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Anlaby Flood Alleviation Scheme Phase 2

Construction works at the AEEFAS Phase 2 scheme near Hull hit a peak over the summer period as the site team push to complete the 130,000m³ water storage lagoon by the end of November.

The Need

Anlaby and East Ella Flood Alleviation Scheme (AEEFAS) has been developed by East Riding of Yorkshire Council in partnership with Hull City Council and the Environment Agency as part of a suite of schemes that will reduce flood risk in the Hull and Haltemprice areas that suffered devastating floods that affected hundreds of homes and businesses in 2007.

The scheme is funded by both the Environment Agency with a Flood Defence Grant, and the Humber Local Enterprise Partnership, with a grant from the Local Growth Fund.

The £3.8m second phase, which is located to the East of Beverley Road and Western Drain, involves the construction of a new flood water storage lagoon on the site of the previously demolished Sydney Smith School on First Lane in Anlaby, with a capacity of around 130,000m³.



Our Approach

With the lagoon categorised as a reservoir, the design and construction was subject to the review and approval of a client-appointed Reservoir Panel Engineer. Built to a strict specification and quality assurance regime, the embankments were constructed using site-won cohesive clay material, forming a natural lagoon liner.

Following the excavation and re-use of approximately 60,000m³ of soil and supplemented by the import of a further 50,000m³, the earthworks finished by the end of Summer 2018.

Focus then moved onto the 190m long spillway on one side of the lagoon, which is 500mm lower than the surrounding embankments. Pre-grown turf, incorporating Enkamat erosion protection mat, was installed on the spillway to ensure immediate scour protection to the earth bunds in the event of a flood. A reno mattress at the foot of the spillway and geocellular grass paving to the crest was then constructed to complete the spillway works.

An in-situ reinforced concrete outfall structure was constructed as the main control for discharging flows from the lagoon into the existing Acres Head Drain. An emergency drain-down arrangement was built as part of this system, consisting of penstock valves, additional pipework, manhole chambers and a section of existing 1050dia pipe replaced. During construction, the flows within Acres Head Drain were temporarily over-pumped and monitored in order to ensure that works could proceed without risk.



- > Construction of a new 130,000m³ flood water storage lagoon
- > Construction of new outfall structure and connections
- > Construction of an 800m long flood water channel
- > Agricultural access bridge across new flood water channel
- > Alterations to an existing flood water storage lagoon
- > Sports pitch drainage and landscaping to Sport England standards
- > Associated fencing, maintenance tracks and landscaping

In parallel with the programme-critical lagoon works, construction of the connecting 1km long upstream water channel and associated structures were constructed. A field bridge was built across the newly formed watercourse to provide farmer's access to a pocket of land. Pre-cast culvert units and wingwalls were successfully installed using a 200t mobile crane followed by in-situ concrete elements, waterproofing and structural backfill to complete the bridge.

Associated Benefits

In addition to providing much needed flood protection, the 90,000m² lagoon bed had sports pitch drainage incorporated into the design, so the majority of the time it can be used by the local community for sports.

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The project team have faced many challenges but have successfully delivered a quality scheme, with an excellent safety and environmental record, providing much needed flood protection to the local community.

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Richard Watkins

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