

## Response by Authors to Reviewer's Remarks/Comments

# Scale Effects of Plate Load Tests in Unsaturated Soils

Authors: Won Taek Oh and Sai Vanapalli

The authors have summarized their replies to the Reviewers' comments in this response letter in a two column format. A revised manuscript is submitted addressing all the comments to the Journal of GEOMATE for possible publication.

|   | <i>Reviewer_A's Comments</i>   | <i>Authors Response</i>   |
|---|--|---|
|   | Creeping displacement or settlement behavior of soil material is not consider to deign foundation, tunnel, retaining wall etc. It will be better if you can include the soil material creeping failure mechanism which is leading to foundation failure in your paper.   | The authors appreciate the comments from the reviewer A; however, creeping displacement is beyond the scope of this paper at this time. |
|   | <i>Reviewer_B's Comments</i>   | <i>Authors Response</i>   |
| 1 | Remove "In addition, there are different ground improvement methods to increase the bearing capacity and reduce the settlements".  | The sentence is removed in the revised manuscript.  |
| 2 | Remove "hereafter referred to as SFs".   | The phrase is removed in the revised manuscript.  |
| 3 | Fig. 1   | Fig. 1 is modified as per the reviewer's comments.  |
| 4 | This means to be well known and accepted. Why do authors need to provide this level of evidence if well understood and accepted?   | The authors provided the details to justify the estimation of average matric suction and for completeness of the paper.                 |
| 5 | Fig. 2: not necessary  | Fig. 2 and the relevant explanations are removed in the revised manuscript as per the comments.   |
| 6 | From an engineering practice point of view, these curves can be considered to be unique. (remove this sentence)  | This sentence is removed in the revised manuscript as per the reviewer's comment.   |
| 7 | The critical state concept discussed above can be effectively used to explain the scale effects of SFs in saturated or dry sands. However, this concept may not be applicable to interpret the scale effects of plate size in unsaturated soils. The SVS behaviors in unsaturated soils are influenced both due to the footing | This paragraph is removed in the revised manuscript due to the relevance to the item '4'.   |

|           |   |  |
|-----------|---|--|
|           | size and matric suction. The influence of matric suction however is typically ignored in conventional engineering practice. |  |
| <b>8</b>  | section 4.2<br>initial ( <i>drained</i> ) tangent elastic modulus, $E_i$  | The authors did not use the term, ‘drained’ because a study by authors showed that Eq. (4) can also be extended to estimate the variation of initial tangent elastic modulus for the in-situ plate load test results in unsaturated fine-grained soils.<br><br><i>Vanapalli, S.K. and Oh, W.T. 2010. A model for predicting the modulus of elasticity of unsaturated soils using the Soil-Water Characteristic Curves. International Journal of Geotechnical Engineering, 4(4): 425-433.</i> |
| <b>9</b>  | Fig. 11 and Fig. 12 (include information about rate of loading)   | Rate of loading is included in the revised figure.   |
| <b>10</b> | Fig. 15(a) and (b) (include information about rate of loading)  | Rates of loading are not included in the figures since the results are from bender element test.   |
| <b>11</b> | Fig. 18 (Do you have measured suction values?)  | The suction distribution profile in Fig. 18 is idealized behavior to explain average matric suction concept. Measured suction values were not available in the literature.   |

The authors appreciate the valuable comments from the Reviewers.