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Part 21: Design Summary for Restoration Section 5: Killamarsh West

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Contents:

NB. Items highlighted in Grey are either complete and ready for use or are under construction at the time of writing and are likely to be ready for use in the very near future.

Geraint Coles, 2008, 2010, 2013.

21 Design Summary for Restoration Section 5: Killamarsh West

21.1 Overview

21.1.1 Restoration Section Five extends from Old Boiley Bridge (Bridge No.23) to a point midway between the LD&ECR Bridge over the canal (Bridge No.25a) and Walford Road on the western side of Killamarsh.

21.1.2 Beyond the site of Old Boiley Bridge the canal track resumes a gently curving course following the contours of the valley side. A short distance north from the site of the bridge the channel becomes fully open and two short lengths are in water. These sections were excavated by the landowner to a navigable profile to create fishing ponds in the 1990's. The water supply for these ponds comes from a small unnamed brook which enters the ponds at the southern end of the reinstated length.

21.1.3 North of Old Boiley Bridge are the remains of Boiley side weir and culvert. This discharges into a culvert under the Trans Pennine Trail and then empties into a deep field edge drain which leads to the River Rother. The Weir is badly damaged but in-situ. The culvert is intact (internal inspection shows the culvert to be open and freely draining) and the field drain functioning. The Weir will be rebuilt and reinstated as a storm overflow for this section of the canal.

21.1.4 The length of reinstated water north of Old Boiley Bridge is at present divided by an earth bund which carries the Public Right of Way from Killamarsh to the TPT. This is the site of Gallas Footbridge (Bridge Nº.24) which will be reinstated, again using the standard design.

21.1.5 At the north end the canal is infilled and the canal track is gravelled and used as a car park. Sufficient width exists at this point to relocate the car park along the off bank.

21.1.6 North of the current car park area the canal channel is infilled for c. 300 m until the canal curves eastward and the site of Forge Bridge is reached (Bridge Nº.25, SK 4480 8085). Parts of the original canal channel have been built over by the main access to, and further car parking for, the commercial fishing ponds.

21.1.7 The platform of raised made ground occupied by these features overlies the edge of the former canal channel and in many places completely obscures it. The Cuckoo Way here largely following the foot of what was the outer bank of the canal rather than the actual line of the towpath.

21.1.8 At present the Cuckoo Way (the canal towpath) enters an area of woodland and follows the toe of a steep slope in made ground. This slope is recent and forms the edge of a platform of made ground on which the main car park of the fishing ponds is situated. The slope of the made ground lies over the original canal track.

21.1.9 To secure a viable canal route without undue encroachment upon the adjacent woodland it is proposed to pile along the approximate line of the off bank, excavate and remove the made ground from the slope and create a retaining wall on the off bank side. This will permit the corner at Forge Lane to be eased, damage to the

woodland to be minimised and the majority of the current parking area to be retained. It is proposed that the retaining wall be cosmetically faced with stone and incorporate features such as bat niches.

21.1.10 The canal will then turn east and pass through a short concrete box culvert (Old Hall Bridge, Nº.24a) required to maintain the access road to the fishing ponds. The box culvert will again be cosmetically faced with stone to blend with the retaining walls.

21.1.11 The canal then rejoins the historic route in a shallow cutting to pass under Forge Bridge (Nº.25) This 1777 stone built bridge is infilled but the arch and parapets are intact and it proposed to re-use the structure after excavation, inspection, recording and refurbishment.

21.1.12 From Forge Bridge the canal channel is completely infilled for 100 metres until the site of the Lancashire, Derbyshire & East Coast Railway Bridge (Bridge Nº.25a, also known as Westthorpe Mineral Railway Bridge) is reached when the channel becomes open with some seasonal shallow pools and longer dry lengths.

21.1.13 Around 100m to the east of the LD&ECR Bridge the canal track becomes more open as it forms a minor loop along the hill flank. Between here and Walford Road the intention is to straighten the canal across this loop to provide the site for the first lock of the Eastern Division (Netherthorpe Lock Nº.6a) and enable the development of the original channel as a shallow wetland reserve utilising by-wash water.

21.1.14 A hard edged winding hole and a small number of short term moorings will be constructed at the junction between the old line and the straightening. This point will mark the end of the Western Division and will be considered the temporary northern terminus of the canal during implementation of this phase.

21.2 Environment & Ecology

Issues

21.2.1 This section of the route is ecologically varied with recently restored canal channel, an area of established plantation woodland, a length of channel infilled with landfill and a length of open channel with shallow seasonal pools.

21.2.2 The length from Old Boiley Bridge to the Forge Lane Woodlands was completely infilled with building waste in the 1970's. The landfill was partially removed when it was re-excavated to a navigable profile as fishing ponds about ten years ago. It is now fully mature and has developed some ecological interest. Being re-excavated from completely infilled this length offers an insight as to the length of time it will take for newly created sections of waterway to integrate into the landscape and acquire diversity and resilience.

21.2.3 The Forge Lane Woodlands are a small hanger-wood above the line of the Trans Pennine Trail. They are an even aged plantation woodland which is now becoming over mature and the woods have a number of wind thrown trees. Reinstatement of the waterway through this section will require care and mitigation works to preserve the "shelter belt" between the Trans Pennine Trail and Old Hall Farm.

