**Video: HDL-VLT\_8-1-Ex-Situ Scour Testing Device.mp4**

**YouTube Information:**

Title: Virtual Hydraulics Lab Tour – Ex-Situ Scour Testing Device (ESTD)

Description: An introduction to the Ex-Situ Scour Testing Device (ESTD) which is used to measure the erodibility of soil specimens under well-controlled flow conditions.

Video: mp4

Captions: attached

Thumbnail file: attached

Public Listing Type: Unlisted (we only want people to discover this video through our website and the virtual tour.)

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Video: The entire video is FHWA-owned.

Music: Sunrise by James Michalski. Licensed from Artlist. See attached PDF: Sunrise\_License\_719099 - 2020-2021.pdf

**Script:**

The Ex-Situ Scour Testing Device measures the erodibility of cylindrical soil specimens under well-controlled flow conditions. The soil is automatically pushed up by a hydraulic piston as the erosion progresses. The extrusion is controlled by quasi-instantaneous detection of the soil surface change using an underwater laser scanner mounted to an industrial robot. The ESTD will be part of a fully automated soil erosion resistance testing laboratory which utilizes robots to conduct the erosion testing.

**508 Caption Description:**

The video begins with the mobile robot arm lifting a Shelby tube sample from the mobile platform and reaching over and placing it in the sample mount of the ESTD under the flow channel. The camera switches to a shot of the ESTD robot arm as it holds a laser scanner in the water of the flow channel. The camera angle changes to better show the floor of the flow channel, where the soil sample is visible along with the soil mounted to the shear sensor. The laser light from the scanner slowly pans across the exposed soil from the sample. A computer image appears in the lower right corner which shows the results from the scan which appears as a disc. The camera then returns to the mobile robot arm pulling back after mounting the sample in the piston as it resets back to its original position.