

Construction Method Statement

H06

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CONTRACT NAME & No:		C11600 – Dunsbury Hill Farm						
PRINCIPAL CONTRACTOR:		VolkerFitzpatrick Ltd						
METHOD STATEMENT TITLE:		Hermitage Stream realignment and associated new bridge construction.						
AUTHOR:	C Duffy	DATE PREPARED:	07.06.15	REVISION No:	-			

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1.0 CONTRACT DETAILS

- *Name & address of site where works being undertaken*
Dunsbury Hill Farm Site Office,
Hulbert Road,
Havant,
Hampshire
PO9 3FD
- *Subcontractors name address and contact details*
VolkerFitzpatrick Limited
Hertford Road
Hoddesdon
Hertfordshire
EN11 9BX
- *Subcontractors Health & safety advisor address and contact details*
Nigel Fake
Visiting H & S Manager
07836 729 623
- *Date of commencement of works*
August 2015
- *Duration of work*
15 weeks
- *Working hours*
07:00 to 19:00

2.0 SCOPE OF WORK

- Temporary local diversions of Hermitage stream
- Construction of re-aligned Hermitage stream
- Construction of new bridge crossing and associated foundations
- Removal / treatment of existing channel after realignment complete

3.0 TECHNICAL INFORMATION / REPORTS / DRAWINGS

Drawings

30142_4001_101	Proposed Channel Realignment Modifications to Existing Concrete Channel
30142_4001_102	Proposed Channel Realignment Stream Diversion Under Proposed Bridge
30142_4001_103	Proposed Channel Realignment Stream Diversion South of New Bridge
30142_4001_SK02	Proposed Channel Realignment Options and Details

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4.0 SEQUENCE OF WORK AND METHODOLOGY

Sequence of Work

- i) **# HOLD POINT #** Prior to any works within 8m of the Hermitage stream, Flood Defence Consent (FDC) must be in place and a copy placed on file at the project offices.
- ii) If required by the Environment Agency, a site meeting will take place prior to the works commencing. In any case, the works are to follow the methodology approved as part of the Flood Defence Consent and this shall be briefed to all operatives, staff and suppliers
- iii) Place markers along 8m FDC boundary for clarity and to ensure anyone within this zone is suitably briefed.
- iv) Environmental spill kits placed either side of the stream channel for ease of access in case of environmental emergency
- v) Access across the existing stream in accordance with the Flood Defence Consent for the temporary bridge crossing (Ref. TBC)
- vi) Environmental boom across hermitage stream channel upstream and downstream of the proposed works to prevent any downstream pollution resulting from our works after mitigation measures have been implemented. (This will be in situ as per FDC secured for the temporary bridge crossing)
- vii) **Works sequence** follows the phasing contained within Appendix A;
 - a. **Stage 1** – Earthworks either side of the existing Hermitage stream concrete channel
 - b. **Stage 2** – Construction of temporary channel diversion and new bridge footings
 - c. **Stage 3** – Diversion of flow into temporary channel and continue bridge footings
 - d. **Stage 4** – Construction of new channel west of, and under bridge; Continue construction of bridge abutments and deck
 - e. **Stage 5** - Earthworks to construct the new channel downstream of the new bridge to tie in to existing naturalised section; Continue construction of bridge abutments and deck
- viii) Following completion of stage 5, completion of the bridge deck and Environment Agency inspection and acceptance, channel flow shall be diverted onto the new alignment and openings at temporary diversion reinstated.
- ix) Removal of old channel walls to at least 1m below road formation, perforation of concrete channel base and backfill with suitable material.

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Methodology

The principle aim of this methodology is to inform the site team of the sequence and environmental controls that are to be adhered to, and to illustrate to the Environment Agency how the project intends to ensure works do not increase flood risk, damage flood defences, or harm the environment, fisheries, or wildlife.

a. Stage 1

All plant used on site shall be inspected and maintained in accordance with VFL procedures, with particular attention given to durability of oil and diesel hoses that may have potential to be damaged. Spill kits are available in the case of such events and toolbox talks on their use are given to all operatives working near the stream.

Upon issue of a permit to excavate and with relevant supervision in place the tracked excavator shall dig to approximately underside of the existing channel either side, to allow formation of the temporary diversion channel and the bridge footings and channel between these footings.

As any penetrations (weep holes that are present to dissipate any build-up of water pressure behind the channel walls) in the existing concrete channel are exposed, these shall be filled to prevent any potential pollutants (Silt-laden water, hazardous substances etc) from entering the watercourse

b. Stage 2

With the watercourse flowing inside the concrete channel and any potential ingress route from the works sealed, works to construct the new right hand side channel wall and the northern bridge footing shall commence. The main hazard to the watercourse is hazardous substances. Some examples are;

- Concrete
- Formwork release oils
- Loose materials from the works (e.g. nails, timber, rebar)

Any hazardous substances shall be retained at least 8m away from the stream on a proprietary COSHH cage with integral bund to prevent leaks. Where small tools are to be re-fuelled within the works area, spill kits are present and any routes to the watercourse have been sealed.