21.2.4 Like previous lengths, that between Forge Bridge and the LD&ECR Bridge was landfilled with building debris in the 1970's and grassed over. It is likely that much of

the filling this section will require disposal off site to secure landfill. The current grassland is a poor quality horse paddock and has a very low bio-diversity. There is an opportunity to create tall herb grassland along this bank once the canal has been reinstated and the land surface returned it to its original profile. This will include excavating and restoring Forge Bridge.

21.2.5 Beyond the LD&ECR Bridge to Walford Road the canal channel is open and unfilled. It contains a number of seasonal pools with reedswamp and potential for Great Crested Newt - a survey carried out in 2010 failed to locate any newts but this will require further survey prior to final planning application and work commencing. If Great Crested Newt are found at that time then mitigation measures will be required (below). This is regarded as the most sensitive length of those in the Killamarsh Restoration Section.

Mitigation

21.2.6 The Canal Ecological Management plan will set out the means of managing the former fishing ponds and integrating them into the waterway. The existing fishing ponds adjacent to the canal line are a viable business and will obviously be retained and developed by their owner. An additional fishing pond may be added to compensate for the loss of the canal length although the fishing rights to the entire Killamarsh West and Railway Mile sections will be available to the current owner by way of partial compensation. The vegetation along the canal line will be managed in a way which is sympathetic to the current use of the site as fishing ponds – limiting tree growth on both banks and maintaining a cut and laid border hedge on the towpath bank.

21.2.7 Any dredging of the existing channel required will follow a policy of, wherever possible, retaining and storing the dredged sediments separately so as to provide a seed bank for new lengths of canal and off line reserves.

21.2.8 Throughout the restoration of the canal the use of a channel profile with a reed shelf on the off bank will increase the range of habitats. Where it is possible to widen the channel this will be done to create additional wetland areas on the off bank.

21.2.9 The engineering designs for the Forge Lane Woodland length (Old Hall Retaining Walls) incorporate features such as mammal ramps and bat roosting niches.

21.2.10 All works in the area of woodland will be undertaken in winter and early spring. Sequential vegetation removal and installation of mammal fences around the work site, together with programmed capture and release, will ensure minimal damage to small mammal populations.

21.2.11 Within the canal track there will be an overall small loss of woodland. Cleared trees will be replaced by an equal area of native woodland planting which will be extended along the canal off-bank outside the original area of the woodland. As the key threatened habitat in this area is the woodland margin this should increase the areas of margin type habitat. Soil from the construction area will be cleared and stockpiled separately and will be used to re-soil the margins of the completed works. The contained seed-bank should encourage rapid growth of field layer plants.

21.2.12 The engineers design for Netherthorpe Wharf makes allowance for the current diversity and voucher sample of the pond mud and of the vegetation itself will be

used to reseed the new wetlands to be created. Further mitigation will be provided by the development of the old canal line at Netherthorpe as a shallow wetland reserve using the flow from the Netherthorpe Lock Bywash (see Next Navigation East).

Enhancement

21.2.13 The creation of new waterspace through to the edge of Killamarsh village will bring the waterway into the village and – by virtue of it being at the end of the Killamarsh greenway make it accessible to a greater number of people.

21.2.14 Killamarsh village is one of the most enthusiastic communities campaigning for the return of the canal and the enhancement of the local environment. There is an active Parish Council, a vocal pro-canal lobby, a history society and several environmental campaign groups operating in Killamarsh – many of these have strong links to the Chesterfield Canal Trust.

21.2.15 The reinstatement programme will work with these groups to support environmental enhancement and to recruit people as canal champions – the goal will be to establish semi-autonomous working groups who can adopt lengths of canal to manage the new wetlands, towpath verges, hedgerows and marginal woodlands.

21.3 Archaeology & Heritage

Issues

21.3.1 The reinstatement route does not affect any listed or scheduled monument.

21.3.2 The entire route through this section will utilise the historic and now largely infilled or slighted, canal track. The majority of historic structures were demolished from the 1930's onward and there is little surface evidence for any of them. There is of course potential for buried evidence and as works proceed a full watching brief will be maintained on these sections. Particular attention should be paid to the location of known structures and to the construction of the canal banks, together with any evidence for construction phases or methods.

21.3.3 The key sites within the canal track where the remains of structures of heritage significance may be present include:-

- The site of Boiley Bridge (Bridge No.23) – an original stone 1777 Bridge. Little is know about this bridge the foundations should give us clear information.
- The site of Boiley Side Weir. Much rebuilt and currently infilled this should provide evidence on the original construction and sequence of replacement.
- The site of Gallas Bridge (Bridge No.24) – a timber footbridge but thought to be a railway replacement for an earlier bridge – again the foundations should help resolve key issues of design and chronology.
- Forge Bridge – believed to be an original 1777 stone bridge, still standing but buried.

- The canal winding hole and canal wharf between Forge Bridge and the LD&ECR bridge thought intact but buried by infill.
- The Lancashire Derbyshire & East Coast Railway Bridge – not especially significant in engineering terms but important for telling the complex story of the railways (and the mines which fed them) in the area.

21.3.4 In each case archaeological recording and where appropriate excavation will precede any engineering work. A watching brief will be kept during the works.

21.3.5 This restoration section is predominantly rural and there are few known sites of heritage interest in the wider canal corridor. The key exception and relatively close to the canal is Old Hall Farm near Forge Bridge. The farm buildings, although not listed, probably have 15th century hall at its heart although it is very much rebuilt and under layers of Georgian, Victorian and 20th Century additions.

