

Feasibility Study for the Restoration of the Dudley No.2 Canal (The Lapal Canal)

Final Report

JOB NUMBER: 5046582			DOCUMENT REF: 5046582/001			
04	Final – incorporating client comments	JT	NS	PM	RDE	24/07/07
03	Final draft	JT	NS	PM	RDE	06/06/07
02	Second draft	JT	NS	PM	RDE	03/05/07
01	Preliminary draft – for client comments	JT	-	-	RDE	05/02/07
		Originated	Checked	Reviewed	Authorised	Date
Revision	Purpose Description					

Contents

<i>Section</i>	<i>Page</i>
1. Introduction	2-1
2. What Remains Today	2-1
West of Lapal Tunnel	2-1
The Lapal Tunnel	2-15
East of the Lapal Tunnel	2-15
3. Proposed Works and Costings	3-1
Route Options	3-1
Specifications for Restoration Works	3-2
Major Obstructions	3-6
Mooring Sites	3-16
Proposed Restoration Sequence	3-17
Water Management	3-20
Budget Costings	3-23
4. Key Projects	4-1
5. Policy Review	5-1
6. Ecology	6-1
7. Heritage	7-1
8. Socio-Economic Benefits	8-1
9. Funding	9-1
10. Executive Summary	10-1

List of Tables

Table 3.1 – Phasing of Restoration	3-19
Table 3.2 – Water Quantities Required	3-20
Table 3.3 - Canal Costs and Water Requirements to Consultants Proposal (Option A)	3-27
Table 6.1 – Relevant Legislation	6-1
Table 6.2 – SINC Sites	6-3
Table 6.3 – Timing for Species Surveys	6-7
Table 8-1 – Summary of spend by user type	8-3
Table 8-2 – Lock movements in local area	8-4
Table 8-3 – Breakdown of spend by towpath users	8-14
Table 8-4 – General areas of canalside development opportunity.	8-20
Table 8-5 – Summary of Economic Benefits	8-26
Table 8-6 – Domain Weights for the IMD 2004	8-26
Table 8-7 – Summary of costs and benefits	8-33

The Lapal Canal Trust dedicates this report to the memory of the late **Barry Henry**.

His legacy has contributed to the cost of commissioning this Feasibility Study.

The Trust also acknowledges the grants and donations received from:-

City of Birmingham, Bartley Green Ward Community Chest

The Inland Waterways Association, 'Restoration Grants Fund'

The Inland Waterways Association, Birmingham, Black Country & Worcestershire Branch

The Inland Waterways Association, Lichfield Branch

The Coombeswood Canal Trust

The Birmingham Canals Navigation Society

The Worcester and Birmingham Canal Society

1. Introduction

- 1.1 This report has been prepared by Atkins in response to a commission from the Lapal Canal Trust. Atkins was appointed by the Trust on the 20th June 2006 to produce a feasibility study into the proposed restoration of the Dudley No.2 Canal (the Lapal Canal)
- 1.2 The Trust has specifically sought an appraisal of reopening the canal between Combeswood Basin and Selly Oak Junction.
- 1.3 The purpose of this study is to determine whether canal restoration is viable and worth embarking upon. It is within the consultant's remit to recommend various proposals to best suit the canal's circumstances and to attain greatest remunerations for the Lapal Canal and the local and regional economy.
- 1.4 The aims of the study as defined in the brief are as follows:
- ◆ Review previous work, particularly an Engineering Feasibility Study report by Gerard Pakes Consultants for the Lapal Canal Trust dated July 1999;
 - ◆ Propose feasible and costed engineering solutions for restoring the canals to navigation;
 - ◆ Identify and give an outline quantification of economic and other benefits arising from restoration;
 - ◆ Identify key sites of local, regional, national and international significance of importance to the restoration;
 - ◆ Identify the scope of the ecological impacts of restoration; and
 - ◆ Demonstrate that the proposed solution provides for optimum planning and environmental benefits.
- 1.5 The consultant has drawn together several key disciplines to examine the potential for re-opening the whole canal. These include:
- ◆ Ecology
 - ◆ Economics
 - ◆ Engineering
 - ◆ Planning & Environment
 - ◆ Water Supply
- 1.6 Each is an established and professional discipline in its own right and by assembling them together in a co-ordinated and integrated approach the consultant can gain a holistic picture to assist in identification issues and proposals.

HISTORY OF THE LAPAL CANAL

- 1.7 The following is a brief summary of the history of the canal, based on information in an article by J Ian Langford, first published in the newsletter of the Dudley Canal Trust in August 1998, and available online at <http://www.lapal.org/lap-tun-2c.html>.

- 1.8 This canal was one of many built in the late 18th Century in order to move large quantities of raw materials and coal from one place to another, in this instance as a “by-pass” for the Birmingham network, linking Dudley and Selly Oak on the Worcester and Birmingham canal, without the need for any locks. As a consequence of the need for a level alignment, a 3,795 yard long tunnel (the “Lapal Tunnel”) was constructed between Halesowen and Selly Oak through the ridge line now traversed by the M5 motorway. The Dudley No 2 Canal enabling legislation received royal assent in 1792, and the canal was completed and open to traffic, after many difficulties in construction, by May 1798.
- 1.9 The canal became part of the Birmingham Canal Navigations network in 1846, after a period of improvements including straightening of the alignment and construction of a pumping system to speed the transit of boats through the long tunnel (the “Brewin Accelerator”).
- 1.10 The tunnel, which was very narrow and low, suffered intermittent falls almost from its opening. These were repaired and the canal re-opened after each fall, but after the opening of Netherton Tunnel in 1858 there was less incentive to maintain the tunnel. Traffic declined, and in 1914 the use of the Brewin Accelerator was discontinued. In June 1917, a further fall in the tunnel occurred which was not repaired, and the tunnel was abandoned. The tunnel was officially closed in 1926.
- 1.11 Boats continued to use the eastern end of canal to serve the brickworks at California from the Worcester and Birmingham Canal, until around 1960. This section was then abandoned, but only infilled in the vicinity of the brickworks. It exists today as a dry bed.
- 1.12 Various further tunnel collapses were reported after closure, until the portals and approaches were infilled: the western portal being used as a tip site for materials arising from the construction of Manor Way and the eastern portal for refuse and rubble.
- 1.13 Road improvements and changing land use have left the western end of the canal disused and abandoned beyond Hawne Basin, which is the current limit of navigation from the north and west.
- 1.14 The section of canal through Leasowes Park was restored in the 1990s, although there is no navigation as there is no slipway and the water level is currently reduced.

REPORT STRUCTURE

- 1.15 The structure of the report is as follows:

Section Two: What Remains Today – identifies the route, features and current status of the canal

Section Three: Proposed Works and Costs – outlines the restoration and maintenance cost for each section of the canal;

Section Four: Key Projects – a commentary of the key projects;

Section Five: Policy Review – encapsulates the local, regional and national policy context that applies to the canal;

Section Six: Ecology – provides an ecological appraisal of the proposed scheme;

Section Seven: Heritage – outlines features of historical importance that will be of consequence to the restoration;

Section Eight: Economic Benefits – outlines the economic benefits that may be expected as a result of restoration;

Section Nine: Funding Sources – identifies possible opportunities for funding to aid implementation of the proposed restoration scheme; and

Section Ten: Executive – summarises the findings from the report and outlines Atkins' recommendations for further work required to take the project forward.

2. What Remains Today

- 2.1 In order to allow comparison with costs presented elsewhere and to present the canal lengths in meaningful sections, the canal will be described from west to east, starting at Combeswood Basin and finishing at Selly Oak Junction. The Lapal Canal Trust's website has been used as a basis for these descriptions, and the structure of the Trust's restoration plan has been used to enable comparisons to be made.
- 2.2 The following descriptions are intended to give the reader an impression of the canals as they are today, including an indication of particular blockages. This does not constitute a formal engineering appraisal. For details of works required see section three: 'Proposed Works and Costings'.

WEST OF LAPAL TUNNEL

The Hawne and Leasowes Sections

(From the current head of navigation to the southern Leasowes Embankment stop gates)

- 2.3 The western extent of the study area is the head of current navigation adjacent to Hawne Basin, about 150 metres south west of Burton's Bridge. The bridge leads the towpath over the entrance to Hawne Basin. A winding hole sufficient to enable a 70' boat to turn into the Basin is located directly opposite the Bridge. Burton's Bridge is unique in its construction as it features interlocking cast iron coping plates on top of the side retaining walls.

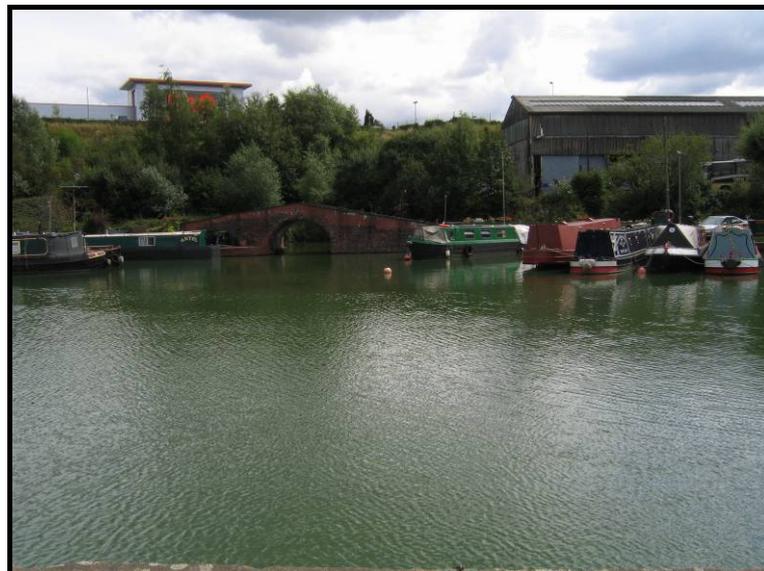


Photo 1: Hawne Basin and Burton's Bridge

- 2.4 The current limit of navigation is where a steel girder bridge immediately to the south-west of Hawne Basin, was located. This has been collapsed for many years, and the

deck has been removed. A stank has recently been constructed across the former bridge hole as a response to leakage from the derelict section.

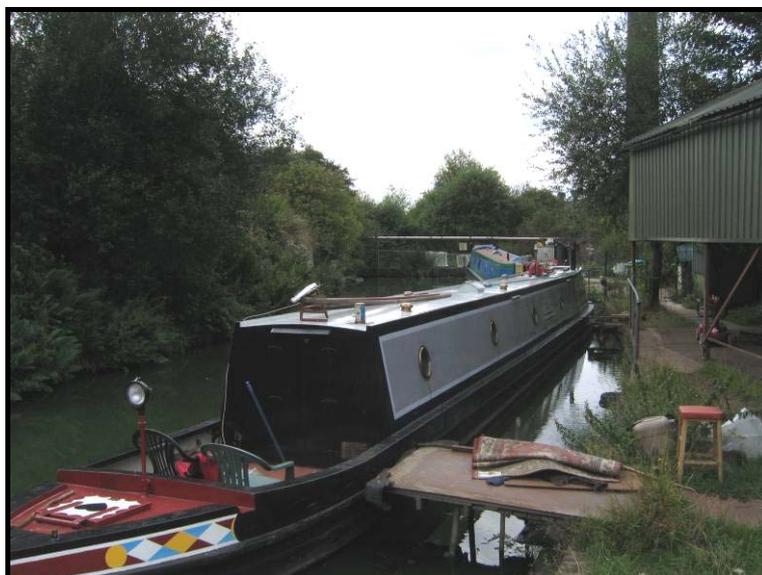


Photo 2: Moorings between Hawne Basin and the stank at the head of navigation. The stank is located immediately beyond the blue boat.

- 2.5 Beyond the stank, the track is recognisable as a derelict canal and still retains stagnant water at navigation level. The canal turns through 90° in the derelict section, and reaches the boundary of Walter Somers Forge about 90m south of the stank.

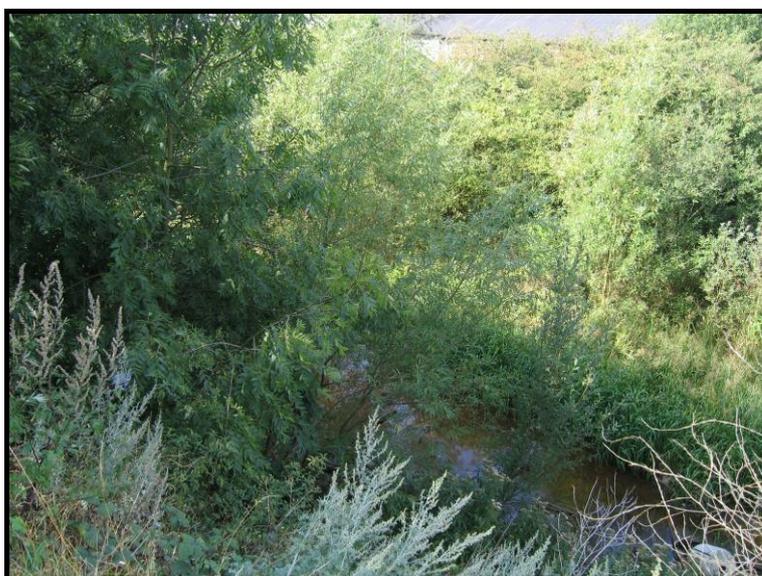


Photo 3: Derelict section of canal between the stank and Walter Somers Forge

- 2.6 From this boundary to the Heywood Bridge, the canal is infilled. The track is flanked by industrial premises to the East, and engineering premises, including and the

Newbank Engineering Works, on the West. A recent extension to the Newbank Engineering Works lies on the line of the canal, on land owned by British Waterways. When the canal was a working waterway, a wharf was situated approximately where the factory unit now straddles the channel. A short section of the canal bed between the Newbank Engineering Works and Mucklow Hill still holds some water. The retaining walls of the former channel can clearly be seen, converging to form the 'narrows' which was situated under the former Heywood Bridge. During the working life of the canal, these narrows accommodated a single gate stop-lock, which was designed to automatically close in case of a breach on the nearby Leasowes Embankment.



Photo 4: Walter Somers Forge: the track of the canal was in the stoned area between the two small steel structures.



Photo 5: The recent extension to Newbank Engineering Works, on the left, is on the line of the former canal.



Photo 6: The wall forming the return for the Heywood Bridge narrows can just be made out between Newbank Engineering Works and Mucklow Hill (lower centre on this photograph)

- 2.7 The Heywood Bridge is believed to be extant but buried under the A459 Mucklow Hill dual-carriageway. The bridge is thought to form part of a culvert under the dual carriageway. Since the canal became disused, the A459 has been widened to its present, dual-carriageway width so that the former bridge hole only spans about half of the width of the highway. Sections of modern concrete box culvert, too small to facilitate navigation, are visible at either end of the crossing, and it is possible that the boxes continue in the centre section under the old bridge. The bridge itself is known to have been under-filled to the height of its arch in order to bear imposed loads.



Photo 7: Looking north west, across Mucklow Hill, towards Newbank Engineering Works

- 2.8 The track emerges from the culvert under Mucklow Hill into Leasowes Park. The canal has been restored through Leasowes Park, and the first section is isolated in order to provide a shelter for wildlife. The wildlife haven stretches for approximately 50 metres and is separated from the next restored section by an earth dam.

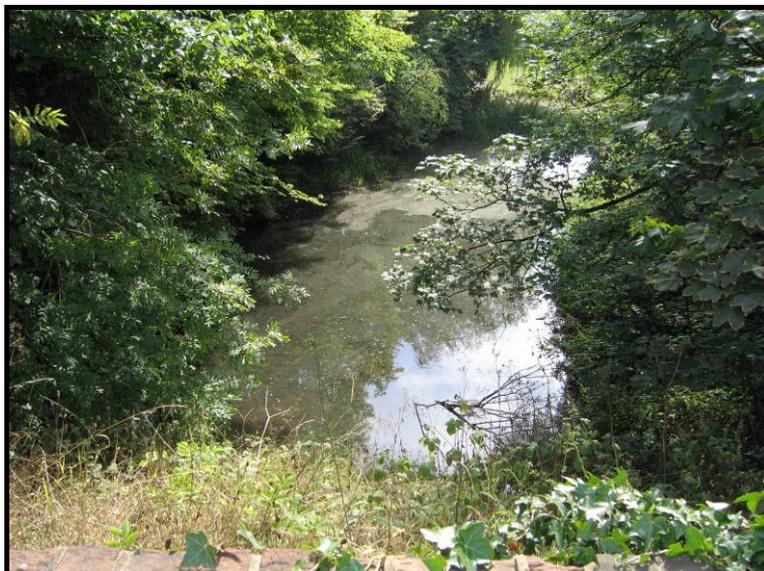


Photo 8: The wildlife haven section of the canal seen from the south footway of Mucklow Hill



Photo 9: The wildlife haven looking north towards Mucklow Hill from the earth dam. The culvert headwall is in centre frame, with the soffit of the box culvert just visible above water level.

- 2.9 A spill weir is situated next to the coffer dam on the east side of the canal, near to the visitor car park. When the canal was functional, the weir was used as a means of regulating water levels along this stretch. A short culvert routed any excess water

weiring into the brick-lined spillway and discharged via an open ditch which led down the side of the embankment to the Breaches Pool below. It was originally intended that this weir would be utilised as the means by which this section of canal could be drained down, as well as to act as the mechanism for regulating water levels generally. However, a closed-circuit television survey of the culvert showed that the route down to the pool had been severed (presumably when the adjacent car park was constructed) and thus necessitated the construction of an alternative arrangement, situated at The Leasowes Narrows. Nevertheless, the spill weir was completely overhauled by volunteers from the Waterway Recovery Group during a camp at Easter 1996, although it will function solely as a cosmetic feature for the foreseeable future.



Photo 10: The weir adjacent to Leasowes Park visitor car park

- 2.10 South of this point is the 500-yard long Leasowes Embankment, which has been restored by LCT as a 'linear lake'. The embankment straddles the Leasowes Park valley standing approximately 60ft above Breaches Pool. Leasowes Park is a Grade I listed Park and is the subject of proposals to restore it to its former eighteenth century glory when it then existed as a landscaped garden designed and occupied by local poet, William Shenstone.
- 2.11 In the years since the embankment was last in-water as a viable navigation, it has continued to settle and this has necessitated a significant engineering solution to meet modern restoration requirements. Both sides have been stabilised to a hard edge based on thick concrete walling with a cosmetic traditional engineering brick capping. According to the Gerard Pakes Report, at bed level, the walls have additional concrete footers that secure an EPDM membrane, which is covered in geotextile to provide a watertight lining. However the IWA have stated that Roy Sutton (acting as an officer of the IWA at the time) "visited the site during the later stages of construction of the walls. There was no waterproof lining to his recollection. The site was waterlogged and it was impossible to lay any. The contract had run out of money." Thus the precise nature of the existing construction is not clear at present. As the embankment has vertical sides, additional safety measures have been

provided in the form of short vertical ladders at regular but alternating, intervals. Over the southern two-thirds of the embankment, the bed is heavily vegetated, primarily with reeds. The towpath runs along the west side of the embankment, and a second, parallel, path is provided on the eastern crest (the off-side) of the embankment.

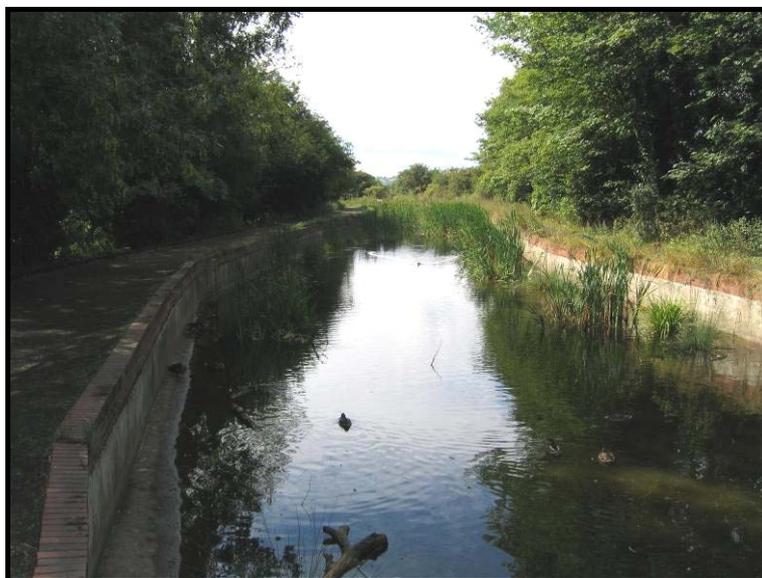


Photo 11: Northern section of Leasowes Embankment



Photo 12: Central section of Leasowes Embankment

- 2.12 At the southern end of the embankment, the canal turns sharply to the west into a small cutting. At the foot of this cutting, the retaining walls for the canal on the off-side have been reinforced by a length of concrete bagging. Beyond the bagged section of waterway wall, the canal continues with a similar construction to that used on the embankment. A hundred metres or so to the east, the restored section of canal reaches the site of a former set of stop gates.



Photo 13: The southern end of the embankment and the start of the cutting



Photo 14: The cutting east of the stop gate

The Abbeyfields Section

(Stop gate narrows south of Leasowes Park to Manor Way)

- 2.13 The stop gate narrows have been retained and restored as an authentic feature having the original purpose of being a semi-automatic stop-lock. It housed a normally open lock gate that would close if canal water began to flow past it as a result of a breach in the embankment section (the complimentary 'partner' to the gate located under Heywood Bridge). During restoration of the embankment, provision was made

for the installation of a stop-lock gate when connection is to be made to the main system at Hawne Basin.



Photo 15: The stop gate narrows from the west (i.e. looking back to the restored section of canal in Leasowes Park)

- 2.14 As discussed in paragraph 2.6, because the spill-weir at Mucklow Hill cannot at present be utilised as a means of water management, an alternative mechanism has been constructed at the narrows to act as a means of draining down the restored embankment length of the canal. An outlet situated in the side brickwork leads to a culvert running down the side of the embankment and a penstock has been installed to provide the necessary control.



Photo 16: The outlet to the drain-down culvert. The photo also shows well preserved historic ironwork forming waling rails and the quoin for the stop gate

- 2.15 Throughout the Abbeyfields section, the towpath is situated on the western side of the canal. The offside path, which ran alongside the embankment, terminates at a point just beyond the narrows, where a steep embankment to the housing estate of West Dean Close and Hamilton Avenue borders this side. In recent times, a temporary foot-bridge had been situated flat across the narrows in order to facilitate crossing of the canal and thereby provide access to a path-way linking the north side path and Tibberton Close. LCT removed the bridge following a number of incidents of vandalism and so access across the canal in this area is now via an earth dam (situated some five yards west of the narrows). This dam also serves to mark the current limit of restoration along this length.
- 2.16 The next section of canal runs north to south, parallel to Tibberton Close on the west and Hamilton Avenue on the east. The channel is recognisable as a derelict canal with a proliferation of reeds and similar flora growing out of extensive shallow pools and puddles. Together, these all suggest that the puddle clay is generally sound. Conversely, at least two sites of damaged puddle clay are known and the entire channel has drainage provisions (possibly storm water balancing) built into it and which relate to the adjacent housing estates. Sewers for foul-water and storm-water are known to cross the channel in this section.



Photo 17: Derelict section of canal parallel to Tibberton Close



Photo 18: Storm water drainage feature on west (towpath side) of canal bed

- 2.17 A short length of the former canal, lying to the west of Manor Way Primary School and north of the footpath crossing discussed below (paragraph 2.18) has been filled-in.



Photo 19: In-filled section starts at trees. The fence on the right is the boundary with Manor Way Primary School

- 2.18 At the site of the former Fordrove Bridge, the line of the in-filled canal is crossed by a footway link connecting Hamilton Avenue and Brier Hill Road. The in-filled line continues to the A456 (Manor Way) as a levelled and landscaped footpath that preserves the corridor width of the former canal. It is not possible to trace the exact location of the channel along this section, due to the landscaping associated with the footpath.



Photo 20: The site of the former Fordrove Bridge.



Photo 21: The footpath on the in-filled line of the canal linking Fordrove and Manor Way

St Mary's Section

(Manor Way to west portal of Lapal Tunnel)

- 2.19 Originally, the A456 was a country lane and Manor Lane bridge crossed obliquely to the Black Horse Public House where the lower car-park now occupies the former channel. Today, the reconstructed Manor Way is a major dual-carriageway feed for the nearby M5 motorway and no remains of the canal are visible. The water level of the canal was at approximately the same level as the carriageway surface.



Photo 22: Looking across Manor Way towards the Black Horse Public House car park. The canal took a line towards the electricity pylon across the lower section of car park, but no evidence of the canal remains.



Photo 23: Looking back in a north westerly direction towards Manor Way along the line of the canal in the lower car park of the Black Horse Public House.

- 2.20 Beyond the car park, the line of the canal ran just north of the electricity pylon shown in Photo 22, curving to the east through what is now an arable field. At the apex of the bend, a short branch left the canal and ran west to serve a former colliery. This, and the following section of the canal, is in privately owned agricultural land.



Photo 24: Fields south of the Black Horse Public House car park: the arrow shows the line of the former canal and the approximate location of “Fish Ponds Bend”

- 2.21 The line from Fish Ponds Bend to the Western Portal of the Lapal Tunnel has been covered by significant volumes of in-fill, mostly spoil that was removed when the A456 was reconstructed as a dual carriageway. The remains of Brewin’s accelerator pump, incorporating a set of narrows, which featured a single stop-gate, are thought to be still intact and some remains can be seen close to Lapal Lane South. Like the pumping installation, the tunnel portal itself is not visible.



Photo 25: The approximate line of the approaches to the tunnel portal is still visible, bounded by the fence on the left and the hedgerow on the right, but the ground level has been built up significantly as a result of spoil tipping associated with the dualling of the A456

THE LAPAL TUNNEL

Lapal Lane to California

- 2.22 The Lapal Tunnel was 3,795 yards long and ran in a straight line, from the west portal to an eastern portal located at California. The tunnel was constructed using 30 shafts by heading from each shaft in both directions until breakthrough to the next heading was achieved. Almost all of the shafts were sealed and filled as construction neared completion, and the only remains visible on the surface are of spoil tips adjacent to many of the shafts. One shaft, close to the visitor centre for Woodgate Valley Country Park, was retained as a ventilation shaft. Ground movement, coupled with the construction detail of the tunnel, resulted in a reduction in the already tight tunnel dimensions over its working life, and a partial collapse in 1917 brought about its closure. A partial survey was carried out by British Waterways in the 1960s. Construction of the M5 motorway may have caused further damage in the 1970s. The condition of the tunnel in the present day is not known

EAST OF THE LAPAL TUNNEL

Lapal Tunnel East Portal at California to Stonehouse Brook

- 2.23 The east portal of the tunnel emerged into a deep cutting in the centre of an area of public open space south of Stonehouse Lane in California. As well as the canal cutting, other excavations were undertaken in this area to open up borrow pits for a brickworks. In the early 1970s the excavations were filled, primarily with highways construction waste, but also with other occasional waste, thought to include domestic waste tipped during industrial disputes. The area was then landscaped. Following development of housing around the boundaries of the site, a problem with methane gas from the tipped material was identified. An off-gassing system was installed around the perimeter of the open space, but this is now thought to be redundant by City Council planners. No remains of the canal are visible within the public open space.

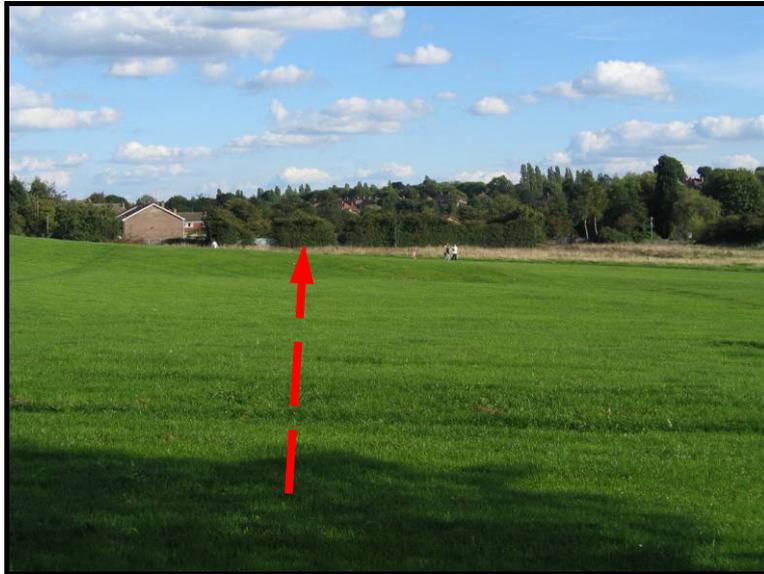


Photo 26: Line of canal across public open space at California

- 2.24 To the east of the public open space, a 130m long section of the line of the former canal was in-filled and used as a roadstone depot, accessed from Somery Road, until recently. The site now appears to be abandoned.



Photo 27: The roadstone depot, seen from the east through the gates on Somery Road

- 2.25 The canal bridge at the cul-de-sac (south) end of Somery Road is still extant, and appears to be in fairly good condition having had little use other than by pedestrians. It may be partially infilled beneath the deck, but this was impossible to verify at the time of our visit due to vegetation growth.

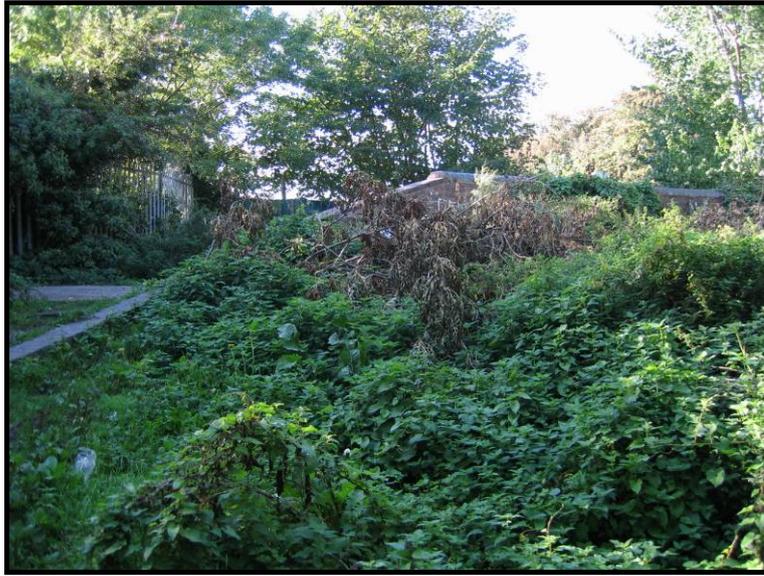


Photo 28: Somery Road Bridge – the top of the parapet is clearly visible

- 2.26 Beyond Somery Road Bridge, the canal has been in-filled and a path follows the line along the north side of Weoley Castle. A palisade fence forms the boundary between the canal and the castle, presumably to prevent vandals gaining access and damaging the remains.



