

## Case Study – Forth & Clyde Canal In-house Spot Dredging October 2014

**Location:** Devil’s Elbow, Strone Point, through to Twechar Bridge (Bridge 17), Forth & Clyde Canal (see Figure 1)

**Reason for Dredging:** High points of sediment identified by operational team and boaters at a number of sites along Strone Point/ Devil’s Elbow/ Twechar Bridge stretch of the Forth & Clyde Canal

**Solution:** Bank-tipping along offside bank on-site

**Background:** In spring/ summer 2014 a number of boaters had highlighted to SC operational staff that their boats were scraping into high points of sediment at a number of sites along a 2 kilometre stretch of the Forth & Clyde Canal. These high spots of sediment were noted from Devil’s Elbow, 500 metres west of Auchinstarry Marina, through to Twechar Bridge (Bridge 17), taking in sites through Strone Point. This stretch of the Forth & Clyde Canal has a history of sediment build-up due to a number of streams entering the canal in this area, combined with a low flow of water and a number of tight bends, meaning sediment enters the canal, and is not moved away by the water, allowing it to build up around the tight bends.

As a requirement for dredging had been identified, a budget was made available for winter dredging works, scheduled for October/ November 2014. These works were to be completed by Scottish Canals staff themselves, as part of the SC upskilling programme, bringing small-scale dredging works in-house. Suitable staff were identified from Lowlands operational teams, and received training on how to operate the machinery during August/ September 2014.

Sediment samples had previously been taken from Devil’s Elbow and Twechar Bridge within the past two years, so this chemical analysis was still in-date. However, due to the length of the stretch of canal to be dredged, another sediment sample was taken by SC staff from Strone Point in August 2014, to ensure the analysis was representative of the entire stretch (ideally samples represent every 500m of canal).

Once all sediment analyses were available, a number of disposal options were considered for the sediment. None of the three samples were heavily contaminated, and were suitable for bankside disposal along the canal under a Paragraph 25 exemption (The deposit of dredging wastes) from Waste Management Licensing (Scotland) Regulations 2011. This reuse option doesn’t require haulage, as material is disposed of on-site, and therefore saves Scottish Canals disposal costs. Bankside disposal is also the simplest disposal option. This was desirable as SC staff would be operating dredging works for the first time, and there would be some time for training built into the work schedule at the start of the works – this was the focus of the works. SC-owned land on the offside was identified and assessed for suitability on the SC GIS system as an acceptable site for spreading material.

Dredging operations continued for 3 weeks, between 22<sup>nd</sup> October – 12<sup>th</sup> November 2014. Equipment was lifted in and out at Auchinstarry marina (under Land and Water supervision), and left there overnight. All operations were completed by in-house SC staff.

**Lessons:** Primarily, this case study demonstrates that spot dredging works can be completed safely and successfully by Scottish Canals operational staff. This means that future spot dredging works can also be completed in-house – dredging works do not necessarily have to be undertaken by external contractors. The suitability of each dredging operation for in-house works will have to be assessed, based on equipment and staff available, site characteristics (access, welfare etc.), volumes to be dredged, and disposal options to be utilised.

This case study also highlights the importance of using past work and analysis when planning operations, in order to save costs. Due to the use of previous analyses, only one new sample was required, saving time and money.



Above: tug pushing knockdown pontoon along Forth & Clyde Canal at Devil's Elbow





Above: bankside disposal on offside bank. Mound of material either side of burn entering canal on offside, clearly demonstrating where the burn deposits sediment underwater



Above: Bankside disposal on offside bank at Strone Point on Forth & Clyde Canal