

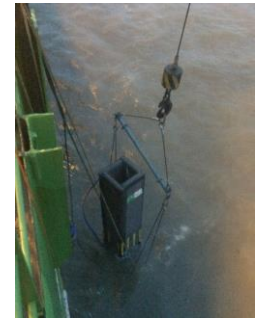
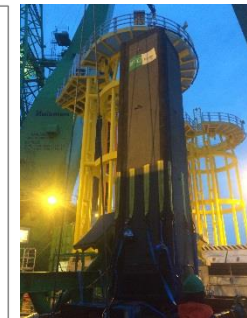
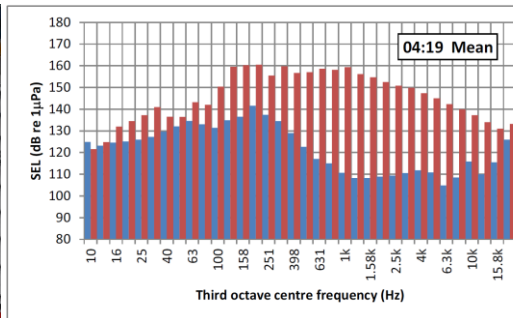


HydroNAS™

Piling Noise Mitigation Technology

Offshore Trial Results

18 May 2015

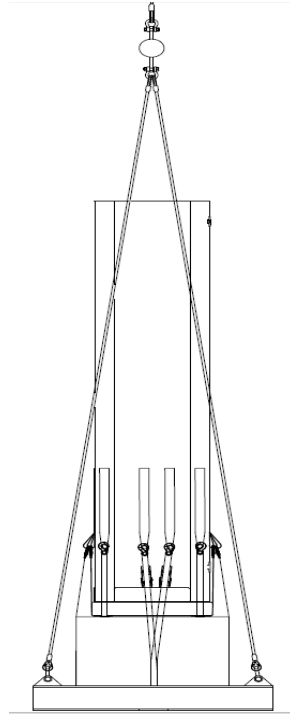


For more details and contact information please go to www.w3gmarine.co.uk

Background and Objective



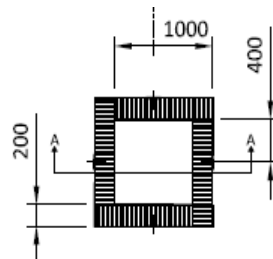
Final system assembly



Assembly schematic



Bottom end seal



System dimensions

System Tested:

- Underwater noise mitigation system- HydroNAS
- Developed since 2011
- Offers air sleeve continuous barrier
- Made of flexible, inflatable dropstitch material

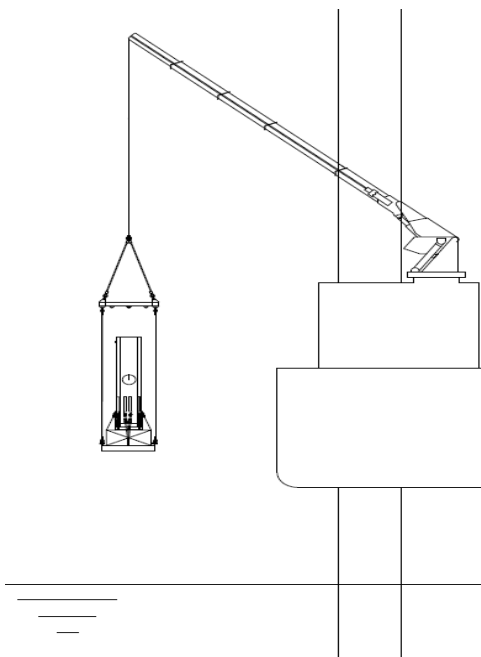
Trial Objective:

To confirm the expected noise attenuation across the sleeve barrier during offshore piling operations in close proximity to the noise source

