

**Archimedean Screw  
Hydropower scheme at  
Guyzance Meander**

**Infrastructure and cable routes**

**21<sup>st</sup> October 2018**

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**Version control**

21.10.2018 first issue

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21.10.2018

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21.10.2018

**Executive summary**

No infrastructure or buried or overhead services are implicated in the project. A private electrical cable must be buried on farmland and garden including agricultural tracks within a single private estate. This can be achieved by minor trenching in compliance with electrical utility standard requirements. Where the cable connection must cross the River Coquet, a short overhead span is proposed, mounted on single poles. (Refer to drawings.)

**Infrastructure**

The project requires excavation and construction in farm grassland, a new stone track to be extended across farm grassland from an existing agricultural access track, and a stoned turning area at the new powerhouse. No traffic routes or public rights of way are implicated. No existing ditches, buried drains or culverts, or buried or overhead services are present. The project does not create any additional demand for local infrastructure services, save for infrequent occasional maintenance vehicle access via the existing tracks from public roads.

**Cable route**

A private electrical cable connection must be laid between the the grid supply connection point at Guyzance Hall and the new powerhouse. The route (refer to drawings) runs from the east side of the main block of Guyzance Hall itself, generally southwards alongside the house and grounds and along the edge of grass parkland, thence buried in an agricultural track following the east riverbank southwards to a point opposite the powerhouse on the west bank.

Here the buried cable will emerge to a support pole to form a 51m span of overhead cable suspended at an elevation of 23.70 mAOD. This is at least 6.47m above ground level, so exceeds guidance for insulated conductors where no vehicular access is possible. (ENA TS43-8, in local guidance: <http://www.northernpowergrid.com/asset/0/document/1530.pdf>). This elevation is designed to give a minimum head clearance of  $\geq 3.0\text{m}$  above predicted river maximum flood level. The corresponding pole on the west bank will stand 5.0m north of the powerhouse and will accommodate a pole-mounted transformer. Cable will descend the pole to be buried again to its entry into the powerhouse foundations via a glanded duct.

All parts of the buried private cable will be specified and trenched to electrical utility standard requirements (ECS 02-0019). On farmland (no deep ploughing), the cable run will be buried to minimum 1050mm trench depth and marked with tile tape at 100mm above this level. On other private land, the cable run will be buried to minimum 600mm trench depth and marked with tile tape at 100mm above this level. Works can be achieved using a mini-digger.

<https://library.ukpowernetworks.co.uk/library/en/g81/Installation/Cables/ECS+02-0019+Installation+of+Underground+Cables+-+LV+to+132kV.pdf>