

INTEROFFICE COMMUNICATION

To: Nikunj Kadakia, P.E., District Geotechnical Engineer, District 3
COPY: Steve A. Taliaferro, P.E., Office of Geotechnical Engineering
FROM: P. Paul Painter, Office of Geotechnical Engineering
DATE: November 16, 2023
SUBJECT: MUS-70-27.00 Field Reconnaissance for Geotechnical Exploration

It is our understanding that the District wishes to address slope instability with the rock cut section presented in the southern quadrants of the IR70/SR83 interchange. This project is a FY2026 GSMP project. Currently, the southern quadrants of the interchange are constructed through cuts and the northern quadrants are constructed on fills. Slope instability has been noted within both cut and fill slopes throughout the immediate area.

Historical geotechnical records located within TIMS were located for MUS-40-21.31 and MUS/GUE-40-26.86/0.00 (sub-batches 14046 and 14047) completed in 1963 for the current interchange. Borings completed during the geotechnical exploration for Ramp C indicated the presence of thick claystone (mudstone/indurated clay) at the ramp elevation extending up to elevation 1048.5 with limestone interbeds noted between elevation 1048.5 and 1029.0.

The cut slope boring drilled for Ramp D at Sta. 53+00 along the existing ramp baseline is at the eastern edge of the current landslide limits and would be of limited use. The Ramp D boring also encountered thick claystone (mudstone/indurated clay) at the ramp elevation extending up to elevation 1030.0. The top of the cut section presents sandstone, shale, and coal.

Areas of slope instability and deeply incised drainage were noted with the soil profile within the area of interchange. Abandoned mine entrances were noted on the soil profile to the west of the interchange at elevation 1033.5 and 1067.0.

A field visit was conducted on November 9, 2023, by P. Paul Painter and Steve Taliaferro from the Office of Geotechnical Engineering (OGE) to complete a field reconnaissance and stake potential boring locations.

The eastbound exit ramp from IR-70 to SR-83 (Ramp C) was noted as expressing slope instability in the cut section south of the ramp pavement. Overall, the slope is well vegetated, primarily with grass, bushes, and trees, except along the ditch line which is devoid of vegetation due to frequent ditch cleaning. The slope expresses a hummocky surface with cracks, minor head scarps and toe bulges. Deflection of the roadway signage and abandoned sign foundations due to slope instability were noted. Two boring locations were staked for exploration drilling. B-001-0-23 is located just inside the right-of-way fence at the crest of the hillside. Clearing of brush will be required to access this location. B-002-0-23 was staked mid-slope just at the edge of the brush/tree line and will not require any clearing to access. We plan on accessing these locations from SR-83 and tracking along the right-of-way fence.

The eastbound on-ramp from SR-83 to IR-70 (Ramp D) previously experienced a large-scale slope failure. At the time of the failure, it was determined that grading to establish positive drainage off the slope and along the ramp was the best course of action due to the size of the slide. The slide mass has continued to move toward the ramp. The head scarp from the previous slide is present at the top of the cut section with the sandstone noted from the historical boring along Ramp C present jutting from the scarp face. Several rockfall blocks were noted on the slope surface which appear to have come

Date: November 16, 2023

Subject: MUS-70-27.00 Field Reconnaissance for Geotechnical Exploration

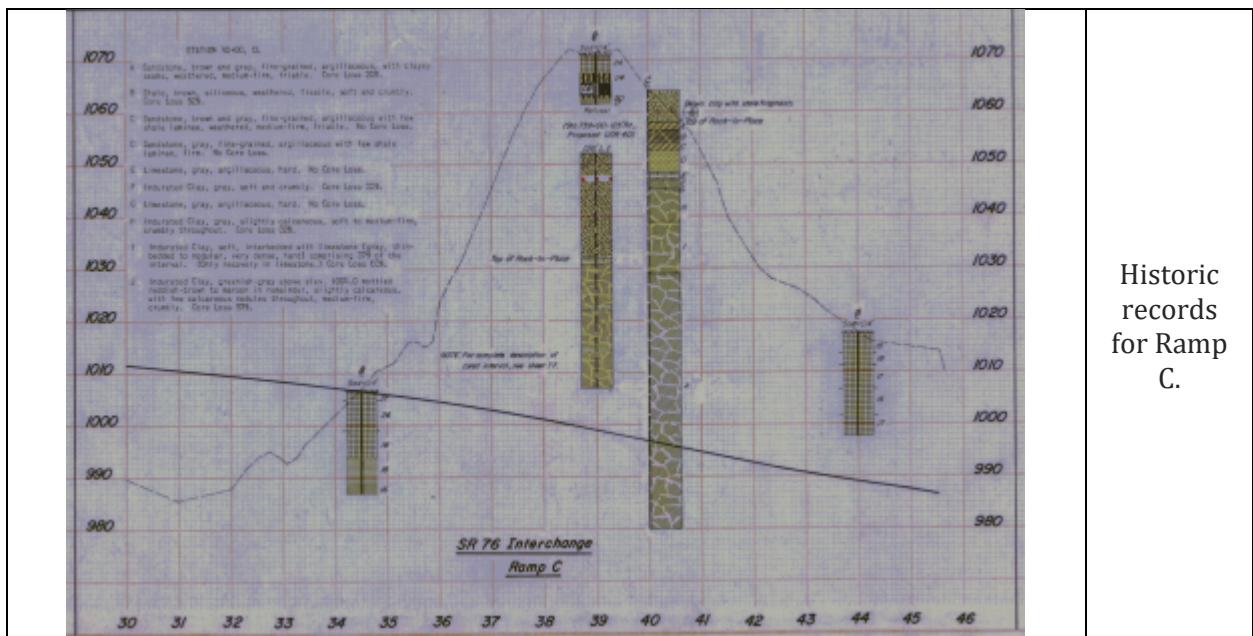
from this jutting ledge. A relatively flat surface is located mid slope of the slide bench with deep depressions on either side. B-003-0-23 was staked at this location which will require minor access and clearing work. We plan to access this location from Ramp D, traversing across the lower slope. OGE recommends that an inclinometer be installed at this location to confirm the mode of slope instability. An additional boring, B-003-1-23, was staked at the top of the hillside which has been leveled off. This boring will be off right-of-way and will require a right of entry letter to be sent out. We plan on accessing this location via the field drive off SR-83. The right-of-way fence is present just outside of the head scarp face.

OGE is currently planning on commencing drilling field activities mid-January. Right of entry as well as clearing activities will need to be completed prior to this. OGE feels that a meeting should be conducted prior to commencement of the clearing activities so our personnel can meet the District field personnel to determine the best course of action to complete the clearing work. Below are photos from the field reconnaissance and an exploration plan is attached. The red arrows indicate the anticipated way to access the locations.

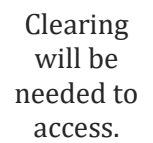
We will be in contact to schedule the access meeting for the clearing.



If there are any questions, please let us know. I can be reached at 614-351-2867, Andrew Jalbrzikowski can be reached at 614-275-1305, and Steve Taliaferro can be reached at 614-351-2873.

PPP



Historic records for Ramp C.



			<p>Boring Location B-002-0- 23</p> <p>Clearing to B-001 is behind this location.</p>
			<p>Boring Location B-003-0- 23</p> <p>Clearing will be needed to access.</p>



Sandstone
jutting
from head
scarp.

