



## DETAILED INFORMATION

### Water discharge

This section is applicable to canals and navigable rivers where The Trust is riparian owner and those navigations identified in Statutory Instrument No 1195 *'The Inland Waterways of the Trust Board Order 1965'* as amended. The requirements relating to navigation are applicable to other river navigations.

#### Water Discharge

##### Introduction

The Trust is not a land drainage authority. Water levels in canals are maintained in dry spells using reservoirs, river abstractions, pumping from ground water sources and re-circulatory pumping at locks ('back pumping'). Water levels are controlled in wet periods using overflow weirs and manually controlled sluices. Without these, the canal would overtop and may breach its banks, causing damage to property and possible loss of life. When the canals were constructed, they were usually a closed system, isolated from the effects of storms. Therefore storm water discharges do not assist in dry periods and can cause severe difficulties in wet conditions. Where a new (or modified) discharge is proposed, it will be reviewed to determine if the benefits to the Trust outweigh the risks of acceptance and approval by Water Management and Environment Teams, the Waterway and the Utilities Team will be required.

The Trust will use its *Mandatory Process on Reviewing & Approving Discharges* when considering proposals. This document will be made available to Promoters on request. The process entails the submission of an Outline and, if necessary, a Detailed Impact Assessment, by the Promoter.

It should not be assumed that an existing discharge can be retained when a site is redeveloped for a new use, if permission is given to retain and re-use an existing discharge a new commercial agreement will normally be required.

Promoters must submit the completed Appendix 4 (Outline Pollution Risk & Hydrological Assessment) to allow the Trust to consider a proposal for a new or modified discharge to its network. To assist the completion of Appendix 4, reference should be made to the Trust's *Surface Water Discharge Guidance – Producing an Outline and Detailed Impact Assessment*. The subsequent sections of this Chapter describe the three main aspects of consideration that The Trust undertakes, namely: flood risk, pollution/water quality risk and navigational impact.

#### Flood Risk considerations

The only discharge which will normally be considered is uncontaminated surface water in small quantities at suitable locations.

The Trust supports the principles of Sustainable Drainage Systems (SuDS) which should be followed. Guidance is given in the CIRIA publication C523 'Sustainable Urban Drainage Systems – Best Practice Manual' – This refers to the CIRIA Sustainable Urban Drainage Design Manuals C521 for Scotland and C522 for England and Wales. The Flood and Water



Management Act 2010 introduces changes to the legislation relating to SuDS, and subsequent editions of this document will reflect those changes, once enacted/commenced.

The details of on-site flow attenuation measures (such as SuDS) giving details of design, information about storage or drainage of water in excess of attenuation should be provided as well as any details of maintenance and adoption agreements for SuDS. If the SuDS are not maintained in the long term, then they will fail to provide the design attenuation and The Trust will be exposed to the full un-attenuated additional flood risk. Any SuDS such as underground storage, ponds, soakaways, flow restrictors etc. must have a suitable maintenance regime in place to ensure their effective operation over the life expectancy of the development.

In addition to the above information, the details of the proposed connection with the canal should be provided together with an estimate of the peak velocity of the discharge orthogonal to boat movement.

Discharges are not usually permissible directly above and below locks, adjacent to moving bridges and at mooring sites. Navigational difficulties would ensue as a result of the transverse flows. In order to minimise navigational difficulties associated with transverse flows of water the discharge energy must be minimised in the discharge structure design or by storage. Discharge velocity generally must not exceed 0.3 m/s measured at 90° to the direction of the navigable channel.

Discharges into the Waterway may require consent from the Environment Agency (EA) or the Scottish Environment Protection Agency (SEPA). The Promoter will be responsible for obtaining any necessary consent and providing proof to the Works Engineer that this has been done. It must not be presumed that EA or SEPA consent confers The Trust consent.

New developments must be designed in accordance with "Planning Policy Statement 25 (PPS25)" in England or "Technical Advice Note (TAN) 15" for Wales. These documents set out how flood risk is to be managed during the design and planning process.

If mitigation measures are required, it must be agreed at an early stage whether the new or modified structures are to be procured by The Trust or the Promoter and which party will own and maintain them in the long term. It is usual that the structures are designed and built by the Promoter to an acceptable design and that The Trust assumes long term responsibility for the water control structures only, on its own land, on acceptance of an agreed commuted sum.