During concrete operations additional measures shall be taken to prevent concrete splashes entering the watercourse if required (plywood or similar fixed to the channel wall extending about the top of the wall). Upon completion of concreting operations, the concrete wagon will wash out at the designated wash out skip at the site compound.

Temporary Channel Construction

In order to construct the re-aligned channel west of the proposed bridge, the current flow will need to be diverted to provide a dry safe working area. It is intended to create a secondary channel to the side of the existing channel as shown in Appendix A (Stage 2; Section A-A).

By constructing the new right hand channel wall at this stage it will perform as one side of the temporary channel diversion, while still being available as part of the final re-aligned channel. The other side of the temporary channel will be formed by trench sheets and to prevent escape of water, shall be sealed with a PVC liner and cast into a concrete base.

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Once this is inspected and approved for use by the EA openings in the existing channel wall will be made at either end of the channel, in preparation for Stage 3, diversion of the flows.

Method for opening channel wall

To provide a dry working area and to prevent escape of water, the arrangement shown below (Figure 1) shall be implemented

Sand bags shall be placed around the perimeter inside the working area to prevent any residue resulting from concrete cutting, entering the watercourse.

To create an opening in the concrete, a wall mounted rig shall be bolted on the outside of the wall and opening cut. Two openings will be created to allow diverted flows to exit and re-enter either side of the works.

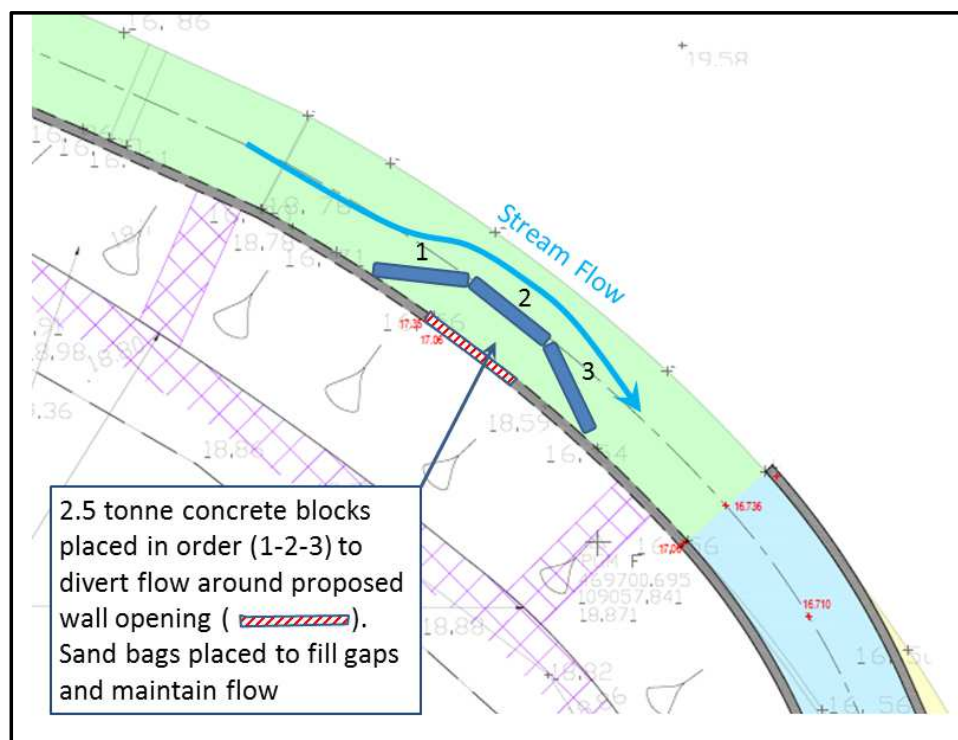


Figure 1

Temporary Diversion Channel

In an attempt to mirror the existing channel profile as far as is reasonably practicable, the solution shown in Appendix A has been proposed. Use of underground piping was ruled unfeasible as this could restrict through flows in storm state and affect flood plain upstream.

Given the restricted space available due to the A3 embankment, we have maximised the temporary channel to circa 60% of the existing channel capacity. Based on the flow gauge data from the Hermitage stream station at Leigh Park we expect this to be more than suffice, especially as the work is planned outside the winter period and given the temporary nature of the diversion.

In addition, we will clear materials and tools from our working areas after each shift so that in the event of any overspill into the route of the existing channel, flood waters can continue downstream with no flooding upstream. Environmental booms shall be retained to prevent progression further downstream of any debris that may become waterborne.

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c. Stage 3

Upon completion of construction of the temporary channel and the openings either end, an inspection shall be made by the EA. With approval in place, sand bags shall be placed across the existing channel at the entrance to the diversion. Sand bags shall be built up gradually to allow a gradual diversion of the water flow. Once sand bags are level with the water flow, concrete blocks shall be used to dam the flow from the existing channel.

