

Demolition of a 132kv Substation Compound – Staythorpe B



Location: Staythorpe substation, Staythorpe Road, Staythorpe, Newark, NG23 5RG

Scope: Staythorpe B 132kv Substation Dismantling & Removal

Disciplines: Power Generation

Client: Western Power Distribution / National Grid

Programme: March-May 2022

Value: £800,000

Ron Hull Demolition has completed the site clearance of Staythorpe B 132kv substation. The demolition programme had a duration of 16 weeks that had to be met to avoid delays to the construction of the new substation compound & exacerbating "off grid" time.

A clear sequence of work was developed in collaboration with our clients WPD and National Grid, helping the client's civils team follow on behind the demolition, improving programme and mitigating delays.

Following removal of insulators, isolators, busbars & overhead lines, a 21t tracked demolition rig with concrete cracker tool was used to fragment the reinforced concrete structures, with 2t excavators following on behind, breaking out concrete stubs flush to base level. All material from the demolition was removed off site to local recycling centres - apart from the asbestos, all other material generated from the demolition (insulating oil, ferrous steel, non-ferrous, concrete) was recycled - an estimated recycling rate of 99% was achieved.

Many of the concrete bases were to be reused during the new scheme, therefore protective matting and plates were set up prior to demolition to avoid compromising their integrity – all bases were reused, none had to be removed.

Sequence of Works

The work included the complete demolition of the Staythorpe B compound. More specifically, the following tasks were completed on site as part of our contracted scope:

- Installation of protective scaffold system over electrical equipment to remain in-situ
- Remove hazardous material: (i) asbestos containing material (including licensed asbestos debris from trenches) (ii) lead batteries from control room (iii) insulating oil from 132kv circuit breakers and VTs
- Remove control panels, wall boxes & LVAC boards from the control room building
- Remove cable from trenches
- Remove isolators, insulators & busbars
- Remove overhead conductor lines
- Demolish 100+ reinforced concrete structures up to 12m high
- Remove select concrete bases
- Remove 36no 132kv oil circuit breakers & VTs



Project Challenges

The following challenges were met and overcome during the project:

- WPD had a strict 16-week demolition programme that needed to be met to avoid delaying the construction programme. RHDL kept a close eye on progress during site coordination and weekly meetings, tracking planned progress against actual progress and deploying extra resources to keep ahead of the programme – in the end we finished the project within 14 weeks and released the site back to WPD in 3 stages so that the Civils team could follow on behind the demolition.
- WPD informed us that the reinforced concrete structures were to be demolished flush to base level as the existing foundations were to be reused during the new scheme. RHDL established matting / plates over the bases to protect from falling debris and machine tracks. We also routed demolition plant through the site to minimize contact with the concrete bases.