Discharges are not usually permissible in short canal pounds between locks. Difficulties could result from the capacity of by-wash weirs, surcharging the pounds and dewatering for the maintenance of locks.

Discharges are not usually permissible directly above and below locks, adjacent to moving bridges and at mooring sites. Navigational difficulties would ensue as a result of the transverse flows. In order to minimise navigational difficulties associated with transverse flows of water the discharge energy must be minimised in the discharge structure design or by storage. The discharge velocity generally must not exceed 0.3 m/s measured at 90° to the direction of the navigable channel.



### **Pollution/Water Quality considerations**

The Trust will not generally accept sewage or trade effluent. Only in exceptional circumstances where there is adequate treatment, evidence of a treatment plant maintenance schedule and adequate dilution will applications be considered.

Discharges into the Waterway may require consent from the Environment Agency or the Scottish Environmental Protection Agency. The Promoter will be responsible for obtaining any necessary permit and providing proof to the Works Engineer that this has been done. It must not be presumed that Environment Agency consent confers Trust consent.

Pollution control measures such as traps, gullies, oil separators, silt traps, swales or detention ponds will be required where appropriate. All pollution control measures should conform to the relevant Environment Agency publications and Pollution Prevention Guidance (PPG) notes. It is unlikely that these will be permitted to be built on land owned by the Trust. Normal practice would be to construct them on the Promoters land with adequate access provided to allow them to be regularly maintained.

The Promoter must supply their long term maintenance plan, with emergency contact numbers for all oil separators, silt traps, swales and other pollution control devices for approval by the Trust. Suitable isolating systems such as valves or stanks must be included at the design stage, in to allow maintenance and provide protection to the receiving waterway from pollution incidents.

Where it is possible to do so at design stage, a representative sample of the proposed discharge water should be taken and analysed for appropriate parameters. The results should be supplied to the Works Engineer for consideration. In some cases an analysed sample of the water in the receiving canal will be required for the purpose of comparison.

During operation, it may be necessary to require that water samples are taken at intervals and analysed. It may be necessary for The Trust or its agents to inspect from time to time the area drained to the Waterway to ensure that the pollution risks remain acceptable. Alternatively, it may be acceptable for the inspection to be carried out by the discharger using a standard self-assessment procedure.

Calculations and plans will be required for the drainage network. The plans should define the pipe runs and illustrate the uses to which the drained areas are to be put and any other factors that may affect the quality of the surface run-off.

Where water is discharged at a higher temperature to that of the normal canal water, consideration will have to be given to the environmental impact. This will involve modelling outputs, with consideration to: the size of the receiving waterway, flow, design of the discharge outlet, and hot water plume dispersal from the outfall. In some cases additional water may have to be passed along the waterway at the Promoters expense to give the required dilution of the discharge. Any additional water required for dilution will be treated as an abstraction, see Section 4.2 below and also included in the discharge quantity for design of mitigation measures.

### **Navigational Impact considerations**

The point of discharge is installed perpendicularly to the canal centre line in both axes. The point of discharge should not protrude past the surface of the canal wall such that it affects the mooring of a craft at the same location.



The pipe diameter for above water surface discharges is limited by the available distance between the normal water level and the underside of the coping stone. Several smaller pipes should be used where feasible.

The point of discharge must be installed such that water cannot flow from the canal or be abstracted using the point of discharge. For gravity discharges a stilling chamber / sand trap / oil interceptor is typically provided on the neighbouring land. For pumped discharges the discharge pipe is typically installed above normal canal water level to avoid siphoning.

At locations where craft will be manoeuvring at low speed the limit to the velocity of discharge will be reduced in proportion to the reduction in craft speed. The discharge velocity generally must not exceed 0.3 m/s measured at 90° to the direction of the navigable channel. The Works Engineer will specify the craft speed. A stilling basin is usually needed to comply with this requirement. In most cases physical or mathematical modelling will be necessary.