Weather forecasts shall be checked at the start of each day to ensure any heavy rain is expected and extra measures implemented to ensure any overtopping is possible. An example of this shall be during concrete pours where an exceptional flash flood could wash wet concrete down stream. If there is such a concern the concrete pour would be planned to avoid this weather.

It should be noted, however that the over spilling conditions are extremely rare

d. Stage 4

Bridge Supports Construction

Although the northern bridge footing and abutment are less likely to be affected by channel flows and similarly, operations are less likely to affect the water flow, the same precautions shall be taken.

As the southern bridge footing is completed and the abutment constructed, this is likely to reduce the capacity of any overspill, but any flooding would occur within the work site as the flow would be slightly more restricted given that half the channel would have a concrete obstruction.

The actual construction of the bridge supports will be undertaken in traditional manner, using in situ concrete poured into timber formwork supported by proprietary falsework and supports. These shall be designed in accordance with VFL Temporary Works Procedure and quality Procedure to ensure there is no likelihood of failure, resulting in concrete spill.

Delivery of concrete will be made from the same side in which it is to be placed, thus avoiding any drops / spills that could result from passing from one side of the watercourse to the other

Construction of Realigned Channel

There are two distinct areas of this work; the semi-channelised section west of, and under the proposed bridge, and the open cut section downstream of the proposed bridge.

Stage 4 of the works will see the channelized section constructed with the downstream section following on in stage 5.

To construct the channel walls the main environmental hazard is , as noted in stage 2 and those associated with concrete works. The same controls shall be in place as there are proposed for the bridge supports.

These works will require the existing walls to be cut down to different levels and this presents a potential risk of concrete slurry to enter the water course unless managed. The same method used to cut the openings in the concrete wall will be followed.

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Once complete, this section shall not be used to carry water until there is a continuous route from the existing Hermitage stream upstream to the existing Hermitage Stream tie in, downstream, and that EA have approved the finished channel

e. Stage 5

At this point additional earthworks shall commence east of the proposed bridge to create the shallow banks for this section of the realigned stream. This has minimal effect on the diverted watercourse but has specific items that need addressed;

- Temporary crossing for construction purposes and
- Construction of the in-channel improvements (eg. coir matting, riffles, pools, planting)

Crossing construction vehicles – A route east of the bridge works shall be maintained for the period until the permanent bridge structure is sufficiently completed to allow construction traffic across. Once this is available, the section of the channel will be excavated and completed in line with that channel downstream.

In-Channel Improvements – These shall be constructed off line to the stream flow and inspected for compliance prior to directing flow along the new channel.

f. Stage 6

Upon confirmation from the EA that the works have been completed as per the drawings, the flow shall be gradually diverted into the new channel alignment. The reverse method of diverting into the temporary channel shall be followed.

The openings in the wall at the upstream end shall be reinstated as per the drawings and the arrangement shown in Figure 1 shall be removed.

Any structural works to the bridge will have been completed prior to diversion of the flow into the realigned route. There will be finished, but nothing that would impact the new stream flows.

5.0 ACCESS AND EGRESS ARRANGEMENTS

- Access to the work site is via the site entrance on Hulbert Road and then along the route of the new highway

6.0 LIGHTING ARRANGEMENTS

- Not Applicable.

7.0 PLANT AND EQUIPMENT

General:

- Earthmoving equipment
- Construction vehicles
 - Cranes
 - Concrete pumps
 - Excavators
- Road lorries
- Pedestrians

8.0 MATERIALS

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- Concrete
- Formwork Oil
- Backfill material
- Timber, ply
- Rebar
- Consumables
- In-Channel finishes – refer to drawing

9.0 THIRD PARTY SAFETY

- All personnel will have been inducted and briefed on their tasks
- Unauthorised personnel are excluded from site by fencing and unauthorised operative excluded by crowd barriers 8m from the watercourse

10.0 ENVIRONMENTAL

- Refer to environmental section of Site Management Plan

11.0 HOUSEKEEPING

- Mastic joints between bridge decks and between side panels and bridge deck to be checked daily.
- Repairs are to be made immediately upon finding a damaged seal.
- Bridge deck to be cleared of debris on a daily basis to prevent any build-up.

12.0 WELFARE AND FIRST AID

Welfare facilities provided in the site compound. Safety station with first aid kit, fire extinguishers spill kits will be adjacent to local work site

13.0 EMERGENCY PROCEDURES

- Emergency Clean-up Contractors :Adler & Allan 0800 592827
CSG Lloyds 0800 5873133
- Environment Agency Emergency line 0800 80 70 60
- Fire 999
- Ambulance 999

All communications by mobile phone.

14.0 SUPERVISION AND MONITORING

Supervisory Staff to be VFL employees and identified immediately prior to works commencing.

15.0 TRAINING AND CERTIFICATION

All VFL and sub-contract supervisors/foremen to be trained in the correct use of spill equipment and deployment of boom.

All operatives to hold CSCS

All plant operators to hold CPCS

All those involved with lifting operations to have relevant competency certificates.

15.1 Briefing register

To be attached

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APPENDIX A

Stream and Bridge Construction Methodology

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