

I. IDENTIFICATION DATA

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| Thesis title: | Analysis of two computer programs for a pile wall design in Prague |
| Author's name: | Wenhao Zhu |
| Type of thesis : | master |
| Faculty/Institute: | Faculty of Civil Engineering (FCE) |
| Department: | Department of Geotechnics |
| Thesis supervisor: | Ing. Jan Kos, CSc. |
| Supervisor's department: | Department of Geotechnics |

II. EVALUATION OF INDIVIDUAL CRITERIA

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| Assignment | ordinarily challenging |
| <i>How demanding was the assigned project?</i> | |
| The design of a pile wall using one or both computer programs which should be analyzed is common in practical design of retaining structures. In this case, the design has been complicated by the tall building on the piled foundation adjacent to the retaining structure. The analysis was required only for one (the extreme loaded) cross section of the pile wall due to very complicated ground conditions on the building site (inclined soil layers), results of the preliminary ground investigation only (in Czech), and student's limited familiarity with the computer programs via distance teaching. | |

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| Fulfilment of assignment | fulfilled |
| <i>How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.</i> | |
| The assigned task has been fulfilled, and the primary goals have been achieved: The pile wall analyses have been made using two computer programs: GEO5 Sheeting check and GEO5 FEM. Necessary modifications of the FEM computer program parameters required a lot of effort. The outputs from both computer programs have been clearly compared. The conclusions have been made. The student didn't use one week of possible submission date delay, although I suggested it. It seems that this week was missing in the end. | |

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| Activity and independence when creating final thesis | A - excellent. |
| <i>Assess whether the student had a positive approach, whether the time limits were met, whether the conception was regularly consulted and whether the student was well prepared for the consultations. Assess the student's ability to work independently.</i> | |
| The student had a very positive approach to the work. He regularly consulted, which was complicated by distance contact, and he was well prepared for consultations. In the beginning, the student had to learn the computer programs in more detailed way than during the university studies. Especially necessary modifications of the FEM computer program parameters required a lot of effort. The student proved the ability to work independently. The time limits were met, the student didn't use the possible one week delay of the submission date. | |

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| Technical level | A - excellent. |
| <i>Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?</i> | |
| The thesis is technically sound, although it could be based only on results of the preliminary ground investigation. The ground parameters were based on the classification and geologist's experience, not on the field, or laboratory testing. The cautious estimates of the computer programs input parameters had to be calibrated. The student had to learn the computer programs and the soil and rock massif behavior in more detailed way than during the university studies (especially for the FEM model of the overconsolidated massif below the excavation bottom). The student's work and decisions are clearly explained. | |

Formal level and language level, scope of thesis**B - very good.**

Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?

The formal level of diploma thesis is very good. The text of the thesis is organized in a logical way, clear and understandable.

Selection of sources, citation correctness**A - excellent.**

Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?

The selection of technical literature is adequate. The student's original work is clearly distinguishable. I did not find any cases of violation of citation ethics.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

The assigned task has been fulfilled, and the primary goals have been achieved in the thesis. The design of a pile wall using one or both computer programs which should be analyzed is common in practical design of retaining structure. But the solution was not only a standard application of the program. The input parameters have been modified for a better modelling of the overconsolidated massif below the excavation bottom in the FEM program. The student's work was complicated by practically one year of distance learning and consultations.

The student has demonstrated adequate knowledge and skills for the master degree, so I recommend a positive acceptance of the diploma thesis.

The grade that I award for the thesis is **B - very good**.

Date: **2.2.2021**

Signature: