



Gunthorpe Weir Hydropower Scheme

Initial Method Statement

Prepared By: Renewables First

Summary

This document outlines the proposed activities required for the installation of a hydropower scheme, adjustable weir crest and associated infrastructure at Gunthorpe Weir.

The detailed design process will ensure that all risks of flooding are mitigated during installation and construction. However, an initial overview of the works is provided in this document.

The final method statement will be subject to sign-off by the Canal and River Trust, as landowner and navigation authority, and by the local planning authority.

General description of works

The works consist of the following:

- Enabling works to establish access from Trent Lane, compound/storage areas, crane pad
- Temporary sheet piling at the proposed intake and outfall areas, plus sequentially various sections along the weir crest, to create a dry working area
- Groundworks within the dry working area on the right bank to reduce levels for construction of the hydropower scheme
- Civil works to construct the hydropower channels, turbine house and fish pass channel
- Civil works to create a shallow concrete foundation across the weir crest and small concrete supporting pillars
- Installation of the adjustable weir crest system
- Installation of power and control equipment related to the adjustable weir crest, including fail-safe mechanisms
- Installation of two Archimedes screw turbines within the new channels
- Installation of steelwork for fish pass and intake trash rack
- Installation of all cabling and electro-mechanical equipment within the turbine house
- Construction of an electrical substation on the left bank and associated electrical installation works

Location and access

Please see the relevant drawings that accompany this application for full details of the site location, layout and access arrangements.

The site will be accessed via existing tracks leading from Trent Lane towards the site, adjacent to Kingfisher Wharf. Existing tracks will be upgraded as part of the works.

Duration of Works

It is estimated that the work will take up to approximately six months to complete, depending on weather conditions. Severe weather conditions could delay construction considerably. However, where possible the works will be carried out during the summer months.

Method Statement

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| 1 | Site preparation |
| 1.1 | A Construction Management Plan will be completed in conjunction with the Principal Contractor and Principal Designer which will include a site access / traffic management section and submitted to the Local Authority. |
| 1.2 | Local residents will be engaged and notified as to construction details prior to works beginning. |
| 1.3 | Site compounds will be set up, incorporating storage areas for materials delivered to site and sufficient space for construction vehicles to turn. |
| 1.4 | The required safety signs, fencing and signals will be installed as and when required. |
| 1.5 | The existing entrance gate to site will be modified where required to allow access. |
| 1.6 | Existing tracks on-site will be upgraded where required. |
| 1.7 | If works expose any drainage lines, temporary channels or clay barriers may need to be utilized to prevent the channels from becoming the drainage route. |
| 2 | Adjustable weir crest |
| 2.1 | The adjustable weir crest installation will be done section by section, to minimise the restriction to river flow. |
| 2.2 | Sheet piling will be utilized as temporary flow diversion works in order to create a dry working area. The flow will be diverted away from the working area so it passes by towards the navigational channels or other channels. Any water in the dry area will be pumped out and discharged over to the nearest bank through a silt trap to allow any contaminated material or silt to be settled out before water re-enters the watercourse. |
| 2.3 | A shallow concrete foundation will be constructed across the existing weir crest along with two small concrete supporting pillars. |
| 2.4 | The adjustable weir crest will be installed as per manufacturer instructions and fixed into the existing weir crest. |
| 2.5 | All power and control equipment, including fail-safe mechanisms, will be installed. |
| 2.6 | All temporary works will then be removed. |
| 3 | Hydraulic channels |
| 3.1 | 28 calendar days' notice will be given to the EA before construction commences. The works involve creation of a new channel and the installation of a steel trash rack within the existing bank. |
| 3.2 | Sheet piling will be utilized as temporary flow diversion works in order to create a dry working area. The flow will be diverted away from the working area so it passes by towards the navigational channels or sluices. Any water in the dry area will be pumped out and discharged over to the nearest bank through a silt trap to allow any contaminated material or silt to be settled out before water re-enters the watercourse. |
| 3.3 | Any material or spoil will be transported and disposed of off-site. |
| 3.4 | Excavation of the existing bank and potentially the channel bed will occur until a firm and stable surface is found to ensure the bearing pressure will comply with the proposed structure. |

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| 3.5 | A blinding layer will be poured to ensure flat surface is achieved for installation of apron. |
| 3.6 | Rebar will be set into bedrock or existing structure |
| 3.7 | Formwork will be aligned accordingly to the detailed design of the superstructure. This will be formed around the mesh installed. |
| 3.8 | Concrete pour should occur into the formwork depending on the weather forecast. Concrete pour can occur with weather forecasts showing three consecutive clear days after the pour of concrete to avoid washout. |
| 3.9 | Formwork will be removed. |
| 3.10 | Concrete will be left to cure for a minimum of 3 days. |
| 4 | Powerhouse |
| 4.1 | A new powerhouse will be constructed to house the turbine and associated equipment. |
| 4.2 | Excavation within the dry working area will be required to reduce levels. |
| 4.3 | Where required blinding concrete will be laid to ensure a smooth flat surface for construction of the powerhouse and to form a secure bond with the foundation. |
| 4.4 | Formwork will be placed for the wall footings and floor sump. |
| 4.5 | Reinforcement will be placed and tied where appropriate. |
| 4.6 | Concrete will be poured into formwork when the rebar is in place. This should be left to cure for at least 3 days where the weather forecast shows that heavy rain is not forecast to prevent washout occurring and the consequent contamination of the river. |
| 4.7 | Blockwork should be built up to the appropriate design drawings and specifications. Blocks will be built up to incorporate ventilations notches. |
| 4.8 | Impermeable waterproof membrane should be installed to avoid leakage throughout the structure. |
| 4.9 | Noise attenuating baffle boxes will be fitted to provide ventilation whilst retaining noise. |
| 4.10 | Fit doors and external fittings as appropriate. |
| 5 | Fish pass |
| 5.1 | Temporary sheet piling as required to create a dry working area. |
| 5.2 | Shallow excavation as required within existing weir structure. |
| 5.3 | Either install formwork to pour concrete or install pre-fab modules. Where concrete is poured, it will be left to cure for min. 3 days. |
| 5.4 | Remove temporary works to allow flow through. |