21.3.6 The original line of the canal ran through the grounds of the Hall and although the reinstatement router reuses this original line there is potential for exposing medieval and post-mediaeval remains slighted by the original canal excavations. Test pit excavation prior to commencement and a watching brief during the works is appropriate.

21.3.7 North of Boiley Bridge and south of Gallas Bridge on the east bank of the canal is the site of small brick works which operated from around 1898 to the 1940's. The site operated two ranges of brick kilns near to the canal bank and may have used the canal in its early years. By the 1920's the site had a private siding off the LD&ECR line. The site was operated by the Killamarsh Brick Company Limited. The site was comprehensively redeveloped as the Killamarsh Fisheries and no surface evidence of the works survives.

Mitigation

21.3.8 The reinstatement will have a very limited effect on the heritage of the canal within the canal track. It will bring neglected heritage structures at risk, such as Forge Bridge, back into use and into regular maintenance. It will also make interpretation of those remains to the public considerably easier as they will be in their original waterway context. Such interpretation will improve public understanding, feelings of "ownership" and increase protection of those remains.

21.3.9 As noted above, all works will be preceded by archaeological investigations and accompanied by watching briefs.

21.3.10 Outside the canal track there is a complex history of landuse and industrial development but few standing remains. There would also appear to be very few heritage sites adjacent to the canal track and that none of these would be directly affected by the canal restoration works. Where there is any possibility of this – as at the margins of the Old Hall Farm site where there may be unrecorded associated buildings (even ancient buildings slighted by the original canal in 1777) or rubbish pits / tips – all works which may impact on buried remains will be preceded by archaeological investigations and accompanied by watching briefs

21.3.11 One feature of this length is the opportunity it presents to interpret the complex tangle of railway lines which once ran though the area. In particular to understand the coal and iron industry which required their construction.

21.4 Economic & Social Regeneration

21.4.1 Restoration Section Five: Killamarsh West is predominantly semi-rural and may be viewed as a necessary link in the restoration chain rather than a key economic development location. It's existence will, for example, make possible the development of Nethermoor Lake as a marina but her will be no extensive moorings on this length.

21.4.2 The section contains no "honey pot" sites of great built or natural heritage value but equally has no features which might drive away visitors. It is well placed on the edge of Killamarsh to act as a green wedge into the village to ensure the expanding community continues to enjoy excellent access to the quiet enjoyment of the surrounding countryside.

21.4.3 The restored canal will attract walkers, cyclists, anglers, canoeists, rowers and boaters to use the canal. To maximise the local economic benefit effort will be made to retain people in the area for longer. This will be done by improving footpath links and signposting from the canal to the village centre and to local attractions such as the proposed "Killamarsh Central" hub (below).

21.4.4 The canal can also act as a corridor to draw visitors from the parallel Trans Pennine Trail into Killamarsh. To that end information will be provided to draw visitors to explore the historic heart of the village (notably the Church and surroundings) and to encourage them to use local facilities. The aim being to encourage them to stay longer in the town and thus to spend more locally.

21.4.5 To gain maximum benefit the community itself needs to engage and develop better quality facilities, cafes, restaurants pubs and shops. This will require further collaboration between the community, the business community, the Parish Council and North East Derbyshire District Council.

Community Engagement

21.4.6 The return of the waterway is strongly supported by the local community and has the strong support of the Parish Council. This will be built upon to expand the number and range of groups engaging with the project. In particular the recruitment and retention of younger volunteers is a priority focus for the Chesterfield Canal Trust.

21.4.7 In particular Killamarsh has a thriving local history group and restoration will provide an opportunity to engage with that group and the wider community to explore the local history of the canal, its transport links and the industries which it served. It is envisaged that this process will be ongoing throughout the project.

Education & Training Engagement

21.4.8 As in other sections the active restoration phase of the canal is an opportunity to engage with local colleges (Chesterfield College, Sheffield City College, Rotherham College of Arts and Technology) to provide on-site training in construction and heritage construction skills, landscape and countryside management

21.4.9 Once restored the canal can provide a platform for engagement with local schools to provide alternative curricula for pupils at risk of exclusion (as piloted with Eckington School) and also on going countryside management and tourism related industries.

Killamarsh Central

21.4.10 There are proposals to restore the derelict and damaged Killamarsh Central Station building. This is being undertaken by a Community Interest Company set up by the local history society.

21.4.11 The station was located on Station Road between Forge Bridge and the main road into Killamarsh. It was built in 1892 by the Manchester, Sheffield & Lincolnshire Railway (which became the Great Central Railway in 1900) as part of the their "Derbyshire Lines". Eventually the station sat on the Great Central mainline to London.

21.4.12 Restoration of the Station will provide a new hub for community activity in Killamarsh similar to that already operating at Hollingwood. It is envisaged that the physical restoration will generate opportunities for heritage skills training while the operation of the building will provide training in business management and catering.

21.4.13 The Station also provides the opportunity space to develop new businesses such as cycle hire or simply related to the attractive location which the combination of Trans Pennine Trail and waterway offers such as small business start up offices etc. (See Future Aspirations, below).

21.4.14 The development of the Station Site will offer many opportunities to local people. It will also attract people from the surrounding region and increase visits to the area further benefiting the local economy.