Photo 29: Canal bed with path north of Weoley Castle

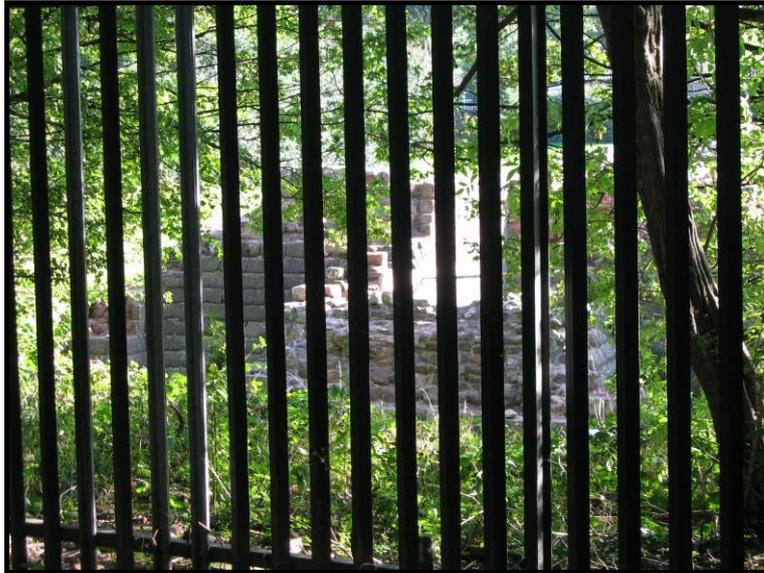


Photo 30: The remains of Weoley Castle are visible to the south of the canal, through a palisade fence.

- 2.27 East of Weoley Castle, the line of the former canal cuts across Bottentort Road, which is closed off at this point as a traffic calming measure.



Photo 31: Looking north up Bottentort Road from the line of the canal.



Photo 32: View from Bottentort Road along the line of the canal towards Weoley Castle

- 2.28 Between Bottentort Road and Stonehouse Brook, the line of the canal lies in the “backlands” of Burnel Road. The boundaries have been retained but the canal is substantially infilled and the exact line of the cut is obscured. A path has been constructed in the former canal bed.



Photo 33: Line of canal between Bottentort Road and Stonehouse Brook

Lodge Hill Section

(Stonehouse Brook to western edge of Selly Oak Park)

- 2.29 A pedestrian bridge carries the footpath following the line of the canal over Stonehouse Brook, which flows south to north in an engineered rectangular channel in the vicinity of the canal. The invert of the Brook approximately coincides with the level of the canal invert. In this area, the rear gardens of properties on Alwold Road are set back from south side of the canal; being flanked by a vehicle-access lane and the Brook up-stream of the bridge. The canal's infill and the adjoining "backland", on both sides of the bridge, form a triangle of land which is generally clear of vegetation.



Photo 34: Footbridge over Stonehouse Brook



Photo 35: Brook course downstream of footbridge



Photo 36: Eastern (smaller) segment of triangular, undeveloped, plot of land

- 2.30 The next section of the line is approximately 550m long and lies between Stonehouse Brook and a footpath which crosses the line diagonally, linking Weoley Avenue (south of the canal) with Nately Grove in the Lodge Hill Estate, to the north of the canal. LCT refer to this section in their promotional material as “Lodge Hill West”. The channel in this section is substantially infilled to obscure the exact line of the cut, but the present muddy footpath appears to meander along the centreline of the canal. The track, with the exception of the footpath, is heavily wooded with many juvenile and semi-mature trees.



Photo 37: Typical view of the Lodge Hill (West) section



Photo 38: Extensive fly-tipping of household waste has taken place along this section

- 2.31 Beyond the footpath crossing, a similar section of former canal, referred to in LCT literature as the “Lodge Hill East Section”
- 2.32 The Lodge Hill East section is flanked by the rear gardens of properties along Reservoir Road (north of the canal line) and on the south side, by properties in Corisande Road. The channel in between is in-filled though not always to original water level, and the “Castle Walkway” footpath meanders approximately along the centreline of the former canal. The original towpath on the north side of the line is unused and overgrown.



Photo 39: Typical view of Lodge Hill East Section

- 2.33 The line is crossed by a path linking an access from Corisande Road (between nos 100 and 102) and Reservoir Road (between nos. 189 and 191). The two access points are offset by about 80m, that to Corisande Road being located west of the Reservoir Road access.



Photo 40: Corisande Road access – note vehicular access track running left and right between property boundaries and canal bed (the viewpoint for this photograph)

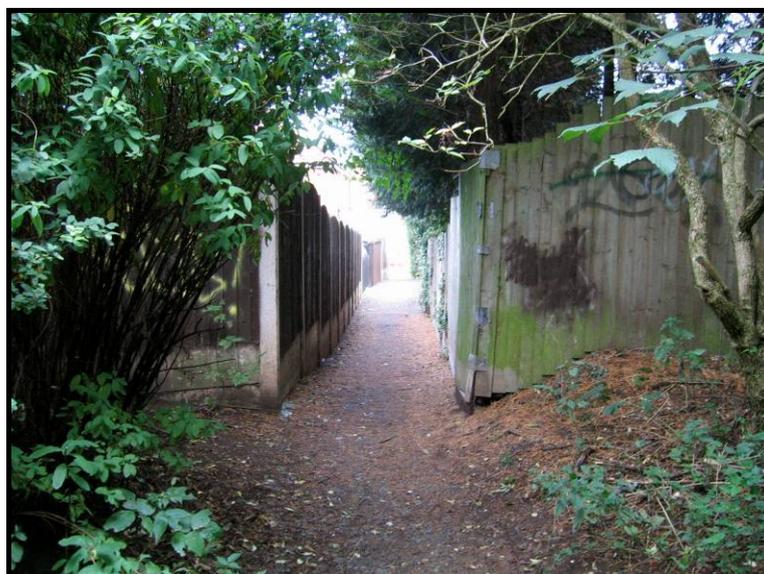


Photo 41: Alley giving access to Reservoir Road

- 2.34 A vehicular access track runs along the entire length of the south side of the line through this section, serving garages at the rear of properties on Wyvern Grove and on the north side of Corisande Road.

- 2.35 An MEB sub-station is located in the former canal land, on the south side of the line, approximately 70 yds from the boundary of Selly Oak Park. It adjoins the vehicle lane and the canal.

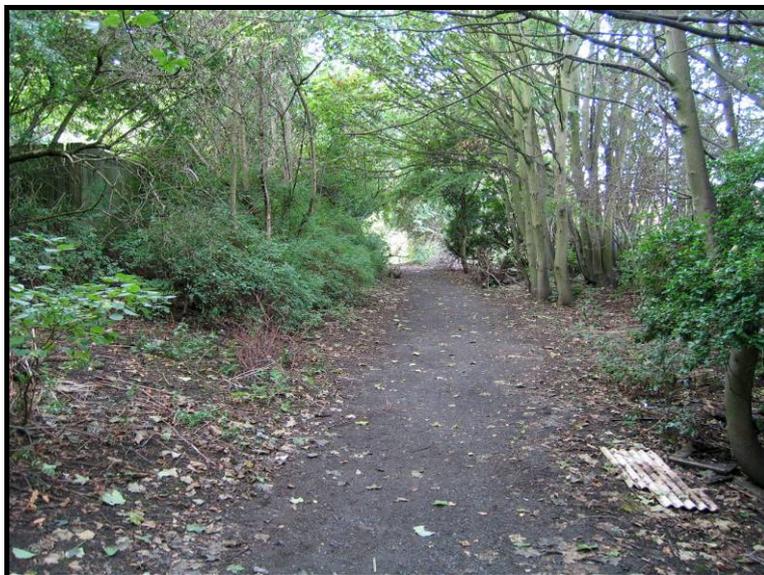


Photo 42: Line of canal from 50m west of Selly Oak Park. Fencing to sub-station is just visible on the left of the photograph.

Selly Oak Park Section

(Selly Oak Park and Harbourne Wharf)

- 2.36 For most of its length (385 yards), the Selly Oak Park channel has no infill and is easily recognised as derelict canal. The channel and sides are overgrown with shrubs and trees. This section of canal is understood to be used for storm water balancing, although the associated manhole chamber appears to be semi-derelict. In some places, most notably near Park Lodge Bridge, the bed still retains a shallow depth of water.



Photo 43: The line of the canal at the western edge of Selly Oak Park, flanked by mature trees.



Photo 44: Shallow manhole in poor state of repair, thought to be associated with storm water balancing



Photo 45: Typical section of canal bed with parkland to the right (south) side

- 2.37 At the north east corner of the park, the canal turns through 45° to head south east towards Harborne Lane. Just beyond the bend, Park Lodge Bridge crosses the line of the canal. The bridge is the oldest remaining structure on the Lapal Canal, and is in generally good condition. Brick channels beneath the bridge are thought to be associated with the storm water balancing system mentioned above.



Photo 46: Park Lodge Bridge

- 2.38 South east of the bridge is the site of the former Harborne Wharf. The short (118 yds) length of basin canal between Harborne Bridge and Park Lodge Bridge that included the Harborne Wharf basin was partly infilled and landscaped as a picnic area in the 1970's but has since become substantially overgrown with trees and shrubs. The infill

is almost complete in the eastern part but reduces, in the west where shallow water lies.

Battery Park Section

(Harborne Lane Bridge to Worcester and Birmingham Canal)

- 2.39 This section of the Lapal Canal is due to be restored as part of the Battery Park Redevelopment Scheme. Harborne Lane Bridge is included in the scheme and will be replaced. This section of the canal is excluded from this feasibility study and does not attract further comment.

3. Proposed Works and Costings

INTRODUCTION

- 3.1 We have looked at the information provided by the Trust following our appointment to carry out the canal restoration study. We have also noted the design parameters laid down by the Trust in their Invitation to Tender.
- 3.2 The canal is in various states of dereliction. The tunnel is almost certainly beyond economic repair and would, in any case, not be capable of restoration to modern standards (a tunnel of such length would have to be equipped with an emergency walkway, and at the time of closure the original bore was barely wide enough for boats to navigate, let alone to accommodate a new walkway). More than half of the approaches have been partially or completely in-filled. The two major road crossings have been redeveloped as dual carriageways, and at Manor Way an at-grade crossing on the original line of the canal is not possible.

ROUTE OPTIONS

Primary Route Options

- 3.3 Two main options are presented.
- 3.4 Option A would seek to maintain the original character of the canal as far as possible, and the key element of this is to construct a new tunnel on or parallel to the line of the existing structure. A further diversion would be required at Manor Way to give sufficient headroom under a proposed aqueduct. This option is undoubtedly the higher cost option, and would deliver fewer benefits than Option B, as there is little potential for related development or moorings. Accordingly, whilst drawings showing the line are included, together with an outline costing, more detail is provided for Option B.
- 3.5 Option B would restore the canal on its original line and level from Mucklow Hill to Fordrove, and from Weoley Castle to Harborne Lane. Between Hawne Basin and Mucklow Hill, three options are considered. Between Fordrove and Weoley Castle, this option involves crossing Manor Lane as Option A, and constructing a flight of locks climbing towards Junction 3 of the M5 on a new alignment, north of the original canal. The canal would reach a summit level of around 168m, tunnelling under the M5 and Quinton Expressway to emerge at the top end of Woodgate Valley Country Park. New alignment through the park would be constructed approximately 30m south of Bourn Brook, locking down at four individual locks before turning to follow West Boulevard. A flight of three locks would reduce the level sufficiently to enable the canal to pass under the West Boulevard / Stonehouse Lane roundabout into the area of public open space at California, which we envisage being decontaminated and developed as mixed use land, with housing overlooking a marina and boatyard. A further flight of three locks at the roadstone yard would drop the canal to the original level and restoration from Somery Road would be as for Option A.

Secondary Route Options (Mucklow Hill)

- 3.6 Three sub-options for the link from Hawne Basin to Leasowes Park are presented. They are independent of the main option selection i.e. each sub-option could be implemented regardless of which main option is selected.

- 3.7 Sub-option 1 would restore the canal on or close to its original line, involving the acquisition of land from Walter Somers Forge, and British Waterways terminating the lease on the Newbank Engineering Works. The new bay of the engineering works would be demolished, enabling a new cut to be made close to or on the old line of the canal. A new navigable culvert would be provided under the A459 Mucklow Hill dual carriageway.
- 3.8 Sub-option 2 involves constructing a cut and cover tunnel underneath the Mucklow Hill 2 trading estate access road and Mucklow Hill itself. A new link path, together with a Pelican Light installation above the tunnel, would link the towpath in Leasowes Park with the towpath at Hawne Basin via the estate access road and a new footbridge at the current head of navigation.
- 3.9 Sub-option 3 would consist of a 200m long tunnel running south south east from a new “junction” 100m south west of Burton’s Bridge. This would form an end-on connection to a 40m long precast concrete navigable box culvert passing under the A459. The tunnel and culvert would be provided with an emergency walkway. Pedestrian access would be as for sub-option 2, but without the new footbridge, as the existing stank could be improved and retained.

Methodology

- 3.10 In order to develop options, Atkins visited the structures and the canal track. We have not tried to identify the exact line of the old canal track where this is not clearly visible, as the suggested position need only be a few metres out and considerable time, cost and annoyance to adjacent landowners may arise in locating it.
- 3.11 A digital terrain model was purchased on behalf of the Trust, and used to create a ground model. Models of the various options were developed and overlaid onto high scale Ordnance Survey mapping to prepare the plans appended to this report.

SPECIFICATIONS FOR RESTORATION WORKS

Canal Lining

- 3.12 Notwithstanding the route options above, where possible, due to the industrial heritage value, we would advise that the Trust aim to restore the canal on the original alignment where practical. However, the original puddle clay lining lay exposed and dry for many years, suffering wet and dry weather, plant growth and attacks by small mammals etc. Where undertaken, infilling operations could have destroyed the lining to the sides and possibly further impaired the base and may have introduced contaminated materials into the canal.
- 3.13 If repair of the old track lining were undertaken, this would require:
- ◆ Accurately locating it throughout its whole length;
 - ◆ Deciding which areas require replacement;
 - ◆ Sourcing a supply of puddle clay;
 - ◆ Arranging transport in sheeted lorries to avoid fouling highways;
 - ◆ Double handling onto small vehicles (probably dumpers) along the canal track from specified access points;
 - ◆ Placing the material in layers and compacting each layer to form the waterproof lining.

- 3.14 We compare this to forming a new canal track either on the line of the old route or in close proximity. The main function of the canal lining is to retain water. Puddle clay was used historically as being the best material available. In modern times puddle clay is difficult to source and very onerous to lay effectively. A deep layer of clay has to be laid, sometimes up to 0.6m thick. Modern materials can perform the same function but are cheaper to source, easier to lay and have improved water retention properties.
- ◆ The required canal is excavated and arisings disposed on site wherever possible but otherwise to tip.
 - ◆ On very stony ground a 50 – 100mm layer of sand is placed over the formation to prevent sharp stones migrating upwards. A protective geofabric is then placed on top of the sand as the main liner protection material. On silty clay soils the sand blinding is not required.
 - ◆ There are a number of impermeable liner systems. High Density Polyethelene (HDPE) liners have been the geomembranes used traditionally. However, there are a number of other alternatives such as Polypropylene. Both liners would be around 1mm thick. The liner is unrolled, laid, and heat jointed. It is then tested by machine controlled air pressure testing. Finally 0.1m thickness of protective concrete is placed on top of the lining. The technique requires specialist suppliers and installers and can only be laid in fine weather. Specialists normally give a 25 year warranty on the liner installation
 - ◆ More recently bentonite clay liner systems have been introduced. A layer of clay powder is sandwiched between two protective geofabrics. The liner can be laid by non specialist labour and is simply sealed by overlaps and pouring a clay granule seal. The liner must be kept compressed by a minimum of 300mm cover of soil or stone. This system can be laid in inclement weather.
 - ◆ For all liner options, the geomembrane is taken beneath the bank protection and turned up behind it to ground level.
- 3.15 The HDPE system has been constructed under contract by ourselves on the Montgomery Canal between Frankton Junction and Queens Head. It has been in service for a number of years without problems. The bentonite clay liner system has been used by ourselves on relining a section of the Swansea Canal and on the Kennet and Avon Canal by British Waterways.
- 3.16 The cost of restoring the puddle clay lining compared to the geomembrane method shows that puddle clay will be approximately twice the cost of geomembranes. There will be fluctuations in this comparison due to:
- a) The sourcing of the quantities of material required and haulage to site.
 - b) The volume of work involved in restoring this length of canal.
- 3.17 The typical average depth of operational water loss for a puddle clay lined canal on the UK system is around 160mm per day (ie 160mm depth over the entire canal length). This compares to typically 50mm per day for a geomembrane liner system. The figure of 50mm is based on a typical values of 10mm evapotranspiration, 10mm water loss through the lining and 30mm loss at joints with structures. These losses can be made up by rainfall, adjacent land run-off and external supply sourcing, but in periods of drought these losses must be considered against the point at which navigation would have to stop from lack of depth of water. Whilst British Waterways are broadly supportive of the scheme, it is unlikely that they would be prepared to supply the additional water requirements of a puddle construction.

- 3.18 A lined canal will help to minimise water loss. However, there will be times during severe droughts that canal navigation may have to be prohibited temporarily. In a similar manner to the UK network, the minimum criteria for a sensible and economically viable canal is that stoppage of use due to lack of water should not occur on more than one year in ten.
- 3.19 The liners will have a minimum warranted lifespan of 25 years but the actual lifespan is likely to be in excess of this timespan. The only other major material affecting the lifespan of the canal will be the life of the bank protection solutions used. Typically gabion baskets can have a life of up to 80 years, which can be further extended by pressure sprayed grout/concrete to reface and contain the stone or by installing replacement mesh panels. Steel trench sheets are estimated by British Waterways to have a 60 year life. Bio-engineered bank protections systems can be applied where there is no requirement for a vertical edge to the canal, and with careful design can last indefinitely.
- 3.20 Regular maintenance will be essential to ensure that the lifespan of the canal is maximised. In a similar vein, heavy build up of silts can lead to navigation difficulties. In our opinion routine maintenance removal of silt is easier and faster than carrying out major dredging programmes every decade or so. By engineering the summit levels and areas upstream of each lock carefully, sediment ingress to the canal and transfer within the system could be minimised.
- 3.21 The geomembrane options have both been in use for many years. After discussion with operation staff from British Waterways on the Kennet and Avon, it has been found that there are less problems with the HDPE system than the bentonite option. For the canal track, we therefore propose to use the HDPE geomembrane solution, as described above. In terms of bank protection, three solutions will be applied. For areas requiring vertical sides for mooring purposes, galvanised steel trench sheeting is proposed. For other areas requiring vertical sides, for example, pinch points where the available width is sub-optimal, gabion baskets are proposed. Elsewhere, and particularly on the off-side, bio-engineered banks are indicated as the most cost-effective and sustainable solution.

Locks

- 3.22 Option B would involve the construction of 20 new canal locks (four individual locks, four staircases of three locks, and two staircases of two locks). It is recommended that these take the form of modern, reinforced concrete structures, both from the point of view of ease of maintenance and durability. Given that there were no locks on the original line, the use of heritage materials and methods of construction would be judged by many to be inappropriate, and would increase the complexity and cost of construction and maintenance. Instead, the opportunity should be taken to develop modern solutions.
- 3.23 Each individual lock or staircase will require a back-pumping installation (10 installations in total), as available water supply on the summit pound will not be adequate to provide lockage water at peak periods.
- 3.24 Construction of by-wash weirs and channels at each lock will be required.

Bridges

- 3.25 The surviving bridges over the canal are largely intact and can be re-used after remedial work.

- 3.26 Major road over canal bridges will only be required for Option B, at the West Boulevard / Stonehouse Lane roundabout. These have been allowed for in our estimate of costs.
- 3.27 Several footbridges will be required for Option B, and at least three for Option A. It is proposed that rather than creating expensive, “reproduction” brickwork bridges, modular timber decks are used where possible.
- 3.28 Where possible in Option B, the bridges required in Woodgate Valley Country Park will be provided as lock tail structures, avoiding the need to construct separate abutments.

Culverts

- 3.29 Detailed drainage records have not been consulted as part of this, preliminary, study. However we have allowed estimated costs for replacement of sewers known to pass under the proposed alignments. We have also included costs for new culverts to carry existing watercourses under new sections of alignment, where the watercourses are shown on the high scale Ordnance Survey mapping. The actual requirements will be subject to detailed investigation and consultation with the Environment Agency at detailed design stage.

Aqueducts

- 3.30 There were no aqueducts on the old canal (the crossing of Stonehouse Brook is regarded as being a culvert). However, the dualling of Manor Way since the closure of the canal means that an aqueduct of significant size must be provided to overcome this obstacle. This will be a landmark structure, designed with its own visibility and its impact on the landscape and views to the Clent Hills in mind. As such, our estimates reflect not the bare minimum cost, but costs commensurate with likely planning requirements.

Services

- 3.31 Where services are known or obvious (overhead lines, marked services, manholes), they have been taken into account both in our preliminary designs and in our cost estimates. The actual requirements will be subject to detailed investigation and consultation with the service providers at detailed design stage.
- 3.32 The service providers listed below have not been contacted at this stage. It is our view that any data gathered would be highly likely to be out of date before construction activities start, and it is recommended that searches are undertaken as part of detailed feasibility works, rather than at this outline stage.
- ◆ Severn Trent
 - ◆ Gas
 - ◆ Electric
 - ◆ Telecom
 - ◆ Cable TV
- 3.33 Known major services issues are marked on the Option drawings.

Water Supply

- 3.34 The fundamental pre-requisite for a canal is to have a reliable water supply. An outline discussion with British Waterways third party works engineer at Fazeley has been undertaken. British Waterways are generally supportive of the restoration objectives and have indicated that, in principle, water could be abstracted from their existing network at both ends of the proposed restoration. However, the following should be noted:
- ◆ If Option B is selected, back pumping would be required on all locks unless a satisfactory feeder can be arranged on the summit pound;
 - ◆ The canal should be lined throughout, as identified above (sections 3.14 to 3.19) in order to minimise the volume of the required abstraction;
 - ◆ Further work will be required at the detailed feasibility stage, possibly for each section of the canal if restoration is to be phased, to define in detail the water requirements and to formalise agreements with British Waterways for water supply.

MAJOR OBSTRUCTIONS

- 3.35 These are as follows:
- a) Newbank Engineering Works – extension built on the line of the canal
 - b) The A459 Mucklow Hill – navigable culvert / tunnel required under dual carriageway
 - c) The A456 Manor Way – landmark aqueduct over dual carriageway and canal diversion
 - d) Lapal Tunnel – new 3,500m long tunnel on or off the existing line of the canal (Option A only)
 - e) M5 Motorway – new 450m long tunnel under junction 3 (Option B only)
 - f) A456 Quinton Expressway – new 110m long tunnel under dual carriageway, Bourn Brook and Watery Lane (Option B only)
 - g) West Boulevard / Stonehouse Lane – two highway bridges or an 80m long navigable culvert under roundabout (Option B only)
 - h) Landfill site at California – partial excavation and possible remediation

A separate explanation of our views and adopted solutions is given for these problems.

Newbank Engineering Works and the A459 Mucklow Hill Dual Carriageway

- 3.36 These two constraints are dealt with together because their physical proximity means that potential solutions are interdependent.
- 3.37 A recent extension to Newbank Engineering Works has been constructed on the line of the old canal. The land on which this is located is leased from British Waterways. The proposed solution will have to address issues related to disruption to the business without impacting adversely on employment within the area.

- 3.38 A narrow corridor exists between the Newbank Works and buildings on Mucklow Hill 2 Trading Estate. This currently accommodates the estate access road, at a level approximately 5m above the normal water level of the canal. The road and its verge is retained by a large in-situ concrete retaining wall forming part of the Newbank Works building extension.
- 3.39 Mucklow Hill was originally carried over the canal on Heywood Bridge. The bridge is thought to be extant but buried under the dual carriageway at approximately its mid-point. A precast concrete box culvert has been installed at either edge of the road, presumably to carry residual canal flows under the carriageway, and may extend through the old bridge.
- 3.40 There is sufficient headroom under the carriageway to allow the restoration of navigation using a precast concrete box culvert without adjusting existing carriageway levels.
- 3.41 Three options have been prepared to address the twin constraints.

Option 1 – On line reinstatement of canal with navigable box culvert

- 3.42 Option 1 would restore the canal on or close to its original line.
- 3.43 British Waterways support would be required to clear the site, as they are the landlord for Newbank Works. Land may also have to be purchased from Walter Somers Forge.
- 3.44 The northernmost bay of the Newbank Engineering Works factory would be demolished. It may also be necessary to replace the existing retaining wall which forms the boundary on the north side of the factory, depending on the dimensions and detailing of the wall and its footings. This should be addressed in the detailed feasibility stage.
- 3.45 The canal would be reinstated on its original line from the current head of navigation through the current derelict section and into the yard at the rear of Newbank Engineering, generally at 10m or 11m wide, but narrowing at pinch points to a minimum of 6m in width.
- 3.46 A further narrow section of canal would be constructed between the (possibly replaced) retaining wall and the remaining two bays of Newbank Engineering Works. A stop gate should be incorporated into the narrows to protect Leasowes embankment. This section of canal would be traffic light controlled (an on demand contraflow) to prevent vessels trying to navigate the narrow section and the culvert under Mucklow Hill in conflicting directions. Mooring would not be permitted.
- 3.47 It is recommended that a 3m wide towpath be constructed on the west side of the reinstated canal, with suitably engineered bank protection, to give access for maintenance and emergency vehicles. This section of towpath would connect with the road network via a gated exit to the access road in Hawne Basin. A turning head would be constructed just west of Mucklow Hill to eliminate the risks associated with reversing maintenance vehicles along the towpath.
- 3.48 The current use of the towpath for moorings between Burton's Bridge and the stank which stands at the limit of current navigation would have to be reviewed with the Coombeswood Canal Trust. Secure fencing could be provided to separate the marina from the canal towpath.

- 3.49 A new navigable culvert would be provided under the A459 Mucklow Hill dual carriageway. The culvert could either incorporate the original arch of the Heywood Bridge, or the bridge could be demolished and replaced with precast concrete box culvert units. In the case of the former, detailed study would be required to ascertain the exact location and condition of the old structure prior to commencing construction, and this option, whilst desirable in heritage terms increases engineering complexity, so the option price is for box culvert units throughout.
- 3.50 The culvert could be constructed on a “half and half” basis to maintain traffic flows, but would inevitably cause some disruption. A traffic light system would be used to control navigation (as above).
- 3.51 A 2m wide towing path would be provided under Mucklow Hill, located in the main box culvert, on the south side of the navigation.
- 3.52 This option lends itself well to a public lighting/art installation.
- 3.53 Advantages of this option are as follows:
- ◆ Relatively simple in engineering terms therefore medium cost
 - ◆ Retains some original character by restoring derelict section and being on original line, and could possibly incorporate the arch of Heywood Bridge;
 - ◆ Towpath remains linked with canal, crossing under Mucklow Hill in shared culvert, which could be used to provide a safe crossing point for pedestrians;
 - ◆ Visual links with Heywood Forge chimney and boiler house maintained.
- 3.54 Disadvantages of this option are as follows:
- ◆ Uncertainty over existing retaining wall needs to be resolved by further study;
 - ◆ Demolition of one bay of factory and reduction in available yard area may render unit difficult to re-let;
 - ◆ Probable requirement to relocate existing tenant from factory with consequent impact on employment;
 - ◆ Land take in Newbank Engineering Works yard.

Option 2 – Cut and cover tunnel under estate access and A459

- 3.55 Option 2 involves constructing a cut and cover tunnel underneath the Mucklow Hill 2 trading estate access road and the Mucklow Hill Dual Carriageway.
- 3.56 The canal would be reinstated on its original line from the current head of navigation through the current derelict section and into the yard at the rear of Newbank Engineering, generally at 10m or 11m wide, but narrowing towards the tunnel portal to 6m in width. These narrows should incorporate a stop gate to enable the tunnel to be drained and to protect Leasowes embankment.
- 3.57 It is recommended that a 3m wide towpath be constructed on the west side of the open cut section of reinstated canal, with suitably engineering bank protection, to give access for maintenance and emergency vehicles. This section of towpath would connect with the road network via a gated exit to the access road in Hawne Basin. A turning head would be constructed just west of Newbank Engineering Works to eliminate the risks associated with reversing maintenance vehicles along the towpath.

- 3.58 The canal would enter the proposed cut and cover tunnel immediately north of the west end of the Newbank Engineering Works building. The tunnel would run in an easterly direction under the trading estate access road to the east end of the Newbank Engineering Works building (length of straight section about 75m) before curving gently through 45° and passing under the A459 dual carriageway (length about 60m)
- 3.59 The tunnel would be 5m to 6m wide, giving a 1.5m to 2m wide emergency walkway and a 3.5m to 4m wide navigable channel. The tunnel would most likely be constructed with continuous pile walls to each side and precast concrete beams spanning the pile walls and supporting an in-situ concrete deck.
- 3.60 The emergency walkway should be equipped with suitable gates at each end to prevent unauthorised access but to allow egress in the event of an emergency within the tunnel.
- 3.61 During construction, access to frontages of units A, B, C, D, and E in the industrial estate could be maintained by making use of the landscaped strip between the rear (north) of the units and Units 7 to 14 of the Mucklow Hill Trading Estate. If site access was arranged through the Newbank Engineering Works, access to the frontage of Unit F (a builders' merchant) could also be maintained.
- 3.62 A new link path, together with a Pelican Light installation above the tunnel, would link the towpath in Leasowes Park with the towpath at Hawne Basin via the estate access road and a new footbridge at the current head of navigation. The footbridge could possibly re-use the abutments of the former bridge. Secure fencing could be provided to separate the marina from the canal towpath.
- 3.63 Advantages of this option are as follows:
- ◆ Little long term impact on businesses
 - ◆ Retains some original character by restoring derelict section and being partly on original line;
 - ◆ Provides new pelican crossing on the A459;
 - ◆ Visual links with Heywood Forge chimney and boiler house maintained.
- 3.64 Disadvantages of this option are as follows:
- ◆ High short term impact on businesses in trading estate;
 - ◆ Complex engineering, although concentrated in a short section, therefore medium to high cost;
 - ◆ Towpath not on line of canal;
 - ◆ Land take in Newgate Engineering Works yard.

Option 3 – Tunnel under trading estate with navigable box culvert under A459

- 3.65 Option 3 involves tunnelling under Mucklow Hill Trading Estate and constructing a navigable box culvert under the A459, which would form an end-on connection to the tunnel.
- 3.66 A new junction with the original line of the canal would be formed on the off-side of the canal approximately 110m south west of the existing winding hole.

- 3.67 A straight tunnel approximately 205m long would be constructed running south south east from the new junction under the trading estate to end at a temporary shaft in the verge north of the junction between Mucklow Hill 2 Trading Estate access road and the A459. The tunnel diameter could be either 4.3m to allow for a single boat (with traffic light control to prevent boats meeting in the tunnel) or 5.5m to enable navigation in both directions at the same time. The two tunnel options would largely repeat the detail shown in drawings 147/04/01/1 and 147/04/01/2-A of the Gerard Pakes Report (*"The Lapal Canal – Restoration of the Dudley No 2 Canal From Hawne Basin to Selly Oak – Engineering Feasibility Study"*, Gerard Pakes Consultants, July 1999). Either option would be provided with an emergency walkway.
- 3.68 From the shaft, a precast concrete box culvert would extend under the A459, also with an emergency walkway. Using standard box culvert sections, dimensions would be approximately 4.5m wide x 3.6m high for the one-way option and 6.0m wide x 3.6m high for the two-way option. Either option would have a water depth of 1.2m and an air draft of 2.4m. Siltation would be unlikely due to the more rapid flows in this relatively small cross section. The emergency access walkway would be 1.2m wide in each case and a 0.3m margin on the off-side would allow for services to be attached to the wall. The headroom above the emergency access walkway would be 2.1m.
- 3.69 The emergency walkway should be equipped with suitable gates at each end to prevent unauthorised access but to allow egress in the event of an emergency within the tunnel.
- 3.70 The change in construction is necessary to give sufficient headroom above the canal in the road crossing section.
- 3.71 An electric substation is sited very close to the line of the tunnel north of the trading estate access route and may need to be relocated.
- 3.72 The existing section of canal which is in water would be retained for moorings with minimal impact on Coombeswood Canal Trust's existing operations.
- 3.73 The derelict section of canal beyond the stank at the head of navigation could be retained in its current state or improved as a wildlife area, with access improvements.
- 3.74 As with Option 2, a new link path, together with a Pelican Light installation above the tunnel, would link the towpath in Leasowes Park with the towpath at Hawne Basin via the estate access road via a new DDA compliant ramp from the turning head at the end of the estate road, crossing over the existing stank and onto the towpath adjacent to the south end Hawne Basin. Secure fencing could be provided to separate the marina from the canal towpath.
- 3.75 Advantages of this option are as follows:
- ◆ Direct route;
 - ◆ No long term impact on businesses;
 - ◆ Little short term impact in construction phase;
 - ◆ Retains some original character in derelict section;
 - ◆ Provides new pelican crossing on the A459.
- 3.76 Disadvantages of this option are as follows:

- ◆ Potentially high cost;
- ◆ Towpath not on line of canal;
- ◆ Loss of yard space in junction area currently used by a coach business.

