Case Study Portfolio

HENDERSON & TAYLOR

Major Projects- Brunel Depot

SITE- Brunel Depot, Bedford

CLIENT- Bedford Borough Council

SIZE- 6,000 m2

VALUE- £2,500,000.00

SPECIALIST PRODUCTS USED- Fibre mesh reinforced concrete



Scope of Works:

- Demolition of existing Waste Transfer Station, vehicle wash and associated drainage repairs and concrete slab repairs.
- Design and construction of a salt barn
- Construction of a new Waste Transfer Station
- Construction of a new depot area consisting of a concrete slab.
- Associated drainage works including crate attenuation system, oil interceptor and deep saddle connection onto existing Anglian Water main foul sewer.
- Electrical ducting works and NAL sockets for future installation of CCTV and street lighting.
- New vehicle wash bay and bin wash areas
- Installation of new vehicle weight bridges

Challenges:

The scheme involved a number of elements which the Client had specified a number of designers for, Henderson & Taylor had also selected our own design consultant Pell Frischmann to support with contractor designed elements of the scheme. Henderson & Taylor coordinated the activities of the multiple design teams to ensure that each element of the scheme was optimised.

The original design for this scheme involved significant deep excavation to more than 5m for both attenuation and drainage connections, with the water table at 1.8m. The running sand present within the ground investigation meant that deep excavation would require significant temporary works and dewatering to prevent ingress into the excavation.

Henderson & Taylor worked with the designer and our supply chain to reduce the requirement for deep excavation for the attenuation system creating a significant saving in excavation and disposal of excavated material, as well as reducing the requirement for temporary works.

As the Depot was only accessible through a busy working Council facility, we needed to maintain access throughout the works which required careful phasing of the concrete slab works and management of deliveries which were all escorted through the depot by a banksman.

The Council needed access to the new Salt barn as soon as possible to enable them to begin stockpiling salt ahead of winter. The slab and foundations for the Salt Barn were therefore constructed early in the programme to allow the slab to cure prior to the barn construction. Once complete the Council accessed the barn to begin stockpiling operations while the remainder of the project works were completed.

The requirement for a large concrete slab to form the new depot area was complicated due to the need for fast curing times over a large area, and the expected resilience required by the finished slab when highly trafficked by HGVs. Usually the solution to the required load resistance would be steel-reinforced concrete, however the curing time of the steel solution as well as the lead in time of securing suitable steel meant that this was not an option. Instead, H&T formulated a specialised fibre-reinforced concrete with enough durability to withstand HGV movements and frequent smashing from loading shovel debris as required for the depot. This innovation allowed the project to be completed on time and in budget.

The final major challenge associated with the project was the installation of a Fabekun Saddle Connection on to an Anglian Water sewer pipe of unspecified diameter and unknown wall thickness. The work involved deep excavation through potential running sand using an interlocked sheetpiled man-hole box with hydraulic whaling frames to prevent water ingress and dewatering pumps to manage the ground water coming in from the pipe location we excavated to expose the pipe and confirm its diameter to ensure the saddle fitting was suitable. We then drilled a pilot hole to confirm the wall thickness of the pipe and to enable an eyebolt to be fitted to prevent the core entering the pipe prior to our specialist subcontractor diamond drilling through the wall to allow the saddle to be installed. The excavation was then back filled and the sheetpiles and whalings removed as the back fill level rose to ensure full compaction of the backfill material.

Social Value:

As part of our commitment to the communities we work with Henderson & Taylor implemented a Social Value plan for the project.

Creating roles for local people within the construction team, engaging with local suppliers and SMEs to maximise the local benefit of the project including feedback loop expenditure. We also carried out litter picking and supported local Bedford Charities throughout the project.



Environmental benefits

Henderson & Taylor are fully committed to the principal of Zero Waste to Landfill, we operate a 26 Acre recycling facility which is able to process all non-hazardous waste for re-use.

We segregated all waste to ensure that it could be removed and recycled efficiently. We maximised the use of recycled materials within the work scope where this was permitted by the client's specification.

We deployed low emissions vehicles as part of our FORS accredited fleet.

Our staff also undertook voluntary work on green initiatives as part of our company wide green volunteering focus.

Before

After