

A Study into the Provision of Sustainable Toilets in Remote Rural Locations

Submitted to

Forth Valley and Lomond LEADER Local Action Group
February 2010

Section 12.12

REPORT

Aysgarth Falls Composting Toilets (Clivus System)



12.12 Report on Yorkshire Dales National Park Authority (YDNP) Aysgarth Falls Composting Toilets (Kingsley-Clivus System)

We wish to thank the Paul Drake, Property Manager for YDNP for helpful discussions and the Toilet Review Group for their published report on which this report is based.

Background

The study was undertaken by the YDNP Toilet Review Group to review the provision of public toilets, to report on the quality of service provision, and to make recommendations for future action. The review included: the provision and quality of cleaning services, signage relating to the toilet buildings and their immediate surroundings, and the need for refurbishment. This case study focuses only on the Aysgarth Falls Composting Toilets, but includes useful lessons that can be learned from the review.

Public toilet facilities are given a high priority by the Authority and the total budget for these in 2007/2008 was £180,000. "The public toilets are often the first point of contact that the general public have with the Authority, consequently the Authority has an objective to 'maintain Authority car parks and toilets so that at least 80% of users rate them satisfactorily or above'. The first impressions gained by visitors can effect the enjoyment of the rest of their visit to the area and their attitudes to the Yorkshire Dales and the Authority."



Aysgarth Falls Composting Toilets

The National Centre at Aysgarth serves one of the most intensively visited areas in the park and provides an access and interpretation gateway to the falls and wider park land beyond. The existing public toilet facilities serving the Centre and car park discharged to an old septic tank and were unable to cope with increased visitor numbers. Consequently, there were regular occurrences of septic tank discharges polluting the river Ure. After considering visitor numbers various options, a new toilet block was built in 1995 using the Kingsley-Clivus dry composting system of waste management. It was expected that the compost would be able to be disposed of in the surrounding woodland.

The site is extremely challenging given that it is adjacent to an SSSI and the river Ure, has poor sub-surface drainage. A mains sewage treatment facility is located on the other side of the river, but this would be difficult to connect to. A great deal of energy and thought went into the management of the system and over the years a number of adaptations have been made in an attempt to make it function more effectively. From its inception there were concerns expressed by operational staff and users and it has been difficult to change these attitudes. Despite these concerns, the River Ure is no longer being polluted by toilet discharges.

Main Problems and Issues Arising

- Since 1995 visitor numbers to the site have significantly increased, putting unacceptable strains on the composting system. The design was based on annual visitor numbers of 75,000. The car park and toilet block remain open throughout the year, 24 hours per day and visitors' numbers are now estimated at up to 200,000 per annum. The high usage prevents the material from composting properly.
- Too much liquid causes flooding of the basement. Excess liquid is now pumped off and disposed of separately.
- Odour is intolerable on hot days – visitors and staff complain about smell from air vents. This especially affects café visitors that are eating outside, adjacent to the toilets. Adjacent trees prevent circulation of air and ventilation.
- Flies are a health & safety issue and concern, especially with the café next door.
- Staff have to manually empty chambers on occasions when too full. The 'compost' which is not composted is taken away and disposed of through sewage systems off site.
- Cleaning is not being carried out properly by contractors. There is minimal attendance and report sheets are not being completed by cleaners.
- Managing the misuse of the toilets, particularly with regard to rubbish being thrown down toilet drop pipes.
- Repairing leaking pipes, tanks and compost chambers (system overload and breakdown of pipe seals, sump pump failure).
- Clearing and moving of compost in chambers to prevent blockages (compost process being impeded and material not moving down the chamber by gravity as designed).
- The waterless urinals are not working properly and the cause needs to be further investigated.
- Unpleasant working environment due to odour and system breakdown.
- The wide diameter of the drop pipes are viewed as a safety hazard by the public and operators.

