

# Case Study : The Spire WaterJet Cutting



## Introduction



We, at Aqua Design Ltd, were privileged to have been part of a major iconic landmark in Dublin city, The Millennium Spire. The Spire is a fantastic work of engineering standing 120 metres tall and 3 metres wide at it's base. Aqua Design was involve with the project from the very start working with the principal contractor in two capacities;

## Problem/challenge

Problem one was cutting the pattern around the base of the Spire, The pattern around the base of the Spire is based on a core sample of earth and rock formation taken from the ground where the spire stands.



## Solution

Working from drawings supplied by the contractor we cut the pattern for the base. It was tricky because the Spire is like a cone, wide at the bottom and narrow at the top. As a result of this there is a narrowing of the structure as you rise up the Spire. The material used had to be flexible enough to be wrapped around the 9.5 metre circumference of the base. In a simple way to explain it's a bit like stencilling or hanging wallpaper. The material was 3mm rubber with an adhesive back and so **Waterjet Cutting** was the perfect solution to cut the pattern without damaging the material or the adhesive. As stated the Spire is tapering upwards, this meant that ever sheet cut had to be tapered and fit perfectly with the next corresponding sheet so that the whole base of the Spire was covered in the material depicting the pattern. Once the completed sheets were finished and covering the base perfectly, the main parts were then removed to leave just the smaller pieces depicting the earth and rocks that form the pattern. The exposed material was then bead blasted to give the dimpled effect to the steel and the remaining smaller rubber pieces were removed to reveal the higher polished pattern that is unique to the Spire. The reason for the bead blasting is to lessen the shine that would be reflected from the highly polished stainless steel in case it could be reflected into the eyes of vehicle drivers.

## Services Used

As we were involved from the start we were able to bring our expertise in advising our customer on the best method of cutting for the pattern. This included the material chosen, the type of drawings required to display the pattern, the design of the tapering sheets and the matching up of the sheets around the base. We also used the most versatile of cutting methods, **Waterjet Cutting**. This is a cold cutting method of cutting materials and does not heat, harden or damage the molecular structure of the material being cut. ( For more information on materials ideal for **Waterjet Cutting** please click on link)