Conclusion

- 3.77 All three options have benefits and disbenefits, and a detailed options study, informed by consultation with the affected parties, should be undertaken prior to commencing design work. From the canal engineering point of view, by far the easiest, least costly and best option is Option 1, but this may not be politically or commercially acceptable.

The A456 Manor Way Crossing

- 3.78 The A456, Manor Way, was a relatively minor road at the time of the canal's closure, and crossed the canal on a traditional masonry canal overbridge. The road was subsequently dualled, and the crossing lost. The level of the carriageway at the former crossing point is almost coincident with the water level in the former canal.
- 3.79 The A456 climbs steeply from west to east across the former track of the canal.
- 3.80 The Gerard Pakes Report presented five options for this crossing and these have been reviewed in accordance with the project brief.
- 3.81 Option 1 was for a culvert crossing on the old line of the canal. The level of Manor Way would have to be raised by about 2.5m to give sufficient headroom. There are problems with levels of accesses off the main carriageway on both sides of the carriageway, and costs would be high, both in terms of construction and disruption to adjacent properties.
- 3.82 Option 2 was for an aqueduct crossing the carriageway approximately 120m west of the original line, passing just to the east of the main building on the Sandvik site. This would just about maintain the Highways Agency's minimum clearance of 5.25m with some minor adjustments to carriageway levels, but it is thought that Manor Way is a high vehicle route, which would render this option technically unacceptable.
- 3.83 Option 3 explored the possibility of a culvert crossing east of the original line, to give sufficient headroom without major road alterations, but was rejected in the Gerard Pakes report because it would require compulsory purchase of privately owned housing. If the two houses could be purchased by voluntary agreement (perhaps by offering over market value) then this option might be viable, but would be quite intrusive for other householders neighbouring the re-aligned canal.
- 3.84 Option 4 briefly considered crossing Manor Way on the original line but at a higher level than the remainder of the canal, either using boat lifts to lift vessels to a high level aqueduct, or using one or more drop locks either side of the road to lower vessels into a reduced level culverted crossing. This was felt to be feasible and the lowest capital cost option, but with high operating costs.
- 3.85 Option 5 involved some form of boat transporter system and was discounted: *"this solution is not considered practical or desirable"*.
- 3.86 As none of the options considered in the Gerard Pakes Report were particularly attractive, consideration has been given by Atkins to two further options:

- 3.87 Option 6 would divert the canal from a point around the former Fordrove Bridge, passing to the west of the Sandvik factory on land currently used as a car park. Recent demolition of a building on the east side of the factory means that Sandvik currently have sufficient land to relocate their access and car park, although the land is currently used as secure storage for a local car dealership.
- 3.88 A reinforced earth embankment would be constructed through the Sandvik car park at a stand off of 15m to 20m from the main factory building. This would lead to an aqueduct crossing Manor Way with a total span of about 40m to 50m. The aqueduct would “land” on the south side of Manor Way approximately 80m west of Manor Cottage. An embankment (initially approximately 13m high) would curve round through 90° to bring the canal round Manor Cottage, with the height decreasing as the line heads up the hill towards the original alignment, which would be reached at the rear of the Black Horse Public House.
- 3.89 The aqueduct would carry a towpath which could be provided with steps and DDA compliant access ramps on both sides of Manor Way, giving a safe crossing point mid-way between the existing pedestrian crossings at Bromsgrove Road and Manor Lane.
- 3.90 Advantages of this option are as follows:
- ◆ Usable for both main options – the restoration (or more likely replacement) of the tunnel, and the “up and over” option via Woodgate Valley Country Park;
 - ◆ Little impact on businesses;
 - ◆ Good headroom over carriageway;
 - ◆ No remodelling of existing road other than possible relocation of signage;
 - ◆ New, separated and accessible pedestrian crossing of A456;
 - ◆ Improved links between communities north of Manor Way and the sports ground, St Mary’s Abbey, and the open countryside and public footpath network south of the road;
 - ◆ Canal would pass behind Black Horse Pub at grade, enabling better links and taking up less space, possibly avoiding the need to relocate a HV electric pylon.
- 3.91 Disadvantages of this option are as follows:
- ◆ Impact on Manor Cottage in terms of loss of amenity and views;
 - ◆ Not on original line of canal;
 - ◆ Needs careful design to avoid but integrate with St Mary’s Abbey scheduled monument;
 - ◆ May need vehicular underpass through embankment south of Manor Cottage.
- 3.92 Option 7 would raise the level of the canal with a flight of three locks on the original line of the canal between Fordrove and Manor Way. An aqueduct (total span approximately 50m) would then cross Manor Way, skewed at approximately 60°. The canal would then curve sharply to the east, passing behind the Black Horse Pub, but at 7m to 9m above the level of the car park.
- 3.93 Some land take from Sandvik would be required to enable the approach embankment to be constructed.
- 3.94 The aqueduct would carry a towpath which could be provided with steps and DDA compliant access ramps on both sides of Manor Way, giving a safe crossing point

two thirds of the way between the existing pedestrian crossings at Bromsgrove Road and Manor Lane.

3.95 Advantages of this option are as follows:

- ◆ Little impact on businesses;
- ◆ Adequate headroom over carriageway;
- ◆ No remodelling of existing road other than possible relocation of signage;
- ◆ New, separated and accessible pedestrian crossing of A456, but not as well situated as option 6;
- ◆ Canal would pass behind Black Horse Pub at grade, enabling better links and taking up less space, possibly avoiding the need to relocate a HV electric pylon.

3.96 Disadvantages of this option are as follows:

- ◆ Usable only for the “up and over” option via Woodgate Valley Country Park unless a corresponding flight of locks were constructed to lock back down to the original canal level on the south side of Manor Way;
- ◆ Impact on several houses in Cloister Drive, and on the Black Horse Public House, in terms of loss of amenity and views;
- ◆ Links with St Mary’s Abbey scheduled monument would not be as strong as for Option 6;
- ◆ Less satisfactory linkage with Black Horse Public House.

Conclusion

3.97 Option 6 is recommended.

The Lapal Tunnel

3.98 A detailed discussion of the likely condition and options for restoring or reconstructing the tunnel is included in section 4.1.3 of the Gerard Pakes Report.

3.99 There is a two further options, which would avoid the necessity of tunnelling work on such a scale. The first is an “up and over” option, using flights of locks to climb the hill to a point just west of the M5 motorway and then crossing under the motorway and the Quinton Expressway to descend gradually through Woodgate Valley Country Park. This is considered further in the following paragraphs. The second, suggested in correspondence with the IWA, would be to provide a “land bridge”, whereby a dedicated road-transporter service operates between the vicinity of the two portals. We have not investigated this further on the grounds of estimated cost, but it is mentioned as a comparison case. Our estimate of cost was based on a cost of £200 per crane lift and say £50 for haulage. Discounting by 2 for the repeat nature of the exercise this would give an estimated cost of £225 per boat moved. Additional downsides include the fact that the costs of the operation would be revenue costs, rather than the more easily funded capital costs of other options, and that a very clear allocation of risk would have to be made (i.e. the road bridge operator would accept no liability for damage to any boat). In addition, the road bridge would only address boaters’ needs, not those of other canal users.

3.100 Whilst we recognise the attraction for boaters of restoring navigation “on the level” between the Birmingham Canal Navigations at Windmill End and the Worcester and Birmingham Canal at Selly Oak from the boating point of view, this is to be set against the benefits of the “up and over” option.

3.101 The benefits of the “up and over” option are as follows:

- ◆ Lower capital cost;
- ◆ Linkage with Black Horse Public House and the opportunity to create a visitor centre at or adjacent to the former “Little Chef” site adjacent;
- ◆ Linkage with Woodgate Valley Country Park and the attraction of the canal passing through the park at grade;
- ◆ Possible marina site at west end of Woodgate Valley Country Park;
- ◆ Canal at higher level at California giving opportunity for redevelopment of former portal and brickworks area into mixed use development with marina, without excessive level change from surrounding roads.

3.102 Operating costs are thought to be similar for each option, with the costs of maintaining and operating 20 locks and associated back pumping installations to be offset against the costs of maintaining a long tunnel and either providing sufficient ventilation to enable diesel powered boats to navigate under their own power, or of providing electric tugs and staff to operate the tunnel.

3.103 Replacement of the tunnel on or close to original line would involve tunnelling under existing housing, with attendant difficulties of perception, which could require extensive monitoring to demonstrate minimal settlement.

3.104 British Waterways have indicated that if the tunnel is abandoned they may require works to address their liabilities. Their liability already exists and would not be increased by implementing the “up and over” option. However the liability would not be mitigated by applying the “up and over” option, and it is thought that British Waterways had been expecting some improvement as a result of the restoration project.

Conclusion

3.105 Option B, the “up and over” option is recommended.

Carters Lane, M5 Motorway, A456 Quinton Expressway and Bourn Brook and Watery Lane Crossings (Option B only)

3.106 The main obstacle to the “up and over” route via Woodgate Valley Country Park, other than the height gain required, is a group of roads and a watercourse located in the vicinity of Lapal village.

3.107 The crossings are summarised below:

- ◆ Carters Lane, approximately 625m east of the proposed aqueduct carrying the canal over Lapal Lane, with carriageway level at approximately 185m AOD;
- ◆ Junction 3 of the M5 motorway, with the roundabout at approximately 180m AOD and the main carriageway at approximately 185m AOD;
- ◆ The A456 Quinton Expressway, with carriageway level at approximately 178m AOD;
- ◆ Watery Lane at approximately 175m AOD and the parallel Bourn Brook with a probable invert level at the crossing of about 173m AOD

3.108 A possible horizontal and vertical alignment is shown on the drawings. This involves two tunnels, approximately 450m and 80m long, carrying the canal under Carters Lane, Junction 3 of the M5 motorway and the A456 Quinton Expressway. The indicative scheme shows the canal passing beneath Watery Lane and the Bourn

Brook, which could be carried on an overbridge and aqueduct as shown, or accommodated by extending the A456 tunnel.

- 3.109 There are clearly many possible variants in this area, and these should be examined at the detailed feasibility stage.
- 3.110 It is our opinion that the difficulties of the crossing under the motorway would involve lengthy approval process with the Highways Agency. However, the depth of the canal tunnel beneath the motorway is such that there is not likely to be any substantial effect on the carriageway or structures, although the possibility of motorway structures being supported on piled foundations should be taken into account at the detailed feasibility stage.
- 3.111 Our proposed solution is costed at a total cost of £14.4 million, between the Black Horse Public House and the eastern side of the Watery Lane/Bourn Brook Bridge/Aqueduct.

Crossing under the West Boulevard / Stonehouse Lane Roundabout

- 3.112 A second obstacle to an “up and over” route through Woodgate Valley Country Park is located at the eastern end of the park, where the canal must cross West Boulevard and Stonehouse Lane to reach the original line in the middle of the public open space area at California.
- 3.113 The canal at this point is on an alignment falling from west to east, and this can be used to advantage by ensuring that locks are situated to facilitate a crossing beneath the existing roundabout at the road junction.
- 3.114 This crossing could be achieved either by constructing two new bridges to carry the roundabout over the canal, with a lowered central island including the canal in open cut, or by tunnelling or jacking box culverts beneath the existing roundabout.
- 3.115 Either option would provide significant improvements to pedestrian access in the vicinity of the roundabout and would enable traffic signals controlling pedestrian movements across the roads to be removed or re-sequenced.
- 3.116 Both options could potentially be affected by a history of waste disposal to either side of the roundabout (see constraints drawings).
- 3.117 It is recommended that a detailed feasibility study including outline design and costing of both options should be undertaken at an appropriate point in the restoration project to determine the best option.
- 3.118 Our proposed solution is included within Option B Stage 6, which has a budget estimate of £15.5 million, between highway boundary south west of the roundabout and the top of the Woodgate Valley country park.

Landfill Sites at California

- 3.119 The canal alignments for both the original line and the “up and over” options pass through public open space at California which was used as a landfill site for road construction arising and also some domestic waste in the 1970s. The area of fill includes both the tunnel portal and approach cutting, and other areas in the vicinity, which were historically used as clay borrow pits for a brickworks. Birmingham City Council are the authority responsible for the landfill sites.

- 3.120 Following filling, the area was sealed and landscaped. In the 1980s, problems with methane accumulation in the underfloor areas of housing north of Stonehouse Lane were discovered. These were addressed by the installation of off-gassing arrangements including post mounted vents around the perimeter of the site. The off-gassing equipment is now in a poor state of repair and Birmingham City Council have confirmed that they believe that it is now redundant.
- 3.121 For canal restoration to proceed, at least part of the landfilled material must be excavated and removed to a suitable disposal site.
- 3.122 The canal and any cutting side slopes beneath the top of the landfill site will also have to be lined with a completely impermeable membrane to prevent water seeping into the remainder of the landfill.
- 3.123 The costings include for the excavation and lining of the “main line” of the canal through the proposed marina area, but not costs of excavating or fitting out the marina, which would be undertaken as a commercial venture by a third party.

MOORING SITES

- 3.124 The following discussion does not include moorings provided for operational purposes only (e.g. lock landings, water points, pump out / service station moorings etc.)
- 3.125 Three types of mooring site can be provided:
- ◆ On line mooring sites, comprising as a minimum, a site with a vertical edge to the canal with suitable bank protection and mooring rings;
 - ◆ Lay-by type moorings in small basins generally on the off side of the canal, often with finger pontoons to ensure safe access and define the spaces;
 - ◆ Off line mooring sites, generally marinas
- 3.126 All three types of mooring site can provide both visitor and permanent mooring facilities. The development of any residential mooring sites would be subject to a successful planning application.
- 3.127 The following sites are recommended as on-line mooring sites (for the “up and over” option, but those marked with a star * could be provided for the tunnel option):
- ◆ Leasowes Park* (visitor moorings on both towpath and offside) – small site for three or four boats between Mucklow Hill and the start of the high section of Leasowes Embankment;
 - ◆ St Mary’s Abbey* (visitor moorings on towpath side) – again, a small site for a few boats situated immediately beyond the bend south of the proposed Manor Way crossing;
 - ◆ Black Horse (visitor moorings on towpath side) – a site below the lock flight which could accommodate up to ten boats;
 - ◆ Black Horse (permanent moorings on offside) – a site below the lock flight which could accommodate up to ten boats;
 - ◆ Woodgate Valley Country Park (visitor moorings on towpath side) – a series of four or five informal rural visitor mooring sites for up to two boats each, generally located midway between locks in the country park;

- ◆ Selly Oak Park* (visitor moorings on towpath side) – visitor moorings for up to ten boats on the towpath side in Selly Oak Park;
- ◆ Harbourne Wharf* (offside permanent moorings) – with the co-operation of Birmingham City Council, it may be possible to provide gated access from Harbourne Lane to a small permanent mooring site on the offside of the canal immediately east of Harbourne Lane Bridge.

3.128 The following sites are recommended for the provision of lay-by mooring sites (for the “up and over” option, but those marked with a star * could be provided for the tunnel option):

- ◆ Black Horse (lay-by moorings on offside) – a premium site with parking and vehicular access (subject to planning) could be provided suitable for ten or twelve permanent moorings in between the Black Horse Lock Flight and Brewin’s Locks;
- ◆ Weoley Castle* (visitor moorings on offside) – a visitor mooring site on the south side of the canal to give access to Weoley Castle; by diverting the towpath to the north side of the canal between the footpath crossing at Weoley Avenue and site for a few boats situated immediately beyond the bend south of the proposed Manor Way crossing.

3.129 For clarity we confirm here that we have included in the various stage cost items for moorings as identified above.

PROPOSED RESTORATION SEQUENCE

3.130 Ideally, the optimum sequence would be to start restoration at both ends of the canal where there are existing navigations. The project would make incremental progress towards a final phase (closing the gap) which would involve the most substantial engineering works – either the replacement of the tunnel, or tunnelling under the M5 and Quinton Expressway.

3.131 A reconstruction start at any other location would have no access for conventional canal narrow-boats and boating would be confined to trailed boats and canoes. These do not have the same attraction to the public and therefore the benefit potential would be decreased. However it may be advantageous in the short term to clear the Leasowes Valley section of reed growth, construct a slipway and place it in use for trailed boat festivals to generate publicity and goodwill.

3.132 Each phase should be developed to give a new “destination” point and therefore a reason for boaters to leave the existing network and navigate the newly reopened canal. These can take many forms:

- ◆ Heritage attractions (St Mary’s Abbey, Weoley Castle);
- ◆ Landscape/recreational destinations (Woodgate Valley and Selly Oak Parks);
- ◆ Mooring sites (preferably combined with local services);
- ◆ Marinas;
- ◆ Boating services (dry dock, repair facilities, chandlery suppliers, sewage disposal and water points).

3.133 Starting from Hawne Basin would require significant funding for the first phase as this involves overcoming the obstacles of the Newbank Engineering Works and Mucklow Hill crossing (described above, section 3.36 and following).

- 3.134 There are many fewer difficulties involved in a start from the Selly Oak end of the canal.
- 3.135 It is recommended that works therefore progress in the following order, assuming the recommended options are pursued (on-line route through Newbank Forge and under Mucklow Hill, crossing of Manor Way west of Sandvik, “up and over” route):
- ◆ Stage 0: (not within scope of this study) Worcester and Birmingham Canal to Harborne Lane Bridge, including replacement of the bridge (approx 0.35km);
 - ◆ Stage 1: Harborne Lane to west end of Selly Oak Park, including provision of on-line moorings and winding hole at end of stage (approx 0.44km);
 - ◆ Stage 2: extend stage one to Weoley Castle, including secure visitor moorings and winding hole (approx 1.30km or 1.59km depending on whether section is ended east of Bottentort Road or east of Somery Road);
 - ◆ Stage 3: extend stage two to point just south east of Stonehouse Lane/West Boulevard Roundabout in California, including flight of three locks, marina, boatyard and associated development (approx 0.69km or 0.40km depending on extent of stage 2);
 - ◆ Stage 4: Hawne Basin to Leasowes Stop Gate, including Newbank Forge, Mucklow Hill Crossing and provision of a winding hole (approx 0.85km);
 - ◆ Stage 5a: Leasowes Stop Gate to Fordrove, with a winding hole at Fordrove (approx 0.46km);
 - ◆ Stage 5b: Fordrove to Black Horse Pub, including Manor Way Crossing and large embankment south of Manor Way (approx 0.64km);
 - ◆ Stage 6: California to Lapal village, including crossing of Lane/West Boulevard Roundabout, flight of three locks adjacent to West Boulevard, four individual locks, and possible marina and visitor facilities on western fringe of Woodgate Valley Country Park (approx 2.55km);
 - ◆ Stage 7: Black Horse Pub to Lapal village, including flight of three locks, aqueduct over Lapal Lane, two flights of two locks, tunnel under M5 Junction 3, deep cutting between M5 and Quinton Expressway, and tunnel under expressway (approx 1.77km).
- 3.136 Table 3.1 overleaf summarises the suggested phasing, with regard to a subjective grading of the degree of difficulty to fund and deliver each stage and method of delivery. Phasing should be kept under review, particularly with regard to changes in possible funding regimes. It is recommended that detailed feasibility studies be undertaken prior to commencing design of each phase, with due regard to ecology, archaeology and conservation of the built environment as well as the engineering constraints.

Table 3.1 – Phasing of Restoration

Stage and Proposed Stage Name	Funding	Delivery	Method of delivery
Stage 0: Battery Park	Already funded IN PLACE	Connection to BW; Harborne Lane Bridge DIFFICULT	Via third party developer
Stage 1: Selly Oak Park <i>PROOF OF INTENT</i>	Funding required; small amount STRAIGHTFORWARD	Address storm water balancing; repair existing Bridge STRAIGHTFORWARD	Small contracts for ground work managed by Trust; remainder by volunteer labour
Stage 2: Lodge Hill and Weoley Castle <i>PROVES CAPABILITY</i>	Some possibly linked to regeneration; relatively small sums MODERATE	Rear driveways; bridges; aqueduct; lay-by moorings MODERATE	Individual contracts for excavation / lining and ancillary structures; “fit out” by volunteers
Stage 3: California Regeneration <i>STAKEHOLDER CONFIDENCE</i>	Significant funding required; possible S106 waterside development; co-ordination of funding streams COMPLEX	Construction of lock flight; excavation of tip site for marina, disposal or processing and storage of arisings COMPLEX	Lock flight and marina approach by contract with standard lock design developed by consultant; marina via third party developer
Stage 4: Leasowes Link <i>BUILDS PM EXPERIENCE</i>	Significant funding required; multiple funding streams; weaker business case COMPLEX	Various complex engineering options; traffic flows; connection to existing canal COMPLEX	Detailed study to select final option; single engineering contract, potentially design and construct basis
Stage 5a: Fordrove <i>VOLUNTEER INVOLVEMENT</i>	Relatively small sums STRAIGHTFORWARD	Footbridge at stop gate narrows; winding hole at Fordrove STRAIGHTFORWARD	Individual contracts for excavation / lining and ancillary structures; “fit out” by volunteers
Stage 5b: Manor Way Crossing <i>COMMIT TO RESTORE LINK</i>	Significant funding required; multiple funding streams COMPLEX	Aqueduct and large engineered approach embankments COMPLEX	Single engineering contract, design and construct basis. Visitor car park, landscaping by volunteers
Stage 6: Woodgate Valley <i>ESTABLISH “DESTINATION”</i>	Significant funding required; possible S106 waterside development; co-ordination of funding streams COMPLEX	California roundabout; flight and single locks; environmental mitigation; mooring/marina at Lapal MODERATE	Single contract for roundabout underpass, locks, canal and lining (structural elements on design and construct basis); marina via third party developer
Stage 7: The “Lapal Link” <i>LINK RESTORED</i>	Very significant funding requirement, but obvious attraction of “missing link” COMPLEX	Two lock flights; one aqueduct; two tunnels; interface with M5 VERY COMPLEX	Single contract with structural elements on design and construct basis.

WATER MANAGEMENT

Water Requirements

3.137 The estimated quantities of water required to fill the various sections of the canal on completion of restoration are shown below (assuming the “up and over” option is selected – water requirements would be somewhat lower for the tunnel option between Black Horse Pub and California and no backpumping would be required):

Table 3.2 – Water Quantities Required

Section of Canal	Back Pumping losses	Water Supply to Fill (Megalitres)	Water Supply to Operate (Megalitres per day)
Hawne Basin to Leasowes Stop Gate	If required 100 percent of lockage water to be pumped up to the summit pound. If necessary allow 10% loss in water volume	12	0.2
Leasowes Stop Gate to Fordrove		6	0.1
Fordrove to Black Horse Pub		9	0.2
Black Horse Pub to Lapal Village and Woodgate Park Marina		24	0.3
Woodgate Park Marina (incl Marina) to California		34 (line) + 18 (marina) = 52	0.4 (incl marina)
California to Weoley Castle (including Marina)		6 (line) + 18 (marina) = 24	0.3 (incl marina)
Weoley Castle to west end of Selly Oak Park (incl. lay-by)		21 (line) + 5 (lay-by) = 26	0.3 (incl lay-by)
Selly Oak Park and Harborne Wharf		6	0.1

3.138 The figures given in the table for additional water quantities required to operate the canal are based upon a number of assumptions.

- a) Daily water losses from evaporation and leakage at 150,000 litres per linear kilometre of canal (or 100,000 litres/hectare of water space for marinas).
- b) All lockage water (including in-channel wastage) will be back-pumped.
- c) For back pumping purposes, assume that an additional 50% over and above lockage water requirements will be lost in channel through leakage in gates, misuse etc.

N.B. The figure of 24 lockages /day is national baseline – refined figures will follow once visitor levels have been determined.

- 3.139 We have discussed water supply options with British Waterway's Third Party Works Engineer at Birmingham, Steve Lugg. We have also identified opportunities to derive feed water from other sources.
- 3.140 The proposed restoration will construct a canal either level with or partially above the main Birmingham pound which it connects to at each end. Water supply issues are generally less complicated in this circumstance than for a restoration such as the Shrewsbury and Newport, where the canal falls away from the junction with the main network and any water not back-pumped is ultimately lost from the system.
- 3.141 Water is lost from a pound, but gained by the next pound down (and thus retained in the canal as a whole) as a result of:
- ◆ Lockage –water which is discharged downgrade through a lock as a result of a boat moving either up or down through the lock (this is easy to estimate at around 150m³ or 30,000 gallons) per lockage;
 - ◆ Gate leakage – Allowance should also be made for water lost as a result of leakage of the lock gates and paddles;
 - ◆ Misuse – water lost at locks through either unintentional misuse (for example operating locks incorrectly) or through acts of vandalism.
- 3.142 Lockage and other “in-channel” losses comprise typically 35-40% of the overall water requirements of a canal, but a greater proportion of the requirements when the canal is lined.
- 3.143 There are several modes by which water is lost altogether from a canal:
- ◆ Misuse – water lost from the canal, primarily at storm water let-off valves, weirs, etc. through misuse (generally vandalism);
 - ◆ Evapo-transpiration – water lost through natural processes of evaporation from the surface of the canal or transpiration by plants living in the body of water;
 - ◆ Channel Losses – consisting of leakage through bank protection (top water leaks) and bed losses (leakage through the bed of the canal);
 - ◆ Waste – water which is lost over waste weirs due to inefficient management of water resources (e.g. filling canal at too rapid a rate of flow from feeders).
- 3.144 Water completely lost from the canal accounts for the remaining 60-65% of canal water requirements. Based on research carried out by British Waterways on the summit pounds of the Leeds and Liverpool and Oxford Canals, these losses are dominated by the channel loss component (very approximately 75% of water losses). Misuse accounts for a further 10% of the total water loss, and evapo-transpiration and waste account for the remainder in roughly equal proportion.
- 3.145 In the case of this restoration, an impermeable liner and impermeable bank protection will be required in order to minimise channel losses and thus the amount of water abstracted from BW's network at Selly Oak and Windmill Hill. This will have the effect of reducing both total losses and the proportion of losses accounted for by channel losses.
- 3.146 Assuming the “up and over” option is selected, flights of locks either side of the M5 will raise the level of the canal to a summit pound about 30m above the Birmingham pound. The only source of water supply to the summit pound would be a possible abstraction from the Bourn Brook in Woodgate Valley Country Park. This does not contain much more than a trickle in dry conditions, and whilst some feed in wet conditions may be of use, the watercourse does not have sufficient flow in dry

periods to sustain feed to the proposed canal at the required rate. Discussion of licensing and options for abstraction should be undertaken at detailed feasibility stage for the relevant phase of the project to verify that there is no realistic prospect of a licensed feeder with a sufficient volume of feed water.

- 3.147 There are no other suitable water sources in the vicinity of the proposed summit pound.

Back Pumping

- 3.148 Therefore, back-pumping is seen as the only realistic option for water supply (although the Bourn Brook could be used to augment the pumped water or indeed reduce the need to pump in wet conditions). Pumps are provided at each lock or flight of locks to raise sufficient water from beneath the lock to maintain the level of the pound above it. The back pumps will not merely have to pump a volume equivalent to each lockage, but one sufficient to offset all the other losses (and any water pumped at the next lock up the system) above the pump installation.
- 3.149 Pumps lower down the system therefore pump higher volumes than those towards the top. This can be achieved by cycling similar sized pumps 'on' more often and for longer at the lower pumping installations, or by equipping the pumping installations with pumps of differing sizes.
- 3.150 Given the number of storm water discharge points on the Birmingham level, there is often excess water in the pound, particularly in winter. Completion of each stage of the restoration would ideally be timed to co-incide with periods of water surplus on the main network to enable initial filling to be undertaken with minimal impact. Filling should be undertaken in close co-operation with British Waterways.

Operational water demand

- 3.151 Once the Canal has been filled with water, there will still need to be considerable volumes of water available to manage the general day to day losses mentioned previously. British Waterways have indicated that in principle they may be able to supply water to the restored navigation but BW's canal system would have to take priority. A typical cost of water transfer to the restored canal for operation purposes would be of the order of £15 to £20 per megalitre. British Waterways' will need to discuss water requirements further once a restoration programme has been established.
- 3.152 An estimate of operational water demand has been made based on previous experience (Table 3.2 – Water Quantities Required). Given the inclusion of back-pumping in the preferred "up and over" scheme, water demand is likely to be of the order of 2 megalitres per day
- 3.153 To help minimise water losses (and costs) we have recommended that each lock is supported with a backpumping system. This will help distribute water around the canal. Whilst not cheap, ensuring a reliable supply of water will be fundamental to the success of the canal in dry summer months. Where flights of locks are constructed, as at present on the Grand Union Canal water would be backpumped up the entire flight not raised up each single lock.

Floods and Waste Water

- 3.154 A further factor which has not yet been addressed in this report is the control and disposal of flood water. A 300mm freeboard has been specified by the client for the canal. We have included a by-wash at each lock to carry surplus flood water and land drainage water around each lock.
- 3.155 It will be necessary to quantify, from a detailed flood study assessment, the amount of flood water which will need to be controlled without causing overtopping of the towpath. Design outlets (waste weirs) will need to be agreed with the Environment Agency at local rivers and watercourses.
- 3.156 It is usual practise to discharge excess water into adjacent watercourses. Potential receptors are Breaches Pond, Bourn Brook and Stonehouse Brook.
- 3.157 Further discussions will need to be held with the Environment Agency but they will certainly require that the canal is capable of routing its 1 in 100 year statistical flood without overtopping the 300mm freeboard. Discharge structures will need to be carefully designed and the overall water management regime will need to be modelled on a computer program to optimise the discharge structures.
- 3.158 Whilst it is beneficial, from a water supply viewpoint, to accept drainage flows into the canal, quite often it is undesirable due to the limitation imposed by flood control. We have made budget cost allowances for flood control works in our proposals.
- 3.159 The modern BW UK canal network incorporates water levels control systems which can be remotely operated. An operator or waterway engineer can dial up the canals water level control system and see exactly what the canal water level is. During times of heavy rainfall, the discharge structures and sluices can be opened remotely by the touch of a button on the computer. The restored canal will need to include such water level control systems to enable water to be managed.

BUDGET COSTINGS

- 3.160 Within a feasibility study a number of assumptions must be made and therefore the cost estimates must be treated as preliminary budget estimates. The estimates given in this chapter are based upon rates and prices as at January 2007. All estimates should be checked at the time of applying for grant funding and allowance made for inflation and general rises in construction prices.
- 3.161 The budget costs have been broken down into the following categories:
- Pre-contract work;
 - Main contract work;
 - Service diversions;
 - Water supply costs;
 - Land costs;
 - Design costs, including site supervision;
 - Maintenance costs;

- Operating costs;
- Other costs.

