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Canal Wall Treatment, Provision of Moorings and Landscaping, Gibson Terrace to Viewforth Bridge Union Canal.

1. Introduction

Scottish Canals wish to make further investment in the canal between Viewforth Bridge and Gibson Terrace in Edinburgh. We have previously received Scheduled Monument Consent for towpath and landscaping work at the same location, and now that additional funds have become available we wish to further build on these improvements.

Our proposal is to extend the treatment of the towpath to the canal wall which will entail the removal of the strip of vegetation that runs between the towpath and the wall. We also wish to stabilise the historic canal wall and towpath through the provision of sheet metal piling. This piling will also facilitate the safe embarkation and disembarkation of passengers from the moored boats, by providing an even surface in the form of new pre-cast concrete cope stones. Currently the surface is very uneven due to vegetation and the deteriorating historic wall. We have previously been consented for the provision of services and mooring rings at this location and we now wish to install three service bollards for the boaters.

2. Wider Context

The stretch of canal between Gibson Terrace and Viewforth Bridge marks the entrance to the canal terminus in Edinburgh, an area which is undergoing transformation through regeneration.

Fountainbridge is subject to a number of significant development sites which are at various stages of planning approval and which collectively will create a new bustling and vibrant canalside quarter for the Capital. The overall aims and objectives for Fountainbridge are set out in the planning approved Edinburgh Canal Strategy, dated December 2011.

<https://www.scottishcanals.co.uk/corporate/wp-content/uploads/sites/2/2015/06/theedinburghunioncanalstrategy-december2011.pdf>

Please refer to attached drawings which illustrates the wider development context;

- Fountainbridge Development Context and Strategy
- Boroughmuir High
- Canal View EDI Site
- Canal View Freer Street Site
- Hotel and Residential Freer Street View
- Public Realm EDI Site
- 1504 Fountainbridge Towpath Strategy 2016

This section of canal provides the threshold to the terminus section of the canal and an entrance to the renewed Fountainbridge area. Scottish Canals have been working with each individual developer and the City of Edinburgh Council to try to create a cohesive canalside and public realm treatment between each development parcel to maximise and celebrate this unique feature. The drawings appended illustrate how this treatment may then apply between Viewforth Bridge and Edinburgh Quay, which will come forward for approval under the works directed by each individual developer in time.

Given the status of the now completed Bainfield Student Halls of residence and the under-construction stage of the new Boroughmuir High, the stretch of canal between Gibson Terrace and Viewforth bridge is at the most advanced stage of development. The landscape architectural treatment marries the new landscaping of Fountainbridge Green, which is complete, with the towpath and canal context. The proposals delineate the line of the towpath whilst tying in seamlessly with the new paving slabs and landscape finishes to provide a level surface, opening out to embrace the new schools main point of entrance.

The provision of further moorings at this location will also provide;

- Berthing space which is in short supply and high demand in the city centre vicinity.
- Visitor and leisure moorings to complement the residential moorings associated with the Horne Terrace developments.
- Potential for the school to occupy a mooring for a canal-based education facility in time.

3. Towpath Work

Please Refer to the following attached drawings for general and detailed landscaping and layout;

- 1504.L.D (94) 001 Detailed Layout Plan
- 1504.L.D (94) 002 Details
- 1504.L.G. (92) 000 Down Takings Location Plan
- 1504.L.G. (92) 001 Overall Landscape Layout Plan
- 1504.L.G. (92) 002 Overall Landscape Layout Plan

The additional resources now allow us to extend the consented towpath scheme to the canal edge, thus creating a more uniformed palette of colour and texture along this stretch of towpath. In order to achieve this extended towpath, the strip of vegetation that runs between the current towpath and the canal wall needs to be removed (Fig 1 and 2). This has the added benefit of a reduction in resources devoted to vegetation management as well as arresting the damage done through root growth to the historic canal wall, notably the deterioration of the mortar joints.

We propose that the vegetation removal be two phased. The first phase will be removed prior to the piling and for the length of the piling (120m). Phase 2 work will follow at such time when we wish to undertake further structural appraisals of the canal wall beyond the piling and up to Gibson

Terrace. We envisage that small sections will be stripped to undertake this appraisal and a full strip only occurring when we have a design detail for further towpath work and landscaping beyond that which has already been consented or what is detailed in this application, and with the approval of HES.

We recognise that the towpath is a defining feature of the canals, so we intend to preserve the visual line of the historic towpath by the delimitation of its historic extent using the visual cues of kerbs and LED lights (Fig 1).



