

Additional Specifications and Desired Outcomes For Haugh Field Farm De-culvert and Wetland Creation

Overall design/project aims

The aim of this project is to create naturalistic habitat features which blend in to the landscape, use natural materials, and require little ongoing maintenance.

The use of plastic and concrete is to be avoided where possible and minimised if its use is necessary. None of the wetlands/ponds are to be lined.

The groundworks are to be cut-fill balanced for the entire scheme i.e. no earth is to be imported or exported.

Supply and planting of wetland plants and trees, and reseeding of bare areas is to be arranged separately and is not included in this work package.

All ponds/wetlands to be finished with a smooth surface (back of bucket).

All other disturbed ground to be finished with a tilth to support reseeding.

Fencing

Fencing is to be as per RRT Fencing Spec supplied with the following changes:

1. All Fencing posts, strainers and rails are to be creosote treated
2. All rails to be half-round
3. Fence to have a high tensile plain wire at the top (no barbed wire)
4. Fence to have a single strand barbed wire at bottom
5. Field gates to be 6-bar galvanised steel

All timber products must be FSC or PEFC certified

De-culvert

New channel is to be of appropriate dimensions for the flow of water. Channel bed must be flat with a minimum width of 0.5m. Channel sides must vary in slope to resemble natural river channel. Slope must not exceed 30°, with some areas e.g. inside bends having much lower slope.

Bed level of the new channel is broadly speaking to be as high as possible within the constraints of the level of the inflow and the level of the downstream confluence.

New channel planform is to include some meandering, i.e. must not simply follow a straight line or the existing line of the culvert. Meandering should not be less than that shown on the concept design, more meandering where feasible would be preferred.

Optional extra: allow for supply and addition of 3 tonnes of clean river washed (round) gravel 20 – 50mm with a d50 of 30mm.

Any concrete pipes arising from the work are to be taken back to the farmyard. Any stone arising from the deculverting may be left in-channel or re-used for the works.

Wetland 1 (Series of 3 offline wetlands)

Wetland to engage in high flows (just under bank full height). Inlet channel to comprise shallow dished swale with very low gradient. Basic sluice structure with timber stoplogs to be located at upstream end to enable fine adjustment of inflow frequency.

If inlet gradient becomes more than very slight, then reinforcement with stone riprap.

Wetland pool areas to be maximised given the constraints of topography

Bund and embankment slopes not to exceed 30°.

Wetland pools to have 1.5m width flat shelf around circumference with an average water depth of 0.3m, though this depth may undulate.

Slope of pools should not exceed 10° and pools should have a maximum depth of 1.0 m.

Outfall level to be set by larch log weir.

Spillways between pools should be lined with loose stone of an appropriate quantity and size range to resist washout and erosion of the earth beneath. Stone from the dry stone wall to be removed is available for use, but additional imported stone may also be required.

Wetland 2 (shallow scrapes)

These wetlands are to be shallow pools with complex shape and edges designed to retain surface water and stream water during floods. They are to be designed and built according to the principles of wader scrapes. See design guidance online by Sussex Wildlife Trust and Rural Payment Service (Scotland).

Wetland 3 (deep pond)

This is a wildlife pond designed to have a good depth of water throughout, with a border of marginal plants around the edge. It is to also serve as a natural swimming pond.

The marginal shelf should be at a water depth of 0.3m and should be approximately 1.5m in width but may vary.

The slope of the sides should be 1 in1 (45°)

The pond is to have a maximum depth of 1.4m and a flat bottom

There is to be a 1m wide stone stepped entrance at one side which should descend to the full depth of the pond. This is to be suitable as an access/egress point.

At each end there is to be a 10m long stone wall with the top just beneath the water level. This wall is to be suitable for entrance/egress to the pond, as well as for swimmers to push off from. The wall may form the edge of the pond.

Water inflow pipe to be 32mm MDPE buried at an appropriate depth. Intake in watercourse is to be secured and protected from blockage. Filter required to prevent coarse sediment entering pond. Intake end must be easily accessed for clearance of debris. A stopper/tap mechanism is required for maintenance purposes.

Outfall from pond is to comprise a larch log weir and a low gradient dished channel back to watercourse. This is to be protected with a modest amount of stone to reduce initial erosion however long term protection will be from vegetation.

Design

A topographic survey will be made available to the contractor.

A detailed design is not required by, save to the extent that the contractor will require in order to build the works to the specification/desired outcomes.

The contractor will be expected to work closely with the client on site in order to achieve the desired outcomes.

Estimated quantities

This is provided as a guide in order to aid in the pricing of the design-build tenders. Quantities are ball-park estimates based on GIS measurements of the concept design. No guarantee is given as to their accuracy.

- Length of De-culvert: 435m (excludes concrete pipe section)
- Length of fencing: 1157m
- Wetland 1
 - Surface area: 1245m²
 - Volume: 680m³
- Wetland 2
 - Surface area: 1360m²
 - Volume: 470m³
- Wetland 3
 - Surface area: 970m²
 - Volume: 1260m³