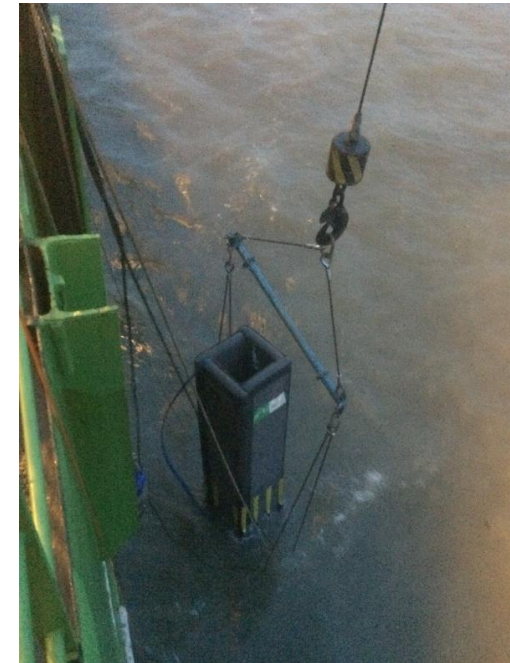
Project Specifics:

- Pile Diameter - 5m
- Pile Length - 40m
- Pile Mass - 224t
- Hammer - IHC S1200
- Water depth- 6m
- Soil – Clay

