

Ecclesbourne at Snake Lane Weir - Outline Method Statement

Project name: Ecclesbourne at Snake Lane Weir									
Project location: River Ecclesbourne, Snake Lane, Duffield									
Client: Wild Trout Trust									
	Initial	Rev1	Rev2	Rev3	Rev4	Rev5	Rev6	Rev7	Rev8
Date	24-03-20	15-09-20							
By	SB	SB							
Checked	GH	GH							
Approved	GH	GH							

Summary of key works

1. Weir notching
2. Bed excavation and rapid installation
3. Bed construction between rapids
4. Riffle installation on mill leat

Pre-construction & construction procedure

Construction of site compounds, lay-down areas, delivery of machinery and any other initial preparatory works to be undertaken in-line with specific site work activity. All works on site will be carried out in accordance with the appropriate British Standards and industry Codes of Practice. A qualified and experienced Geomorphologist must attend the site to advise on construction procedure at certain points during the works. This is to advise during construction of all features. An engineer must oversee works to the weir structure to advise on construction procedure and whether mitigation / stabilization works are required during and following the work to the remaining weir structure and Snake Lane bridge. The client should allow for a contingency for any repair works to the structures including the weir, bridge abutments and wingwalls.

Biosecurity measures outlined in the following two documents should be followed by all personnel and machinery on site:

<https://secure.fera.defra.gov.uk/nonnativespecies/checkcleandry/documents/check-clean-dry-england.pdf>

<http://www.nonnativespecies.org/checkcleandry/>

Signal crayfish are present on site and will need to be dealt with as advised by the Environment Agency.

Construction period

The construction period is expected to take 8-12 weeks, ensuring cost effective delivery and minimal environmental disturbance as a result of the work on site. However, it is possible that adverse weather conditions such as periods of high rainfall (and associated rapid river level rise), will lead to temporary cessation of some construction. Liaison should be undertaken by the client and contractor with the Environment Agency to determine an appropriate time of year for the contractor to deliver the works as it is proposed to undertake wet working to create the features in the channels.

Public Access during the works

During the construction period, public access to the site should be restricted and fenced off and the access bridge at Snake Lane may need to be temporarily closed while the works to the weir are undertaken (not necessarily for the whole project length). This is to be determined by the engineer, contractor and client. Tree and shrub removal (limited) and trimming / pollarding of some trees lining

the banks will be required to facilitate access to construct the works and to deliver some elements of the design.

The contractor will ensure appropriate signage and fencing off of the construction compound area and work area, and it is the responsibility of the contractor to ensure safe access for the workforce and appropriate restriction of access to the public.

Historic sites within the work zone should be fenced off to ensure no damage is caused by machinery access etc (where relevant).

Species surveys

No protected species surveys have been assigned or undertaken as part of the design works.

Timing of vegetation clearance and temporary disturbance to river bed as part of works

Trimming / pollarding and clearance of any ground vegetation will be required to facilitate the works. Only those areas specifically identified for site clearance (to be marked out by the client and contractor prior to commencement of construction, with supervision from AquaUoS) shall be cleared of existing tree and vegetation cover. It is unlikely significant ground vegetation will require clearing as part of the works, but this should be decided by the contractor. Contractor to use tracking mats for river banks when entering and exiting the channel.

Pollarding and pruning of trees and clearance of ground vegetation may be required during the bird nesting season. These works will only be undertaken immediately after the trees and vegetation have been inspected and deemed free of nesting birds by an ecologist.

Nesting bird season and other ecologically sensitive seasons are summarised below:

- Bird nesting - March to August
- Bat roosting - April to September
- Trout and salmon spawning / incubation period October – April inclusive
- Coarse fish spawning period March – June inclusive

Note: There may be some changes to the outlined method statement as more knowledge of site conditions are gained in the pre-construction and construction phases of the project to be determined by the contractor.

No method statement has been provided for the removal or pollarding of trees, this is to be undertaken by the specialist contractor who undertakes the tree works.