21.5 Planned Works

Canal Track & Channel

Length 5/1

21.5.1 From Boiley Lane (north side of site of Bridge No. 23) (SK 4465 7985) to Gallas Footbridge (site of Bridge No.24) (SK 4464 8012) (291 m)

21.5.2 The first 48 m of the length is infilled and dry. The next 243 m has been excavated to original navigable profile by the landowner and is in water until an earth bund c. 4 m wide on the site of Gallas Footbridge is reached. Water supply is piped through the bund to length 5/2. This length and length 5/2 are in use as fishing ponds.

21.5.3 The water supply for this length comes from a land drain / seasonal brook which enters the canal in a short widening opposite the site of the Boiley Side Weir. The head of this wide is silted and contains a reed bed which acts as a natural filter on the inflowing water – this will be retained. Water supply to the next length is via a concrete pipe through the bund carrying the footpath on the site of Gallas Bridge.

21.5.4 The silt infill at the south end of this section will need to be assessed for contamination. The remote site and topography suggests that the silt is largely of agricultural origin and is not thought likely to be contaminated. Unless evidence is

found to the contra in testing it is intended to dispose of the silt and bund material on site. The total volume of material is 880 sq m (channel = 800m^3 + Bund = 80 m^3)

21.5.5 Channel Works will include dredging the first 48m and the removal of the bund – relining of the bund section if required. The open water section was only recently reinstated and should not require dredging at this time. If dredging is necessary it should be undertaken with care as this in-situ length is now developing a good ecology and will act as a plant reserve from which the rest of the restored lengths will be re-colonised.

21.5.6 The length is current waterproofed with a combination of original clay puddle and imported clay puddle. The short reinstated section will also use a clay puddle.

Length 5/2

21.5.7 From Gallas Footbridge (site of Bridge No.24) (SK 4464 8012) to Fishing Pond End (SK 4466 8026) (222 m)

21.5.8 Inspection suggests that the bund on the site of the Gallas Footbridge is composed of partly dumped clay and partly building debris which may have come from the original bridge piers or from the adjacent brickworks site. It is assumed here that the Gallas Bridge piers and narrows have been entirely removed and that new narrows and foundations will be required. The design of the bridge (details below) is based on the standard footbridge design and will have fully accessible ramps on both sides.

21.5.9 From the Gallas Bridge site bund to pond end is in water and of navigable dimensions. On both sections the channel is an open “U” shape - banks are soft edged with fishing platforms. Both this and previous length are in use as commercial fishing ponds.

21.5.10 As with length 5/1 this will only be dredged if absolutely necessary for the same reasons.

21.5.11 The length is current waterproofed with a combination of original clay puddle and imported clay puddle. The short reinstated section will also use a clay puddle.

Length 5/3

21.5.12 From Fishing Pond End (SK 4466 8026) to Edge of Old Hall Woodland (SK 4478 8073) (193 m)

21.5.13 The canal channel is completely infilled and buried under a gravelled access track and a gravelled car parking area. This is used by customers of the commercial fishing ponds. Restoration of this section will require the movement of the track and the creation of a new car parking area on the off bank together with a new surfaced path link to new Gallas Bridge (see structures), towpath bank and fishing platforms.

21.5.14 The landfill in the channel was registered as demolition debris from the brickworks site and inert building waste. This has yet to be confirmed by trial excavation although surface scrapes have revealed building debris. The total volume of fill in this section is estimated at 4586 m^3. Waste from this section is very likely to need disposal to landfill (and this has been assumed in the costing).

21.5.15 The channel will be excavated as far as possible to the original profile continuing the existing "U" profile from the already restored pond lengths. Where possible the original puddle clay will be reused and patched with additional clay as required.

Length 5/4

21.5.16 From Edge of Old Hall Woodland (SK 4478 8073) to South End of Old Hall Retaining Walls (SK 4480 8083) (123 m)

21.5.17 This length is completely infilled. Much of the original channel is buried under raised infill (building debris & soil) which forms the upper car parking area for commercial fishing ponds.

21.5.18 Construct new canal channel to deviate to the west of original line following the edge of the raised upper car park area. Pile top edge of infill bank. Excavate downslope side to create width for canal track build outer / towpath bank by cut and fill. This method while deviating west from the original canal line will retain the existing car parking area for the commercial fishery.

21.5.19 The fill is currently unknown but some building debris (brick and tile) is evident in the uppermost fill and this accords with the recorded fill of domestic building waste. This fill requires testing to determine what proportion will require removal to secure landfill. Approximately 2619 m^3 will need to be moved to create the new channel. To make it waterproof a combination of puddle clay at the southern end and an HDPE liner with a concrete sealing layer at the retaining wall end is envisaged.

Length 5/5 (The **Old Hall Retaining Walls** Structure)

21.5.20 From South End of Old Hall Retaining Walls (SK 4480 8083) to North End of Old Hall Retaining Walls -- Abuts directly onto Old Hall Bridge (Bridge No.24a) (SK 4480 8083) (172 m)

21.5.21 Works will include construction of a new canal channel to deviate to the west of original line following the edge of the Fishing Pond Access Track. The outer towpath edge will require piling to support the canal above the Trans Pennine Trail. The inner off bank will require deeper piling from the top of the landfill to below canal level to support the infill mound and to enable construction of the canal on the resultant ledge. Together these form the Old Hall Retaining Walls which will be a significant engineering feature.

