MSD Design Awards 2024

# Winner

## SME recognition award

HSE

Employer | **MRF Contracting**

Designer | **MRF Contracting**

Title | **Taking the strain out of fence installation**

> Following the change the new equipment has dramatically reduced the effort of lifting and holding the post knocker and I feel less tired and much more productive.

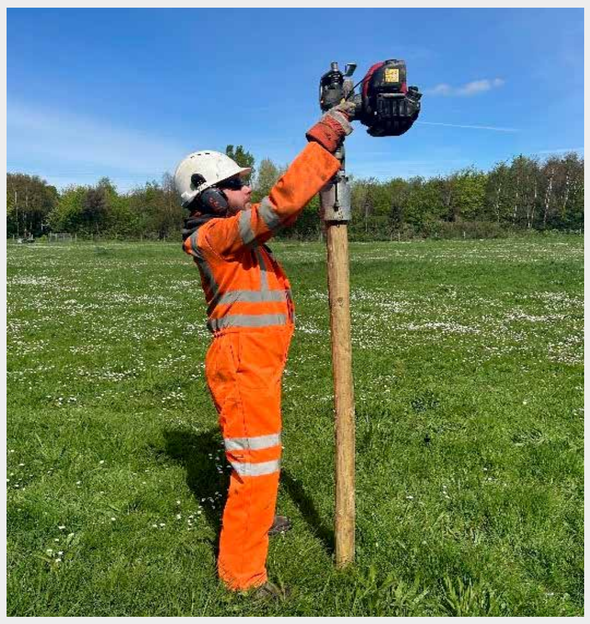
MRF Contracting

HSE

Chartered Institute of Ergonomics & Human Factors

## BEFORE

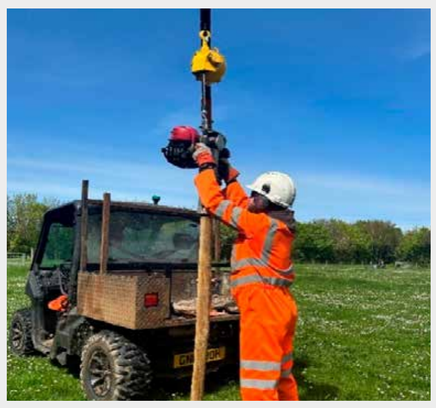
→ *Photo 1*
*Operator holding and supporting the heavy post knocker above head height, increasing the risk of manual handling injury*

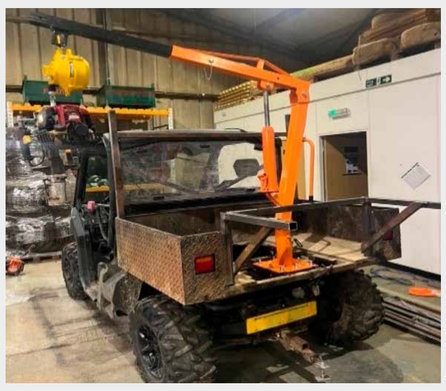


- The team use a speed-restricted 4 by 4 buggy to install demarcation fencing. One person drove and another walked behind, repetitively knocking in posts.
- Operators installed around 166 posts a day (60km or more fencing), often in challenging weather conditions, using a petrol post knocker, held above head height and weighing 15.3kg.
- While the heavy post knocker drove posts into the ground, operators had to position it above head height for up to 10 seconds, increasing manual handling risk.
- An assessment found manual handling risks in lifting and statically holding the knocker above head height every 5 minutes, with some twisting during the day.
- Holding it for prolonged periods increased hand-arm vibration (HAV) risk.

## AFTER

*Photo 2 → Employees and MRF engineers fabricated the crane and a tool balancer onto the 4 by 4 buggy*





← *Photo 3 Operator positioning the post knocker over the post, significantly reducing manual handling*

- Attaching the post knocker and a tool balancer to a crane eliminated manual handling and reduced HAV effects.
- Operators were engaged throughout the project and worked with workshop engineers and fencing managers to develop the solution.
- The crane is examined under Lifting Operations and Lifting Equipment Regulations. It is locked into position when the buggy is mobile and used only on flat ground.
- The manual handling risk of lifting and holding the device is significantly reduced.
- HAV is reduced as operators hold the device for less time and with less grip strength.
- Whole-body vibration is reduced as drivers and post knocker operators regularly rotate roles.