Activity: Weir notching	Method Statement 1
<p>Risks: Overturning of plant machinery, crush injuries, collapse of earth banks, falling trees and branches, collision with other plant machines, pollution to watercourse, machine strike to persons, machine strike of services, insect bites and allergic reactions, snake bites, leptospirosis, manual handling, drowning.</p>	
<p>Proposed working method overview:</p> <ul style="list-style-type: none"> • Machinery to access site from land between Ecclesbourne Meadows and the river, using track mats as appropriate dependent on landowner requests and ground conditions at time of construction. • Silt control measures to be in place in the leat channel and downstream during works and inspected daily (replace / repair as necessary). • Undertake a fish and crayfish rescue (by qualified personnel) rescue prior to any works on and around the weir as deemed necessary by the Environment Agency. • Banks to be monitored during the works. No personnel to be in the channel during works. • Environment Agency wet working approval will need to be obtained prior to works, this will include setting up of suitable fine sediment mitigation downstream. • Bund watercourse below the side weir to channel low flows along the leat channel to create a near dry working area around the weir structure. • Install backup system to overpump water downstream during elevated flows. • Remove gravel / cobble / boulder material from the river bed as required, riddle and store coarse sediment for use in feature creation later. • Ensure engineer is on site overseeing the works before any work is undertaken to the weir structure. • Contractor to carefully cut the notch from the weir using the dimensions and levels shown in the design drawings. • Continuous monitoring of weir and bridge stability to be undertaken throughout the weir works and work to immediately cease if issues are identified. Work to only continue once it is safe to do so and any repair works, or mitigation have been undertaken – to be agreed with the onsite engineer. • Remove all weir material from the river and dispose of offsite as necessary. • Maintain all temporary works in-situ as required until all rapids have been constructed through the restoration reach (see below method statements linked to rapid creation etc). • Seed across the working area and make good any damage. Utilise bog mats along track routes if ground becomes wet. <p>General Method of Work:</p> <ul style="list-style-type: none"> • Client and Principal Contractor to reconfirm area of works and mark up extent of site works. • Check line of works for any trees to be removed, branches to be cut back, vegetation clearance etc. to ensure safe passage for machinery. • Erect temporary fencing to restrict public access to the site and to fence off historic sites (where relevant). • Mark location of and install temporary protection measures to utilities, e.g. excavator mats to buried services at crossing points, goal posts for overhead cables. • Silt traps to be installed in the leat channel and downstream of weir works and feature creation locations when features are being created and when machinery accesses the bank top or channel to prevent silt-run off from exposed banksides and from disturbed fine sediment when working in the channel. • Install appropriate fine sediment control measure downstream of works area e.g. straw bales, fine sediment control mats, silt curtains. 	
<p>Control Measures or Modifications</p> <ul style="list-style-type: none"> • No smoking in works area. • No works to be undertaken during the hours of darkness. • Ensure staff are aware of risk of drowning associated with working in or near water and the health and safety requirements (as detailed in the site risk assessment by the contractor). • If any tree felling/vegetation clearance is required, site manager to contact ordnance contractor. • All re-fuelling will take place at least 20m away from the watercourse, next to the fuel bowser. • Be vigilant for members of public / pets / stock / wild animals entering works area. 	

- Be aware of the risk of Leptospirosis in and around the watercourse.
- Ensure bucket is lowered to the ground when machine is not in use.
- When visitors are on site, stop work & lower bucket to ground if they enter the works safety area.
- If working with a Banksman ensure that they are in a position where you can see them.
- Beware of machine blind spots when slewing and turning, especially with regard to tree branches.
- Be aware of any taped off areas/sites that will be of conservation, archaeological or other special interest. Do not enter these areas with any machinery.
- As a minimum use heather bale dams / silt curtains at strategic intervals in the watercourse to filter coarse sediments. Pollution booms and silt reduction measures booms to be erected at the downstream end of the works.
- All operators to be competent and certificated on the machines they operate.
- All incidents relating to safety or pollution of any kind are to be reported as soon as it is safe to do so.
- All staff and visitors to undertake induction and wear the appropriate PPE for the site conditions they encounter.