The overall impression by the Review Group is that the sustainable approach to sewage treatment does not work and this message is the opposite of the original intention for installing a composting toilet. It is seen to undermine the enjoyment of the visitors and the value of the whole local resource is being reduced.

The system is not considered to be sustainable because:

- A. The composting process in the chambers is not taking place as envisaged.
- B. The end product is being taken off-site for disposal in a conventional sewage treatment works rather than used on land.
- C. Energy and carbon dioxide costs are incurred through the use of infra-red electric heaters in the cellar to maintain a background temperature.
- D. The cellar is permanently ventilated to the outside and has inadequate insulation.

The system is achieving part of the original aim to reduce the frequent emptying of tanks. It has greatly reduced water use for flushing, although this has been compromised by the requirement of more frequent cleaning of the toilets and cellar.

Due to above problems, Committee Members endorsed a recommendation “to remove the compost system and construct a new environmentally friendly on-site treatment plant and to undertake associated energy saving measures with the above.”

Cleaning overview:

- General cleaning was poor.
- Ceilings and light fittings were not being cleaned
- Cleaning of seats and toilet surrounds was inadequate.
- The exterior of the toilet buildings was not being kept clean
- It is unknown whether sufficient time has been allocated to fulfil the contract to an acceptable standard. The time and frequency of cleaning is related to visitor numbers - the more visitors, the more cleaning is required.

It is considered essential that thorough cleaning is carried out to achieve the standards that are necessary to meet health & safety requirements and public expectations.

Outcome:

In order to improve the public toilet facilities and remove odours, a decision was made to remove the existing Clivus Multrum dry toilets and replace them with a new toilet block containing low flush toilets and an air flush urinal system to reduce the volume of liquid that would need to be disposed. Septic tanks were installed that discharge to a new soakaway.

A hydrogeologist was employed to determine if a soakaway was able to receive and filter the settled sewage so it did not contaminate either the groundwater or watercourse. It was determined that a deep level soakaway would be required and it would take 90 days to filter through the rocky terrain before it would discharge to the watercourse. This soakaway proposal was approved by the Environment Agency. A 100 metre soakaway trench containing a drainage pipe embedded in gravel with an additional underlay of gravel was installed. The public toilet system has been operational since October 2009.

Since the refurbishment of all 10 of YDNP public toilet installations there have been no complaints from the public. This has been attributed to the new toilets and buildings that are bright and easier to keep clean. New cleaners have been employed which has improved the standard of cleanliness. There is now a system in place to ensure that the standards of cleanliness are achieved. At Aysgarth Falls, the woman who runs the café now cleans the public toilets and takes pride in its upkeep.

Our comments:

The study team has visited these facilities in the past, but we do not have any photographs of the toilet facility.

Many of the above problems experienced at Aysgarth Falls over the years, both the original flush toilet system with septic tank and the composting toilets, have been caused by the under estimation of the number of visitors using the facility, leading to the overloading of the systems.

All public toilet installations, whether wet or dry, need to be designed to a particular specification for both volume and loading based on the number of visitors using the facility. All systems will eventually fail if they are overloaded. It is essential to future-proof the specification to allow for expansion when visitor numbers exceed expectations.

It is essential that public facilities are allocated sufficient space to be capable of upgrading capacity at heavily used locations. It is important to monitor footfall through the use of car park counters and door counters. Visitor numbers should be regularly reviewed and growth trends anticipated.

Each installation will have their particular design flaws that need to be overcome. Rather than starting again from scratch, however, the immediate need at Aysgarth is additional toilets to handle the increased visitor numbers. The flaws in the existing toilets can be resolved and any new toilets can be better designed to overcome the difficulties experienced.

Although in this particular instance a septic tank discharging to a soakaway was approved by the Environment Agency due to the particular geological characteristics of the site, we would have recommended that a mechanical treatment plant discharging to a wetland treatment system that would provide tertiary treatment prior to discharging to a soakaway would have been more appropriate given the high number of visitors and the sensitive environment into which it was discharging.