

# Marking and Identification of Pipework for Reclaimed (Greywater) Systems

## 1. Introduction

Water reuse is an accepted method for reducing water demand world-wide. Greywater, which is usually defined as wastewater from baths and sinks, is being treated and reused at a number of sites in the UK. (e.g. in domestic dwellings, University halls of residence and large public exhibitions). In addition to greywater, other sources of water are being considered for reuse such as rainwater, groundwater, blackwater and industrial water. Greywater after treatment is known as 'reclaimed water' and can be used for a number of non-potable uses e.g. toilet flushing.

It is essential that all pipework for reclaimed water systems can be easily distinguished and easily recognisable wherever it is physically located (inside a property, in the street, or on private land) to avoid cross-connection and contamination of the potable water supply systems. In addition, for security of the potable supply and to avoid accidental or deliberate operation in emergencies, all apparatus such as valves and washouts should be suitably marked and significantly different from the apparatus normally used on potable water distribution networks.

This information guidance note (IGN) details the colour coding, marking and identification of the internal pipework and external distribution network for a reclaimed (greywater) system.

## 2. Reclaimed water pipework inside buildings

For each installation it would be desirable to differentiate reclaimed water pipework from potable water pipework by using a contrasting or different type of pipe material. This will be, however, site specific and site conditions may dictate that this is impractical.

Pipelines used to convey reclaimed water inside buildings and above ground may be fabricated from a range of different materials. Ideally whatever the material the pipes should carry markings to differentiate them from potable water pipes and plumbing systems. The recommended marking in addition to the normal pipe markings required by the respective product specification or standard is 'RECLAIMED WATER'.

The marking can be achieved by either marking the pipe during manufacture or by adding labels or wraps to the pipe during installation. Until there is sufficient commercial incentive it is likely that internal pipework will be identified by installation labelling. Pipes that are insulated should carry pipe labels irrespective of whether they are surface marked or identified during manufacture.

Labels should be either self-adhesive, wrap around or mechanically secured to the pipe. They should be green and carry the marking 'RECLAIMED WATER' in black lettering. Labels should not be less than 100mm long with lettering 5mm in height. Larger labels and larger size of lettering is appropriate for larger diameter pipes.

For large scale reclaimed water pipelines, in commercial premises for example, or reclaimed water pipelines that are insulated the pipe markings should be as follows:

Using the principles in BS 1710 1984 'Identification of pipelines and services' the basic identification colour for reclaimed water pipelines should be green (BS 4800 12 D 45) to identify the pipeline contents as water. The code indication colour should be black (BS 4800 00 E 53) as shown in Figure 1.

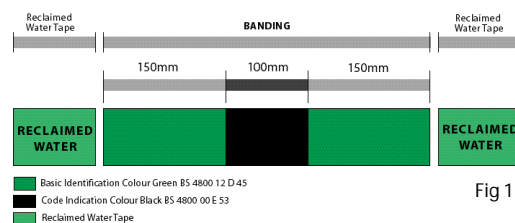


Fig 1

In addition the words 'RECLAIMED WATER' should appear on either side of the overall banding in black text with a green background (see Figure 1). This additional wording is necessary because reclaimed water systems are relatively new to the UK and it is important that every effort is made to ensure that the

pipework is readily identifiable to those who come across it for the first time. For clarity, 'RECLAIMED WATER' tape (black text and green background) should also be used as identification along the length of the pipes approximately every 0.5m and at other key locations, e.g. where pipework is running through walls, at ends of pipes etc.

### 3. Reclaimed water pipework outside buildings or below ground

For external reclaimed pipework, the use of polyethylene which can be marked during manufacture is recommended. The polyethylene pipe should be black and marked with longitudinal green stripes at the four quadrants (see Figure 2). Alternatively, suitably marked and identified ductile iron may be used if the ground conditions are not suitable for polyethylene.



Fig 2

Polyethylene pipe shall be black with four green longitudinal stripes one at each of the four pipe quadrants. The stripes should be 3 to 9mm wide on pipe up to and including 32mm OD, 5 to 12mm on pipe from 32 up to and including 63mm OD, 8 to 18mm for pipe from 63 up to and including 125mm OD; and 12 to 24mm for pipe from 125mm up to 355mm. In addition to the usual pipe markings required by the pipe specification the pipes should be marked with the lettering 'RECLAIMED WATER' in green on the black part of the pipe surface. The size of the lettering should be 3mm for pipes up to and including 63mm OD and 5mm for pipes greater than 63mm OD. See Figure 2.

To assist with the identification of buried reclaimed water pipework it is recommended that during installation pipeline marker tape is laid in the trench directly above the reclaimed water pipeline. The marker tape should be green and carry the wording 'CAUTION RECLAIMED WATER PIPELINE BELOW' in black letters – see Figure 3.

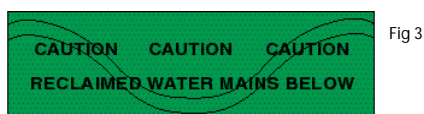


Fig 3

### 4. Identification of washouts and valves

There are many different style and types of marker plate which have been and are still used in the Water Industry and indeed some are integrated into Quality Management systems and procedures.

Rather than being prescriptive in terms of the type, style, colour and layout of marker plates it is recommended that reclaimed water pipeline apparatus should be identified on marker plates by use of colour coding and wording (i.e. RECLAIMED WATER in black letters on a green background). An example is shown in Figure 4.

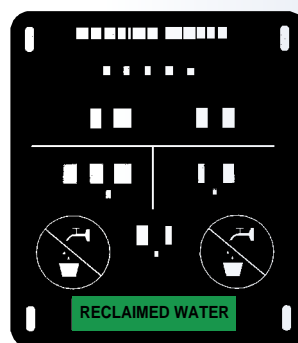


Fig 4

To provide additional security it is recommended that there is an identification plate fitted with the words 'RECLAIMED WATER' on the underside of the lids on chambers housing reclaimed water apparatus.

In the future, non-standard fittings may be recommended for the wash out and valves for clear distinction and to avoid cross-contamination.

### 5. Greywater pipework

Standard sewer and drainage pipes have been used to date for greywater collection systems both within and outside of the buildings.

Whilst this minimises the risk of cross contamination with the potable supply there is still potential for confusion with other pipework (i.e. there is a risk of contaminating greywater with blackwater, which would effect the greywater treatment and possibly contaminate the reclaimed water). There is also the risk that the reclaimed water could be contaminated with greywater. Consideration should therefore be given to the use of appropriate labelling and marking using adhesive labels, pipe wraps or mechanically fitted labels for the greywater collection pipework.

It is recommended that a similar style or type of labelling to the reclaimed water should be employed but using black lettering 'GREYWATER' on a grey background.

### References

BS 1710 (1984 - confirmed 1991) British Standard Specification for Identification of pipelines and services, British Standards Institution, UDC (621.643/644) - 777.6

BS 4800 (1989) British Standard Specification for Paint and Building Purposes, British Standards Institution, UDC 667.6-12:535.6:691.5

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