The costs are summarised in this chapter for the different lengths of canal as specified by the client.

Pre Contract Work

Site Investigation

3.162 Site investigation is required in order to determine the ground condition where work is to take place. This is essential in order to carry out an economic design and ensure that a contractor has sufficient information. Without adequate site investigation the sponsor is exposed to the risk of increased costs. We cannot stress too highly the need for adequate site investigation. Such an investigation would be essential in considering any reasons for moving away from the original route.

3.163 In the case of this canal, the work falls into the following general categories:

- Boreholes and probes made at the locations of all new structures and existing structures requiring major refurbishment, to provide the information required to check and assess foundation design requirements;
- Trial pits at suitable locations to check the type and condition of the infill material;
- Piezometers to check the level and movements of the ground water table.

The costings are based on commercial contract rates for this type of work.

Topographical Survey

3.164 It is considered that a full topographical survey would be required to enable works to be fully designed and to allow the preparation of contract documents to be undertaken. This survey would also provide the basis for the re-measurement of contract works. We anticipate that this survey work would establish cross sections at 30 metre intervals along the canal track, supplemented by any relevant detail. The results would be plotted onto suitable scale drawings. Suitable sums have been included in the costings for a topographical survey carried out by contract.

Main Contract Work

Access to the Site

3.165 This has been assumed to be along and within the canal reservations only, with access to be gained to it via all public access crossings of the routes.

3.166 Structural Foundations – The cost estimates for new structures in this study are based upon normal spread load foundations, i.e. no allowance has been made for possible poor ground or rock.

3.167 Earthworks – The costings include excavation, and haulage of surplus material to tip within a 15 kilometre radius of the site. No tipping charges are included. No landfill tax is included. It is our understanding of the current legislation that canal restoration works are exempt.

- 3.168 Canal Linings – Suitable contract allowances are included for a protected HDPE lining, except where a structural concrete/steel solution is involved.
- 3.169 Canal Pounds – Costs have been included, where appropriate, for restoration works as required.
- 3.170 Canal Locks – Costs have been included, where appropriate, for works to construct new locks.
- 3.171 Bridges and Structures – Costs have been included, where appropriate, for works as generally required.
- 3.172 Back Pumping – (If required) this will be achieved by the installation of a suitable submersible pump in a purpose-built sump located adjacent to the pound at each lock. The pump would be fitted with external discharge pipework leading either to the lock chamber or to the upper pound depending upon the design arrangements. There would be a control kiosk and an electricity supply for a 9-12kw motor would be required. The pump would be guide rail mounted within the sump to facilitate easy removal for maintenance. Costs for this installation are included in our estimates.
- 3.173 Towpath – Allowance has been made for surfacing with tarmac in urban areas where the existing path is tarmac and with 100mm thickness of compacted quarry scalplings in all other areas.
- 3.174 Contract Preliminaries/Contingency – A 25% margin has been added to the rates and prices for the work to allow for a contractor's overheads on-costs and profit margins. It is also customary practice to add a minimum 20% contingency cost to all feasibility stage budget costings. This has been done throughout the costings. The contingency is intended to cover for items which are not apparent at the feasibility stage but emerge during the transition to full design.

Service Diversions

- 3.175 At this stage it is difficult to predict the full range of diversions etc, which will be needed. We have included budget costs to cover potential work required to the diversion, support and maintenance of statutory: gas, electricity, water and drainage services. There is likely to be considerable work needed in built up areas such as the area north of Mucklow Hill.

Water Supply Costs

- 3.176 Under current legislation (the Water Resources Act) abstractors of water for the purpose of navigation do not require consents. If, therefore a right of navigation is re-established for the canal it may also be the case that water supply charges do not apply. On the other hand 3rd party compensation costs may arise if the right of other abstractors were prejudiced. These matters require to be legally resolved and this is clearly beyond our brief. No water charges are included in our costs. We understand that revision of this legislation is at present under review which may change this situation.

Land Costs

- 3.177 The terms of the brief for this study do not require us to cover this item and hence the costings do not allow for land purchase. However our experience of other canal restorations would indicate that land acquisition will be a relatively small addition to

the overall restoration cost. At worst, the part of the factory at Mucklow Hill which lies on the former line of the canal (the building and lease, but not the land, which is owned by British Waterways), two houses west of Manor Way, and land east of Manor Way would need to be purchased.

Design and Site Supervision Costs

- 3.178 It will be necessary to employ professional engineers to carry out the detailed design, negotiations, prepare contract documents and supervise the contract. The level of fees varies considerably depending upon the cost and complexity of the design and work. For the purposes of this study a figure of 6% of the works costs has been assumed for design work, and 4% for site supervision.

Maintenance Costs

- 3.179 A typical budget rate of £8,000/kilometre of canal track/annum has been allowed.

Operating Costs

- 3.180 These costs relate to the requirement for supervision of the waterway in relation to:
- ◆ General monitoring of use;
 - ◆ The safety of the users, and to the general public in specific areas;
 - ◆ The policing of the sections of canal where one way working is proposed to ensure smooth operation;
 - ◆ The monitoring of back-pumping arrangements at locks;
 - ◆ The requirement to close the canal when flood event conditions are such that navigation would be hazardous;
 - ◆ On the assumption that boating activity would be confined to the normal hours of daylight we suggest that it would be prudent to allow for four full-time employees to supervise the canal with transport at a salary cost of £20,000/annum/person. When boating is at a minimum or out of season these operatives could assist with maintenance work.
- 3.181 An arbitrary allowance for possible tipping charges (at present not known) is included in the costings. This issue will only be apparent at contract preparation stage when topographical survey and site investigation is available.

Table 3.3 - Canal Costs and Water Requirements to Consultants Proposal (Option A)

Section of Canal	Topographical Survey	Site Investigation	Contract Costs	Back Pumping	Professional services	Services Diversions	Water Supply to Fill	Water Supply to Operate	Land Costs	Maintenance Costs Per Annum	Operating Costs	Possible tipping charges
Stage 1 – Selly Oak Park	£5k	£20k	£0.6M	NIL	£60k	Included in Contract Costs	6MI	0.06MI/d	Beyond scope of this study	£4k	£25k/annum for the complete canal	Included in Contract Costs
Stage 2 – Lodge Hill and Weoley Castle	£20k	£130k	£2.1M	NIL	£190k		26MI	0.21MI/d		£11k		
Stage 3 – Hawne Basin to Leasowes Stop Gate	£15k	£110k	£3.0M	NIL	£255k		12MI	0.13MI/d		£7k		
Stage 4 – Weoley Castle to California and East Portal	£20k	£185k	£4.4M	NIL	£350k		6MI	0.08MI/d		£4k		
Stage 5 – Leasowes Stop Gate to Black Horse Pub and West Portal	£15k	£100k	£6.5M	NIL	£480k		19MI	0.16MI/d		£9k		
Stage 6 – Lapal Tunnel	£180k	£250k	£36.0M	NIL	£1.8M		23MI	0.25MI/d		£72k		
TOTALS	£255k	£795k	£52.6M	NIL	£3.1M	-	92 MI	0.89MI/d	-	£107k	£25k	-

Table 3.4 - Canal Costs and Water Requirements to Consultants Proposal (Option B)

Section of Canal	Topographical Survey	Site Investigation	Contract Costs	Back Pumping	Professional services	Services Diversions	Water Supply to Fill	Water Supply to Operate	Land Costs	Maintenance Costs	Operating Costs	Possible tipping charges
Stage 1 – Selly Oak Park	£6k	£20k	£0.6M	NIL	£60k	Included in Contract Costs	6MI	0.1MI/d	Beyond scope of this study	£4k	£50k/annum for the complete canal	Included in Contract Costs
Stage 2 – Lodge Hill and Weoley Castle	£20k	£130k	£2.1M	NIL	£190k		26MI	0.3MI/d		£12k		
Stage 3 – California Regeneration	£30k	£195k	£3.0M	£250k	£255k		24MI	0.3MI/d		£19k		
Stage 4 – Leasowes Link (Hawne Basin to Leasowes Stop Gate)	£15k	£110k	£3.0M	NIL	£255k		12MI	0.2MI/d		£7k		
Stage 5a – Leasowes Stop Gate to Fordrove	£7k	£50k	£0.6M	NIL	£60k		6MI	0.1MI/d		£3k		
Stage 5b – Manor Way Crossing (Fordrove to Black Horse Pub)	£9k	£75k	£7.8M	£250k	£540k		24MI	0.2MI/d		£20k		
Stage 6 – Woodgate Valley	£39k	£235k	£13.5M	£850k	£890k		52MI	0.4MI/d		£55k		
Stage 7 – The “Lapal Link” (Black Horse to Lapal Village)	£27k	£195k	£12.6M	£750k	£820k	24MI	0.3MI/d	£70k				
TOTALS	£153k	£1.0M	£43.2M	£2.1M	£3.1M		174MI	1.9MI/d		£190k		

Notes to be read in conjunction with the cost tables

1. Professional services costing for Option A Stage 6 (reconstruction of the Lapal Tunnel) includes for an extensive settlement monitoring programme which would be required to demonstrate that no damage would be caused to property close to the line of the tunnel.
2. Maintenance costings have been based on a figure of £8,000 per kilometre of canal per annum with an additional allowance of £5000 per lock per annum (Option B only) and £5,000 per 100m of tunnel per annum.
3. Operating costs are based on providing one member of staff to manage moorings, licensing and provide customer care and leisure and tourism support for the canal. In reality, if BW were to become the navigation authority this would be spread across several members of staff but would result in a need to recruit one additional member of staff, hence the costing for Option A. The costing for Option B also allows for an electricity bill for back pumping of £25,000 per annum.
4. Costs for sections which were covered in the Gerard Pakes report of 1999 have been derived by reviewing and amending as required the costings in the 1999 report, and factoring the estimates by 1.77 (an average between the Constructed Civil Engineering Cost Index and the Road Construction Price Index) to allow for inflation between 1999 and 2007. These sections are Option A Stages 1 to 4 and Option B Stages 1, 2, 4 and 5A.
5. Costs for most other sections are built up using unit costings developed internally by Atkins and based on past experience of canal restoration schemes.
6. The cost estimate for Option A Stage 6 is based on a mid-range figure between the Gerard Pakes estimate (scaled for inflation) and Atkins unit costings.
7. Costings for Stages 3 and 6 of Option B include for the formation of the canal through the proposed marina sites, but do not include for excavating the marina basins or constructing the associated facilities.
8. Where costs have been based on the Gerard Pakes Report, a thorough review of both the assumptions and feasibility designs and the costings from that report has been undertaken and figures modified where necessary before they have been index-linked and incorporated in the cost tables.

4. Key Projects

FLAGSHIP SCHEMES

- 4.1 As part of the canal restoration we envisage three key schemes which will act as focal points for users and development hubs encouraging regeneration to wider areas in the long term. These schemes are:
- ◆ The Black Horse Public House accessed off Manor Way – moorings, visitor centre, parking, accessible walks, heritage links and interpretation;
 - ◆ West end of Woodgate Valley Country Park – proposed site for marina and other development;
 - ◆ California – marina, development and boatyard;

SMALLER SCHEMES

- 4.2 There are also three areas with potential for smaller schemes which will act as interim destinations and additional focal points for users with smaller scale facilities. These schemes are centred around:
- ◆ Harborne Lane Wharf and Selly Oak Park – mooring site;
 - ◆ Weoley Castle – mooring site and heritage links;
 - ◆ Leasowes Park – moorings and linkage with park;
- 4.3 These six sites are described in the order in which they would be reached and developed should the project phasing recommendations (see section 3.130 and following, and Table 3.1 – Phasing of Restoration), be adopted.

SHORT TERM “VISIBILITY” SCHEME – THE LAPAL CANAL WALKWAY

- 4.4 In the shorter term, consideration should be given to creating, with the help of Dudley and Birmingham City Councils, a “Lapal Canal Walkway”. This would consist in the main of pre-existing footpaths and routes, formalised into a continuous walkway linking Selly Oak and Windmill End, with signage and interpretation to enable the approximate route of the canal to be walked from one end to the other. Leaflets would be produced to promote the walkway, detailing transport links and the route itself with points of interest. This would raise the profile of the proposed restoration scheme both locally and amongst the canal fraternity, giving the sense that progress is being made and initiating the process of negotiation and co-operation between the two councils, the landowners and the Trust.
- 4.5 The walkway would be moved to the towpath as sections of the restoration progress.

HARBORNE LANE AND SELLY OAK PARK

- 4.6 The restoration of the canal through Selly Oak Park would form an ideal opportunity to maintain momentum following completion of the Stage 0 restoration (from the

W&B Canal to Harborne Lane Bridge) which is being undertaken as part of the Battery Park scheme.

- 4.7 However, this would lengthen the navigable section of the east end of the canal to about half a mile. Provision of a winding hole at the temporary terminus is considered essential to ensure that boaters using the W&B explore the new arm.
- 4.8 Together with the winding hole, consideration should be given to providing moorings in the park and, particularly, around a reconstructed Harborne Wharf.
- 4.9 The moorings would serve to give a “background” of boats and establish the line as canal, as well as having the obvious benefits of attracting visitors (short term moorings) and revenue (permanent moorings).
- 4.10 The moorings would have to be carefully arranged to ensure suitable security and to minimise any adverse impacts on neighbouring property. It may be possible, with the co-operation of Birmingham City Council, to arrange gated access to a small permanent mooring site on the off-side (north) of the canal between Harborne Lane and Weoley Park Bridge.
- 4.11 Given sufficient channel width, visitor mooring could be permitted at any point along the towpath side within the park, except at and around the winding hole.
- 4.12 Reconstructing the wharf, together with restoration of Weoley Park Bridge, would give the area two interesting points of canal heritage which could be interpreted appropriately.

WEOLEY CASTLE

- 4.13 The next phase of restoration would re-open the eastern end of the canal through Lodge Hill to a new temporary terminus, either just east of Bottetort Road or in vicinity of the Somery Road Bridge.
- 4.14 This would increase the length of the navigable section of the east end of the canal to about one and a half miles. Provision of a winding hole at the temporary terminus is considered essential to ensure that boaters using the W&B explore the new section, and the practicalities of constructing the winding hole may well determine the location of the temporary terminus.
- 4.15 It would be very advantageous to create moorings and thus boat access to the remains of Weoley Castle at the temporary terminus, again with the intention of providing a destination which would justify a cruising or walking diversion of about an hour to an hour and a half from the main line of the Worcester and Birmingham Canal.
- 4.16 A triangular section of land either side of the point where the line of the canal crosses Stonehouse Brook (about 2.1km from the junction with the Worcester and Birmingham) offers great potential, as noted in the Trust's strategy.
- 4.17 However this site is not sufficiently large to create a viable marina. Instead we propose that a lay-by mooring site be created on the south side of the canal. By constructing the tow path on the north side of the canal from the Nately Grove

Footbridge (about 1.55km from the junction) to Bottetort Road, secure, gated access (possibly operated by BW key) could be arranged to make this mooring site more attractive.

- 4.18 A mixture of permanent and visitor moorings would be provided, with the permanent moorings serviced with electricity and water.
- 4.19 There is a vacant plot of land on the north side of the canal opposite this site (between 122 and 144 Burnel Road) which could be re-generated as part of this scheme, perhaps as a public house/restaurant with a canalside terrace, or as a small boatyard/service area, or for community use. The area of the plot is approximately 0.25 hectares. The Trust should try to ensure that planning consent is not granted for alternate uses and that planning protection is given to this site.
- 4.20 The link to Weoley Castle would be paved and made accessible to all users, together with interpretation, and possibly re-fencing the Castle site boundary with the towpath with a less visually intrusive but equally secure fence.

CALIFORNIA

The Site

- 4.21 California presents an opportunity for wider waterfront redevelopment. The area under consideration includes the public open space bounded by Stonehouse Lane, Stonebrook Way and Barnes Hill, and the various “depots” between the rear of houses on Ullswater Close and Stonehouse Brook. The total area of the potential site is approximately 5.1 hectares.
- 4.22 Of this area, about 3 hectares is a former tip site, with previous uses as the canal approach to the Lapal Tunnel portal, and borrow pits etc., for a former brickworks. The tipped material is thought to comprise mostly rubble and construction arisings, with some domestic waste. Similar sites have been redeveloped in the recent past, and partial excavation and treatment and/or translocation of some of the material is likely to be practicable, but will require further study.
- 4.23 The average existing ground level of the public open space is around 149.5m AOD. The original canal normal water level was around 138m AOD, thus there is approximately 11.5m depth of fill above the original normal water level.

Proposed Marina

- 4.24 Assuming that the tipped material can be remediated and partly removed, it is suggested that a new marina development could be located in the northern two-thirds of the public open space. This would have a water area of 1.0 to 1.25 hectares and thus would be suitable for about 80 to 100 boats. The Marina would lie directly north of the restored canal. Vehicular access could be provided from either Stonehouse Lane or from the end of Ullswater Close.
- 4.25 Such a development could be similar to the Braunston Marina on the Grand Union Canal which is a successful hub for canal activity as well as an attractive place to live. The construction of a Marina would give further emphasis to restoration of at

least the eastern section of the canal, giving it a purpose and a desirable interim destination.

- 4.26 To maximise the benefits of the proposed marina, and to reduce costs, it should be constructed at a higher level than the original canal. It seems unlikely that a marina at the original level would be either financially viable, either in terms of the cost of excavating all of the tipped material, and potentially some undisturbed ground as well, or in terms of its attractiveness to potential moorers, given its depth below surrounding ground levels. Therefore the proposals for California are really only realisable for the “up and over” route option.
- 4.27 The vertical alignment proposed for the up and over option is therefore raised from 138m to 147m by a flight of three locks located in the former roadstone depot. This means that on average the marina water surface will be approximately 2.5m (around one storey) below existing ground levels.
- 4.28 The constraint on levels is the requirement to cross beneath the Stonehouse Lane / West Boulevard Roundabout. Based on the initial digital terrain map, the 147m level of the marina is roughly as high as possible whilst ensuring there would be sufficient headroom under the roundabout. Detailed surveying work should be undertaken to verify the levels assumptions.

Boatyard

- 4.29 On the south side of the canal; it should be possible to incorporate a purpose built boatyard business, with slipway, possibly a dry dock, or at least safe lifting facilities to enable boats to be maintained, and lay-by moorings for a hire boat fleet. If the primary infrastructure were constructed as part of the overall development, this could then be leased out to generate revenue.
- 4.30 The boatyard would provide another reason for boats to divert off the Worcester and Birmingham canal and use the eastern end of the Lapal Canal.

Associated Development

- 4.31 The indicative layout shown on drawing 5046582-004 would incorporate housing around the east, north and west sides of the marina. This could comprise townhouses of three storey construction facing the marina with rear elevations of two storey construction facing Stonehouse Lane. This would overcome the difference in levels between the surrounding roads and the marina on this side of the site.
- 4.32 Further housing and mixed development would be beneficial to the south of the proposed alignment. It is suggested that this be zoned, with housing to the western end of the site, moving through some commercial use around the centre area of the site (and by the boatyard) to hotel / restaurant / public house at the eastern end.
- 4.33 It is recommended that Birmingham City Council are consulted to ascertain their willingness to progress this scheme and how it “fits” with their regeneration proposals. If the scheme were to progress, much of the canal infrastructure could be funded by S106 agreements with the adjoining developers.

LEASOWES PARK

- 4.34 Leasowes Park would be the western temporary terminus after the Stage 4 restoration (including the Mucklow Hill crossing) is completed.
- 4.35 The section of canal through Leasowes Park starts at a similar level to the surrounding ground, but the ground rapidly falls away, and the canal passes Breaches Pool on a high embankment. South of the pool, ground levels rise and meet the canal alignment at a sharp bend. The stage 4 restoration would end at the stop gate narrows a further 60m along the canal. (Refer to drawing 5046582-005).
- 4.36 The trust's literature suggests that it is their intention to prevent mooring on the embankment itself due to engineering concerns regarding the embankment's stability. It is not clear what concerns this presumption is based on, but one would not normally expect to have to prevent mooring within a concrete lined channel.
- 4.37 The strategy proposed for Leasowes Park is to create a desirable visitor linkage with canal traffic (both boats and walkers). This would comprise the following improvements (some of which could be delivered in advance of the Mucklow Hill Crossing being completed):
- ◆ Investigate the engineering problems discussed above and establish what if any works need to be undertaken to enable the canal to be re-watered;
 - ◆ Perform design work for remedial repairs;
 - ◆ Identify a suitable receptor site, preferably nearby, for translocation of the reeds which have established on the invert of the canal throughout the park section, and translocate the reeds;
 - ◆ Effect remedial works to the embankment and re-fill the restored section;
 - ◆ Construct a slipway immediately north of the preserved "weir" which would enable trailable boats and small craft to use the waterspace in advance of the completion of the Mucklow Hill crossing;
 - ◆ Divert path and excavate winding hole on the south east side of the canal at the sharp bend at the south end of the park;
 - ◆ Create approximately 80m of moorings at the Mucklow Hill end of the park and approximately 40m of moorings to each side of the winding hole;
 - ◆ Provide interpretation and signage linking canal more closely with park, working together with parks department to ensure canal is interpreted with park in visitor centre.
- 4.38 In this way, the Leasowes would become a sufficiently attractive destination, combined with the existing facilities at Hawne Basin, to ensure visits by some boaters and walkers from Windmill End.

BLACK HORSE

- 4.39 The area around the Black Horse Public House, whilst falling within the "green belt", offers significant scope for development as a visitor hub for the canal, particularly if the "up and over" option is selected, as this would have flights of locks situated

behind the pub and just east of the former Little Chef, ensuring that the canal is at a similar level to surrounding ground levels.

- 4.40 Access for vehicles is already available from the westbound carriageway of Manor Way. The former Little Chef part of the service area is vacant, and offers parking and a venue for a possible visitor centre / café / canal craft shop building if suitably converted. Attempts should be made to secure the planning status of this land for future canal related use.
- 4.41 The site has the disadvantage of being situated on the off-side of the canal (i.e. on the side of the canal without a towpath). However due to the proximity of the locks, bridges connecting to the towpath at each end of the site could be provided cost-effectively at the tail of each lock flight.
- 4.42 The site has excellent views of the wider area to the west, particularly towards the Clent Hills and Wyre Forest.
- 4.43 The vision for this site could include provision of:
- ◆ Car parking with good road connections and safe, disabled accessible access to canal;
 - ◆ Canal visitor centre, café and/or canal craft shop, possibly with patio/decking area providing a viewing platform for adjacent locks;
 - ◆ Permanent moorings, probably off-side below the Black Horse Locks flight;
 - ◆ Visitor moorings, towpath side below the Black Horse Lock flight,
 - ◆ Network of disabled accessible footpaths providing access to towpath, safe viewing of lock operations from offside (behind garage), link to public house, and a circular heritage walk visiting the remains of the Brewin Accelerator pump house and optionally St Mary's Abbey, with interpretation of heritage and natural environment;
 - ◆ Picnic area.

WOODGATE VALLEY COUNTRY PARK

- 4.44 A large part of the new line identified for the "up and over" option runs through Woodgate Valley Country Park.
- 4.45 The main access to the Park is located near Lapal Village, at the western end of the park, where a large car park and visitor centre are located approximately 400m south of the proposed canal alignment.
- 4.46 Despite the green belt status of the land, it may be possible, with sensitive design and a suitable emphasis on sustainability, to develop the western fringe of the park for a marina and some mixed-use waterfront development. No discussions have been undertaken with the Park, or with Birmingham City Council regarding this suggestion. For further details, refer to sections 5.12, and 8.74 and following.

5. Policy Review

INTRODUCTION

- 5.1 This section provides a description and analysis of the key national, regional and local planning and transportation policies relating to the Lapal Canal Restoration Feasibility Study. The purpose is to assess the proposal against national regional, local planning and transportation policies and assess the extent to which the proposals for restoring the canal facilitates or hinders the objectives of the relevant development plan policies.
- 5.2 The objectives of this report are to answer, where possible, the following key questions:
- ◆ Identify whether the plan being reviewed specifically refers to the Lapal canal or its restoration?
 - ◆ Are the planning policy objectives hindered or facilitated by the proposals for restoring the canal?
 - ◆ Do the plans show any constraints on restoring the canal (e.g. environmental, proposed land use allocation)?
 - ◆ Are there any policies which specifically block the restoration (e.g. proposals for a major development across the route)?
 - ◆ Are there any policies which block any potential proposed development associated with the canal such as proposed marinas?
- 5.3 The relevant policies that are summarised can be broken downs into four key areas as follows:
- ◆ Tourism, economy and recreation;
 - ◆ Protection of the natural and heritage environments;
 - ◆ Regeneration;
 - ◆ Site specific policies.
- 5.4 Policies which are applicable to the entire restoration are dealt with first, followed by an examination of policy and regeneration linkages for the sections of the canal, working east to west. This review is based on local planning policy and other local initiatives.

NATIONAL POLICY

- 5.5 Government planning policy is set out in Planning Policy Guidance Notes (PPGs) and Planning Policy Statements (PPSs). The primary drivers of current Government planning policy guidance stem from the Government's objectives to promote sustainability, encourage the re-use of brownfield land and focus major new development in locations accessible by a range of modes of transport.
- 5.6 The main guidance of relevance to the proposed restoration is considered to be as follows:

- ◆ **PPG2** Green Belts;
- ◆ **PPS7** Sustainable Development in Rural Areas;
- ◆ **PPS9** Biological and Geological Conservation;
- ◆ **PPG13** Transport;
- ◆ **PPG15** Planning and the Historic Environment;
- ◆ **PPG16** Archaeology and Planning;
- ◆ **PPG17** Sport and Recreation;
- ◆ **PPG21** Tourism;
- ◆ **PPS 23** Planning and Pollution Control;
- ◆ **PPS 25** Development & Flood Risk.

5.7 Government policy on canals and waterways stems from the Integrated Transport White Paper (ITWP) published in 1998 and a following up document 'Waterways for Tomorrow' published in 2000.

Waterways for Tomorrow

5.8 This guidance is intended to provide more detailed policy direction on waterways but the overarching objectives of how waterways and canals can contribute are applicable to the Lapal canal such as:

- ◆ Leisure and recreation – waterways and canals are used for leisure and recreation including boating, angling, informal recreation as well as towpaths and other waterside paths provide local and long distance walking and cycling routes and access to the wider countryside. This would include improving footpath and cycling routes between Selly Oak and Halesowen via Woodgate Valley Country Park, with links to the Monarch's Way and local trails such as the Rea Valley Walkway.
- ◆ Natural environment – canals and waterways are important environmental and ecological resources providing wildlife corridors and habitats and species listed as national priorities under the UK Biodiversity Action Plan.
- ◆ Regeneration – waterways and canals provide an important catalyst for local urban and rural regeneration and tourism for local communities. Restoration can provide environmental enhancement, improved health, safety, green commuting routes and safety.
- ◆ Water supply and drainage – waterways and canals provide both a source of water and a means of supply. The canal is generally to be restored above neighbouring watercourses and thus there is little opportunity to utilise the canal as a drainage receptor, except in Selly Oak Park, where existing arrangements using the disused bed of the canal will have to be modified.
- ◆ Heritage and education – canals and waterways represent examples of innovative civil engineering from the industrial revolution. The Lapal alignment is a historic asset, the canal having been fundamental to much of the local industrial development of the time, and the canal itself incorporated several unique engineering features.

5.9 According to Waterways for Tomorrow, the Government sees inland waterways and canals as an important asset for future generations to enjoy and utilise and is keen to

see them maintained and developed in a sustainable way and to maximise their economic, social and environmental benefits.

NATIONAL PLANNING POLICY GUIDANCE

PPG2: Green Belts 1995 (Amended March 2001)

- 5.10 This PPG outlines the history and extent of Green Belts and explains their purposes. It describes how Green Belts are designated and their land safeguarded. Green Belt land-use objectives are outlined and the presumption against inappropriate development is set out.
- 5.11 The use of Green Belt land has a positive role to play in fulfilling the following objectives:
- ◆ to provide opportunities for access to the open countryside for the urban population;
 - ◆ to provide opportunities for outdoor sport and outdoor recreation near urban areas.
- 5.12 Canals are generally seen as not in conflict with Green Belt objectives: therefore the proposed restoration of the canal through designated green Belt at Woodgate Valley and south of Manor Way does not in itself conflict with this guidance. In addition, the canal would enhance opportunities for recreation and for access to countryside for urban residents. However proposals for associated development such as a marina would be in conflict with PPG2 objectives and would require justification of need and appropriate mitigation.

PPS7: Sustainable Development in Rural Areas, 2005

- 5.13 PPS7: Sustainable Development in Rural Areas was published in 2005 and provides advice on managing the countryside and rural areas, including the rural economy, in a sustainable way. The main objective of PPS7 is to raise the quality of life in rural areas while still developing these areas in a sustainable way. Leisure, tourism and other land-based activities which help to protect open countryside and diversify the economy are particularly supported in rural areas.
- 5.14 PPS7 recognises that locally valued areas are seen as important but should not prevent development that is sustainable and in scale with the landscape from occurring. PPS7 supports the Lapal Canal restoration strategy to a certain extent as it aims to bring diversification to the urban fringe rural economy while still ensuring countryside remains open and features of heritage and nature conservation value are protected.

PPS9: Biodiversity and Geological Conservation, 2005

- 5.15 PPS9: Biodiversity and Geological Conservation was published in September 2005 and aims to ensure that planning, construction, development and regeneration projects should have minimal impacts on biodiversity and geology and enhance biodiversity where possible. To this end development that would cause adverse harm to international, national and local designated sites such as SSSI's, SPA's, as well as

non-designated sites such as ancient woodlands and other important flora and fauna, should not normally be granted planning permission.

- 5.16 Canals are seen as networks of natural habitats which enable species to move around the countryside and therefore should be protected where possible. Important features, such as rivers, river banks and canals are recognised in PPS9, because of their continuous structure, or their function as stepping stones, are essential habitats for the ecosystem and for migration, dispersal or genetic exchange. The restoration of the canal therefore could facilitate the objectives of PPS9 in creating an ecologically valuable wildlife corridor, linking individual areas of biodiversity value that exist at present. Conversely, particularly where the canal runs close to designated sites and important habitats, the proposal could conflict with the objectives of PPS9 in preserving and protecting these areas, particularly in the short term during the construction period.

PPG13: Transport, 2001

- 5.17 PPG 13: Transport advises that there is a need to integrate transport at the national, regional and local level to promote more sustainable transport choices, more sustainable modes of transport and to promote accessibility (paragraph 4). A key objective is to promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling. PPG13 advises that great care must be taken to minimise the impact of any new transport infrastructure projects and improvements to existing infrastructure, on the built and natural environment. This includes the potential impacts caused during construction. Overall the restoration would contribute to encouraging non-road movement and improving accessibility.
- 5.18 In relation to the use of waterways/canals for transport or transport-related activities, it advises local authorities to seek to re-use disused wharves and basins, to retain boatyards and other services in connection with water-based recreation and to protect and enhance the waterways where possible (Annex B, paragraph 12). In addition, PPG13 advises that disused waterways should be protected where possible, through safeguarding land within development plans to ensure that routes are not severed by new development where there is a reasonable degree of certainty of the restoration project proceeding during the lifetime of the plan (Annex B, paragraph 13). Review of the local planning documents indicates that the route is safeguarded

PPG15: Planning and the Historic Environment, 1994

- 5.19 This PPG is particularly relevant to the Lapal canal as the route passes close to Weoley Castle and to the Leasowes Park. The policy states that new development, wherever possible, should be kept away from listed buildings, conservation areas and other historic sites. However, in each case, a suitable balance should be struck between conservation, other environmental concerns, economics, safety and engineering feasibility. There should always be a presumption in favour of preserving nationally important archaeological remains, whether scheduled or not, and their settings, *'in-situ'*. Archaeological excavations for the purposes of preservation by record may be an acceptable alternative.
- 5.20 The restoration of the Lapal Canal offers the opportunity to preserve and interpret elements of the route itself, as well as remaining historic structures. As an interim

phase before restoration is complete, there is significant potential for linking interpretation and education elements to the route and to other local initiatives (for example any upgrading of the Castle Walkway, Weoley Castle development plans, or education activities at Woodgate Valley Country Park), as well as to the operation of the Leasowes.

