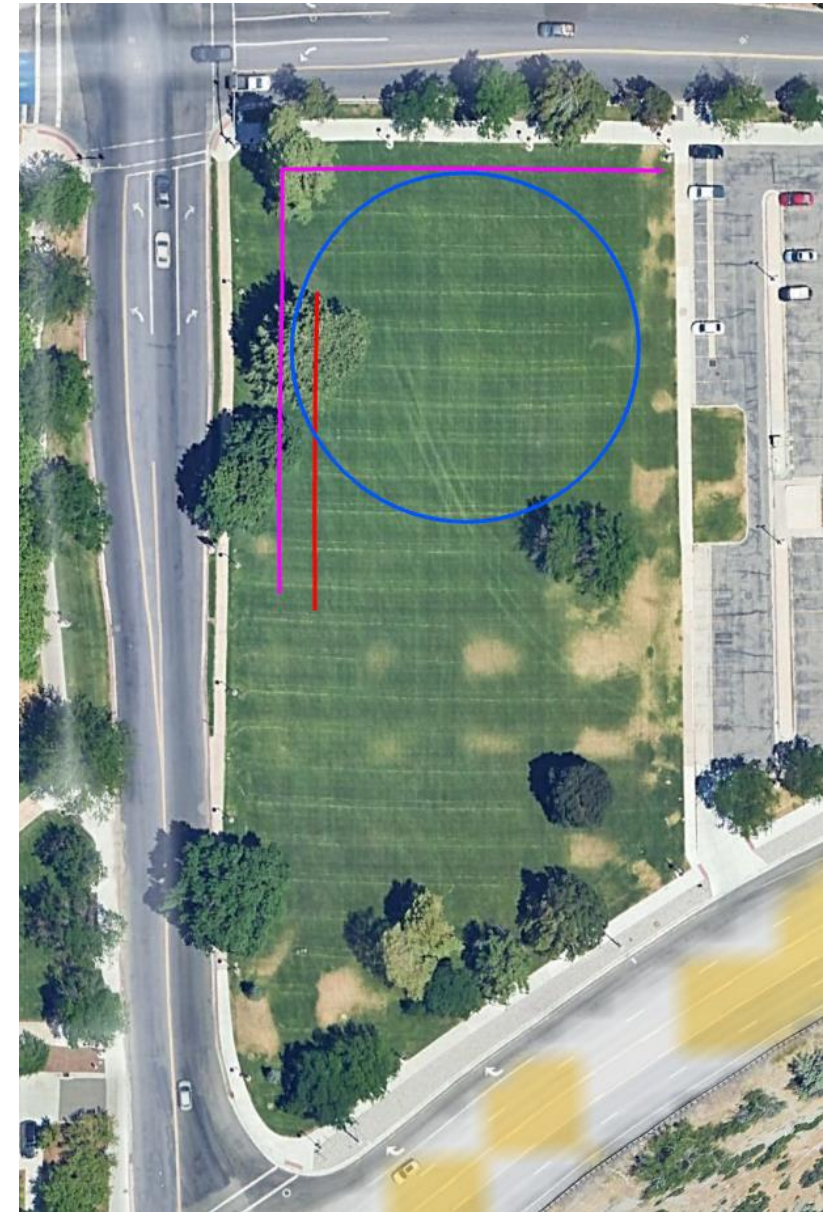
**Southeast corner of  
Aggie Blvd. and 1200 E.**

**Eccles Conf. Center**



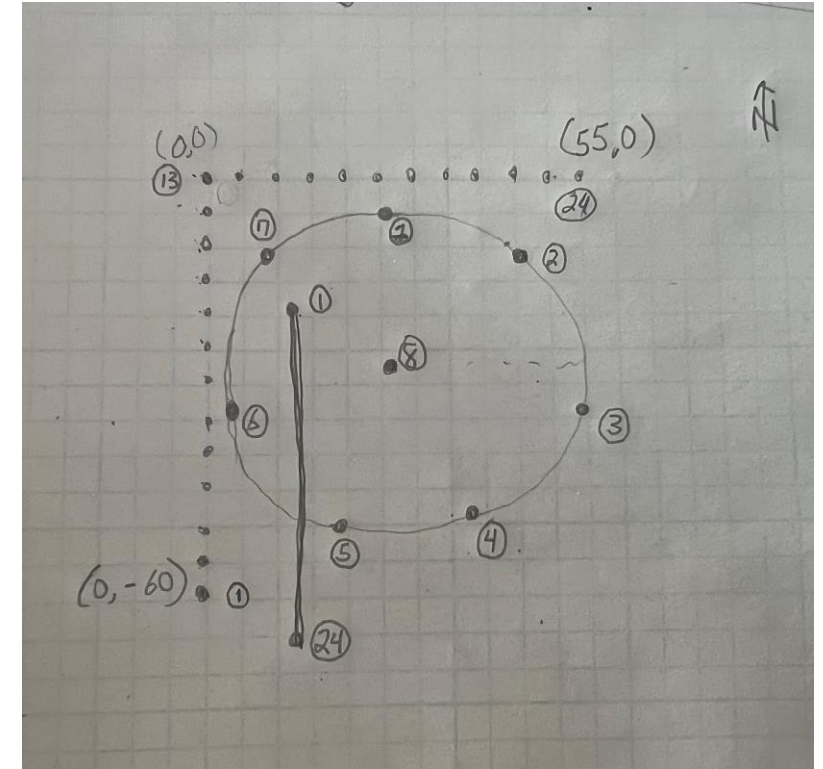
# MASW & MAM Arrays

- Target Vs profiling down to 30m – 50m
- MASW
  - 46m array (24, 4.5Hz geophones with 2-m spacing)
  - Shot locations at 5m, 10m, 15m, and 20m off each end
  - 16lb sledgehammer with 5-10 shots per shot location
  - Both Rayleigh (vertical) and Love (horizontal cross-line)
- MAM L60-array
  - 60m x 55m L-array
  - 24 vertical 4.5Hz geophones with 5-m spacing
  - Record 60-s noise windows for 1 hour with Geode
- MAM C50-array
  - 50m diameter circular array
  - 8, 120s-period, 3-component broadband stations
  - Record continuous noise for 1 hour with digitizers
  - Also get HVSR at each station location



# MASW & MAM Acquisition

- MASW
  - 2s record length
  - -0.5s pre-trigger delay
  - 2ms sampling interval (500 Hz)
- MAM L60-array
  - 60s record length
  - 4ms sampling interval (250 Hz)
  - Auto-trigger limit 60 records
- MAM C50-array
  - Digitizer sampling frequency 200 Hz
  - Record continuous noise for 1 hour
- Survey
  - MASW array end-points
  - L60-array end-points and turning point
  - Each MAM station



**Admittedly, my MASW and L-array layouts (1<sup>st</sup> sensor location, etc.) have been influenced by my desire to keep the data acquisition in the shade!**

# Questions?