Fig 2. The strip vegetation strip will be removed and the towpath setts extended to the canal wall.

4. Treatment of Historic Wall

The canal wall has a history of patch repair using multiple mediums of original sandstone, and latterly brick and cement. Over the years an increasing amount of voiding, mortar failure and expanding joints have resulted in the loss of the original fabric. The wall was not designed as a load bearing wall as it is only 0.5m max in depth, but rather it functioned as a wharf wall to allow boats to safely moor, whilst not impacting on the width of the canal. We now have concerns that the extra load implied by an increase in footfall along the towpath as a result of the new school will further destabilise the wall, leading to eventual collapse of the wall and the towpath. This has previously happened on a stretch of towpath at Harrison Park, and a similar strategy of piling was successfully deployed.

The first option we considered was the repair of the entire length of wall. However, this was both prohibitively expensive, presented Health and Safety concerns, ecological concerns and would adversely affect our canal users especially the residential boaters. In order to repair the wall, much of which is underwater, the canal would have to be dammed and drained, the residential boats re-located, the canal closed to boat traffic and the towpath on this very busy section of canal closed to users. The stranded fish in the dewatered canal would need to be collected and released back into the canal beyond the dam. Dewatering the canal also heightens the risk of injury if a member of the public or our contractors should fall into the empty channel.

The optimum solution, and one which has been consented elsewhere on the canal is to install sheet piling immediately in front of the wall, with a separation layer of visqueen membrane or similar

between the piles, the historic wall and the precast concrete copestones that will sit atop the piling. This visqueen membrane offers protection to the historic wall and ensures that the mortar used to affix the copestones will not adhere to the historic wall, nor will the concrete used to backfill between the piling and the wall.

5. Archaeological Mitigation

During the stripping of the vegetation and before the piling work commences the historic wall will be archaeologically recorded, both in plan and by section. The recording will include a photographic survey, scaled drawings and a textual description. The elevation drawings of the wall above water will need to be done from a boat on the waterside.

We propose that our archaeological contractor submit a Written Scheme of Investigation to Historic Environment Scotland for approval before work begins and are content that this is written into our consent as a condition.

6. Heritage Impact Assessment

The direct physical impact on the canal infrastructure is minimal. The historic canal wall will be preserved in situ behind the metal sheet piling. The piles will puncture the bottom of the canal but the clay lining will form a waterproof seal around the piles, thus preventing leakage. Any original towpath material if it still exists will be preserved under the successive layers of new towpaths. This putative historic towpath material will be preserved in situ under the new setts.

A map search of the Ordnance Survey maps although detailing surrounding historical urban developments they do not show any canal-side structures that would be affected by these works. Maps consulted were;

- OS 6-inch, 1st Ed. 1853
- OS 6-inch, 1st Ed. 1855
- OS 6-inch, 1st Ed. 1897
- OS 6-inch, 1st Ed. 1909
- OS 6-inch, 1st Ed. 1920
- OS 6-inch, 1st Ed. 1935
- OS 6-inch, 1st Ed. 1944

The visual loss of the wall behind the piling will not alter the *reading* of the line of the canal. Its linearity bounded by buildings, effecting a *canal corridor* view will not be altered. The piling will not unduly intrude on the water space, and the width of the canal will be effectively the same. The majority of the piling will be underwater; the remaining above water section will be capped with new concrete copestones. The line of the original towpath will be preserved and delineated by the kerb and LED design detail.

Overall the effect of these works on the heritage of the canal is physically and visually minimal.

7. Piling Methodology

The following methodology has been successfully used elsewhere such as Harrison Park.

- Trench sheet steel piles to be used 2000 mm in length.
- Piles to be aligned directly in front of failing masonry canal wall from the towpath.
- Piles to be carefully driven to approximate depth of 1500mm and no greater than 250mm showing above canal water level.

- Place separation barrier in front of existing wall to ensure concrete infill does not bond to existing wall.
- Import via towpath and place concrete backfill. Bring concrete up to top of pile level to infill void and to form firm / level bed for copes.
- Import via towpath and place on mortar bed precast concrete copes to form line and level consistent with the height of the original canal bank.

8. Conclusion

The previously consented works for the towpath upgrade coupled with these new proposals have many benefits for the canal. These are; the preservation of the historic canal wall, both physically behind the sheet piling, and by record through photography and scaled drawings; the uniformed treatment of the towpath which will bring cohesiveness in design across the multiple development sites that front the canal; and the provision of safe moorings for visitors, residents and the potentially the school as an education facility.