PPG16: Archaeology and Planning, 1990

- 5.21 PPG16 sets out the Government's policy on archaeological remains on land and how they should be preserved or recorded both in an urban setting and in the countryside and provides guidance on the handling of archaeological remains and discoveries under the development plan and development control systems. The provisions of PPG16 would be especially relevant around the site of Weoley Castle, although it must be borne in mind that the original canal construction will have disturbed the area approximately 200 years ago.

PPG17: Sport and Recreation, 2002

- 5.22 PPG17 defines open space and includes canals, waterways and river corridors as important assets for sport and recreation including fishing, boating and walking/cycling along the towpaths. PPG 17 recognizes that urban parks, open spaces, sport and recreation facilities all underpin people's quality of life. The guidance confirms that well designed and implemented planning policies for open space, sport and recreation are fundamental for delivering broader Government objectives, including supporting an urban renaissance, promotion of social inclusion and community cohesion, health and well being, and for achieving sustainable development.
- 5.23 The restoration of the Lapal Canal would facilitate the objectives of PPG17 in promoting an important recreational asset, and potentially enhancing the offer at Woodgate Valley Country Park.

PPG21 Tourism, 1992

- 5.24 PPG21 outlines the economic significance of tourism and its environmental impact, and therefore its importance in land use planning. It states that the planning system should facilitate and encourage development and improvement in tourist provision, while tackling any adverse effects of existing tourist attractions. Chapter 4 expects structure and local plans to play their part in protecting key tourism assets (para 4.11 and 4.12) and to identify ways in which tourism can contribute positively to other objectives such as economic development, conservation and urban regeneration (para 4.11 and 4.14).
- 5.25 The restoration of the Lapal canal along the Woodgate Valley Country Park route would offer opportunities to enhance the tourism resource at Weoley Castle, Woodgate Valley Country Park and at the Leasowes Park.

PPS 23: Planning and Pollution Control - Annex 2: Development on Land Affected by contamination (2004)

- 5.26 This Annex, particularly relevant to the areas around California where the route passes through two areas of former landfill, provides advice to Regional Planning

Bodies (RPBs), Local Planning Authorities (LPAs), developers and other interested parties on the issues relevant to development and use of land that may be affected by contamination and the extent of controls operated through planning and environmental legislation.

- 5.27 The presence of contamination, including quite hazardous substances, in, on or under land does not, by itself, necessarily present an unacceptable risk, nor therefore necessarily require action. Risk arises where there is a pollutant linkage - i.e. a pathway between a contaminant, or source, with a potential to cause harm or pollution of controlled waters and a vulnerable receptor, which is capable of being harmed by the contaminant.
- 5.28 Local authorities are the enforcing authorities for the contaminated land regime under Part IIA of the EPA 1990. They have a duty to identify contaminated land within their area and, except for certain categories, to decide what remediation is required and ensure that it takes place.

PPS 25: Development and Flood Risk, 2001

- 5.29 This national guidance note highlights canals as having capacity to flood, but also as being a potential means of alleviating flooding. They have some ability to store water and as they can cross river catchments boundaries, water could be accepted in one flood risk area and discharged in another lower or no risk area. Given the topography of the proposed canal route, it is unlikely to be subject to flooding. There may be some potential for diverting any flood water from the Bourn Brook or at Lapal Lane.
- 5.30 It is noted that flooding occurred as a result of the canal overtopping its banks in the 1950's, causing damage to properties in the Selly Oak/Weoley Castle area. We know very little about this incident, but it is likely to have been the result of an abandoned and neglected canal being unable to convey water along its route: a restored canal would be able to convey excess water to discharge points agreed with the EA as being fit for purpose. Construction of the canal will require abstraction and discharge agreements with the EA and as such will *de facto* comply with PPS25

BRITISH WATERWAYS POLICY

- 5.31 BW is not permitted to add any waterway to its portfolio that is not predicted to be self-sustaining in the future. The following areas of relevance and criteria are used by BW to determine the priority given to proposed restoration schemes:

Need	Economic – the impact of the scheme in terms of employment and other economic activity, taking account of the need for economic regeneration of the local area.
	Social – the potential impact of the scheme in terms of promoting social inclusion and community capacity building in the vicinity of the waterway, taking account of need (as measured by the Index of Multiple Deprivation).
	Market – the potential use of the waterway by boating and towpath visitors and opportunities for creating new business enterprises.
	Local support – the degree of local authority, community and waterway interest group support for implementing the project.
Sustainability	Financial – the potential availability of funding both to implement

	the scheme and for managing the waterway afterwards. We wish to ensure that no additional long-term financial liability to BW will arise from schemes.
	Environment & Heritage – The degree to which the scheme will benefit, secure, or at least have limited adverse impact upon the natural environment, cultural heritage and landscapes of the waterway.
	Technical feasibility – the degree of difficulty for implementing the project from an engineering, water supply and land assembly perspective.
Network	'Pressure valve' – the degree to which opening up the waterway will relieve pressure on recreational resources (including other waterways) in the vicinity.
	Network extension – the degree to which the canal extends or links up parts of the network.

- 5.32 At present, the Lapal canal is not a priority supported scheme in BW's 'Waterways 2025' plans for restorations. This is likely to be due to the perceived scale of works required to restore the tunnel. Locally, British Waterways is focussing on service improvements and is currently actively involved in several local schemes, notably the Droitwich Canals restoration. BW supports, in principle, canal restoration.
- 5.33 If the tunnel option was to be pursued it is unlikely that BW would prioritise support due to the cost, ongoing maintenance requirements and risk. The 'up and over' route, however, would match many of the criteria set out above, including:
- ◆ The opportunity for marina and other development to provide revenue stream to BW from which they can fund the maintenance and operation of the canal, and which would alleviate pressure on moorings in the region;
 - ◆ The provision of an alternative route through the Birmingham & Black Country Birmingham in the event of the closure of Netherton Tunnel, and the creation of new cruising options in the Birmingham area;
 - ◆ The opportunity to promote social inclusion and contribute to regeneration.

REGIONAL & SUB-REGIONAL POLICY

- 5.34 The route of the Lapal Canal falls entirely within the West Midlands. The Regional Development Agency is Advantage West Midlands (AWM). Birmingham and the Black Country (Dudley, Sandwell, Wolverhampton and Walsall) form sub-regions and there are currently proposals for a new City region comprising Birmingham and the Black Country which may, if it comes about, add another layer of policy.

Regional Spatial Strategy for the West Midlands (RSS11)

- 5.35 The Government's strategic framework to guide planning in the West Midlands is set out in Regional Spatial Strategy for the West Midlands (RSS11). This sets out an overarching spatial strategy for the region providing an important means by which other regional policies and proposals can be better 'joined up' and integrated. In general terms, it does not contain any guidance or policies which are directly relevant to the restoration of the Lapal Canal.

- 5.36 However, RSS Policy UR1 (Implementing Urban Renaissance – The Major Urban Areas) emphasizes the importance of raising the quality of urban design, architecture and public art and spaces. Policy QE4 (Greenery, Urban Greenspace and Public Space) underlines the importance of significantly improving the quality of public spaces, especially in city and town centers, and maintaining and enhancing sports, playing fields and recreation grounds.
- 5.37 In addition to influencing the development and use of land in the region, economic development and policies for environmental enhancement, the Regional Spatial Strategy also informs the development of other strategies and programmes across the public sector such as health, education and crime reduction. Urban and Rural Renaissance are identified as two of the key strands needed for sustainable development, alongside diversifying and modernising the region's economy and reducing social exclusion. The RSS recognizes that recreational resources are an important component in the overall quality of life in the Region. It is widely accepted that canal restoration can contribute to these aims.

Regional Economic Strategy for the West Midlands & West Midlands Visitor Economy Strategy

- 5.38 The Visitor Economy Strategy prepared by Advantage West Midlands is a framework for partnership to drive growth in the regional economy to develop the Tourism and Leisure Cluster, one of the ten priority clusters identified in the West Midlands Regional Economic Strategy.
- 5.39 The Strategy sets out five key themes for development. It does not contain any directly relevant policies; however, the Strategy cites the canal network as a key asset warranting investment and development. Supporting environmental sustainability and green transport initiatives, and developing the activity sports and leisure offer are also among recommendations contained within the strategy. The restoration project is therefore in accordance with the Strategy.

Sustainable Communities in the West Midlands

- 5.40 Sustainable communities: Building for the future (a national plan of action) is an approach to creating places where people want to live and where they will continue to want to live. The aim is to build and support communities that: are economically prosperous; have decent homes at a price people can afford; safeguard the countryside; enjoy a well-designed, accessible and pleasant living and working environment and; are effectively and fairly represented and governed, with a strong sense of community.
- 5.41 Strategic challenges include reducing the level of deprivation in the region's communities. The West Midlands has areas of severe deprivation, with 69 of the region's 789 wards (covering 19% of the region's population) ranked within the most deprived 10% in England. Birmingham, Coventry, Dudley, Sandwell, Stoke-on-Trent, Walsall and Wolverhampton are all among the 88 most deprived districts in England and are therefore eligible for Neighbourhood Renewal Funding. Local ward level data for the wards along the canal route indicate that, relative to the rest of Birmingham and Dudley, these wards do not suffer significant deprivation. The areas bordering the canal are not currently eligible for any targeted support for regeneration.

- 5.42 There are no current or planned Neighbourhood Renewal schemes within the canal corridor which could be linked with the restoration¹. However, the proposals conform with the aims of neighbourhood renewal and improving the environment, and the current regeneration environment should be monitored for future synergies.

Black Country Study

- 5.43 The West Midlands Regional Assembly (as the Regional Planning Body) is taking a phased approach to the issues raised by the Secretary of State for the RSS. The Phase One Revision covers the Black Country sub-region and has been carried out on behalf of the Assembly by the Black Country Consortium.
- 5.44 The Black Country Study is the Urban Renaissance Strategy for the Black Country. It supports a sub-regional strategy for the Black Country, setting out the priorities for regenerating its physical, environmental, social and economic fabric. It is a supporting document to the Draft Revision to the Regional Spatial Strategy submitted to the Secretary of State in May 2006 and will provide evidence for the formulation of a Joint Black Country Core Strategy by the four Black Country Local Planning Authorities.
- 5.45 In general terms, the Study does not contain any guidance or policies which are directly relevant to the restoration of the Lapal Canal. However it has concluded that environmental transformation is essential to secure economic growth and an improved quality of life for all. The Black Country as Urban Park is an overarching concept for the transformation of the Black Country environment, and the creation of a set of flagship developments will be the catalyst of future environmental transformation across the Black Country as a whole; the Urban Park, which incorporates identified priority canal enhancements across the sub-region, has recently been awarded £500k of project development funding by The Big Lottery People's Millions.
- 5.46 The Visitor Economy is also identified as a critical building block in the transformational agenda, and is being supported by initiatives such as Black Country Tourism which aims to bring partners together.

LOCAL POLICY

- 5.47 The two local authorities along the proposed route are Birmingham and Dudley
- 5.48 Table 5.1 shows the current status of the development plan and the emerging Local Development Framework. However, a range of other policies and plans may be relevant; these are highlighted below.

¹ XXXX Selly Oak rep

Table 5-1 – Development Plan Status

Planning Authority	Date Development Plan Adopted	Local Plan Review – Current Schedule
Birmingham City Council	October 2005	<p>The Birmingham Unitary Development Plan (UDP) has been prepared in accordance with the provisions the Regional Spatial Strategy. Revisions to the Birmingham UDP were adopted by the City Council on 11 October 2005. It puts in place new policies and proposals for the period up to 2011. The UDP will remain in force until relevant LDF documents are adopted, with many policies being saved and carried forward beyond the automatic 3 year period.</p> <p>The most recently revised Local Development Scheme (July 2006) indicates the following timetable for documents which might be relevant to the Canal.</p> <p>Statement of Community Involvement Currently under preparation and due for submission to Secretary of State Dec 2006.</p> <p>Core Strategy will set out the vision, objectives and city wide spatial strategy. Planned for commencement in Jan 2007, with public participation on preferred options Jan 2008.</p>
Dudley Metropolitan Borough Council	October 2005	<p>The Dudley Unitary Development Plan replaces the adopted 1993 Plan and puts in place new policies and proposals for the period up to 2011. Many policies being saved and carried forward to the new Local Development Framework being prepared under the new Planning system.</p> <p>A Local Development Scheme (2005) sets out the documents planned or under preparation. This timetable is currently being revised. Relevant documents include:</p> <p>Statement of Community Involvement - Adopted 1st November 2006</p> <p>Nature Conservation & Historic Environment Supplementary Planning Documents These documents have been subject to public consultation and are anticipated to be adopted in September 2007.</p> <p>Employment Land DPD; Housing DPD - Proposed for commencement October 2006, with public consultation May 2007</p> <p>Halesowen Area Action Plan covering Halesowen Town Centre & environs. Proposed for commencement July 2008, with public consultation Nov 2008. This will guide the location, design and layout of new development, and will be supported by a detailed implementation programme.</p> <p>A Black Country Core Strategy is being prepared jointly by the four boroughs of Dudley, Sandwell, Walsall and Wolverhampton. Consultation on Issues and Options is programmed for mid-2007.</p>

Birmingham

- 5.49 The current Birmingham UDP was adopted in October 2005 and covers the period to 2011. The Structure Plan has been prepared in accordance with provisions of the RSS, which is currently under review.
- 5.50 The following general policies are considered of relevance to the Lapal Canal proposals:
- ◆ Archaeology
 - ◆ Nature Conservation
 - ◆ Green Belt
 - ◆ Open Space
 - ◆ Landfill Sites
 - ◆ Transportation
 - ◆ Air Quality
 - ◆ Economy
 - ◆ Tourism
- 5.51 The UDP has specific sections addressing particular wards. Relevant policies mainly apply to Selly Oak and Weoley wards. Relevant sites marked on the proposals map include:
- ◆ Weoley Castle ruins To4
 - ◆ Walkways E77 Bournbrook Walkway & E78 Castle Walkway
 - ◆ Other areas of open space E73A and E73B at Quinton meadows
 - ◆ E76 Worcester & Birmingham Canal
 - ◆ Sites of Importance for Nature Conservation (SINC) at Woodgate Valley E75, E88, E89, E90, E91, at Pills Wood E69 and Quinton meadows E132
 - ◆ Business/Industrial site I37A at Quinton Meadows
- 5.52 Specific policies on guidance for **Canalside Design (ENV 3)** and the preparation of a **Canals Action Plan (ENV4)** highlight the importance of canals within Birmingham. The Canals Action Plan will be a strategy for future environmental improvements to the canal network, and will identify the main principles and priorities for action. It will examine the scope for the use of canals for freight purposes, and will include detailed guidance on towpath improvements, interpretation, moorings, access, development opportunities, maintenance, safety, community involvement and other related issues. Unlike Dudley, Birmingham's policy tends to focus predominantly on the City Centre canals.
- 5.53 In addition to the UDP a Selly Oak Action Plan has been produced to guide development within the ward

General Policy Areas

- 5.54 **Archaeology:** The restoration is in line with the policy which states that the development of the educational, recreational and tourist potential of archaeological sites through management and interpretation will be encouraged. In particular the restoration offers opportunities for linking with and enhancing the offer at Weoley castle. A scheduled ancient monument at Woodgate valley would be avoided, and there is opportunity for interpreting this as part of a canal route trail.
- 5.55 **Nature Conservation:** This policy offers protection to designated and other nature conservation sites, which would include the sites along the route listed above. Schemes including reclamation of derelict land, and new developments, particularly those on open land, will be expected to respect, and where possible enhance, the local environment, for example through the retention of existing trees and through planting and landscaping schemes to maximise wildlife value. The retention and enhancement of existing tree cover, hedgerows, wildlife habitats and geological features will be supported in order to ensure that the natural heritage of an area is not lost. While there would inevitably be adverse effects during the construction period, it is envisaged that adequate mitigation measures could be put in place. The construction offers the potential to create new, and improve existing, habitat. A Nature Conservation Strategy sets out additional guidance which detailed proposals should adhere to.
- 5.56 **Green Belt:** The policy on Green Belt accords with PPS 2 in restricting all but development for the purposes of agriculture, forestry, cemeteries, or other uses appropriate to the character and function of the Green Belt. This policy states that the development of outdoor recreation facilities which could not be located within the built-up area and which are in keeping with the character and function of the Green Belt may also be supported. Improvements to recreational facilities at Woodgate valley, linked to the creation of a mooring area, may be acceptable under this policy. The moorings must be complimentary to the park and primarily of benefit to visitors, waterborne or otherwise
- 5.57 **Open Space:** This policy strongly supports the continued development of an integrated and linked network of open space throughout the City ranging from the Green Belt to local play areas and including Country Parks, informal open space, formal parks, playing fields, golf courses and woodlands with linear open spaces ensuring a range of recreational facilities accessible to all and enabling the natural wildlife of the countryside to penetrate deep into the urban area. The importance of the canal systems as part of the linear open space will continue to be recognised, and the completion and extension of the open space network will continue to be a priority, in particular to ensure that full public access is provided to all linear open spaces and to the countryside. Every opportunity will also be taken to enhance and improve links into the national system and to promote Birmingham's strategic importance at the hub of existing and proposed long distance routes. The restoration of the canal would create the missing links in the Castle Walkway and enhance access to Woodgate Valley from western and eastern ends.
- 5.58 **Landfill Sites:** This policy encourages the rehabilitation of former landfill sites, subject to adequate remedial measures and monitoring of gas and contaminants. It states that whilst monitoring is taking place, former landfill sites may be suitable for temporary uses if appropriate measures can be put into place to avoid the build-up or

migration of gas, or the leaching of contaminants. Where tests demonstrate that gas generation and contamination on former landfill sites has fallen to acceptable levels, the land may be used for development. Applications for development on known former landfill sites must be accompanied by supporting evidence, demonstrating that this is the case. Development of land within 250 metres of the boundary of existing, former or restored landfill sites may also require a site investigation for the detection of migrating gas or leaching contaminants. More detailed policies towards the development of former landfill sites and land within 250 metres of such sites are contained in Supplementary Planning Guidance. The California site is currently still generating gas and is used as public open space, as is that within the Country Park; any works would require appropriate protection or removal measures but the proposals for restoration are not jeopardised by this policy.

- 5.59 Air Quality/Transportation: These policies aim to discourage car use, increase tree cover and create cycle routes. The development of the Millennium cycle route incorporating the Worcester & Birmingham canal is encouraged. These policies are linked to those for open space which aim to encourage links between national networks; restoration proposals are seen to make a contribution to these goals.
- 5.60 **Economy:** Birmingham was designated a full Development Area in 1993; the majority of the City remains within the revised Assisted Area as part of the second tier of Regional Assistance, and in the large part is eligible for European Union funding under Objective 2. The UDP highlights that Birmingham has considerable potential for economic and employment growth over the next 10 years, particularly within the 10 key business sectors, or “clusters,” that are identified within the West Midlands Economic Strategy. The benefits of development should, wherever possible, be precisely targeted on local residents (for example, through the use of Section 106 Agreements and criteria on grants and loans).
- 5.61 Tourism: Tourism is highlighted as one of the most buoyant sectors of the economy and in terms of jobs and wealth creation and therefore as particularly important to Birmingham; it has the ability to stimulate regeneration and change in other areas and to increase confidence and civic pride in the City. The UDP encourages the promotion of tourism with its associated spin offs in terms of accommodation, travel and local spending; tourism provides valuable infrastructure which is available for both the local business community and residents alike, it can significantly improve the City’s environment, enhances the City’s image and aids inward investment. Birmingham’s tourism strategy highlights key action areas as improving service and quality, Developing the attractiveness of the City for visitors including enhancing important areas of greenspace such as historic parks and gardens, and enhancing the industrial and historic heritage. While the canal would be unlikely to attract high levels of tourist visitors, the provision of improved leisure facilities and, particularly, marina facilities, would help spread the benefits of water-based tourism beyond merely the city centre.

Dudley

- 5.62 Dudley Borough’s Community Strategy, “Dudley Borough Challenge” (2005) aims to set out a vision up until the year 2020 for a prosperous and attractive Borough. It identifies a series of six key priorities which contribute towards a “Stronger Communities” overall vision and which run through the UDP. These focus on creating

prosperity, celebrating heritage, promoting health, well-being and learning, environmental improvements and safety.

- 5.63 The following sections of the UDP and individual policies are considered of relevance to the proposals for restoring the Lapal Canal.
- 5.64 Part One of the UDP sets out generic 'core' policies, the most relevant of which are:
- ◆ S1 Social Inclusion, Equal Opportunities and Social Wellbeing.
 - ◆ S2 Creating a More Sustainable Borough
 - ◆ S3 Green Assets
 - ◆ S4 Heritage Assets
 - ◆ S11 Urban Renewal
 - ◆ S14 Community Development
 - ◆ S15 Sport, Leisure & Recreation
 - ◆ S16 Access & Movement
- 5.65 Part Two of the UDP includes specific sections covering topics or particular areas. Of particular relevance are:
- ◆ Design & Development (particularly policy DD8 Developer Contributions)
 - ◆ Urban Regeneration
 - ◆ Employment & Economy (particularly Policy EE1 Industrial Areas, EE2 Local Employment Areas, EE3 Existing Employment Uses, EE4 Office Development, EE5 Tourism)
 - ◆ Halesowen
 - ◆ Access & Movement (particularly AM11 Cycling, AM12 Pedestrians, AM13 Public Rights of Way)
 - ◆ Sport, Leisure & Recreation (particularly LR2 Access to Public Open Space)
 - ◆ Nature Conservation (particularly NC1 Biodiversity, NC4 Local Nature Reserves & Sites of Importance for Nature Conservation) and NC5 Sites of Local importance for Nature Conservation.
 - ◆ Historic Environment (particularly HE1 Local Character & Distinctiveness, HE5 Buildings of Local Historic Importance, HE6 Listed Buildings , HE7 Canals)
 - ◆ Strategic Open Space (particularly SO1 Green Belt, SO2 Linear Open Space, SO6 Parks)

General Policy Areas

- 5.66 **Design & Development** The overall aim of this section is to ensure that all development makes a positive impact on the physical environment for the community as a whole. It is essential that development addresses the key issues of movement within the built environment; how it looks and fits into an area; and also how it should

respond to promote safer and more secure places for people. Policy DD8 confirms the importance of developers providing for, or contributing to, recreation facilities/open space in line with the increase in users caused by the development. The policy also reinforces the need for developers to upgrade existing open space, sport and recreation facilities if sufficient open space (which would have to be safely accessible for pedestrians from the direction of the proposal site) for formal and informal recreation already exists in close proximity to the proposal site. There is potential to link this policy to funding of canalside improvements and to the restoration of remaining sections.

- 5.67 **Urban Regeneration** The core policy S2 on sustainable development encourages regeneration through reuse of underdeveloped land and through enhancing green and heritage assets. The Council will co-ordinate and link the policies and proposals of this plan with other regeneration strategies in particular the 'Arc of Opportunity' regeneration zone which covers central Dudley, Brierley Hill, Quarry Bank and Lye, in addition to parts of Sandwell and West Birmingham. The prospectus/action plan includes a wide range of zone-wide regeneration initiatives, with a development focus in the Central Employment Zone. The canal route does not fall within any priority action zones, and therefore may be lower on the council's priorities for investment.
- 5.68 **Employment & Economy** The UDP sets out to ensure there is sufficient employment land of the right type and in the right place to cater for the needs of both local businesses and inward investment. Of increasing importance is the contribution made by office development and tourism in helping to diversify the Borough's economic base. These areas are likely growth sectors which have land use implications. At present most of the urban section of the route adjoins areas designated for industrial use under the policies listed above. There may be some potential for office use to take advantage of the enhanced environment and raised land values created by the canal, offering higher value sites that may attract inward investment.
- 5.69 **Access & Movement** The Council recognises that good accessibility and ease of personal movement is essential to maintaining the Borough's economic competitiveness and in enhancing people's working and living environment and their general quality of life. The canal would enhance pedestrian and cycling and facilities (AM11 & AM12), and policy AM13 stresses that rights of way are an important recreational facility within the borough. The Council will therefore endeavour to protect and enhance them as well as seeking opportunities to provide better facilities for walkers, cyclists and horse riders, for example by adding links to existing rights of way networks – the canal is a good opportunity to contribute to this, especially regarding links across Manor Way.
- 5.70 **Sport, Leisure & Recreation** The UDP states that new and improved sport, leisure and recreation facilities will be promoted and existing facilities will be given protection where necessary. The Council recognises that provision of open space and sport, leisure & recreation facilities has a key role to play in the revitalisation of the urban environment, supporting urban regeneration, economic growth, diversification of employment opportunities and contributing to quality of life and sense of belonging – thus enhancing the image of the borough and making it more attractive to investors. They are also beneficial to the public health and social wellbeing of the community; recreationally, educationally and even spiritually.

- 5.71 **Green Assets** This core policy states that the Borough's green assets and access to them will be protected, conserved and, where possible, enhanced, through the direct action of the Council and through the support of the local community and environmental agencies. The Borough's green assets include: wildlife and geology; watercourses; the green belt; the countryside and landscape; linear open space and urban green space including parks.
- 5.72 **Nature Conservation** Further details are given in detailed policies on nature conservation areas which affect the canal. Within the urban area these sites are often small and isolated. On their own they cannot support the wider needs of wildlife and the public wish to have access to natural areas. British Waterways has established links with the Birmingham & Black Country Wildlife Trust, and a Nature Conservation SPD is currently in progress which provides additional support for this group of policies. Overall, while there is potential for short-term disruption, the proposals will enhance biodiversity linkages and have potential to enhance biodiversity value for the canal corridor.
- 5.73 **Strategic Open Space** This section seeks to protect and enhance the Borough's strategically important open spaces. These provide a unique and precious asset. This is not just because of their landscape value but also their recreational value and value for wildlife. In particular the Linear Open Spaces (Policy SO2) maintain the open character of the area; link open spaces in the urban areas with green wedges and the open countryside provide important corridors for wildlife and provide recreation for neighbouring areas. In addition the Green Belt (SO1) makes an important contribution to the landscape character of the area and is protected. Policy SO6 identifies that a cornerstone of the open space network within the urban area is parks. This includes the Leasowes Grade I listed Historic which is unique to the Borough's heritage and acts as a major tourist attraction. The park can host larger events, drawing visitors from throughout the region. The policy identifies that community open space are used informally and provide for everyday casual leisure, visual amenity and social needs of the local community. The canal corridor is not designated as Linear Open Space at present, but improvements to it would fulfil the intended functions of this. The canal would be in keeping with Green Belt policy and has potential to link to and enhance the Leasowes in particular.
- 5.74 **Historic Environment** The Core policy S4 on Heritage Assets states that the Borough's heritage assets will be protected, conserved and where possible, enhanced. The overarching aim of this group of policies is to conserve the locally distinctive character of the historic environment as a whole, the Borough's existing townscapes and landscapes whilst also ensuring that new development respects and/or enhances the existing character of distinctive localities. A Historic Environment SPD is also being prepared to guide development. The canal does not fall within any landscape heritage or conservation areas. However the canal itself is considered as being of historic interest, and restoration would contribute to preserving local character.
- 5.75 **Canals** Dudley's extensive network of canals is cited as a major heritage asset in its own right; Policy HE7 highlights that the Borough's canal network is important for its archaeology, nature conservation and recreation, as well as both economic potential for tourism and the provision of high quality environments for new development. The policy commits to seek to improve the recreational, environmental, historic and nature conservation value of the canal network and enhance its attractiveness to

visitors by methods such as restoration. A Strategy for Dudley's Canals has been approved by the Council; this sets down guidelines for future development on canalsides and identifies opportunities for new development and other environmental enhancements. The Strategy does not highlight the Lapal for particular projects as little was known of the restoration's feasibility at the time of the strategy preparation. However, the restoration would contribute to the overall aims of the strategy and it is recommended that any update of the Canals strategy considers the updated proposals for the restoration.

LOCAL TRANSPORT PLANS

- 5.76 Local transport plans (LTP) are intended to set out the vision and strategy for transport policy within an authority for the following five years. LTPs are generally produced by county councils and by unitary authorities. The relevant LTP for this project is the West Midlands Transport Plan.
- 5.77 The second Local Transport Plans (LTP2s) covers 2006 – 2016. They highlight four key areas which are both current problems and future objectives, these are:
- ◆ Improving access to jobs and services;
 - ◆ Improving safety;
 - ◆ Reducing pollution;
 - ◆ Reducing congestion.
- 5.78 In addition to these LTPs are seen as an integrated way of improving quality of life issues such as health, crime and other community priorities.
- 5.79 In the case of the Lapal Canal the Local Transport Plans are unlikely to be directly relevant to the restoration, although the provision of a through cycle route would contribute to reducing congestion and pollution.
- 5.80 There are no major works identified within the LTP which would link with the restoration.

ROUTE-SPECIFIC POLICY & REGENERATION CONSTRAINTS & OPPORTUNITIES

- 5.81 This section examines the policy constraints and opportunities relating to the different sections of the proposed route, working east to west.
- 5.82 Paragraph 20.16 of the UDP states that the land between Harborne Lane and the Worcester and Birmingham Canal is a major crossroads for linear open spaces and that the development provides for the extension of the Bournbrook and Castle Walkways (E77 and E78), to link with the canal and protect their ecological and amenity value.
- 5.83 The canal is due to be restored from the junction with the Worcester & Birmingham canal at Selly Oak to Harborne Lane as part of agreements with the developer of the former Birmingham Battery at Selly Oak. This section is therefore outside the scope of this study, but demonstrates a commitment to integrating the canal into the local area and to its possible eventual restoration. The section, once complete, offers the opportunity to observe the benefits delivered. The route was identified as a missing

link in the linear open space, the other being the Somery Road depot at California. Paragraphs 16.13 and 16.30 of the UDP highlight the importance of completing and improving the walkway links between Woodgate Valley Park and Selly Oak.