#### **Scour protection may be needed.**

Discharge structures should be designed to minimise the visual impact on the canal, to allow the quality of the discharge to be monitored and to prevent loss of water from the canal into the drainage system. The structure should be accessible in safety for maintenance and sampling. Where this is not possible, for instance on river navigations, a remote sampling point and a flap valve are needed. Outfall structures should normally be designed for the discharge to take place below the normal water surface, preferably via a stilling chamber arrangement, wherever practicable. Above surface outfalls are only accepted in exceptional circumstances, due to the visual impact and risk of navigational difficulties, although offside outfalls above surface are less likely to cause problems than towpath side.

Fendering and signing of structures may be necessary. In particular pumped discharges will need to be signed to advise waterway users of their intermittent operation.

Discharge structures should be capable of carrying the loads imposed by the use of the towing path maintenance vehicles.

Towpath levels should not be raised to accommodate pipework.

#### **APPENDIX 4: OUTLINE POLLUTION RISK & HYDROLOGICAL ASSESSMENT**

The following information is required from the Promoter at an early stage in order to assess the viability or feasibility of the proposal. **Note that this checklist only applies to surface water discharges.** Other types of discharge such as sewage effluent and trade effluent should be treated on a case by case basis, but are not usually accepted.

Scheme Title

Promoter

#### **Pollution hazards**

Information on the pollution hazards within the areas to be drained:

Planning use class



Use of area to be drained to canal

Nature and quantities of chemicals, fuel/oil, wastes, liquid food products, and other potentially polluting substances that may be used on area drained

Details of any activities which will occur in the drainage area and which could contaminate surface water.

Whether the site requires or has authorisation from the Environment Agency under section 6 of the Environmental Protection Act 1990 (IPC authorisation), or hazardous substances consent from the local authority under the Planning (Hazardous Substances) Act 1990

Any previous contaminate uses of the site, and if so, any soil contamination found from any site investigations.

If highway drainage is included, average annual traffic density, and whether industrial premises access directly to the road

### **Management controls**

Any documentation relating to the environmental commitment and environmental track record of the Promoter (and of the person ultimately responsible for the drainage if different). It should be relevant both to design and construction and to the use operation and maintenance of the areas drained and of the drainage system with respect to prevention of water pollution, e.g.:

- Company Environmental Policy
- Environmental Management System
- Other relevant procedures or standards
- Where the discharge is an existing one, details of any prosecutions, enforcement notices or cautions from any environmental regulator within the last 5 years relating to the discharge.

### **Hydrological**

The applicant is referred to *Surface Water Discharge Guidance – Producing an Outline and Detailed Impact Assessment*. The aim of this document is to provide an applicant wishing to discharge surface water into the Trust' network with the necessary technical guidance to produce an impact assessment acceptable to the Trust.

The Trust believe that the assessment should reflect the additional risk and a two stage process is adopted of an outline impact assessment (Section 2.1 of the Surface Water Discharge Guidance) followed by a more detailed impact assessment (Section 2.2 of the Surface Water Discharge Guidance), if necessary.

If the applicant can demonstrate, to the Trust's satisfaction, that the peak rate of discharge from the site to the waterway, the 1 in 100 year return period event, after development (including an allowance for climate change (20%) and urban creep (10%)) will be less than (or equal to) the pre-development situation (including an allowance for climate change (20%)) then a statement of this, accompanied by supporting calculations (see Section 2.1), will be regarded as an acceptable Outline Impact assessment.



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From the Outline Impact Assessment the following information should be provided:

**Information to be provided Included**

Written description of the development site (accompanied by photographs if appropriate) detailing:

Pre-development use and proposed development extent and characteristics of the site.

Existing site drainage arrangements and proposed drainage scheme

Relationship of site to the Trust's waterway

Plan of site showing:

development site catchment area, outline or detailed drainage design and relationship to any part of The Trust's system (e.g. waterway pound(s), river navigation, reservoir, feeder channel etc.) as hard copy or digitally (AutoCAD® DWG, DXF™, and DWF files)

Details of catchment parameters: area, soil, percentage impermeable, percentage permeable etc. used to estimate pre and post development site runoff.

Description of method of runoff estimation employed for pre and post proposed development.

Estimates of pre and post development site runoff (l/s in a 1:100yr event - see Guidance document).

Digital copies of drainage design calculations and, if available drainage model data and result files, for both pre and post proposed development.