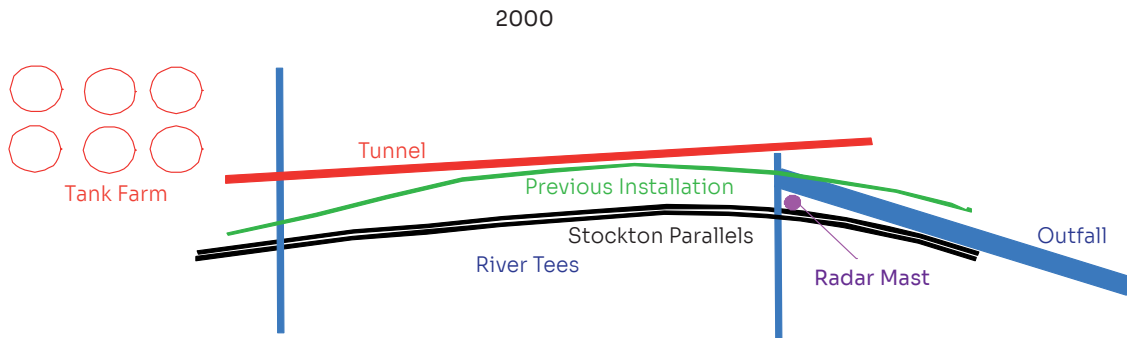


**Teeside**



Stockton Pipelines contracted to install two parallels under the river Tees near Teeside, England. Another crossing had been successfully installed 20 meters off the planned centerline on entry and exiting across a deep outfall from the planned exit points. Additionally, a tunnel, 3 meters square, containing oil pipelines had been constructed further to the left. Coincidentally, the Prime Horizontal engineer working with Stockton had guided the previous HDD crossing in 1991. Remembering how much magnetic interference was present due to the tunnel alongside planned centerline and the Radar Mast near exit, Prime recommended the use of ParaTrack 1 to guide the main product line.

The first hole was drilled conventionally, using short sections of guidewire on entry and exit. Earthing was located behind the rig and exit points and 20 meters offshore, in the river. While drilling the river section, normal azimuth was used applying slight course corrections when magnetic interference was quantified. When the exit side ParaTrack cable indicated a positive reading, the hole was found to be within 2 meters of plan and drilling continued to exit point, eight meters away from the edge of the down slope into the outfall. A six inch product line was installed. After the rig was moved to the left and a ParaTrack cable installed inside the 6" line, the second drill commenced. While drilling around 800 meters from entry, formation cobble caused the loss of the down hole motor. On a trip back into the soft formation at entry prior to entering the rock, the hole sidetracked, causing a redrill from entry and the loss of 800 meters of hole. Using ParaTrack position references, the old hole was intersected 400 meters away from entry, thus saving significant rig time. Once the cobble formation was sidetracked successfully, the pilot continued to a punch out position two meters away from the outfall down slope.

Now, ParaTrack Operations gives contractors the confidence, after installing a surface or underground cable All the Way from Entry to Exit, to guide the pilot hole with enough positive control to actually plan for underground