- 5.84 Paragraph 20.16A states that any new development in [the Selly Oak] area should also assist with the future reinstatement of the former Dudley No. 2 (Lapal) Canal. New development should also be designed so that it is well related to both the existing Worcester and Birmingham Canal, and the reinstated Dudley No. 2 (Lapal) Canal.
- 5.85 It is worth noting that the current scheme up to Harborne Lane does not include a winding hole; the new section is therefore a dead end with no facility for boats to turn around, which would severely discourage any boats from entering the arm. It has been indicated that a mooring basin at Selly Oak Park, opening up a previous small basin adjacent to the bridge, would be acceptable to Birmingham Council. In order to encourage use of the newly created section and deliver benefits from boat use, it is important that some facility for boats to turn is incorporated.
- 5.86 Some S106 money from the Birmingham Battery development has been allocated for improvements to linear open space on the Bournbrook and Castle walkways (E77 & E78); how this will be used is not confirmed at this time. The canal line (designated as the Castle walkway) is currently in poor condition running to the north of Selly Oak Park and between the backs of homes; there are plans to upgrade this cycle and walking route.
- 5.87 Improvements have been carried out at the estate south of Somery Rd, but no further current or planned housing regeneration initiatives have been identified². The Selly Oak Action plan, though it has a strong focus on the Battery development, has identified a need for public realm improvements, improved open space and recreational facilities and improvements to wildlife corridors. Key to facilitating the restoration of the canal will be demonstrating how it can provide an improved local environment and recreational resource, allaying fears about safety.
- 5.88 In terms of further development that could be linked to the canal, there are few development sites available. Further development of retail sites adjacent to Harborne Lane could yield S106 funds to contribute to the restoration and improved public realm.
- 5.89 Further west, Weoley Castle ruins, a scheduled Ancient Monument (policy To4), form the south boundary of the canal. The site of Weoley Castle is not itself open to the public, though there is a viewing area and limited parking, with regular events being held. The ruins limit any expansion of the channel for towpath or visitor moorings, but offer great opportunity for linked educational and interpretative initiatives. The canal and the ruins can add value to each other as visitor or educational destinations. Paragraph 19.14 of the UDP highlights that Castle Walkway provides scope for linking Weoley Castle with other attractions in Selly Oak Constituency and ultimately with the City Centre (E78). A Heritage Lottery Fund bid is currently being prepared for improvements to educational facilities at Weoley Castle.

² Liz Jesper, BCC

- 5.90 The Castle Walkway extends through the Somery Road depot and the California recreation ground, site of the former tunnel portal and the area was used as a landfill site up to the 1970s, one of four landfill sites in the local area (the other relevant one to this study being on the north west side of the roundabout). There are no plans for remediation of the California site; a gas migration system is in place which meets current policy requirements and would be required to be preserved/replaced as part of any works. No accurate data exists on the fill material. In order to meet environmental regulations any excavations would require the excavation, screening, sorting and proper disposal of fill materials³. Reusing fill on site would require a waste management license.
- 5.91 The Somery Rd depot offers development potential in addition to forming a missing link in the linear open space; there is capacity for canalside development which could yield S106 funds.
- 5.92 The original tunnel started at the California site. Paragraph 16.30 states that the Lapal Tunnel, which formed part of the former Dudley No. 2 (Lapal) Canal, runs beneath the Woodgate Valley area, and that any development in the vicinity of the tunnel should not preclude the future reinstatement of the former Canal.
- 5.93 The preferred option, however, would go 'up and over' Woodgate Valley Country Park. Woodgate Valley is an important part of the Green Belt. This area forms part of a green wedge extending from the Worcestershire countryside into the built-up area. It contains several other areas of nature conservation and one scheduled ancient monument. Much of Woodgate Valley is included in the country park, which incorporates a visitors' centre. It provides a variety of open space, leisure and environmental education facilities to serve both local and wider needs. Opportunities to extend the range of facilities available should be made part of any detailed proposals for the canals. In the early stages, there are good opportunities for educational and interpretative links with the visitor centre, incorporating information about the canal into activities carried out there with local schools or for general visitors.
- 5.94 Woodgate Valley Country Park is also important in nature conservation terms. A number of specific Sites of Importance for Nature Conservation have been identified within the country park and these will need to be protected:
- ◆ Woodgate Valley (E75)
 - ◆ Watery Lane (E88)
 - ◆ Clapgate Lane Woodland (E89)
 - ◆ Meadows between Kitwell Lane/Wood Lane and M5 (E90)
 - ◆ Stonehouse Lane Relict Woodland (E91)
- 5.95 Outside the Country Park, Sites of Importance for Nature Conservation have been identified at Pills Wood (E69) and Quinton Meadows (E132).
- 5.96 The proposed tunnel route under the M5 and Quinton Expressway would route the canal through the lower end of Quinton Meadows to the south of the area proposed for high quality (B1) industrial / business uses (I37A). Para 16.28 of the UDP states

³ Kevin Royal, BCC, 16th November 2006

that “Approximately half of the site at the junction of the M5 and Quinton Expressway, known as Quinton Meadows, will be reserved for linked areas of public open space and for landscaping and regenerative planting (E73A and E73B). “ The canal would pass through area 73B.

- 5.97 This site currently has no pedestrian or cycle links to surrounding areas. Para 16.29 states that “The provision of a safe pedestrian link or links with the Woodgate Valley Country Park ... will be provided as part of the development of site I37A for business/ industrial uses, as will other local links to adjacent housing areas.” The towpath would meet this requirement, and contributions could form part of S106 agreements associated with planned development. The towpath would also provide through access for residents of Halesowen to the Country Park.
- 5.98 The A456 is subject of a draft revocation and detrunking order and, subject to agreement with all the relevant highway authorities, is likely to be detrunked in the next few years (the A449, part of the same order, is expected to be detrunked on May 1st 2007). This would mean that any crossing of the A456 would be subject to negotiation with the local highway authority NOT the highways agency. In this instance the local highway authority is Birmingham City Council or Dudley Metropolitan Borough Council depending on which side of the Motorway, and if these authorities are already persuaded of the value of restoration then negotiating for the crossing will be facilitated. Dudley would still have to have regard for traffic safety, financial liabilities and their own transport agenda but unlike the Highways Agency it would be within their gift to take a more sympathetic view of the crossing.
- 5.99 It should be noted however, that Junction 3 of the M5 will remain in Highways Agency control even when the A456 is detrunked, and negotiations will be required for crossing the M5 here or anywhere else.
- 5.100 Beyond the M5 the proposed canal line enters Dudley MBC and an area of designated Green Belt, soon rejoining its original line. Policy SO1 states that within the Green Belt development will not be permitted except in very special circumstances unless for: essential facilities for outdoor sport and recreation, for uses which preserve the openness of the Green Belt and do not conflict with the purposes of the Green Belt; limited extension and/or alteration to buildings or the replacement of dwellings or limited infilling.
- 5.101 The canal itself would be in keeping with Green Belt policies; in the recent past applications for residential development have been strongly resisted and most canalside development would not be currently supported. The exception would be adjacent to the Black Horse pub on Manor Way where several small sites, currently developed but apparently underused, exist. The Black Horse itself is currently ‘cut off’ from Halesowen by the dual carriageway; the reinstatement of the canal would offer significant benefits in terms of local trade and opportunities for expansion which would be in accordance with policies on economy and diversification. If access issues are not deemed an impediment, this area could support office, leisure or residential uses. The presence of bus routes along the A456, and the mooted tramways, along with the ability to use the canal as a pedestrian and cycle route in both directions, would make these sites very attractive in terms of sustainable travel.
- 5.102 Policy SO3 (Access & Enhancement of Green Belt & Linear Open Space) states that the Council will seek to ensure that public access to, through and within the

Borough's Green Belt, and Linear Open Space is protected and where possible enhanced. The canal is not currently designated as linear open space; however the proposals would effectively make it so, and a towpath crossing of Manor Way would significantly enhance access to the Green Belt areas south of Manor Way.

- 5.103 In this section of the canal, policies for the protection of heritage would apply to routing to the north of the Fish Ponds and St Mary's Abbey. Policy HE9 (Scheduled Ancient Monuments & Other sites of National Importance) states that wherever possible and appropriate, the Council will seek to enhance these and other sites so as to exploit fully their archaeological, recreational and educational value and, where appropriate, their attractiveness and accessibility to all visitors. Policy EE5 aims to encourage the Borough's tourism industry by: supporting developments which promote tourism where they would be in keeping with the environment and character of an area; expanding the range of visitor attractions and experiences in town centres and other accessible locations; improving the accessibility to tourist attractions; and improving existing tourist facilities and attractions.
- 5.104 The proposals will improve access to the canal, itself a historic asset, and would build on the borough's existing canal tourism offer, with a predominantly local market. They would provide for improved access to and interpretation of historic assets of St Mary's Abbey and, further north, the Leasowes Park. Providing an alternative through-route for boats through the Black Country and a weekend cruising ring would offer increase benefits from boat-based visitors.
- 5.105 The restoration of the canal north of Manor Way would require consideration of Dudley's policies on environmental protection. Much of the canal route north of Manor way is classified as SLINC with on e area of SINC. It will be required to protect areas of high ecological value in the design and layout of the proposal and provide appropriate mitigation for the loss of any areas of nature conservation value. Measures to protect the integrity of corridor and linear features will be required within layout and design of proposals; these could offer the opportunity to enhance nature conservation value.
- 5.106 Land to the west of the canal as it passed the Leasowes, and north of Manor Way, is designated as an industrial area covered by Policy EE1. Policy EE2 on Local employment areas covers the site close to the crossing at Manor Way. On these sites, acceptable employment uses are: B1 - Research and Development and Light Industry; B2 - General Industrial; B8 - Warehousing, Storage and Distribution; and for EE2, those commercial uses which are not pure retail. Policy EE3 seeks to protect existing employment sites; the proposals would not contradict the aims of this policy.
- 5.107 The Council's vision for Halesowen is as a town providing a focus for shopping activity and a broad range of other uses serving the community such as jobs, housing, leisure, entertainment and health facilities. The river Stour is seen as having potential for development. There is potential for the canal to form part of non-traffic links from further afield
- 5.108 The Council's Waterfront Impact Study highlighted the success of the Merry Hill waterfront development in raising the profile of the Borough as a prestigious office location. At present, development is to be focused in town centres; there is little potential for office development along the route except, potentially, in small pockets just north of Manor Way. Policy EE4 could permit, in principle, office development

which is accessible by a choice of travel modes including public transport, walking and cycling; can create a high quality environment; and contributes to providing an appropriate mix of uses, including care facilities.

CONCLUSIONS & RECOMMENDATIONS

5.109 From the assessment of the scheme against the planning policy context, it is evident that the scheme facilitates the objectives of certain relevant policies but it also hinders others as summarised in this section.

5.110 Based on the above review, the key conclusions are as follows:

- ◆ The historic alignment of the Lapal Canal is in general safeguarded in the current UDPs and as such, the restoration of the canal would be supported as long as the restoration complies with other local plan policies.
- ◆ The Lapal Canal forms an important wildlife corridor and area of linear open space. This could be enhanced by the restoration, with appropriate mitigation of any potential temporary effects. In the medium to long term a restored canal is likely to offer biodiversity benefits; a community and political focus on Woodgate Valley as the destination for a major canal project would have potential to attract funding and support for biodiversity enhancement in addition to those stemming from sensitive and imaginative design of the canal environment itself.
- ◆ The restoration of the canal would facilitate the objectives of PPG17 and local planning and transport policies in restoring and enhancing an important recreational asset. It would provide a traffic-free link between Halesowen and Selly Oak, a route currently obstructed by major roads.
- ◆ It is considered that restoring the canal would meet objectives relating to improving accessibility for pedestrians, cyclists and equestrians and in promoting informal recreation.
- ◆ Restoration of the canal would provide an opportunity to diversify the economy and create an important leisure and recreational facility which enhances the offer of the Birmingham and Black Country areas, and is supported by Government's policy on canals and waterways 'Waterways for Tomorrow'.
- ◆ Proposals for water based recreation associated with the Lapal canal are likely to be supported through local planning policy provided that they do not harm landscape character, nature conservation and cultural heritage.
- ◆ Most development plans contain policies that require proposals not to affect the quality of watercourses and fisheries, nor intensify the flood risk or affect the flood protection function of watercourses. It is considered that any effects could be ameliorated or incorporated into scheme design.
- ◆ The restoration of the Lapal canal would conflict with certain policy objectives which seek to protect local 'green assets' as the proposals affect the Woodgate Valley Country Park and a further area of Green Belt south of Manor Way. It would be essential that appropriate mitigation measures are required to be built into the scheme design in order that the canal enhances key landscape and environmental assets; this is likely to be achievable through careful design based on community and expert stakeholder consultation. In the case of a marina and associated development at Woodgate Valley, quality development which offers enhancements to aging visitor facilities and benefits to local businesses

alongside any recreational operation or mixed use development could act as a focus for local pride and recreational/educational activity and a catalyst for regeneration in the area.

- 5.111 It is recommended that the canal alignment, once chosen following the technical assessments that are currently informing the preferred canal alignment, is lobbied for inclusion in the emerging relevant Local Development Documents and as such, safeguarded for restoration. This is particularly necessary for the 'new' stretch of canal through Woodgate Valley Country Park where planning support must be established in principle, and for the Eastern section through Selly Oak which is currently proposed to remain as linear open space alone. It is recommended that Local Development Schemes be monitored for updates to potentially relevant documents, in order that the Trust is able to comment on and influence the content of these at the correct time.
- 5.112 Communications should not be limited to the two local authorities. There exists an influential network of residents groups and ward committees, as well as the managers and operators of the Country Park and other local recreational sites. It is recommended that the Trust work closely with relevant organisations to grow public understanding of and support for the scheme. Working alongside local groups to raise awareness and establish
- 5.113 In the short term, it is proposed that ongoing local improvements take into consideration the potential for restoration. Improvements stemming from the Sainsbury's development should not hinder future incremental restoration westwards. This could include ensuring that any improved cycleways or footpaths along Castle Walkway are positioned along the line of the proposed towpath rather than central to the proposed restored channel, and that interpretation or signage reflects the significance of the canal.
- 5.114 In order that benefits from the initial stretch of restored canal are seen and maximised, it is recommended that a winding hole and small mooring basin be created at Selly Oak Park. If no winding hole is provided, the chances of the arm being used by boats are minimal and the envisaged benefits of activity will not be seen. This would be likely to prejudice future support for incremental restoration.
- 5.115 Given the extent of the restoration works required, and the likely significant environmental effects, it is expected that an Environmental Impact Assessment under Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 1999, will be required. As the works are unlikely to be undertaken as a single development, it is recommended that a Strategic Environmental Assessment is prepared to support each planning application, with individual Environmental Assessments being prepared for each stage of the works

6. Ecology

INTRODUCTION

- 6.1 As part of the commission, Atkins Limited were instructed by the Lapal Canal Trust to undertake an initial assessment of the potential ecological constraints to the restoration of 10km the Lapal Canal from Halesowen to Selly Oak in the outskirts of Birmingham. The route of this canal is shown on the attached drawing (Drawing No.006).
- 6.2 This report comprises ecological information obtained from a desk study and a walkover survey undertaken on 8th November 2006 and lists the ecological constraints to the proposed restoration of the canal. Key ecological features are shown on the attached Constraints Plan. The legislation relevant to the project is listed in the table below.

Table 6.1 – Relevant Legislation

Protected species	Legislation	Offences	Licensing procedures
Great crested newt	Wildlife and Countryside Act 1981	To kill, injure, disturb or take a great crested newt or to damage, destroy or obstruct access to a place used for shelter or protection by a great crested newt	Licenses issued for survey, conservation and education by Natural England
	Conservation (Natural Habitats &c.) Regulations 1994	To kill injure or take a great crested newt or to damage, destroy or obstruct access to a place used for shelter or protection by a great crested newt	Licenses issued for development by the Department for the Environment, Food and Rural Affairs (Defra) through Natural England
Badger	Protection of Badgers Act 1992	To take, kill, injure or disturb a badger or to damage, destroy or obstruct access to a badger sett	Licenses issued by the Natural England
Bats (all species)	Wildlife and Countryside Act 1981	To kill, injure, disturb or take a great crested newt or to damage, destroy or obstruct access to a place used for shelter or protection by a bat	Licenses issued for survey, conservation and education by Natural England
	Conservation Regulations 1994	To kill, injure or take a great crested newt; to damage, destroy or obstruct access to a place used for shelter or protection by a bat; or to disturb a bat while in such a place	Licenses issued for development by the Department for the Environment, Food and Rural Affairs (Defra) through Natural England

- 6.3 This ecological constraints report is intended for advice only in respect of project design, site layout and/or site investigation and is not for use as part of a supporting statement to a planning application, nor within an Environmental Impact Assessment.

Further ecological surveys and an ecological impact assessment may be required. Further ecological advice will be required prior to intrusive site investigations.

METHODOLOGY

- 6.4 The proposed route of the canal is shown on Drawing 50xxxxx/xxx (Site Layout).
- 6.5 The Multi-Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk) and the Nature-on-the-Map website, maintained by Natural England, (www.natureonthemap.org.uk) was reviewed for information on nationally and internationally designated sites of nature conservation importance within 1km of the boundary of the proposed canal route.
- 6.6 Information on locally designated sites of nature conservation importance (Site of Importance for Nature Conservation (SINC) and Sites of Local Importance for Nature Conservation (SLINC) was obtained from the Unitary Development Plans for Dudley Metropolitan Borough Council and Birmingham City Council
- 6.7 A walk-over survey of the canal route was undertaken by an Atkins ecologist on 8th November 2006. The survey broadly followed the 'Extended Phase 1' methodology as set out in Guidelines for Baseline Ecological Assessment (Institute of Environmental Assessment, 1995). This method of survey provides information on the habitats in the survey area and assesses the potential for legally protected species to occur on or adjacent to the site.
- 6.8 The survey was limited to areas of public access, including public footpaths and public open spaces.
- 6.9 A search was made for evidence of the presence of giant hogweed and Japanese knotweed within and immediately adjacent to the site. These are invasive plant species listed in Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) and subject to strict legal control.
- 6.10 The ecological walk-over survey has not tried to produce a comprehensive list of plants and animals as any ecological survey will be limited by factors that affect the presence of plants and animals such as the time of year, migration patterns and behaviour. However, the results of this constraints assessment permit an initial assessment of the ecological value of the site, the potential for negative impacts from the proposed development, and opportunities to enhance the existing habitats and/or create new habitat.

DESK STUDY RESULTS

- 6.11 There are no internationally important sites for nature conservation (Special Areas of Conservation, Special Protection Areas or Wetlands of International Importance) within 1km of the proposed canal route.
- 6.12 The Bromsgrove Road Cutting, Tenterfields Site of Special Scientific Interest is situated approximately 230m to the east of the proposed canal route within Halesowen. The location of this site in relation to the proposed canal route is shown

on the Constraints Plan (Drawing xxx). This site has also been designated as a Local Nature Reserve by the Dudley Metropolitan Borough Council.

- 6.13 There are no other nationally important sites for nature conservation (National Nature Reserves) within 1km of the proposed canal route.
- 6.14 A number of non-statutory Sites of Importance for Nature Conservation (SINC) are present on or close to the route of the canal, which are listed in the following table. The locations of these sites are shown on the Constraints Plan.

Table 6.2 – SINC Sites

Sites of Importance for Nature Conservation within 1km of the proposed canal route	Local Planning Authority
Woodgate Valley SINC	Birmingham
Watery Lane SINC	Birmingham
Clapgate Lane SINC	Birmingham
Meadows between Kitwell Lane, Wood Lane and the M5 SINC	Birmingham
Stonehouse Lane SINC	Birmingham
Quinton Meadows SINC	Birmingham
Coopers Wood & Lyeclose meadow, Meadows at Illey & Kitswell dingle SINC	Dudley
Illey Brook and Tributary SINC	Dudley
The Leasowes SINC	Dudley
Leasowes Canal Embankment SINC	Dudley
Manor Abbey Wood SINC	Dudley
River Stour Valley & Furnace Coppice SINC	Dudley
Dudley No. 2 Canal SLINC	Dudley
Illey Brook & tributaries SLINC	Dudley
River Stour & Tributaries, associated Stour Valley habitats SLINC	Dudley
Lapal Green Lanes, Streams & Hedges SLINC	Dudley
Lapal Lodge SLINC	Dudley
The Leasowes Park & Golf Course and Top Field SLINC	Dudley
Lower Illey SLINC	Dudley
St John's Churchyard, Halesowen SLINC	Dudley

SITE DESCRIPTION AND KEY ECOLOGICAL CONSTRAINTS

- 6.15 The description of the proposed canal route (including sections of existing canal, disused and in-filled sections and proposed new alignment to through the Woodgate valley as an alternative to the Lapal Tunnel) has been split into four sections:
- ◆ the route to the north of Manor Way
 - ◆ from Manor Way to the M5;
 - ◆ from the M5 to West Boulevard (B4121);
 - ◆ from West Boulevard to Harbourne Lane (A4040)

North of Manor Way

- 6.16 The route of the canal runs through part of the Mucklow Hill Industrial estate. To the north of the industrial estate the canal is in water and has been designated as a Site of Local Importance for Nature Conservation (SLINC). Between Mucklow Hill and Manor Way the canal runs through the Leasowes Country Park. The northern part is in water but the line of the canal has been in-filled at the southern end near Manor Way. Sites of Importance for Nature Conservation (SINC) and SLINCs are present between Mucklow Hill and Manor Way.
- 6.17 The sections of the canal which are in water have the potential to be used as breeding ponds by great crested newts. Scrub vegetation which has developed on in-filled sections of canal and the existing canal banks has the potential to be used by breeding birds.

Manor Way to the M5

- 6.18 To the south of Manor Way the proposed route of the canal passes through agricultural land. This includes areas of improved and poor semi-improved grazing pasture for cattle and horse. The line of the former canal is not visible but is likely to have run roughly parallel to the stream which runs from Lapal Lane to Manor Abbey Farm. The eastern of the two Options for crossing Manor Way would bring the canal through an area of woodland on a bank which has the potential provide suitable locations for badgers to dig their setts. This woodland could not be surveyed as it was not accessible via public footpaths.
- 6.19 Woodland and hedges within this area have the potential to be used by breeding birds. It is not known whether mature trees are present within the woodland that may contain features suitable for use as roost sites by bat species.
- 6.20 The proposed canal route passes through the Lapal Lodge SLINC to the east of Lapal Lane.

M5 to West Boulevard

- 6.21 The proposed tunnel under Junction 3 of the M5 emerges within the Quinton Meadows SINC which is situated between the M5 and the Quinton Expressway. After

passing under the Expressway the proposed route continues through the Woodgate Valley Country Park which has also been designated as a SINC.

- 6.22 Small stands of Japanese knotweed, an invasive plant species, were present on or close to the proposed route of the canal. It is likely that these stands had been sprayed with herbicide earlier in the year.
- 6.23 A small area of semi-improved grassland is present at the eastern end of this section where the proposed route of the canal will enter a tunnel under the junction of West Boulevard and Barnes Hill on the B4121. This grassland is considered to be of nature conservation value within the context of the local (parish) area. This grassland is within the Woodgate Valley SINC.
- 6.24 Areas of woodland and scrub within the Woodgate Valley Country Park have the potential to support badgers, bats and breeding birds.

West Boulevard to Harborne Road

- 6.25 The proposed route follows that of the former canal which has been left as a corridor between areas of residential properties. The line of the canal has been in-filled and in places has become colonised scrub woodland. Mature trees are present along either side of the canal route.
- 6.26 A large number of stands of Japanese knotweed are present along the line of the canal as shown on the Constraints Plan (Drawing No. xxx). These stands had not been treated with herbicide.
- 6.27 The existing section of canal route which has not been in-filled within Selly Oak Park has the potential to provide suitable habitat for breeding great crested newts.
- 6.28 Scrub and mature trees along the canal route have the potential to be used by breeding birds and the mature trees may contain features suitable to be used by roosting bats.

RECOMMENDATIONS

- 6.29 **Further studies** – Further detailed ecology surveys will be required to determine mitigation and licence requirements in relation to legally protected species prior to site investigation or construction works.
- 6.30 **Birds** – Removal of any vegetation for any purposes should be undertaken outside the bird breeding season (1 February to 30 September). If this is not possible, an ecologist must check the area for nesting birds less than 24 hours prior to commencement of works. Active nests and their associated vegetation must remain until young birds have left the nest and the nest is no longer in use.
- 6.31 **Great crested newts** – No works can be undertaken on the route of the proposed canal without further ecological advice in relation to great crested newts. Habitats are present which may support great crested newts. Great crested newts are known to utilise areas of terrestrial habitat up to 500m from breeding ponds. Further surveys should include an assessment of all bodies of water within 500m of the proposed works (Great Crested Newt Mitigation Guidelines, English Nature 2001).

- 6.32 **Badgers** – No works should be undertaken within 30m of active badger sett without a licence from Natural England. Areas of suitable habitat for badgers to dig setts are present on or close to the proposed route of the canal.
- 6.33 **Bats** – No works may be undertaken which could affect a bat roost or disturb roosting bats without a licence from Natural England. All mature trees likely to be affected by the proposed works should be surveyed by a bat specialist prior to the commencement of works.
- 6.34 **Japanese knotweed** – the spread of this plant species is strictly controlled under current UK legislation. Where possible knotweed stands should be treated by spraying with suitable herbicide for two to three years until no new growth is encountered in accordance with The Knotweed Code of Practice; Managing Japanese Knotweed on Development Sites, Environment Agency 2006. If spraying is not possible stands of knotweed may be excavated and removed from site to a landfill site which is licensed to receive contaminated waste. Where stands are to be excavated, the material removed should include all soil to a depth of 3m and at least 7m out from each stand to ensure that all root material is removed to prevent regrowth. It is anticipated that excavation and removal of Japanese knotweed stands might involve excessive cost and engineering constraints. It is also likely that the areas which would need to be excavated could impact upon private properties on either side of the canal route.
- 6.35 **Sites of Importance for Nature Conservation (SINC) and Sites of Local Importance for Nature Conservation (SLINC)** – no works should be undertaken within SINC or SLINC without prior consultation with the relevant Local Planning Authority. It is considered likely that compensation would be required for any habitats affected on a minimum one-to-one basis and this would be effected through the planning process. In some places this may be possible through the translocation of vegetation during construction works.
- 6.36 **Semi-improved grassland** – this grassland is included within the Woodgate Valley SINC at its eastern end close to Western Boulevard and is therefore subject to protection under that non-statutory designation. It is recommended that this area of grassland should be translocated to a suitable receptor site during construction.
- 6.37 **Resurvey of site** – Further detailed ecological surveys are required prior to the commencement of works due to the mobility of animals and the potential for colonisation of the site. These surveys should be undertaken in accordance with the timetable given below and therefore advance notice may be required to ensure surveys are undertaken at appropriate times.
- 6.38 **Timing of re-survey** – the table on the following page summarises suitable periods for undertaking species surveys.

Table 6.3 – Timing for Species Surveys

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Extended Phase 1 /Assessment of Ecological impacts			Extended phase 1 surveys can be undertaken at all times of year but the optimum survey period to record vegetation is March to August									
Great crested newt			Critical survey period is April & May									
Bats	Inspection of trees			Emergence & activity surveys								
Badger setts												

7. Heritage

- 7.1 In considering the impact of the restoration upon heritage, our prime consideration is the heritage value of navigational structures, as these will need to be renovated or replaced as part of restoration. For the most part, the canal will sit in the footprint of the original canal, and thus wider heritage and archaeological conditions are not an issue. However, there is a brief consideration of the impact of the canal restoration diverts from the original route, and also of canal side structures that are not affected by the restoration works per se, but will benefit from the restoration.

NAVIGATION WORKS

- 7.2 The sections headed “What Remains Today” and “Proposed Works and Costings” cover all canal structures, and the reader should refer to this for more detail.
- 7.3 Where possible the restoration proposals make use of the original alignment of the canal.
- 7.4 The extent of deviations from the original line is as below:
- 7.5 For either main route option, restoration between Hawne Basin and Mucklow Hill may be offline due to the presence of the extension to Newbank Forge in the former channel.
- 7.6 For the main route option with the replacement of Lapal Tunnel (Option A), the sections from Fordrove to the Black Horse Pub and the tunnel itself would not follow the line of the original canal.
- 7.7 For the “up and over” option (Option B), the section from Fordrove to California would be restored off-line (however, the majority of this section replaces the original tunnel).
- 7.8 It is recommended that an archaeological impact assessment is carried out on these diversions, and that a watching brief is maintained during construction.

CANAL STRUCTURES

- 7.9 In the main the canal restoration will affect the remaining canal structures listed below:
- ◆ The Heywood Bridge at Mucklow Hill, which is completely buried and inaccessible, but believed to be extant, at least in part;
 - ◆ The weir at Leasowes Park;
 - ◆ Leasowes Embankment;
 - ◆ Leasowes Stop Gate narrows;
 - ◆ Remains of the Brewin Accelerator pumping station;
 - ◆ The Lapal Tunnel, which, again, is completely buried but still extant;
 - ◆ Somery Road Bridge, currently infilled but extant;

- ◆ Weoley Park Bridge, in generally good condition.

7.10 There are therefore very few original structures still in existence.

7.11 Taking each structure in turn:

Heywood Bridge

7.12 The Heywood Bridge is believed to have been incorporated in the culvert carrying residual flows under the widened Muclow Hill road. If its location and condition can be proved, it may be possible to incorporate the masonry arch barrel in the Mucklow Hill crossing included in the Stage 4 works.

Leasowes Park Weir

7.13 The weir was cosmetically restored by the Waterways Recovery Group in the 1990s, but not put into service due to defects in the discharge pipeline downstream. However, as part of a wider restoration scheme, it should be possible to put the weir back into service. This would require survey and repair of the downstream pipe network and some vegetation clearance works to the weir itself.

Leasowes Embankment

7.14 The Leasowes Embankment is of considerable heritage interest as an early example of a high, engineered, canal embankment. The embankment was restored in the 1990s and the proposed restoration scheme would be beneficial in terms of adding context to the 1990s work by re-opening the embankment to boat traffic.

Leasowes Stop Gate Narrows

7.15 The original stop gate narrows south of the Leasowes embankment has survived. The brick built structure is in generally good condition. Again, the restoration would be beneficial in terms of added context: part of the restoration scheme being to install new stop gates to complete the structure and demonstrate its purpose.

Brewin Accelerator Pump House Remains

7.16 The Brewin Accelerator has been discussed elsewhere in this report. Little more than the footings is thought to survive, but the project would be beneficial by opening up access to the remains and offering interpretation.

The Lapal Tunnel

7.17 The Lapal Tunnel is of some significance, and indeed was one of the longest canal tunnels in the UK. Sadly it was of very narrow construction, which would be entirely unsuitable for use in the modern context, even if fully restored. Both portals are buried and there are thought to be several collapsed sections within the tunnel. Three options are available for the canal restoration:

- ◆ Bore a new tunnel on the original line, using the original tunnel as a “pilot bore – this would have many engineering problems, not least overcoming the difficult lining loading conditions at each of the former construction shafts, and is also not

favourable from a heritage point of view as it would result in almost total destruction of any traces of the original structure;

- ◆ Bore a new tunnel parallel to the original line – this is probably the best option from a heritage point of view and would allow the original portals to be exposed for interpretation. However costs are extremely high;
- ◆ Leave the tunnel in its present condition (but improve interpretation at each portal), and restore the canal using a different horizontal and vertical alignment, the preferred option.

Somery Road Bridge

- 7.18 The bridge is currently infilled but is believed to be in reasonable condition. Restoration of the canal would include a sympathetic rehabilitation of the bridge, re-using as much as possible of the original structure.

Weoley Park Bridge (also known as Park Lodge Bridge)

- 7.19 This bridge stands in Selly Oak Park, largely unaltered since the canal was abandoned. Minor repairs are likely to be necessary, and should be conducted in a sympathetic manner.

CANAL SIDE HERITAGE

- 7.20 There are three groups of buildings adjacent to or near the canal that are of special interest. These are:
- ◆ The Heywood Forge, north of Mucklow Hill;
 - ◆ The remains of St Mary's Abbey;
 - ◆ Weoley Castle.
- 7.21 The restoration will improve access and interpretation of these buildings.
- 7.22 Leasowes Park is also of considerable heritage value, impacts are discussed elsewhere in the report.

