MISSOURI S&T
MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY
Formerly University of Missouri-Rolla

October 30, 2020

To Whom It May Concern,

It is my pleasure to provide Mr. Hanli Wu a reference letter for his application to the 2020 TriDurLE Outstanding Student Award. I am currently Hanli's PhD advisor and know his academic capability and personality very well. I strongly believe that he is an excellent candidate for this award.

As you can see from Hanli's resume, he has co-authored six journal papers in some highway-related journals before he came to the US. All these are extraordinary for a person at his age and we were really impressed. This was the reason why we made an offer to bring him to my research group without any hesitation. Since then we have been deeply impressed by his performance. Hanli is an unusually intelligent, dedicated, honest, and likable young person. He has published 5 journal papers in the past two years. He also has two other journal papers under review.

Since he joined S&T, Hanli started to work in a research project on Use of Cellular Concrete for Air Conduct Embankment (ACE) to Protect Permafrost Foundations in Cold Regions sponsored by Center for Environmentally Sustainable Transportation in Cold Climates. The ACE technique has been successfully used to provide passive cooling for roadway embankments in permafrost zones all over the world such as China, Russia, Canada, and interior Alaska. However, the coarse gravel or crushed rocks, which are needed for the construction of ACE, are not readily available. This study investigated the use of cellular concrete as an alternative material for ACE to protect permafrost foundations in cold regions. It has many special features such as low cost, high insulation and strength, and easy to use. The project required both experimental study and numerical simulation. He showed great passion in his research, whether it is the development of his finite element analysis, preparing the experimental samples, or writing the technical reports. I can tell the effort that he put into the papers and reports based on every version of drafts he shared with me. He always takes initiative and has an inquiring mind to handle almost all the issues emerged in the lab tests. I also appreciate the time that he put into his analysis of ACE and cellular concrete and I enjoyed discussions with him when he came to share his progress regularly. He has presented at 2018 Transportation Infrastructure Conference, and published one journal paper on this project. The results are very promising and he is continuing optimization of geometric and structural design. I am expecting his research will have a huge impact on the implementation of ACE techniques in cold regions.

Hanli was highly motivated at his study and research and had an internal drive to excel in academic field. He has been actively taking challenging courses from other departments. He is unusually intelligent and can quickly apply the knowledge he learned from other areas in his own research. This is likely the reason

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why he had impressive publications from his MS study and I am confident that these skills will continue contributing to his recent work in a newly funded project on Durability of Transverse Sawcut Joints in Mid-Western Jointed Concrete Pavements.

In a summary, Hanli is a genuine, decent, energetic, and very likeable person. He has a warm personality and gets along very well with all of the people here. Besides working hard on his own research, he is always ready to help other people around. He has been a pride of our faculty and students, and everyone enjoys having him here. I would unreservedly recommend Hanli for his application for the2020 TriDurLE Outstanding Student Award. If you would like further elaboration, please feel free to contact me.

Yours very truly,

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