21.5.22 The Old Hall Retaining Walls extend from this section and through Old Hall Farm Bridge to the site of Forge Bridge (No.25). The walls guide the canal around the steep turn into the village. This is a new structure required by changes in local land use, in particular the burial of part of the original canal by an access road and the need to provide access via Old Hall Farm Bridge to the commercial fishing ponds.

21.5.23 The design employs bored reinforced concrete piles with reinforced walls and a structural channel used to link and support the retaining walls themselves. The visible sections of the walls will be faced in stone. The canal channel within the retaining walls will be constructed in concrete (the only length on the Staveley to Killamarsh Section where this is necessary). Outside the area between the retaining walls a traditional puddle clay will be used to knit to the existing original channel and its surviving waterproofing.

21.5.24 The channel in this section will be relatively narrow – at its tightest down to around 3.3 m and then widening as required by the radius of turn to around 7 m at its widest point. Clearly two boats will be unable to pass on this section and some form of user operated directional control (cf. Slaithwaite "traffic lights" on the Huddersfield Narrow Canal) is indicated as traffic levels rise.

21.5.25 The towpath will be on the outside or down-slope side of the canal and will be supported by the outer piled line. Given the height of the towpath above the Trans Pennine Trail at the extreme point of the turn it will be necessary to have a fixed wall on the outer edge of the towpath. This again will use a concrete core with stone cladding. The towpath itself will be relatively narrow here – reducing to 2 m at the pinch point.

21.5.26 The fill used to create the car parking areas and access road was largely building construction debris and was registered as inert when emplaced. Some building debris (brick and tile) is evident in surface scrapes. Full testing needs to be undertaken. The material needing removal has a total volume c. 2573 m^3 and for the purposes of generating costings is considered to require disposal to landfill.

21.5.27 Although the retaining walls are very much "hard engineered" there are some opportunities for engineering in some ecological enhancement. The stone clad walls offer an opportunity to create bat roosting niches/boxes in the cosmetic wall facing above the canal. It should also be possible to create "plant pockets" at key locations along the channel to ensure that the sections either side of the walls can be ecologically connected. The woodland fragment through which the canal passes is an even aged plantation and is over aged – the project offers the opportunity to replant this area with a more diverse range of native woodland taxa and to manage it primarily for wildlife.

Length 5/6

21.5.28 From Old Hall Farm Bridge (No.24a) (SK 4480 8083) to Forge Bridge (Bridge No.25) (SK 4480 8085) (48 m)

21.5.29 Old Hall Bridge (No.24a) is integral with the Old Hall retaining walls (below). This length is a continuation of same retained structure as 5/4 after Old Hall Farm Bridge to junction with historic retaining walls for Forge Bridge (exact junction to be determined after site investigation). All other details as for Length 5/5.

Length 5/7

21.5.30 From Forge Bridge (Bridge No. 25) (SK 4480 8085) to LD&EC Railway Bridge (also known as Westhorpe Mineral Railway Bridge) (Bridge No. 25a) (SK 4493 8077). (169 m)

21.5.31 The canal channel is complete infilled - indeed overfilled to create a sloping field. This includes infill of the bridge up to the top of the bridge arch. The site will be re-excavated under an archaeological watching brief to reveal the original contours of the field, the channel and the site of Forge Wharf.

21.5.32 The re-excavated channel will as far as possible follow the original historic channel profile with soft banks on both banks (i.e. no reed shelf due to a curving and constrained channel).

21.5.33 The original channel was lined with puddle clay – depending upon the condition of this clay upon excavation this will either be patched with puddle clay or will be excavated and reused as a compressive fill layer over a bentonite or gel geofabric waterproofing membrane.

21.5.34 The Channel fill is unproven. It is thought that much of the fill is imported building waste with a layer of imported agricultural soil at the surface - local scrapes tend to support this. Test pits will establish the depth and nature of the fill prior to final planning application. For the purposes of this study it is costed as requiring export off site to landfill – if possible the materiel will be used for bank fill elsewhere in this section. The volume of fill is estimated at 3841 m^3.

Length 5/8 (includes **Netherthorpe Moorings & Winding Hole**)

21.5.35 From LD&EC Railway Bridge (also known as Westthorpe Mineral Railway Bridge) , (Bridge No.25) (SK 4493 8077) to Netherthorpe Wharf (where it will join Netherthorpe Lock and the start of Section Six) (SK 4506 8081). (180 m)

21.5.36 The canal channel is open but dry. This section retains some water after heavy rains and the very base of the first section of the channel is damp. There are irregular mounds and fans of in-washed silt and garden waste & rubbish from surrounding houses.

21.5.37 The channel will be cleaned out and restored with a modified profile from the bridge to the site of the proposed new Netherthorpe Lock (see Next Navigation East). Wash walls will be introduced into the towpath bank to widen the channel and create a series of four to five low key moorings. At the point nearest to the lock entrance the channel will be widened to accommodate a winding hole and the entry to the new lock bywash.

21.5.38 A temporary storm water discharge weir will be installed in the local bywash weir location. This will discharge to the surface water drainage system.

