Project Status Report: CEEn-2019CPST-004 **Report Date: 2/18/20**

Team Members: Jacquelyn Winfield, Andee Guy, Tanner Roberts

Project Title: Kiewit Bulkhead Evaluation

1) Summary of technical/non-technical challenges encountered

- We have continued working on finding the required depth of embedment to prevent a slipping failure of the whole wall. We have found the needed depth both before loading and during loading.
- The next step is to start working on other failure methods like tie rod failure or buckling of the wall.
- Another challenge that needs to be addressed is determining safe and effective ways to monitor the bulkhead during unloading.

2) Team approaches & resolutions to overcome challenges

- We have met with Dr. Rollins a few times over the past week to discuss different methods to obtain more precise analysis of embedment depth. We have tried calculating the induced stresses a few different ways and comparing the results.
- We have a team meeting set up to start discussing the other failure methods and monitoring processes.

3) Status of challenge resolutions & potential project impact

- The analysis we have done on global slipping of the bulkhead show that the actual embedment depth is very close to the theoretical embedment depth. So according to our calculations, it is possible but not very safe to use the bulkhead as it is. If the bulkhead is to be used as is, rigorous monitoring needs to occur to ensure the wall does not slip out.
- The other failure methods will start to be analyzed this week. This analysis will help us better understand which failure method will govern and if the bulkhead will be viable under the induced load.

4) Project status & summary

- The project is going very well. We have started moving through the analysis better than at the beginning. There was a bit of a learning curve that we needed to overcome when we were first starting. Talking with professors and reviewing basic soil mechanics has helped us move past this learning curve and start working on the solution to this project.
- As we put more time into the project, we are working better as a team and we are coming closer to an answer.

Please enter # of hours spent on project this last week for each team member in the order listed above

Member #1: 5 **Member #2:** 6 **Member #3:** 5 **Member #4:**