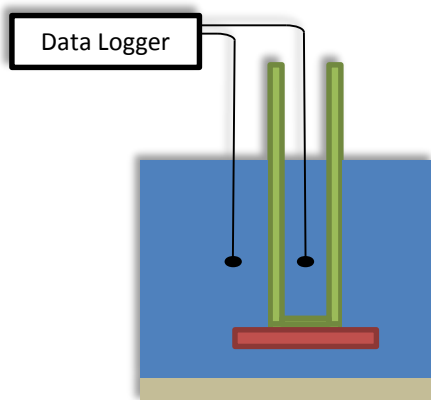
Method



System ready for deployment



System overboarded



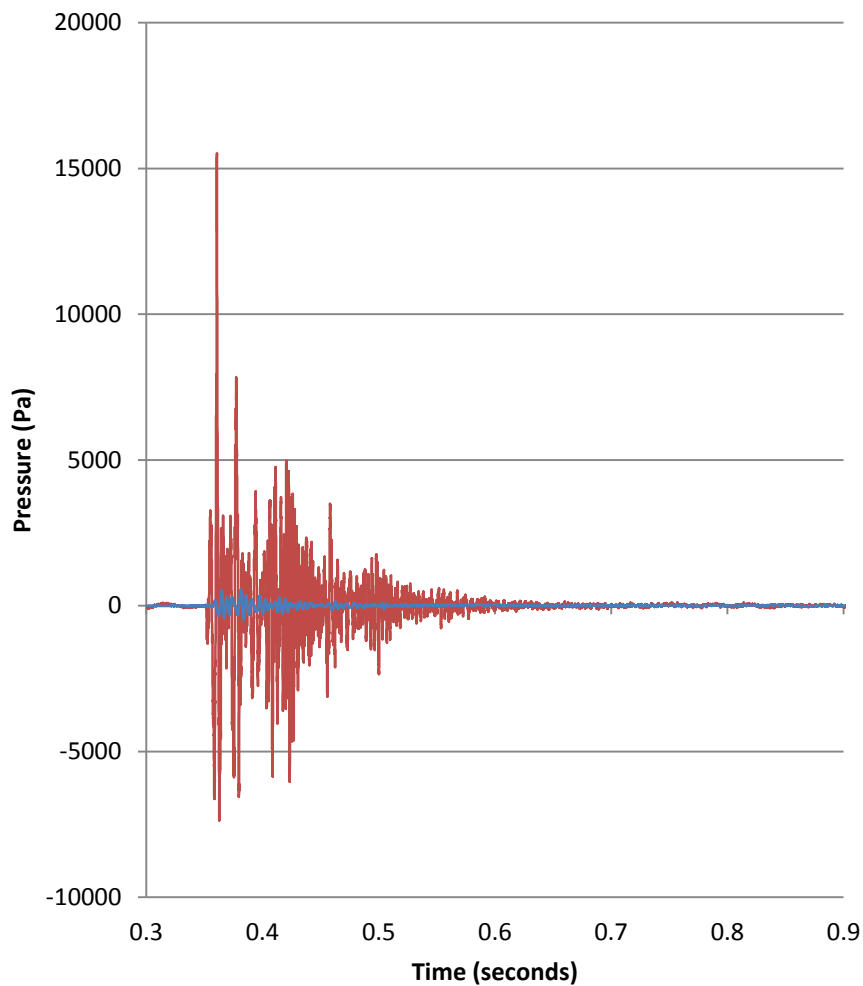
Deployment method

- HydroNAS was deployed from the pile installation vessel using a deck crane
- The system was ballasted and lowered into the water
- Inside of the system was filled with water

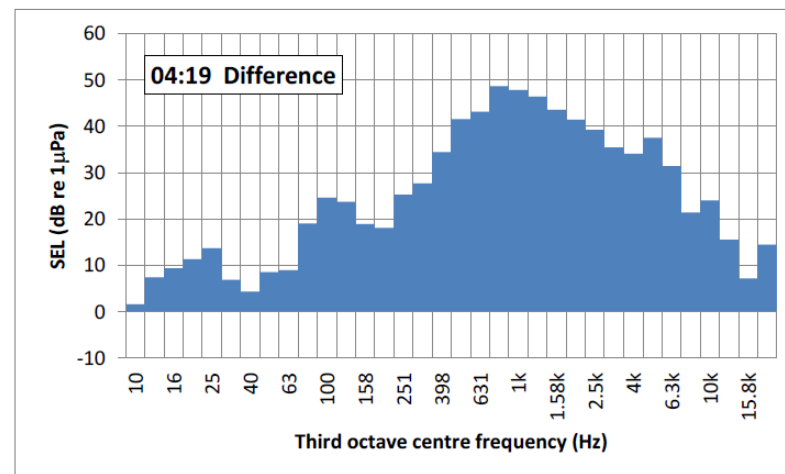
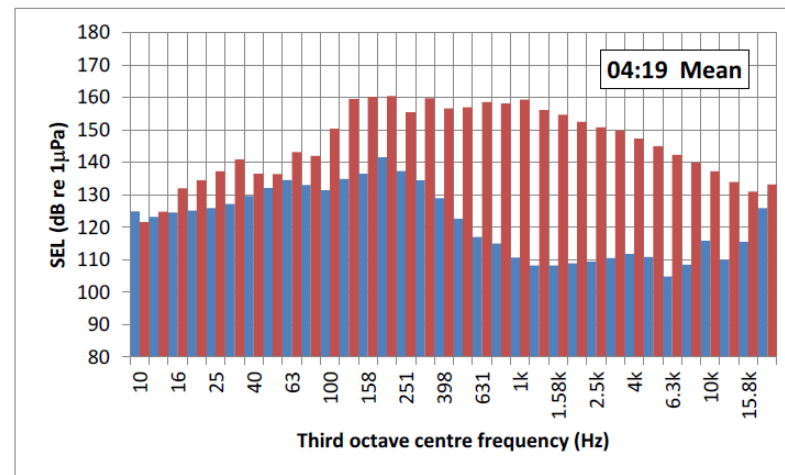
Measurement method

- Two hydrophones were used to measure the noise outside and inside of the barrier
- 24 sets of 20 hammer blows during piling were recorded (480 records)

Results



Noise levels across outside (red) and inside (blue) hydrophones



Top: SEL levels for outside (red) and inside (blue) hydrophones in the 1/3 octave frequency spectrum.

Bottom: Difference between the two hydrophones.