8. Socio-Economic Benefits

INTRODUCTION

- 8.1 Within this section we investigate the likely social and economic benefits arising from the full restoration of the Lapal Canal.
- 8.2 The proposed restoration of the Lapal Canal would create a valuable facility for the local area. However, these intangible benefits cannot readily be valued any more than an urban park or a rural footpath can be valued. It is the economic benefits to the canal corridor that will form a key justification when seeking funds to progress the scheme. This section evaluates these economic benefits and compares them with the capital cost of the scheme to give an indication of value for money.
- 8.3 The benefits arising from the canal restoration relate to the potential for:
- ◆ Water-based recreation activities, such as hire and privately owned boats, trip and restaurant boats, canoeing and angling;
 - ◆ Land-based recreation activities, such as walking, cycling, horse riding, sightseeing, picnicking and bird watching;
 - ◆ Development opportunities associated with canal restoration, including the provision of facilities for use of the canal;
 - ◆ Expenditure on construction and maintenance of the canal, in addition to the boats and other facilities associated with the use of the canal.
- 8.4 The primary economic benefits will arise from an increase in visitors to the area, and an increase in the amount of money visitors spend whilst in the area. At point of purchase, all this money is spent within the local economy; however, some goes on to be recycled within the local economy as well, in that outlets servicing visitors use local labour and local suppliers. This gives a multiplier effect in that for every £1 spent in the local economy, more than one pound's worth of value is gained. In calculating costs and benefits, we have not used this multiplier effect, but its presence should be noted, as it means that the overall economic benefit is greater than described in this report. The level of spend within the local economy and the multiplier affecting how much remains within it is dependent on what opportunities for spending there are within the local area.
- 8.5 In addition to benefits from visitor spend, there is an economic benefit from the construction phase of the work, as local labour and plant will be used in much of the construction. This is also considered without a multiplier, again meaning that actual economic benefits are greater than described in this report.
- 8.6 As well as the economic benefits of the scheme there are, as mentioned above, intangible social effects to be gained from increase in access to recreation areas and changes in the local environment. While various methodologies do exist for valuing these social benefits in financial terms, this report will not attempt to quantify them.

- 8.7 Two principal options have been examined in terms of engineering and environmental feasibility and costs, with phasing of restoration identified. For the purposes of this study we have concentrated only on new revenue to be generated by the scheme. We have not included existing revenue from operations (for example, existing marinas). It must be noted that figures used in calculations are based on UK averages or studies carried out elsewhere, adjusted where possible to take account of local data. These figures are based on the existence of spending opportunities in the canal catchment area. Section 8.74 and following sections note where potential development opportunities lie. The inner-city nature of much of the route and the lack of spending opportunities currently in existence mean that conservative estimates have been made of economic benefits.
- 8.8 The length of canal proposed for restoration is from Hawne Basin on the Dudley no.2 Canal to Selly Oak on the Worcester and Birmingham Canal. At the proposed junction in Selly Oak the Worcester and Birmingham Canal is a through route forming part of the Stourport ring and also forming part of the Avon and Warwickshire rings for those boaters who choose to pass through central Birmingham on these routes. Hawne Basin is at the end of a branch from Windmill End, where the Dudley no. 2 Canal forms part of a through route between the Staffordshire and Worcestershire Canal at Stourton and the BCN main line beyond Netherton Tunnel. This route is part of one option for the Stourport Ring, while the BCN Main Line is part of the West Midland Ring and the alternative route for the Stourport Ring.

OVERVIEW OF ASSESSMENT ASSUMPTIONS

- 8.9 In assessing economic effect we have relied on a range of previously published studies as well as our own experience. BW have, over the last decade, developed a tourism and leisure demand model which has been applied to a number of different canal and waterway projects to test its validity. Where appropriate we have based our calculations on the assumptions contained within this model.
- 8.10 The first step is to estimate the number of potential canal users. This is broken down by type (boaters, cyclists, anglers etc.) Where possible this is drawn from available data (boat licenses, pedestrian counters) for similar projects, but this data often does not exist or is several years out of date. 'Proxies' are therefore used, such as national survey data.
- 8.11 Expenditure associated with additional visitors of different types is calculated through estimating activity patterns. Average spend per head estimates drawn from national and local surveys are then applied to these visitor numbers to obtain an overall expenditure figure. For this study we have used expenditure figures used by BW in their 2006 'Economic Evaluation of the Restoration of the Kennet & Avon Canal' as set out in Table 8.1 below, adjusted where appropriate to match known local conditions on the Birmingham and Black Country canals

Visitor Type	Expenditure Category	Expenditure	Source/ Rationale
Moored Boats: Boat-related expenditure	Annual boat running costs (excl. Licence fee & moorings)	£870.46	Private Boating Price-Demand Study, 1997 (BW/EA), Inflated
	Moorings fees p.a.	£655.47	Private Boating Price-

Visitor Type	Expenditure Category	Expenditure	Source/ Rationale
			Demand Study, 1997 (BW/EA), Inflated
Moored Boats: Non-cruising visits	Non-cruising visits - spend per head	£11.01	BW Log Book Survey, 1993, Inflated
Moored Boats: Cruising Trips	Mean spend/person/day	£9.44	BW Log Book Survey, 1993, Inflated
Visiting Boats: Cruising trips	Mean spend/person/day - private	£9.44	Hire Boat Survey, 1990, Inflated
	Mean spend/person/day - hire	£13.32	Hire Boat Survey, 1991, Inflated
Hire Boats	Av.cost/hire(£s)	£761.39	Shoulder rates for 7-day hire of 4-berth boat
	Cruising spend per person per day	£13.32	1990 BW Hire Boat survey, Inflated
Trip Boats	Av.cost per trip	£4.98	Average cost based on BW System
Day Boats	Boat hire cost per day	£52.44	Based on Day boat operations on BW system
	Cruising spend per person per day	£11.00	UKDVS 2002/3 'water with boats' category
Canoeing	Visitor spend per visit	£3.20	BW Owners of Unpowered Boats Survey 1995, Inflated
Angling	Visitor spend per trip (incl. travel/permits)	£6.50	BW Survey of Individual Anglers, 1996, Inflated
Cycling	Visitor spend per trip (incl. travel)	£7.01	BW K&A Towpath Survey 2005
Informal Visitors	Visitor spend per trip	£4.57	BW Day Visit Survey 2004
Overnight (Holiday) Visitors	Visitor spend per day (incl. travel/accommodation)	£55.00	UK Tourism Survey 2004

Source: BW/ECOTEC (Ref 11)

Table 8-1 – Summary of spend by user type

8.12 To convert predicted boat numbers into a figure for the number of canal visitors, we use similar assumptions to this recent BW study which are based on various British Waterways reports and statistics. These assumptions are:

- ◆ Hire boats: There are 23 7-day hires per boat per year, with an average craft occupancy of 4.1 people. We have assumed, for the purposes of this study, that private boats have the same occupancy rate.
- ◆ Trip boats: Average craft capacity is assumed to be 40 people, with an average occupancy rate of 70%. An average of 450 annual trips is assumed (2 trips per day over a 25-week season, plus 4 trips per day at weekends).
- ◆ Day Boats: Assumed to be hired for an average of 115 days per year, with an average craft occupancy of 4.1 people per boat.

8.13 Employment directly resulting from visitor expenditure is calculated using standard industry multipliers. 1 full-time equivalent (FTE) job is assumed to result from each £34,000 expenditure on tourism and leisure, and 1 FTE is assumed to result from each £68,000 expenditure on boating materials and supplies. These figures are those used in the analysis of the Kennet & Avon report.

8.14 Calculating visitor numbers takes account of additionality assumptions as for the Kennet & Avon Study and assumes that 80% of cycling and informal day-visits would take place elsewhere in the local area in the absence of the canal restoration programme (20% of day-visits are thus net additional as a result of the canal). In the case of overnight visitors, only 15% of visits would be made to the sub-region in the absence of the canal. All boating and angling activity is assumed to be additional to the canal and its corridor.

WATER-BASED RECREATION

8.15 Boat use tends to be split fairly evenly between hire boats and private boats. Given the range of routes available in the Lapal Canal's potential catchment area, calculating boat movements is not straightforward. We have based estimates on BW 2005/6 lock usage figures collected for the main lock flights in the area, as shown in Table 8.2 below. This table attempts to match lock movements with possible through routes of boats, based on estimated traffic on the various rings and routes and discussions with BW. The darker shading indicates routes where boats are more likely to divert through the Lapal Canal.

	Audlem	Gailey	W'hampton	Farmers Bridge	Lapworth	Hatton	T'bigge	York St	Stourton
Warks Ring 1				700	700	700			
Warks ring 2						1100			
West mids		1200	1200	1200					
stourport 1			700				700	700	
stourport 2							500	500	500
avon ring 1					1400		1200		
avon ring 2				200			200		
Knowle Ring				500	500				
stourbridge ring			200						200
four counties	4000	4000							
out and back	1100	1400	1200	0	2400	1000	0	2000	1000
total	5100	6600	3300	2600	5000	2800	2600	3200	1700
recorded total lock movements	5100	6600	3300	2600	5000	2800	2600	3200	1800

Table 8-2 – Lock movements in local area

8.16 We have used the figures to form a view on the likely range of figures that could realistically be forecast to use a six mile long canal with twenty locks where alternatives exist: the fact that alternatives exist is not necessarily a bad thing as it allows for one-way passage with an alternative, less energetic, return. It would be unrealistic to expect the route to out-perform Lapworth, the busiest flight in the area,

and it is unlikely to do worse than Stourton, even though there are local canals (the northern BCN) which do have lower traffic figures: thus these define the range of likely traffic.

8.17 We have taken the view that Lapworth is an exceptional case because (i) it is the preferred route on two rings (Avon and Warwickshire) and (ii) the locks are a very attractive and easy to work flight that don't overly discourage out and back trips when compared to say, Tardebigge. Thus we expect the traffic through Lapal to be nearer the 2000 trips per annum than the higher figures at Lapworth.

8.18 This figure will be made up from three sources:

- ◆ New trips on the local network because of the new route options available;
- ◆ Diverted trips that already pass through the network but prefer the new route;
- ◆ New trips on the local network resulting from the increase in the availability of moorings.

8.19 The presence of moorings on the new route may affect the trip figures locally. However, while this may result in a localised flow well in excess of 2000 boats per annum, the benefits are based on the number of boats moored and the number of nights they spend in the area, not on the local traffic flow near a marina.

8.20 For the purposes of this report we have estimated 2000 additional boat movements per annum, of which 500 arise from new moored boats. Of the remaining 1500, we expect these to be split roughly evenly between private and hire boats.

8.21 Principal Cruising Rings at present are:

- ◆ Stourport Ring: From Birmingham via the Worcester and Birmingham, River Severn and Staffordshire and Worcestershire Canal, with return either via Stourbridge Locks or Wolverhampton Locks;
- ◆ Avon Ring: From Kings Norton junction via the Worcester and Birmingham Canal, River Severn and River Avon to Stratford, return via either the north Stratford Canal or the north Grand Union by Knowle;
- ◆ Warwickshire Ring: From Birmingham via the Birmingham and Fazeley Canal, Coventry Canal, northern Oxford Canal and northern Grand Union to Lapworth, then via either the north Stratford Canal or the Grand Union via Knowle;
- ◆ Black Country Ring: From Birmingham via the BCN, Staffordshire and Worcestershire Canal, Trent and Mersey Canal and return via The Coventry Canal and Birmingham and Fazeley Canal.

8.22 In addition many boaters cruise smaller rings using the Stourbridge Canal and Staffordshire and Worcestershire Canal, or the northern Stratford or northern Grand Union. Many private boaters moored on the Birmingham and Black Country Canals may also make day and weekend trips within the local network.

Hire Boats

- 8.23 As with other sectors of the holiday market, the hire boat industry is increasingly being required to cater for short break holidays. This situation has evolved over the last 20 years. The majority of boatyards offer three day weekend and four day mid-week breaks at around 60% of the price of a full week. The 2-5 day break accounted for 20% of hire boat holidays in 1999 and this proportion appears to be increasing. The industry has successfully repackaged boating holidays to accommodate this demand with flexible schedules to meet customer demands and more comforts to compensate for off-season weather conditions and temperatures. This development has significantly increased the market potential of shorter waterways and smaller cruising rings, where a week long cruise covering the whole waterway may be too leisurely for some users.
- 8.24 BW figures indicate that currently there are 176 holiday hire boats across the West Midlands region⁴. A hire boat has a typical utilisation of 20-23 weeks per year. Given the range of cruising options available to these boats, calculating boat movements is not straightforward. To cruise the ring created by the Lapal Canal would take around around 12 hours, or two leisurely days; this route would take in Birmingham City Centre, one long tunnel and twenty locks. From Alvechurch and Tardebigge (the nearest hire bases) this would extend to around twenty hours: enough for an energetic weekend break (3 nights) or a more leisurely midweek break (4 nights). This would give a new holiday option for these bases to market. In addition, for many other bases in the area, the Lapal would offer a variant on existing rings, including the Black Country ring, which could be extended while still stopping in Birmingham City Centre.
- 8.25 Survey data collected by BW indicates that boating holidays tend to be longer in the West Midlands: 28% of holidays are for 8 days or more compared to 20% nationally. However there are also fewer short breaks, with 6% of breaks 4 days or less compared to only 10% nationally. Principal hire boat/timeshare centres in the area include:
- ◆ Alvechurch
 - ◆ Anglo Welsh Tardebigge
 - ◆ Black Prince, Stoke Prior
 - ◆ Brook Line, Dunhampstead Wharf
 - ◆ Countrywide Cruisers, Brewood
 - ◆ Canaltime, Alvecote
 - ◆ Teddesley Boat Yard, Penkridge
 - ◆ Viking Afloat, Worcester
 - ◆ Water Travel, Wolverhampton
- 8.26 If the restoration was progressed there would be limited potential for additional hire bases, possibly at California or at Hawne Basin should this change ownership. However the restoration would offer an alternative through route for Birmingham and

⁴ Sam Morris, British Waterways, Conversation

the Black Country and a wider range of short-break options on the Birmingham & Black Country canals alone or combined with the rings described above for short-break or longer options. The increase in waterway length available for navigation and the increased potential for circular routes would be likely to make hire cruising more attractive and would be likely to retain a higher proportion of hire craft than at present in the local Birmingham/Dudley area, with associated economic benefits. We have assumed for the purposes of this report that hire boat traffic, estimated as an additional 750 boats per year, would be generated by existing bases.

- 8.27 Local economic benefit will arise from the daily expenditure of holidaymakers using the hire boats. The bulk of this spend will be on food and drink from shops, public houses and restaurants along the route of the restored canal. A spend per day per boat of £54.61 has been assumed, based on current BW estimates for the Kennet & Avon Canal (Table 2.1). Therefore, the restoration could generate a total spend of £40,958 per year.
- 8.28 Boats that cater for people with mobility impairments are available on some canals. The Lapal would not be particularly well suited to this type of provision as disabled access is much easier in wide beam boats than in narrow boats. However, the route would provide an excellent focus for the several youth and community boats which operate in the region. These tend to take groups of youngsters from the local area; the route would offer a weekend cruising ring passing through a range of urban environments.

Private Canal Boats

- 8.29 Positive demographic trends and the increasing popularity of canal boating are driving growth in licensed craft, particularly amongst the over 50s. This age group is growing much faster than any other.
- 8.30 Unlike hire boats, the number of private boats tends to reflect both the size of the population living in the area and the perceived attractiveness of the waterway system. The BW national average is around 10 boats per mile (Ref 2), and this sector of the market has shown sustained growth for some years. BW⁵ estimate that there are approximately 10,000 long-term moorings within the West Midlands region, with waiting lists for moorings. There is a strong demand for secure residential moorings; at present there are just under 1000 residential moorings in the West Midlands. We would assume 200 private boats on the new waterway, based on a marina at California and a possible further marina at the summit level.
- 8.31 Based on creating approximately 6 miles of new water with 200 new private boats to be based in the area, the spend per boat can be estimated as follows:
- ◆ **Expenditure on maintenance of boats** - The average annual expenditure on boat maintenance (excluding license fees & moorings) is assumed to be £870.46 (Ref 11). Thus, 200 private boats moored on the restored waterway could be expected to generate an estimated £174,092 per annum to local boatyards.
 - ◆ **Expenditure on Moorings & License fees.** Average private mooring fees on BW waters are currently £655.47 pa (Ref 11). However, mooring fees in the local

⁵ Lorraine Murphy, Development Manager, British Waterways. Conversation

area are significantly higher. British Waterways mooring fees are approximately £1300 per year for a 45ft narrowboat (used by BW as 'typical' length). Mooring fees at local private marinas are up to double these prices, and mooring fees nationally are rising at well above the rate of inflation. The closest nearby moorings are at Hawne Basin, run by a trust and with lower than average mooring fees. For the purposes of this study we assume a conservative average mooring fee of £1300 pa for 200 boats. This gives an estimated potential mooring income of £260,000

Licence fee income would be dependent on the future management of the navigation. Assuming the navigation were to be managed by BW, it is likely that use of the Lapal Canal would be incorporated into their licensing agreements. This would contribute to maintenance and has been factored out of this study; license fees are therefore not included as 'benefits'.

- ◆ **Daily expenditure by individuals using the boats** - Daily expenditure per boat is likely to be slightly less for private boats compared to hire boats (see Table 2.1), as local owners are less likely to spend money on souvenirs, entertainment and visiting attractions. Calculations from the most recent Kennet & Avon study indicate a cruise rate of approximately 115 days per year. This seems extremely high. Recent surveys by BW indicate that most trips undertaken in the West Midlands are for 1 day or less and that the total number of days boat owners spent cruising in the 12 months 2005-6 was 72.3 days against a national average of 68 days. Based on the navigation figures calculated above, we estimate 1250 additional private boat movements per year. Each of these is likely to take one day, on average. With a daily spend per boat (based on 4.1 people) of £38.70, a total additional spend of £48,375 per year would result. We assume that boats moored on the Lapal and leaving to travel further afield will be compensated for by visiting boats with an equal daily spend.
- ◆ **Expenditure generated by boat owners when making visits to their moored boats but not using them for cruising purposes** - Boat owners make a number of visits to their boats each year without going cruising. BW figures show expenditure per visit to be slightly higher than spending whilst cruising. Recent figures for the Kennet and Avon Canal indicated that boat owners make an average of 18 such visits per year and spend on average £11.01 per person per day. Therefore, the full scheme, assuming 4.1 persons per boat as before, could produce an annual spend of £162,508, mainly on local goods and services.

Trip Boats and Restaurant Boats

- 8.32 The majority of trip boats and restaurant boats in the area run out of central Birmingham down the Worcester & Birmingham Canal; there are also several youth and community boats in the area which do overnight as well as short trips. There is little in the way of trip boats on the Black Country side of the canal system; both Stourbridge and Dudley Canal Trusts operate trips.
- 8.33 Trip boats and restaurant boats tend to operate in proximity to centres of population and on stretches which are relatively lock-free. Thus trip and restaurant boats would be most likely to use the branch canal to Weoley Castle as an extension to existing routes on the W&B. There is also good potential for educational trips, particularly linked to proposed enhancement of schools facilities at the ruins of Weoley Castle

and to the Urban Farm and Visitor Centre at Woodgate Valley Country Park. The ruins, if accessible by canal, could become a destination for combined cruises as offered for Cadbury World and the Black Country Museum and a logical turning point.

- 8.34 Against any benefits must be set the costs of establishing a new passenger boat. We would estimate that the restoration would support an increased market for existing businesses rather than any new trip boat business. We would estimate that the reopening of the link to Weoley Castle could generate in the region of 20 additional trips per year. The reopening of the complete link could generate a total of 40 additional trips. It is unlikely that the reopening would generate any additional restaurant boat trips.
- 8.35 Detailed economic data for comparison is not available for current operations on the local canal network. However, based on current trip boat operations and on similar operations elsewhere with an average charge of £4.98 per trip and an average passenger load of 25 passengers, the restoration could yield a total of £2490 per annum if restored to Weoley Castle, or £4980 if restored completely.
- 8.36 In addition to the expenditure on a boat trip, visitors will also spend money elsewhere in the local area as part of their overall visit. Based on the most recent Kennet and Avon survey, this is likely to be around £4.57 per visit (K&A). Thus, an additional spend of £4570 may be generated by people taking boat trips, assuming full restoration.

Day Boats

- 8.37 Self-drive boats designed for one day or half day hire are offered by increasing numbers of boatyards. Typically, day boats will be hired as an ancillary part of another business, either an existing boatyard or marina (whether or not holiday boats are hired) or a waterside public house or hotel.
- 8.38 The majority are of narrow boat style accommodating up to 12 passengers which are frequently seen by operators as a means of promoting their holiday hire fleets. The average day boat hire on the BW system is £52.44. This compares with recent typical day boat hire rates out of Birmingham city centre of approximately £90 per day (Sherborne Wharf) which better reflects local market conditions; however, this boat has ceased operation.
- 8.39 Day boats designed for the mobility impaired are also available on some canals. For example, day trips for groups of people with physical disabilities are available on the Kennet and Avon Canal, through the aforementioned Bruce Charitable Trust.
- 8.40 With the long level waterways and varied attractive scenery in the immediate area there would appear to be potential for day boats to operate on the existing network at present: However there are almost none available, the only one we are aware of being offered by Anglo-Welsh at Tardebigge. Anglo-Welsh have a policy of operating day hire boats from all their bases and thus this can not be interpreted as meeting a demand for such craft: in view of the lack of provision at present, and the canal not appearing to offer a trip that is of especial attraction to day boat hirers, we have concluded that no such craft will be offered post restoration.

Canoeists & unpowered vessels

- 8.41 It is assumed that the canal will be suitable for canoeists, though the number of locks which would need to be portaged would limit its attractiveness compared to nearby waterways, where there is little existing canoeing activity in any case. Canoeing is recognised as often proving beneficial to the local community and acting as a means of promoting social inclusion. Group facilities are available at sites elsewhere in the area, for example Edgbaston Reservoir.
- 8.42 Canoeists who are members of the British Canoe Union are permitted to use the main canal system managed by British Waterways free of charge. As a result it is assumed that it would not be practical to levy a licence fee on canoeists and other unpowered boats. It is therefore assumed for the purposes of this report that the income from leasing unpowered vessels would be minimal.

Angling

- 8.43 Canals around the UK make excellent coarse fisheries, even where they are used for navigation (although excessive navigation makes fish much less likely to bite). Canals provide a cheaper option than artificial fisheries, which are sometimes blamed for making fishing too expensive for the beginner and less well off angler. The other notable feature of those who fish is that more often than not they would not otherwise make constructive use of a canal. Walking and narrow boating are often seen as 'middle class' activities and while this is a sweeping generalisation, there is no doubt the cost of boating can make it the preserve of the wealthy and certainly acts as a bar to, say, someone who is unemployed. Although fishing can be expensive, rod fishing using basic equipment is fairly cheap and the only ongoing expenditure is an annual rod licence and sometimes day tickets or membership of the angling club to whom the fishing rights belong. Thus fishing is accessible to all.
- 8.44 Although it is not one of the faster growing sports in Britain, latest figures by the EA note that 11% of the population (21% among 12-16 year olds) have fished in the last 2 years (Ref 29) and as many again would if they had someone to go with, somewhere to fish and could borrow/hire equipment. Among disabled people angling is the second choice of activity to try and the first choice to repeat. The Environment Agency (www.environment-agency.gov.uk/subjects/fish/762572/765834/766433/?version=1&lang=e) estimate that coarse fisheries are worth £2.3b to the economies of England and Wales, with river and canal fisheries being worth £0.75b. (The figures are not exclusive; much of the river and canal figures will be included in the coarse fisheries figures). The EA also state that, in a survey in 2001, 3.9m people, or 9% of the population over the age of 12 had fished during the past three years. In 2002/2003 1.2m rod licenses were sold (www.environment-agency.gov.uk/commodata/105385/onfparticipation766409.pdf).
- 8.45 The Birmingham & Black Country Canal network is well used by anglers, with a number of local angling clubs.
- 8.46 The canal is only likely to provide attractive fishing conditions if stocked; in any case the new waterway is not likely to provide particularly good fishing conditions in the early years after restoration as it will take time for a stable ecological habitat and fish population to become established. In the longer term, sympathetic and active management, possibly through the leasing of fishing rights to a local angling club,

has the potential to increase the value of the canal for angling should the management determine that any conflict with other water-based users could be overcome. However, for the purposes of this study, the use of the canal for fishing and its associated spending are assumed to be limited; anglers are incorporated into the estimates for 'land-based visitors.' It should be appreciated however, that angling provision would contribute greatly to social inclusion.

- 8.47 In addition to economic benefits, the EA recognise the role of angling in social inclusion when properly organised and the Countryside Alliance has highlighted the conservation efforts of anglers. By actively promoting healthy fish stocks, whilst caring for the water and waterside habitat, the actions of anglers are proving to be beneficial to waterside plants, insects, mammals and reptiles.
- 8.48 The UK Government has now recognised the role of angling in achieving social policy goals and as a means of social inclusion. In 2003, Sport England provided approximately £750,000 match funding for several APP (Angling Participation Project– a strategic Partnership between the EA, Angling Governing bodies, Sport England and British Waterways) supported projects. In addition angling Governing Bodies have now developed a Government approved, NVQ accredited, Angling Coach Licensing Scheme and Associated Child Protection Policy to ensure events and projects the EA promote are safe and enjoyable for all. The sport is supported locally by British Waterways who are currently running a youth angling scheme in Smethwick to encourage participation.

LAND-BASED TOURISM & RECREATION

- 8.49 The canal corridor will provide opportunities for a wide range of informal activities, including walking, cycling, horse riding and “gongoozlers” (i.e. sightseers attracted by the canal environment). Such uses rarely attract any direct costs, although it must be assumed that an extensive towpath will be constructed and that there must be reasonable access points to the canal. Other activities that a canal towpath and adjoining public open spaces can provide for include bird watching, jogging, photography, picnicking and general relaxation.
- 8.50 While the use of canals cannot be directly related to local population catchment area or other tourism attractions, an understanding of the local visitor market economy can help the Trust target marketing and business development strategies as well as, potentially, funding sources. Economic benefits will be affected by the ability of the local economy to tap into increased visitor numbers. For example, at present several pubs exist along the route but not all of these appear to be operating at capacity. The following paragraphs, plus section 2.4, explore additional development possibilities which might cater to visitor needs.
- 8.51 The West Midlands Metropolitan Area Visitor Survey carried out by Heart of England Tourist Board in 2002 identified visitor types including groups such as business people, educational visits, language students, regular shoppers etc. The main 'mass' markets were day attraction visitors, day sightseers, shoppers and visiting friends and relatives.
- 8.52 Figure 8.1 below shows the key visitor statistics collected:

Characteristics	Staying visitors	Day visitors	Characteristics	Staying visitors	Day visitors
Party composition			Origin of visitors		
Alone	9%	11%	North of England/Scotland	21%	7%
With partner only	46%	29%	East Midlands/East of England	18%	9%
With family	27%	40%	West Midlands	10%	63%
With friends	10%	11%	South and South West	16%	8%
With family and friends	5%	6%	London and South East	13%	3%
With organised group	2%	2%	Wales/Rest of UK	4%	4%
Party with children	23%	39%	Overseas	19%	4%
Age profile			Activities planned or undertaken		
0 – 9	8%	16%	Staying visitors	Day visitors	
10 – 14	6%	7%	General sightseeing	Eating out	
15 – 18	3%	3%	73%	49%	
19 – 24	4%	4%	Eating out	Visiting an attraction	
25 – 34	9%	11%	65%	48%	
35 – 44	14%	16%	Shopping	Shopping	
45 – 54	18%	14%	58%	43%	
55 – 64	20%	15%	Visiting an attraction	General sightseeing	
Socio-economic data			53%	39%	
AB	43%	33%	Visiting heritage site	Walking and hiking	
C1	35%	33%	49%	26%	
C2	14%	20%	Walking and hiking	Visiting heritage site	
DE	7%	12%	41%	19%	
First time visitors	31%	12%			

Source: Visit Heart of England, 2002.

Figure 8-1 – West Midlands Metropolitan Area Visitor Survey data

8.53 Regional and local planning, tourism and economic strategies currently highlight canals as a focus for regeneration development within the sub-region, with a focus on improving quality and service at key destination areas (such as Birmingham Centre, Merry Hill and the proposed Black Country Urban Park projects at Wolverhampton and Dudley)⁶ While at present the Lapal Canal is not seen as a priority project, restoration of the canal, (and, as an initial stage, improved delineation and interpretation of the route) contributes to regeneration objectives and can enhance benefits from other initiatives.

Towpath Users

8.54 Findings from a national survey of over 2,000 towpath users, undertaken by British Waterways in 1998 (Ref 7), reveals that:

⁶ Penny Russell, Dudley, Conversation

- ◆ The majority of towpath use is very local - 24% of the sample surveyed lived within one mile and 60% travelled five miles or less. Of the 25% who travelled over eleven miles to access the towpath, around half (53%) were day trippers.
 - ◆ A geographical variation exists in relation to the trip type of non-local visitors whereby London and the Midlands attract higher proportions of day visitors, Scotland is more popular for holidays and the South is popular for both short breaks and holidays.
 - ◆ Towpaths attract visitors of all ages, although the 15-24 year age group appears to be under-represented.
 - ◆ The most popular reason for visiting a towpath is 'to walk for pleasure'. This accounted for 33% of all respondents, although holidaymakers seemed more likely to visit a towpath 'to look around the area'.
 - ◆ The average length of time spent on a towpath was 1-2 hours, with almost 40% of those surveyed staying one hour or less. However, 20% intended to stay for three hours or more.
 - ◆ A similar proportion of people walk to a towpath as arrive by private motorised transport (40% and 38% respectively).
 - ◆ Of those questioned, the average number of visits to a canal or river used by boats was just under 40 per year.
- 8.55 Anecdotal evidence indicates that the patterns of visits have not changed significantly. Recent BW surveys show that the top 3 reasons for using the towpath in the West Midlands are: walking for pleasure, walking the dog and (jointly) to watch birds/wildlife. A significant percentage also use towpaths for cycling or as a shortcut to somewhere else. Average dwell time for towpath visitors in the West Midlands is 1h 31mins compared to 1h 43mins across all of BW.
- 8.56 Based on the results of British Waterway's survey of visitors to the Kennet and Avon Canal, the BW Demand Model assumes that 20% of informal visits to the canal, as well as 20% of cycle trips, are made by people staying overnight in the local area. Given the range of other attractions in the area, it is likely that this proportion would be lower for the Lapal canal and that the land-based users of the restored canal would be predominantly local and sub-regional day visitors
- 8.57 The mean expenditure for all respondents for the day on which they were interviewed was just under £10, although 50% of towpath users spent nothing at all (see Table 2.2). However, although this figure is backed by research it appears high given anecdotal experience and the volume of visitors who are from the immediate locality of the canal. The most recent BW Day visit survey (2004) gave an average of £4.57 spend for Informal visitors (see Table 2.1) which we have used for the purposes of this study. However, Table 2.3 is useful in that it shows the breakdown of expenditure among visitors surveyed, thus highlighting areas for potential economic development.