21.5.39 The original channel was lined with puddle clay. As in the previous length upon re excavation this will be assessed and depending upon condition this will either be patched with puddle clay or will be excavated and reused as a compressive fill layer over a bentonite or gel geofabric waterproofing membrane. The close proximity of housing down-slope from the canal line means that it is vital to reduce bank and bed leakage on this length making it more probable that a liner will be employed here.

Utilities

21.5.40 There are no utility crossings between Boiley Bridge and Forge Lane.

21.5.41 At Forge Lane there are crossings for water (buried pipe in bridge) gas (buried pipe in bridge), electricity (overhead) and telecoms (overhead). Treatments for these crossing are incorporated in the restoration design for Forge Bridge.

21.5.42 Between Forge Bridge and Walford Road there are no further utility crossings.

Bridges

21.5.43 There are four bridges on the Killamarsh West section:-

21.5.44 **Gallas Bridge (Bridge No.24)** (SK 4464 8012): Footbridge – the original structure was removed before 1976 it is required to maintain public right of way and also to provide access to towpath for fishing parties from the main fishing area. Proposed "new standard" footbridge; steel deck with brick piers modelled on GCR design recorded at Staveley but modified to replace the original brick steps with ramps suited for access for all.

21.5.45 **Old Hall Bridge (aka Fishing Pond Access) (Bridge No.24a):** An accommodation bridge for a private road. No historic precursor – new structure. Concrete box culvert to carry canal under Mr Swain's access track; designed to be integral with the Forge Turn retaining walls but demarcated by use of different cladding materials – the walls in local stone - the bridge piers in local red brick with blue brick detail.

21.5.46 **Forge Bridge (Bridge No.25)** (SK 4480 8085): An accommodation bridge for a private road. One of the few surviving original 1777 bridges. The original Brindley bridge appears to be still extant but buried. Structural survey required but appears intact, sound and capable of re-use after cleaning and refurbishment (lime mortar pointing etc) .

21.5.47 **LD&ECR Bridge (Bridge No.25a)** (also known as Westthorpe Mineral Railway Bridge) (SK 4493 8077): Disused steel girder railway bridge on blue engineering brick abutments over the canal. Built by LD&ECR circa 1905 with the line opening in 1907. It was abandoned and track lifted after the closure of Westthorpe pit in 1983. The bridge is in an apparently poor condition and is not maintained – there is a case for either repairing and reusing is it to create an additional walking route to the Rother Valley Country Park or for completely removing it and conserving the bridge piers as historic features of interest around which the story of the LD&ECR can be told. In either case major overhaul or removal of the bridge deck would be considerably easier prior to canal reinstatement.

Locks

21.5.48 This section has no locks.

Stop Plank Narrows

21.5.49 Stop Plank Narrows to enable de-watering of pounds will be installed in Boiley Bridge (end of Restoration Section Four), Gallas Bridge, at the southern end of the narrows around the retaining wall, Forge Lane Bridge and above Netherthorpe Lock (which lies in the next length).

Weirs and Water Control

21.5.50 **Boiley Weir and Spillway:** Situated to the north of Boiley Bridge this is an original canal weir. It was modified with the building of the Great Central Railway and the weir gathering channel now leads into a spillway which takes water to a culvert under the railway and thence to field drain which returns it to the River Rother.

21.5.51 The weir, spillway and culvert remained in use until the 1960's when this section of canal was in-filled. As a result the surviving structure has been patched up at several times and now incorporates much recent (1930's to 1950's) concrete .

21.5.52 The weir is still standing but is damaged and blocked. It will require repair and reconstruction to replace the weir crest and incorporate a new draw down penstock. The gathering channel and spillway itself are in reasonable condition and can be reused with little modification.

21.5.53 The culvert under the former railway is also extant. Internal inspection shows the culvert is open, clear and freely draining. The receiving field drain is also open and still functioning.

21.5.54 **Netherthorpe Lock Bywash:** A second weir will eventually exist at Netherthorpe Lock where the bywash will ensure continual flow through this section. Until this is completed a temporary weir will enable storm surge water to discharge into local drainage courses.

Water Supply

21.5.55 The majority of the water supply for this section comes from the River Rother in Chesterfield and reaches the section by flow down the canal. All water in this section is ultimately discharged back into the River Rother via the Boiley Farm Side Weir or, when completed, via the Old Hall Locks to Nethermoor Lake and thence back into the River Rother.

21.5.56 A small amount of water comes from the unnamed drain / seasonal brook which enters the canal opposite Boiley Side Weir and which keeps the current fishing ponds filled with water.

Construction Impacts

21.5.57 Construction impact on the Killamarsh West Restoration Section will be moderate. The majority of works will lie within the existing canal corridor. One length requires excavation to remove recent infill – this is currently rough pasture (horse paddock) while another will require removal of a short corridor of mature trees within a small secondary woodland.

21.5.58 Both sets of activities are located a the north end of the section. Site access will be via a public road with housing. The works programme will need to ensure considerate contractor rules are applied throughout by all sub-contractors.

21.5.59 Further consultation with the community will be carried out to ensure that they are fully informed and engaged with progress and aware of the works timetable.

Potential Risks

21.5.60 This section poses a number of critical risks:-

21.5.61 (1) The fill materials in the infilled sections are poorly understood. Records indicate that the fill should have been inert building materials and waste. Material found in surface scrapes supports this but there is the potential for contaminants, especially asbestos, to be present. The presence of contaminants will determine if this fill can be used on site or whether it will need to be transported to secure landfill. An urgent programme of test pit excavations is the next step here.

