3.5.6 LEEDCo Icebreaker

In 2015, LEEDCo announced that Icebreaker will use a monobucket foundation designed by Universal Foundation, which combines a monopile with a suction bucket (Husted 2015). The monobucket foundation combines properties of a monopile and a gravity base to resist overturning. The interface with the seabed is provided by a steel skirt that is approximately 15 m in diameter and penetrates the seabed to a depth of between 10 and 20 m. This steel skirt is welded to an upper steel tube and transition piece that resembles the above-ground elements of a standard monopile. The monobucket can be installed by applying suction via nozzles located on the skirt, which causes the foundation to sink into the seabed. This installation method eliminates the need for piling, which could lessen environmental impacts relative to conventional monopiles or jackets. In summer 2015, LEEDCo commenced geotechnical investigations at each proposed turbine location to confirm soil properties for the detailed design of the foundations (Funk 2015b). Universal Foundation has been working with LEEDCo and Case Western Reserve University's Civil Engineering Department to design a system capable of withstanding winter ice floes.