VIRGINIA POLYTECHNIC INSTITUTE
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Dear Committee Member,

My fields of research are Rock Mechanics and Engineering, and Underground Openings (tunnels and caverns) in Rocks. The Kimballton site offers a preferred and suitable location for this research to be pursued, and I will work as a member of the Kimballton team to help make this a reality.

The features of Kimballton which appeal to me are: (a) the competent rock and the distinct possibility of building large caverns at great depth, (b) the varied geology which will require a wide variety of tunneling and support techniques, (c) the unique possibility of building large excavations in sedimentary rock.

The Rock Engineering community I am a member of should be represented in DUSEL because it will provide a unique and exciting opportunity to develop, test and validate new and innovative techniques for tunneling. DUSEL will be unique in that it will require the construction of large caverns located at large depths approaching 7500 ft. The construction of the access tunnels and caverns for experimental facilities will pose several challenges that need to be addressed by new technologies for geological characterization, tunnel design, and tunnel excavation and support. Lessons learned from building DUSEL can be used to improve tunneling technology. Rock failure in underground mines and tunnel construction continue to claim lives, and the tunneling industry is still beset by cost overruns and frequent failures. These problems can be reduced by better knowledge of rock mass behavior and improved tunneling technology.

Sincerely,

Marte S. Gutierrez, Ph.D.
Associate Professor