25.5.62 (2) The strength and geology of the ground beneath the Old Hall Retaining Walls has yet to be established in detail. Geotechnical investigation is proposed and the outcome will determine the detailed design of the retained structure.

25.5.63 (3) The know utilities are concentrated in one location and it should be possible to retain the current routes in the restored Forge Lane Bridge. It is believed that there are other unrecorded utilities in the canal track between the LD&ECR Bridge and Walford Road. A field survey for these is being undertaken.

25.5.64 Detailed archaeological survey of the area has been undertaken and has shown little of heritage concern. As has been noted, there is some potential for buried structures or features near to the Old Hall and investigation for them, if they exist, is built into the site preparation phase.

25.5.65 There is no evidence for coal mining on or immediately adjacent to the canal track. The clay extraction and brick works on the site is at a remove from the canal alignment.

25.5.66 The ecological potential of this length is low. The key concern is the potential for Great Crested Newt in Length 5/8. Repeated survey will precede planning applications and works. Mitigation and enhancement measures have been identified both in the this restoration length and in the adjacent RS6.

21.6 Access Improvements

Towpath Lengths

21.6.1 Restoration Section Five consists of two towpath lengths identified in the Chesterfield Canal Access Strategy (2006). These are:-

21.6.2 **Length L13:** Boiley Lane (site of Bridge No. 23) (AN34) SK 4465 7985 to Old Hall Farm, Killamarsh (site of Bridge No.25) (AN 34) SK 4480 8085

21.6.3 The Canal and Towpath leave the TPT line and passes through the edge of commercial fishing ponds. The towpath here has been gravelled and upgraded for use by anglers over some of length but short stretch through woodland is uneven and muddy in winter.

21.6.4 **Length L14:** Old Hall Farm, Killamarsh (site of Bridge No.25) (AN 34) SK 4480 8085 to Walford Road, Killamarsh (AN 35) SK 4516 8087.

21.6.5 From Old Hall Farm to Walford Road the towpath is very uneven and surfaced with grass, earth and mud.

Towpath & Access Points / Nodes

21.6.6 Within restoration section five, access to the canal towpath will be possible at the following points with the following connections:

21.6.7 **Access Node 32 - Boiley Lane** (site of Bridge No. 23) Footpath (not a Right of Way) to Towpath and TPT Steps down from canal level to TPT make interchange difficult. AN32 SK 4465 7985

21.6.8 **Access Node 33 - Gallas Footbridge** (site of Bridge No.24) SK 4464 8012 Public Footpath and TPT Steps and steep slopes make path difficult for AFA

21.6.9 **Access Node 34 - Old Hall Farm/ Forge Bridge** (No.25) SK 4480 8085 Public Road. Canal towpath crosses public road where it becomes a footpath running down-slope from the private drive leading to Killamarsh Fisheries.

21.6.10 **Access Node 34a - Spooner Drive, Killamarsh** SK 4497 8075 Public Footpath. Node provides access to green space.

21.6.11 **Access Node 35 - Walford Road, Killamarsh** . SK 4516 8087 Public Road

21.6.12 These access points or nodes are described further (including details of Public transport connections) in the Chesterfield Canal Access Strategy (2006).

Connections

21.6.13 The “Connect Two” Path and Bridge across the Valley to the Halfway Terminus connects the village to the Sheffield Supertram system.

21.6.14 Bus services along Walford Road reach all parts of the village and link the village to Sheffield, Rotherham, Chesterfield and Worksop

21.6.15 All the Killamarsh nodes can be reached from the public car park in the village centre. Parking here is time limited and unsuitable for longer walks.

Links to the Wider Foot & Cycleway Network

21.6.16 The Towpath will obviously link to the Trans Pennine Trail northwards towards Sheffield and Rother Valley Country Park and southwards via the Arkwright Line Greenway to Chesterfield.

21.6.17 The Canal towpath is an integral part of the areas foot and cycleway network and features in the North East Derbyshire Greenway Strategy and the areas Rights of Way Improvement Plans. Improvements to its accessibility will improve its utility and connectedness in general.

Actions

21.6.18 During restoration the canal towpath and canal access nodes will be upgraded throughout to access to all standards. This will include involve removing current stepped access and replacing with low angle ramps, replacing styles with kissing gates and improving surfaces.

21.6.19 Efforts will be made to improve access along linking paths into the village. The use of the canal towpath and existing rights of way is an opportunity to create a series of local circular “doorstep walks” including the canal, historic core of Killamarsh and the Mediaeval Church.

21.6.20 Since the first edition the Canal Partnership and DCC have completed the Killamarsh Canal Greenway. This is an “access-for-all” multiuser trail along the line of the historic canal towpath from Forge Bridge to Sheffield Road and with its dedicated link paths provides off road connectivity between housing and local

schools, shops and the library and leisure centre. It has proved highly successful and attracts regular users including a primary school age "walking bus". The new canal route will connect with this route and further promote use of this trail.

21.6.21 Also since the first edition Sustrans, Derbyshire County Council and Sheffield City Council has completed the Connect Two access-for-all multiuser walking and cycling path from Killamarsh across a new bridge over the River Rother to the Halfway Tram Terminus. The paths links to the Trans Pennine Trail near Forge Turn and there are opportunities for further strengthening the linkage between trails and the canal – opening up the canal to increased numbers of visitors from Sheffield by public transport.