Activity: Bed excavation and rapid installation	Method Statement 2
<p>Risks: Overturning of plant machinery, crush injuries, collapse of earth banks, falling trees and branches, collision with other plant machines, pollution to watercourse, machine strike to persons, machine strike of services, insect bites and allergic reactions, snake bites, leptospirosis, manual handling, drowning.</p>	
<p>Proposed working method overview:</p> <ul style="list-style-type: none"> • Machinery to access site from land between Ecclesbourne Meadows and the river, using track mats as appropriate dependent on landowner requests and ground conditions at time of construction. • Silt control measures to be in place in the leat channel and downstream during works and inspected daily (replace / repair as necessary). • Undertake a fish and crayfish rescue (by qualified personnel) rescue prior to any works on and around the weir as deemed necessary by the Environment Agency. • Banks to be monitored during the works. No personnel to be in the channel during works. • Environment Agency wet working approval will need to be obtained prior to works, this will include setting up of suitable fine sediment mitigation downstream. • Ensure bund on watercourse below the side weir is correctly channelling low flows along the leat channel to create a near dry working area for the rapids. • Ensure backup system to overpump water downstream during elevated flows is operational. • Ensure bed profile conforms to drawing following weir notching and upstream sediment removal. • Working from downstream to upstream under the supervision of a Geomorphologist, place correct mix of rapid material to create each rapid feature ensuring correct construction of upstream and downstream slopes. Begin with framework boulders and ensure these are embedded into the river channel to around 50% of their diameter (b axis or longest length), and infill with boulders/cobble/gravel. Construct over-high initially. Firmly tamp placed material with back of digger bucket to provide suitable compaction and finer sediment void filling. Extend the specified feature mixes up the banks as detailed in the design drawings. • Remove any tracks into watercourse and across the working area and make good any damage. Utilise bog mats along track routes if ground becomes wet. • Seed exposed floodplain and top of bank areas with agreed seed mix. • Seed across the working area and make good any damage. Utilise bog mats along track routes if ground becomes wet. <p>General Method of Work:</p> <ul style="list-style-type: none"> • Client and Principal Contractor to reconfirm area of works and mark up extent of site works. • Check line of works for any trees to be removed, branches to be cut back, vegetation clearance etc. to ensure safe passage for machinery. • Erect temporary fencing to restrict public access to the site and to fence off historic sites (where relevant). • Mark location of and install temporary protection measures to utilities, e.g. excavator mats to buried services at crossing points, goal posts for overhead cables. • Silt traps to be installed in the leat channel and downstream of weir works and feature creation locations when features are being created and when machinery accesses the bank top or channel to prevent silt-run off from exposed banksides and from disturbed fine sediment when working in the channel. • Install appropriate fine sediment control measure downstream of works area e.g. straw bales, fine sediment control mats, silt curtains. 	
<p>Control Measures or Modifications</p> <ul style="list-style-type: none"> • No smoking in works area. • No works to be undertaken during the hours of darkness. • Ensure staff are aware of risk of drowning associated with working in or near water and the health and safety requirements (as detailed in the site risk assessment by the contractor). • If any tree felling/vegetation clearance is required, site manager to contact ordnance contractor. • All re-fuelling will take place at least 20m away from the watercourse, next to the fuel bowser. • Be vigilant for members of public / pets / stock / wild animals entering works area. • Be aware of the risk of Leptospirosis in and around the watercourse. 	

- Ensure bucket is lowered to the ground when machine is not in use.
- When visitors are on site, stop work & lower bucket to ground if they enter the works safety area.
- If working with a Banksman ensure that they are in a position where you can see them.
- Beware of machine blind spots when slewing and turning, especially with regard to tree branches.
- Be aware of any taped off areas/sites that will be of conservation, archaeological or other special interest. Do not enter these areas with any machinery.
- As a minimum use heather bale dams / silt curtains at strategic intervals in the watercourse to filter coarse sediments. Pollution booms and silt reduction measures booms to be erected at the downstream end of the works.
- All operators to be competent and certificated on the machines they operate.
- All incidents relating to safety or pollution of any kind are to be reported as soon as it is safe to do so.
- All staff and visitors to undertake induction and wear the appropriate PPE for the site conditions they encounter.

Activity: Bed construction between rapids
Method Statement 3

Risks: Overturning of plant machinery, crush injuries, collapse of earth banks, falling trees and branches, collision with other plant machines, pollution to watercourse, machine strike to persons, machine strike of services, insect bites and allergic reactions, snake bites, leptospirosis, manual handling, drowning.

Proposed working method overview:

- Machinery to access site from land between Ecclesbourne Meadows and the river, using track mats as appropriate dependent on landowner requests and ground conditions at time of construction.
- Silt control measures to be in place in the leat channel and downstream during works and inspected daily (replace / repair as necessary).
- Undertake a fish and crayfish rescue (by qualified personnel) rescue prior to any works on and around the weir as deemed necessary by the Environment Agency.
- Banks to be monitored during the works. No personnel to be in the channel during works.
- Environment Agency wet working approval will need to be obtained prior to works, this will include setting up of suitable fine sediment mitigation downstream.
- Ensure bund on watercourse below the side weir is correctly channelling low flows along the leat channel to create a near dry working area for the rapids.
- Ensure backup system to overpump water downstream during elevated flows is operational.
- Ensure bed profile conforms to drawing following weir notching and upstream sediment removal.
- Working from downstream to upstream under the supervision of a Geomorphologist, place correct mix of bed material to infill the channel bed between constructed rapid features. Construct over-high initially. Firmly tamp placed material with back of digger bucket to provide suitable compaction.
- Remove bund.
- Review hydraulics and performance of all features and finalise heights / lengths under the supervision of the Geomorphologist.
- Remove sediment control measures.
- Remove any tracks into watercourse and across the working area and make good any damage. Utilise bog mats along track routes if ground becomes wet.
- Seed exposed floodplain and top of bank areas with agreed seed mix.
- Seed across the working area and make good any damage. Utilise bog mats along track routes if ground becomes wet.

General Method of Work:

- Client and Principal Contractor to reconfirm area of works and mark up extent of site works.
- Check line of works for any trees to be removed, branches to be cut back, vegetation clearance etc. to ensure safe passage for machinery.
- Erect temporary fencing to restrict public access to the site and to fence off historic sites (where relevant).
- Mark location of and install temporary protection measures to utilities, e.g. excavator mats to buried services at crossing points, goal posts for overhead cables.
- Silt traps to be installed in the leat channel and downstream of weir works and feature creation locations when features are being created and when machinery accesses the bank top or channel to prevent silt-run off from exposed banksides and from disturbed fine sediment when working in the channel.
- Install appropriate fine sediment control measure downstream of works area e.g. straw bales, fine sediment control mats, silt curtains.

Control Measures or Modifications

- No smoking in works area.
- No works to be undertaken during the hours of darkness.
- Ensure staff are aware of risk of drowning associated with working in or near water and the health and safety requirements (as detailed in the site risk assessment by the contractor).
- If any tree felling/vegetation clearance is required, site manager to contact ordnance contractor.
- All re-fuelling will take place at least 20m away from the watercourse, next to the fuel bowser.
- Be vigilant for members of public / pets / stock / wild animals entering works area.

- Be aware of the risk of Leptospirosis in and around the watercourse.
- Ensure bucket is lowered to the ground when machine is not in use.
- When visitors are on site, stop work & lower bucket to ground if they enter the works safety area.
- If working with a Banksman ensure that they are in a position where you can see them.
- Beware of machine blind spots when slewing and turning, especially with regard to tree branches.
- Be aware of any taped off areas/sites that will be of conservation, archaeological or other special interest. Do not enter these areas with any machinery.
- As a minimum use heather bale dams / silt curtains at strategic intervals in the watercourse to filter coarse sediments. Pollution booms and silt reduction measures booms to be erected at the downstream end of the works.
- All operators to be competent and certificated on the machines they operate.
- All incidents relating to safety or pollution of any kind are to be reported as soon as it is safe to do so.
- All staff and visitors to undertake induction and wear the appropriate PPE for the site conditions they encounter.

Activity: Riffle installation on mill leat
Method Statement 4

Risks: Overturning of plant machinery, crush injuries, collapse of earth banks, falling trees and branches, collision with other plant machines, pollution to watercourse, machine strike to persons, machine strike of services, insect bites and allergic reactions, snake bites, leptospirosis, manual handling, drowning.