Visitor Facilities

21.6.22 As noted above this restoration section is very much a "link in the chain" and is not envisaged to have any major honey pot location situated on it. Nonetheless some core facilities will be provided and it is envisaged that these will grow as the use of the canal grows, initial provision will include:

- Sign posting and on-site interpretation.
- Cuckoo Way and Trans Pennine Trail signposting and village facilities information
- Fishing platforms and disabled fishing platforms at suitable locations
- Moorings rings and bollards at Netherthorpe Wharf above Netherthorpe Lock.

21.6.23 The second phase of provision may entail a partnership or a closer working relationship with either the commercial fishing ponds who have some facilities, such as a small café, immediately adjacent to the canal or with the developers of the Killamarsh Central site (below). In both cases there are opportunities for community based enterprises such as a small café or canoe / cycle hire.

21.7 Future Aspirations

Netherthorpe Wharf Moorings

21.7.1 The canal wide above the first Lock of the Flight taking the canal down into Nethermoor Lake has the potential to be developed as quiet moorings. The semi-rural setting with a short walk to bus routes and local shops should be attractive for visitors and potentially long term or residential moorings.

21.7.2 Development would be very low key – providing mooring rings and information boards detailing local shops and entertainment. In the longer term low level bollard lighting might be contemplated from Walford Road to the LD&ECR Bridge and thence to Forge Bridge to improve winter and evening access and connect the Killamarsh Canal Greenway to the Connect Two route across the Rother Valley to the halfway tram terminus.

Killamarsh Central

21.7.3 As already noted there are proposals by Killamarsh History Society to restore Killamarsh Central Station building as a community hub. These proposals would foster community engagement and are full supported by the Canal Partnership.

21.8 Photographic Survey of Route

21.8.1 The plates below and over illustrate the route. They commence at the southern (or Chesterfield) end of the section and conclude at the northern (or West Stockwith) end. Unless specifically marked “reverse view” all these photographs were taken looking and facing north (towards Killamarsh) along the canal track.

Figure
21.1

End of Open Water near Old Boiley Bridge

Figure
21.2

Fishing Ponds

Length 5/1.

Figure
21.3

Site of Gallas Bridge

Canal track looking west (reverse direction to above photograph) towards Old Farm Lock .

Figure 21.4

New Leah's Bridge

Figure 21.5

Chandos Bridge

Figure 21.6

Chandos Bridge (path to Peacock Close)

Looking North from the site of Chandos Bridge down the path leading to Peacock Close. The lowering of the canal level will reduce the gradient required here although a zig-zag ramp will probably still be required.

Figure 21.7

Rear of Peacock Close & Chandos Crescent

Infilled canal channel looking east towards the village centre. The outer bank of the canal is marked by the Hedge on the left. The path follows the towpath line. The fence across the track give some idea of the width of the original (and restored) canal. It marks the point where the canal channel returns to being open

Figure 21.8

Rear of Peacock Close & Wharf Lane

Open, dry and overgrown canal channel looking east towards the village centre and Bridge Street. c.100m east of fence shown in photograph 21.10

Figure 21.9

Mallinders Bridge (Bridge Street)

Open dray and overgrown canal channel looking east towards bridge street. Note high quality stone boundary wall to the left and (behind the fence) to the right a building which has overtime served as abattoir, store and canal warehouse.

Figure 21.10

East of Mallinders Bridge

Partially infilled canal channel looking east towards the Killamarsh Town Locks. The path is on the right hand side of the canal track here – the original towpath was on the left as will that of the restored canal.

Figure 21.11

Killamarsh Town Top Locks (No.6b & 6c)

Infilled original canal channel follows the line of the path. The photograph is taken looking north-east along the approximate line of the Killamarsh Town Top Locks.

Figure 21.12

Killamarsh Town Top Locks (No.6b & 6c)

Reverse view to above photograph, looking south west across site of Killamarsh Town Top Locks. The route will pass through the sleeper fencing.

Figure 21.15

Killamarsh Town Middle Locks (No. 6d & 6e).

New canal route turning northwards and heading downhill towards Sheffield Road. The locks will be sited in the middle distance with Killamarsh Town Bridge immediately beyond.

Figure 21.16

Killamarsh Town Bridge (No.27b) and Killamarsh Town Bottom Lock (No.6f)

New canal route looking north towards Sheffield Road. The route will pass to the right go the green and white leisure centre building.

Figure 21.17

Entry to Sheffield Road “Tunnel”

Looking south from Sheffield Road along the line of the new canal (i.e. the reverse view to the previous photograph). The route will pass to the right of the house on the left using part of the garden area and to the left of the Leisure Centre.

Figure 21.18

Unnamed trackway North of Sheffield Road

New canal route looking north across Sheffield Road towards Nethermoor Lake. The trackway and drainage ditch in the centre of the image is the alignment which will be taken by the Sheffield Road "Tunnel" (the towpath will pass over the top of the tunnel).

Figure 21.19

Unnamed trackway and Dale Brook Drain

Dale Brook drains the Dale Valley and enters Nethermoor lake via floodgate. It will be incorporated into the canal at this point.

Figure 21.20

Netherthorpe Lock

Dry canal channel near site of Netherthorpe Lock looking east towards the village centre.