Proposed working method overview:

- Machinery to access site from land between Ecclesbourne Meadows and the river, using track mats as appropriate dependent on landowner requests and ground conditions at time of construction.
- Silt control measures to be in place in the leat channel and downstream during works and inspected daily (replace / repair as necessary).
- Banks to be monitored during the works. No personnel to be in the channel during works.
- Environment Agency wet working approval will need to be obtained prior to works, this will include setting up of suitable fine sediment mitigation downstream.
- Bund mill leat channel at the side weir (and downstream of proposed riffle location with overpumping as necessary) to allow dry working within the leat channel. Pump a sweetening flow of water from the main river channel to downstream of the silt control measures in the leat channel.
- Under the supervision of a Geomorphologist, place correct mix of riffle material to create the riffle feature ensuring correct construction of up and downstream slopes. Construct over-high initially. Firmly tamp placed material with back of digger bucket to specified level to provide suitable compaction and infill voids.
- Remove side weir bund.
- Review hydraulics and performance of all features and finalise heights / lengths under the supervision of the Geomorphologist.
- Remove sediment control measures.
- Remove any tracks into watercourse and across the working area and make good any damage. Utilise bog mats along track routes if ground becomes wet.
- Seed across the working area and make good any damage. Utilise bog mats along track routes if ground becomes wet.

General Method of Work:

- Client and Principal Contractor to reconfirm area of works and mark up extent of site works.
- Check line of works for any trees to be removed, branches to be cut back, vegetation clearance etc. to ensure safe passage for machinery.
- Erect temporary fencing to restrict public access to the site and to fence off historic sites (where relevant).
- Mark location of and install temporary protection measures to utilities, e.g. excavator mats to buried services at crossing points, goal posts for overhead cables.
- Silt traps to be installed on leat channel and downstream of weir works and feature creation locations when features are being created and when machinery accesses the bank top or channel to prevent silt-run off from exposed banksides and from disturbed fine sediment when working in the channel.
- Install appropriate fine sediment control measure downstream of works area e.g. straw bales, fine sediment control mats, silt curtains.

Control Measures or Modifications

- No smoking in works area.
- No works to be undertaken during the hours of darkness.
- Ensure staff are aware of risk of drowning associated with working in or near water and the health and safety requirements (as detailed in the site risk assessment by the contractor).
- If any tree felling/vegetation clearance is required, site manager to contact ordnance contractor.
- All re-fuelling will take place at least 20m away from the watercourse, next to the fuel bowser.
- Be vigilant for members of public / pets / stock / wild animals entering works area.
- Be aware of the risk of Leptospirosis in and around the watercourse.
- Ensure bucket is lowered to the ground when machine is not in use.
- When visitors are on site, stop work & lower bucket to ground if they enter the works safety area.
- If working with a Banksman ensure that they are in a position where you can see them.

- Beware of machine blind spots when slewing and turning, especially with regard to tree branches.
- Be aware of any taped off areas/sites that will be of conservation, archaeological or other special interest. Do not enter these areas with any machinery.
- As a minimum use heather bale dams / silt curtains at strategic intervals in the watercourse to filter coarse sediments. Pollution booms and silt reduction measures booms to be erected at the downstream end of the works.
- All operators to be competent and certificated on the machines they operate.
- All incidents relating to safety or pollution of any kind are to be reported as soon as it is safe to do so.
- All staff and visitors to undertake induction and wear the appropriate PPE for the site conditions they encounter.

General mitigation of construction impacts on habitats / species

A site Operational Management plan shall be developed by the contractor with reference to the following elements:

Element	Suggested action	Required
Water quality	Control of silt run-off and potential for machinery pollution source	YES
River crossing	Control of disturbance, contamination, silt release, noise, vibration, debris, flooding	YES
Site waste recycling plan	Re-use on site where possible	YES
Noise and dust	Timing of works; selection of plant	YES
Protected species Protection Plans	Follow species protection plans if applicable	TBD
Invasive plant species, pests & diseases	Fence giant hogweed, remove other invasives during site preparation where necessary	YES