Activity	Mean Expenditure (£)	% of respondents who spent
Eating and drinking in pubs	3.18	76
Eating and drinking in cafes and restaurants	2.10	74
Food/Drink/Snacks from shops	0.83	81
Car Parking	0.11	90
Admission Tickets	0.23	93
Boat trip/Cycle hire	0.24	93
Gifts/Souvenirs/Books	0.85	90
Overnight Accommodation	1.83	92
Other Activities	1.14	85
Total	9.96	-

Table 8-3 – Breakdown of spend by towpath users

- 8.58 The Kennet and Avon canal is 86 miles long and visited by an estimated 9.4 million walking or cycling visitors per year (Ref 11), plus day boat, trip boat, canoeing and angling activities of 405,000 visitors. Therefore, the land-based leisure use dominates and is approximately 106,378 visits per mile. In view of the influence of this figure on the overall benefits, great caution is required in assuming a number this high, as the Kennet and Avon Canal is surrounded by other tourist attractions and is internationally known.
- 8.59 The Leasowes Park is estimated to receive approximately 20,000 visitors per annum⁷. Woodgate Valley Country Park receives an estimated 250,000-plus visitors per year, with 135,000 visitors to the visitor centre⁸. Many are casual dog-walkers from surrounding areas, or people coming for general walking and nature study. There are many school groups or organised walks, and during weekends and school holidays many families use the play area and visit the urban farm, many using the visitor centre facilities but not venturing further. The Ranger Service and the Outdoor Learning section of the L.E.A run a full education service to schools both within Birmingham and those districts that border the park (Sandwell, Dudley). The majority of educational visits fall within KS1 and KS2. Between Jan 06 and Oct 06 4,289 pupils attended led sessions. Each year the Rangers run a programme of mainly free activities – in 2005-6 there were 24 events with 4412 people attending (2 events hosted over 1000 people). The park is used by a small number of commuter cyclists (mainly in the summer months due to wet ground conditions in winter) and by residents from surrounding estates who use the tarmac paths that bisect the valley to reach the industrial estates and schools. It is likely that the canal and locks would encourage wider use of the park, encouraging people to stay longer. A conservative 10% increase in visitors is estimated.
- 8.60 Visitor figures are not available for the Castle Walkway, though figures for Weoley Castle ruins indicate that open days are often attended by 500+ visitors (a proposed education facility and dedicated outreach officer at the site is hoped to increase educational visits). It is likely that the improved surface of a towpath, plus the added

⁷ Nicola Havers, Dudley Council Tourism Development Assistant, Email

⁸ Simon Needle, Head Ranger, Woodgate Valley Country Park. Email

interest of boats and the improved environment and security would increase land-based users overall. Encouraging angling would increase numbers and benefits further. The canal would provide an excellent link between Halesowen, the rural areas south of Manor Way, and Woodgate Valley Country Park. A very conservative figure of 15,000 additional visits per mile of new navigation is realistic, giving 90,000 additional visitors per year. It is likely that, in addition to additional visitor numbers, dwell time would increase overall; again, this offers potential for increased spend, though we have not attempted to calculate this here.

- 8.61 While the spend per head for cyclists within the BW model is higher than that for walkers, given the broad nature of the figures used, we have used a figure for daily expenditure of £4.57 per person for all visitors. Using these assumptions, 90,000 visitors could be expected to spend £411,300 in the local area per year.
- 8.62 We have not attempted in this report to attribute expenditure to different users of the towpath. The descriptions below, however, give more detail of principal user groups, possible non-financial benefits and an overview of how benefits might be enhanced.

“Gongoozlers”

- 8.63 Sightseeing and watching water-based activities is a major attraction to canal visitors. A survey of the Kennet and Avon Canal (Ref 6) indicated that 30% of leisure towpath users fell into this category. Levels of interest can be enhanced through the provision of interpretive facilities that inform visitors about the built and wildlife heritage of the canal. Special interest groups, such as canal historians, archaeologists and education groups can also benefit from such provision.
- 8.64 Economic benefits can be maximised by focusing commercial activities such as cafes, souvenirs, trip boats, cycle hire and pubs around ‘honeypot’ sites along the canal where good access from local populations exists. Suitable areas on the Lapal would be close to Woodgate Valley Urban Farm and Visitor Centre, with links to a possible marina, as well as adjacent to Weoley Castle ruins and, particularly, close to the junction with the Worcester and Birmingham Canal at Selly Oak (though this is not strictly the subject of this study).

Walkers

- 8.65 Walking is Britain's most popular outdoor recreation and the popularity of recreational walking is rising. Unlike most other physical activities, walking is popular with all age groups and both sexes. Information from the Ramblers Association (Ref 20) notes that 77% of UK adults, or about 38 million people, say they walk for pleasure at least once a month. 62% of these walk more than 2 miles/3.2km and say that walking is their main form of exercise (ICM 2000). The most recent official national survey (National Statistics 1997) found 44.5% of adults went for a walk of over two miles for leisure at least once every four weeks. 891 million day trips for leisure in Great Britain in 1998 included a 'walk', up from 41% in 1993 and 38% in 1987 (National Statistics 1997). Ramblers' Association membership has risen from around 38,000 in 1980 to 111,500 in 1995 and over 140,000 today. Out of walking trips for all purposes in 2001, 16% were 'just to walk', including walking dogs. This figure has risen from 12% in 1986 (DfT 2003).

- 8.66 BW information indicates that around 40% of visitors walk to their canal visit. The route of the Lapal canal currently forms much of the Castle Walkway; a footpath runs between the backs of houses between Selly Oak Park and Weoley Castle. Planning agreements for the Battery Park development in Selly Oak, as well as restoring the canal to Harborne Lane Bridge, are also providing for the upgrading of local walkways, potentially including the canal line. As part of any improvements, there is an opportunity to highlight and interpret the canal line through creative landscape design and information provision, while allowing for the future incremental return of the line to water.

Cyclists

- 8.67 Almost one in ten of those questioned for the British Waterways survey above (Ref 7) had cycled to the towpath. This can be compared with approximately 5% of visitors to the Kennet and Avon who are cycle-based. The Kennet & Avon report (Ref 11) notes that the most recent National Cycle Network Route User Monitoring Report indicates a steady increase in usage of the national cycle network (by both cyclists and walkers) between 2000-04; much of the increased use is associated with the expansion of the National Cycle network. There are several instances of cooperation between Sustrans and BW to fund and support the creation/upgrading of cycle networks along towpaths, for example the Bletchley-Leighton Buzzard route on the Grand Union opened in 2005.
- 8.68 The National Cycling Strategy, launched in July 1996, highlights the potential role of cycling in addressing issues of social inclusion, citing it as a possible means of widening the opportunities available to all sections of society. Regular cycling not only significantly improves fitness; it reduces obesity; decreases the risk of strokes, coronary heart disease and certain types of cancer and osteoporosis (Ref 32).
- 8.69 Birmingham and Dudley councils are keen to promote green travel initiatives and potential certainly exists for linking the route to the National Cycle Network. Enhancing cycleways can be done independently of the restoration as for walkways; in this case it would be important to ensure that any early cycle route development along the line does not prejudice the restoration of the canal itself, but that paths were laid along the line of potential towpath.

Horse Riding

- 8.70 The Trekking Centre at Woodgate Valley Country Park offers horse riding through the Country Park and runs a year long programme of led treks and lessons which are very well attended. Large areas of the park are used as grazing meadows. All treks use the permissive bridle way through the Valley which runs adjacent to Bourn Brook and is separate from the cycle and footway. Several other trekking centres in the area also use the valley for treks.
- 8.71 The potential to extend or link with brideways to the west of the M5 exists, enhancing the routes available. However the additional economic benefit is unlikely to be great. While technically the towpath of the urban sections of the restored canal could be used for horse riding, it is important to consider whether horse riding would be a desirable activity given the potential conflict with pedestrians and anglers and the design and maintenance implications of providing a suitable surface as well as access under bridges.

Overnight visitors

- 8.72 The British Waterways Demand model assumes that 20% of visits to the canal are made by people staying overnight in the local area (i.e. 80% are day trippers). This is supported by the results of the Kennet and Avon Towpath Survey 2005 which indicated that 20.2% of respondents were in the area on a short-break or holiday (either staying with friends and relatives or in paid accommodation). (Ref 11)
- 8.73 The regional tourism profile for the West Midlands identifies that there is a predominance of business visitors to the urban area. Given the local recreational appeal of the attractions along the canal route and the range of alternative attractions within and around the conurbation, we would estimate that the proportion of overnight visitors among land-based users of the canal would be low.

DEVELOPMENT OPPORTUNITIES

- 8.74 The restoration of the Lapal Canal will have an important impact on the value of existing property and of potential development sites.
- 8.75 Research undertaken by Newcastle University (for British Waterways) on the impact of canal side locations in terms of added value indicated that there was a positive premium associated with the proximity of residential properties to waterways (Ref 8). The extent of the premium varied according to the type of property and its associated environment. Thus new property developments in a pristine waterway environment with a water frontage attract an average premium of 19% compared with similar properties at some distance from the canal or river. The premium for other properties in a waterside development compared to those at some distance away from the water was 8%. The long term trend in residential properties prices can be said to be acting as a “motor” for redevelopment:
- 8.76 Therefore, the restoration of the Lapal Canal could result in increased property values along the length of the navigation, particularly in areas where the water element is new (ie properties already backing onto river sections of potential routes are less likely to see a change in value). However, the benefits will accrue to individual property owners and be realised only on resale. Although this effect has been recognised, no attempt has been made to estimate the overall value that may be attached to such properties.

Potential Canalside Development

- 8.77 The development of the waterway is likely to enhance the development prospects and value of available development sites along the canal route as a result of the additional premium attached to waterside property. The effect will primarily apply to residential development but such environmental enhancement may also attract in commercial and industrial development. There will also be the opportunity for water related development on some sites for uses such as boatyards and marinas.
- 8.78 There is a clear opportunity for more places to spend money along the canal; at present spending opportunities are limited. The Stonehouse and other pubs close to Weoley Castle could benefit from additional business if secure moorings were available, as would the Black Horse south of Manor Way, which is currently hard to

access on foot, and local pubs, restaurants and shops in Selly Oak. The Visitor Centre at Woodgate Valley Park has a small café and there is a small cafe at the Leasowes Park; plans for the restoration of the park include increasing the opening hours of this. The Hole Farm Trekking Centre and the Urban Farm would also benefit from additional business from boaters, providing mooring was available at the summit level. Pubs and shops nearby could also benefit.

- 8.79 While the additional business generated by the restored canal could support current pubs, restaurants and shops along the route, new commercial outlets would ideally need to be created, normally associated with marinas/recreation centres, in order to capture the economic potential of canal users.
- 8.80 One of the primary justifications for the funding of many canal restorations is the potential for regeneration and economic development. The line of the eastern section in particular passes through less-affluent areas of housing with typical inner-city issues. Census data for the eastern and central sections of the canal shows that unemployment and educational levels are similar to that of Birmingham as a whole, and that the proportion of the local population belonging to ethnic minority groups is far lower than for Birmingham as a whole. Local deprivation indices roughly mirror those of Birmingham as a whole. However, many local residents worked at the Longbridge car factory and the closure of the works has apparently exacerbated local economic and social problems.
- 8.81 The Western section of the route runs through some of the less deprived areas of Dudley Borough; the route does not fall within the regeneration zones which receive priority for investment. No major urban renewal programmes are currently programmed for any area along the route, though there is an acknowledged need to improve the local environment and address social and safety issues.
- 8.82 Most regeneration-targeted development is likely to be funded through public/private sector collaboration; given the lack of new housing sites along the route, there is limited potential for S106 funding contributing to the restoration work.
- 8.83 The planning review carried out indicates that there is currently little opportunity or support for new residential development in the canal corridor. However, there is a long-term trend towards home-ownership and rising property prices. An improved environment may lead to limited pocket development along the route. Additionally, opportunities for development and local improvements associated with the canal do exist; potential areas and issues are summarised in Table 8.4 below.
- 8.84 The Sainsbury's development at Selly Oak currently underway is one phase of development in the local area. A subsequent phase is likely to be the development of the B&Q site by Harborne Lane, adjacent to the section of canal due to be restored via the Sainsbury's development. This may accommodate offices or retail and is a potential source of S106 funding for further restoration.
- 8.85 The short rural section of the canal west of the M5 may offer potential for farm diversification. This is a development area generally supported by AWM and local authorities; a guidance booklet has been produced by Defra: (http://www.defra.gov.uk/rds/se/docs/PBS_Diversification_Booklet.pdf). Defra provides grant support for many diversification activities under the Rural Enterprise Scheme, Processing and Marketing Grants and Vocational Training Scheme.

Opportunity	Issues to be considered	Potential sites
Pubs/restaurants	<p>Road access/parking, foot links to canal, planning permission, local potential demand in addition to demand created by canal.</p> <p>Floating restaurants/cafes may require less capital investment and may be easier to secure planning permission for than new pubs/restaurants in the short term.</p> <p>Need to complement, not undermine, existing businesses. The additional business generated by canal may support otherwise unviable concerns.</p>	<ul style="list-style-type: none"> ▪ Develop trade & facilities based around existing pubs at Weoley castle, particularly if associated with California marina ▪ Floating café at Woodgate Valley Country Park? ▪ Possible pub development at Watery Lane? ▪ Enhancement of facilities or business at Black Horse, Manor Way, and adjacent developed land currently unused. Potential for visitor moorings
Housing	<p>Planning need, land availability, ground conditions/contamination. Planning review indicates that most undeveloped land in the canal corridor is in Green Belt. Thus housing development is tightly controlled, and may conflict with environmental policies. No large-scale waterside development is currently supported in local planning documents on study line.</p>	<ul style="list-style-type: none"> ▪ Potential for link to any upgrading of estates on eastern section. ▪ Potential for pocket development around California marina and current Somery Rd depot if landfill material removed. ▪ Potential for limited development surrounding any marina at summit level ▪ Long term, potential for pocket housing or other development around Lapal Farm section
Tourism businesses – canoe, day boat, cycle, horse, activity centre, heritage/ nature attractions	<p>Associated demand off canal; these businesses need an alternative market to canal visitors. 'Honeypot' sites with a variety of attractions and activity to watch tend to be most successful. These need parking; access issues may affect planning considerations.</p>	<ul style="list-style-type: none"> ▪ Honeypot sites include Woodgate Valley Country Park summit level and, to lesser extent, Weoley Castle ruins/California marina. ▪ Visitor moorings at Selly Oak Park, Weoley Castle, Woodgate Valley Park summit level, Leasowes. ▪ Increase in business for existing local boat operations and visitor attractions, particularly at Woodgate Valley.

Offices/light industrial	Planning policy currently designates much of Dudley section of canal as industrial. Canal will increase attractiveness of area, leading to possible market for offices mixed with industrial areas	<ul style="list-style-type: none"> ▪ The site off Manor Way and some other pockets are currently designated as industrial, with light industry permitted. Policy supports waterside office development elsewhere in Dudley, therefore there is potential for some development
Marinas	Planning permission, access/traffic, security, associated development options. At least one marina is necessary to the canal's viability: these are one of the few commercial development options along route and would address problem of local/regional demand for moorings.	<ul style="list-style-type: none"> ▪ California. Potential for 100 boat marina. ▪ Summit level near Trekking Centre. Potential for 100 boat marina

Table 8-4 – General areas of canalside development opportunity.

Marinas

- 8.86 The development of at least one marina is critical to the success of the Lapal canal and also one of the justifications, in terms of strategic navigation priorities, for restoring the canal in view of the pressure on marina spaces in the area. Marina development will act as a safety valve for long waiting lists for moorings in the area, and will provide moorings for the extra boats upon which the assumptions of economic benefits are based. In addition, where a marina development can be related to other developments such as housing then increased land values can be captured using S106 agreements and obligations to help pay for the canal restoration. A marina at California as part of an early phase of restoration would give a destination to an otherwise 'dead-end' arm, encouraging navigation and providing an activity focus along the arm.
- 8.87 The navigation figures (Ref 2) indicate clearly that a demand for the waterway exists. However, approximately half of predicted movements are based on the assumption of two 100 boat marinas; Equally, the economic benefits calculated indicate that a substantial proportion of the predicted benefits stem from private boats predicted to be moored on the restored canal. If the restored canal is to cater to the increased demand and reap the economic benefits of boaters, it is essential that moorings are provided.
- 8.88 The demand for moorings is supported by local demographics and the nationally growing market for boat ownership and hire-boating. The alternative to marina development would be would be additional pressure on other regional moorings and linear moorings. These, in any numbers, would not be desirable or secure in the areas through which the canal passes (where the width of the channel would even make them possible); in any case on-line mooring has disadvantages for both moorers and passing boats and is now against the policy of both BW and the IWA,

who are encouraging a reduction in on-line mooring and all new moorings provision to be off-line.

- 8.89 British Waterways has recently published an investment guide to marinas (Ref 13); these are seen as a growth area for development. Marina development may also be viewed favourably by local planning authorities as fitting with tourism and leisure development goals; canals are firmly accepted within Birmingham and the Black Country as valuable leisure and tourism assets. It is worth noting that British Waterways is actively engaged in lobbying local planning authorities to raise awareness of the need for increased moorings provision and to encourage provision for moorings to be incorporated into emerging local development frameworks.
- 8.90 The average boat owner remains active in the market for 12 years. The financial commitment is also substantial with the cost of a new 60 foot canal boat typically in the £60,000 to £150,000 range. With this size of investment, the requirement for a good, secure mooring is obvious. Most marinas and online mooring sites are fully occupied and have long waiting lists. Virtually all British Waterways' managed online sites are full year-round and, nationally, new boaters often have to wait several years before securing a mooring. In May 2005 nearly 1,700 people were recorded on British Waterways' local waiting lists for long term moorings. Local waiting lists were not provided but anecdotal information obtained from BW indicates that while the Midlands region has a relatively high number of moorings, local mooring sites are heavily oversubscribed. BW indicate they are actively seeking new marina opportunities in the Midlands and nationally.
- 8.91 Most boaters live within 30 miles of their mooring, and boat ownership is concentrated amongst older, higher income earners. Mooring demand tends therefore to be most heavily concentrated on parts of the network within easy reach of prosperous towns and cities. Boaters in the West Midlands live, on average, just over 42 miles from their home mooring – just below the national average.
- 8.92 There is very strong and growing demand for residential moorings in urban and suburban areas; British Waterways' survey of boat owners, 2004, indicated that 11% of all boat owners consider their boat as their primary residence. The Midlands has 996 officially residential moorings (RBOA estimate that approximately 15000 people nationally live afloat); urban locations tend to be preferred by residential boaters, while rural locations are preferred by leisure moorers. The canal is within easy access of the rural Stratford and Worcester & Birmingham canals, and would be a suitable base for a mix of boater types.
- 8.93 Marinas are a capital-intensive business and require a large initial investment in site development, which is recouped via relatively stable revenue streams and predictable operating costs. Costs for construction of marinas have therefore not been incorporated into overall restoration costs; these will be a matter for private marina developers. Start up costs include land acquisition, obtaining planning permission (often requiring an Environmental Impact Assessment, site surveys etc), and costs are dependent on local ground conditions and whether excavated material has commercial value. A primary consideration at the California site would be the removal or remediation of landfilled material; the cost of this would be likely to be unacceptable to developers and would require public-sector funding.

- 8.94 The core revenue and profit stream from a marina is mooring charges to boaters; marinas currently command an average price premium nationally of 38% over online moorings and BW state that indicative nominal pre-tax rates of return (IRR) for newly constructed marinas can be up to 18%. BW forecast that there will be a need, nationally, for between 15 and 47 new 250 berth marinas by 2015. Of these, between 15 and 26 are likely to be required by 2010. BW estimate that 5,300 new marina moorings could be added to British Waterways' network by 2010 without outstripping demand and a further 3,100 could be added by 2015.
- 8.95 The principle difficulty for finding sites for marinas is simply finding sites large enough to accommodate them. To create a viable marina now requires that the marina has around 200 berths unless there is significant other income (e.g. boat hire, boat building, or property). Using BW figures, a 250 berth marina typically requires about 7.5 hectares of land and a 350 berth 10.5 hectares. About 35% of this area is the waterspace (94 berths per hectare is used as a guide by BW) and the other 65% buildings, car parking, hard standing and landscaping. All marinas require service blocks and would normally comprise fuel sales, a small shop and often brokerage. A small percentage of residential boats are standard (BW quote a 50% mooring premium for these). A 'marina plus' would include a larger shop (predominantly clothing, gifts and minor convenience retail) and additional ancillary facilities such as a leased restaurant.
- 8.96 BW state that: "More attractive returns would be achievable under different circumstances – for example:
- when there are opportunities to develop other complementary uses such as pubs, hotels, specialist retail and residential. In these circumstances profitability is underpinned by a customer base that is much wider than just the mooring berth holders and there is a contribution to construction costs from the premium added to residential values for being next to water.
 - where a marina is included in the plans for a new commercial development – either because the developer may perceive it to add value to the selling price of the properties or because site allocations within the statutory local development frameworks require the provision of a mooring basin as part of any future scheme"
- 8.97 By definition, sites this large tend to be away from main urban areas and therefore problematic in planning terms. Smaller marinas can therefore be viable in urban areas due to land prices and ancillary activities. Boater surveys indicate that most boaters prefer to moor in small (less than 50 boat) marinas.
- 8.98 Based on ability to accommodate the size of development required, and with reasonable regard for planning, access and landscape issues, the following sites MAY be suitable for marina development
- ◆ California, site of existing landfill – up to 100 boats
 - ◆ Summit level, adjacent to Trekking Centre – approximately 100 boats
 - ◆ Infill moorings at Mucklow Hill
- 8.99 Each of these is considered briefly below:

- ◆ **California:** The site is a former landfill, one of many in the local area. It has a gas migration system installed around the perimeter; this comprises underground lined ditches with vents. The site is currently designated as public open space and forms an area of unimproved grass with no facilities. This would be almost entirely lost if the site was developed. There is an abundance of open space, walkways and recreational facilities in the immediate surrounding area; the canal towpath would provide a continuation of the Castle walkway and the link to Woodgate Valley Country park would provide a safe road crossing point to continue this linear open space, completing a 'missing link'. The site is bordered by housing and the Stonehouse pub is nearby. The eastern section is occupied by industrial premises at Stonebrook Way. This currently blocks the route but also offers development potential in the long term; Birmingham City Council is looking to encourage some redevelopment on this site combined with open space to complete a missing link in the Castle Walkway linear open space.
- ◆ There would potential for pocket residential development surrounding the marina, providing a possible catalyst for regeneration as well as a source of funding. The cost of remediation has not been estimated here; this would have an impact on the commercial viability of any development. All excavated materials would have to be disposed of in an approved manner. In addition the gas migration system currently installed would require preserving or replacing; this appears to cross the proposed route at the borders of the site.
The site would give a secure inner city mooring, very suitable for residential boats, with easy access via one lock to the Worcester and Birmingham Canal. This is a short trip to Birmingham city centre, which would benefit from the additional visiting boats.
- ◆ **Summit Level:** The summit level at Woodgate Valley offers, in technical terms, an ideal location for a marina. A 2 ha site accommodating over 200 boats would be technically feasible; however a smaller site comprising up to 100 moorings with associated facilities could be more appropriate to the surrounds. The site would provide an additional focus of activity at the Valley, and any development would offer potential for upgrading or relocating the existing visitor centre (bearing in mind that the timing of this stage could coincide with the current facilities aging and requiring extensive works). It would provide a reservoir of water to supply the locks, and a marina would encourage boating use of the canal from both sides, being a destination and a home mooring. The feasibility of a marina at this site would be subject to planning and environmental acceptability.
- ◆ **Selly Oak Park:** While it could be technically feasible to create moorings along this section of the canal, it is unlikely that significant encroachment on the park would be permitted, given the quality and location of the site. This site would be suitable for the reinstatement of a small visitor mooring basin which has the support of BCC.
- ◆ **Weoley Castle:** There is potential for a small secure visitor mooring area adjacent to Weoley Castle ruins, allowing access to the site (or viewing access, as at present) for passing boats. Depending on the long-term future of the depot at Stonebrook Way, these could be an extension of any marina development at California
- ◆ **South of Hawne Basin:** If sub-option 3 was selected for the Manor Way crossing, there would be potential for creating up to 10 new moorings in the abandoned arm

General issues

- 8.100 As stated earlier, the above locations have been selected primarily on the practicality of building a marina at each location, rather than any policy relating to development at each location. In time, as the restoration gains momentum, the local authorities will need to consider how local development frameworks should respond to the pressure for marina developments. Given the importance of marina development to the success of the restoration, this is an area where the LCT would be advised to focus discussions with local authorities and British Waterways.

CONSTRUCTION AND MAINTENANCE

- 8.101 The construction of the waterway together with the ongoing maintenance will generate employment in the area.

Capital Cost of waterway construction

- 8.102 In estimating the total capital cost for the purposes of this cost-benefit analysis we have based calculations on the preferred option as identified in the engineering report. Among the considerations in defining the preferred option were the attractiveness of the restored waterway so users.
- 8.103 The total capital works cost to restore the section of the Lapal canal from Harborne Bridge to Hawne Basin, using the preferred 'up and over' option as above, is estimated at £49.6 million.

Employment Generation

- 8.104 Employment benefits arising from this expenditure will arise from direct employment on the site and from indirect employment in the companies supplying both materials and expertise to the project. The development will involve major civil engineering work and it is assumed that much of the work will be carried out under contract by a national construction company. However, the local area has relatively high unemployment; we would anticipate that approximately half the jobs created could be local. It is assumed, based on previous experience, that approximately one third of the capital spend can be attributable to labour and that average annual labour cost per person is approximately £20,000.
- 8.105 With a total capital works cost of £49.6 million for the preferred 'up and over' option B it is estimated that approximately 826 Full Time Equivalent (FTE) job years will be generated directly, with 50% of the employees drawn from the local area
- 8.106 Indirect employment will also be significant as it is likely that many of the building products and materials will be supplied locally. Based on a standard multiplier of 1.2 (i.e. for every direct construction job created, this will support 0.2 jobs in other parts of the economy), a further 165 FTE indirect job years could be generated, half of which are likely to be drawn from the local area. It is also estimated that

approximately one third of the construction cost for materials and plant will be fed back into the local economy.

- 8.107 Employment creation and skills training are high priority for the West Midlands, and steps can be taken to encourage local employment through, for example, links to local colleges and job-creation schemes. Obviously the costlier engineering option of the tunnel provides higher numbers of temporary construction jobs, though the higher level of technology required may mean fewer of these are local. Temporary employment must be balanced against the main objective of the Trust which is to ensure that, overall, the benefits of the restoration exceed the costs in the longer term; the tunnel would significantly reduce the benefits available to the surrounding area and carry a higher financial risk.

Canal Related Development

- 8.108 The development of facilities to serve the leisure and recreation activities that will arise from canal restoration will generate capital investment in the form of boatyards, catering and retail outlets along the canal. It is difficult to estimate the scale of the latter as such investment will be dependent on a number of variables, such as the ability of existing establishments to cope with increased demand and the development opportunities that may arise along the canal route. Therefore, no estimate of capital investment with regard to catering and retail outlets or other visitor facilities has been made.
- 8.109 It has been assumed that boatyard capacity sufficient to provide the bulk of the additional moorings for private boats as well as the base for hire boat operations will be developed to meet the anticipated potential demand.

Maintenance Costs

- 8.110 In carrying out the cost-benefit analysis it is assumed that maintenance costs will be met by licence revenue.

SUMMARY OF ECONOMIC BENEFITS

- 8.111 Table 8.5 shows a summary of the likely annual economic benefits of the restored Lapal Canal which can be quantified at this stage. The assumptions made are set out at the start of this section of the report the assumptions. Spend per day per hire boat/land-based visitor etc is as used by British Waterways in their report on Kennet and Avon Canal. The boat figures were based on an excel spreadsheet model using lockage figures provided by BW as raw data, which calculated which boats in the area were on which routes. Pedestrian figures were based on standard pedestrians-per-mile figures used in previous reports, adjusted using professional judgement to reflect local conditions (i.e. bearing in mind the attractions along the route and its potential use as a commuter route).

Source	Economic Benefit (£ pa)
Hire boat daily spend	40,958
Private boat maintenance	174,092
Private boat moorings	260,000
Private boat daily spend (in use)	48,375
Private boat daily spend (visiting)	162,508
Trip boat income	4,980
Trip boat spend	4,570
Informal land-based visitors spend	411,300
TOTAL	1,106,783

Table 8-5 – Summary of Economic Benefits

NON-FINANCIAL BENEFITS

- 8.112 Waterways have a value beyond their immediate leisure and economic benefits in that they provide a resource that can benefit health, social inclusion, community cohesion and education, and the restoration project can be a means of involving different parts of the community. Identifying the non-financial benefits of the canal and how these social benefits can be maximised can be a means of linking to alternative funding sources who do not seek financial return. While social benefits improve with full restoration, many are a result of the construction phase and the overall level of social benefits is less dependent upon full restoration than is the case for economic benefits.
- 8.113 Equally important to the feasibility of the restoration is how well the scheme fits with the local planning and regeneration policy context – this is set out in section 5.

Social benefits

- 8.114 While social benefits and social inclusion are inherently difficult to quantify, the government publishes the Index of Multiple Deprivation 2000 (IMD) for England to provide a guide to the extent of various types of deprivation within areas. A variety of indicative data is used to analyse levels of deprivation. The 2004 indicators were:

Table 8-6 – Domain Weights for the IMD 2004

	Domain Weight
Income deprivation	22.5%
Employment deprivation	2.25%
Health deprivation and disability	13.5%
Education, skills and training deprivation	13.5%
Barriers to housing and services	9.3%
Crime	9.3%
Living Environment deprivation	9.3%

- 8.115 Waterways can contribute to addressing these domains, particularly living environment, education and health. Each ward is given a score and rank based on its performance in respect of a range of relevant indicators in each domain so that a rank of 1 would indicate the most deprived ward in England. Percentage totals are arranged in a similar way so that the most deprived wards would fall in top 1% of all wards and the least deprived having percentages in the high 90's.
- 8.116 British Waterways is working to ensure all members of society have the chance to enjoy waterways that are attractive, safe and accessible. Their aim is to see waterways used as an asset and resource by groups and organisations working to overcome social exclusion, and in particular want to increase participation of those who may feel excluded from them – people on low incomes, people with disabilities, older people and ethnic minority communities.
- 8.117 A report by the British Waterways, 'Waterways for People 2002' (British Waterways 2002, www.britishwaterways.co.uk) explains that reasons for under-use are due to stretches of poorly maintained and unattractive waterway (frequently in depressed urban areas), problems of access for disabled people, fear of crime and for personal safety and lack of appropriate activities to attract excluded groups.
- 8.118 British Waterways believe waterways can be used as a resource within projects that tackle the many causes of exclusion e.g. low skills, propensity to criminal or anti-social behaviour, poor levels of confidence and low levels of community esteem. Examples of such uses include:
- ◆ Training - working on the waterways can enhance people's skills and employment opportunities;
 - ◆ Education – waterways can help bring subjects in the National Curriculum 'alive';
 - ◆ Young People – projects can be targeted at young people 'at risk' of falling into criminal and anti-social behaviour;
 - ◆ Community – waterways can help to bring different sections of the community together and provide a focus of local pride; and
 - ◆ Planning and Consultation – exclusion takes place when people are not involved in changes that take place in their local area, hence community consultation linked to planning change is a valuable form of social inclusion.
- 8.119 The canal forms the ward boundary between Weoley/Bartley Green/Selly Oak, narrowly outside Harborne ward. The majority of the line of the eastern end falls within Bartley Green ward; Bourne Brook forms the boundary with Quinton Ward through Woodgate Valley Country Park.
- 8.120 Weoley Ward is situated in the south west of the city centre. It covers most of the old Weoley ward Longbridge, Northfield and Selly Oak wards. It has a similar age profile to the City average. The percentage of ethnic minority residents is below the city average. Unemployment is below the city average. Bartley Green Ward is situated to the south west of Birmingham and covers the old Bartley Green ward plus a small area of the old Weoley and Harborne wards. It has an age profile similar to City

average. The percentage of ethnic minority residents is below the city average. Unemployment is below the city average. Deprivation levels along the canal corridor roughly mirror those of Birmingham as a whole.

8.121 Within Dudley, the canal route falls wholly within Halesowen South Ward. Again, this is not considered deprived when compared with other wards within the Borough.

8.122 Close working between British Waterways and Groundwork UK (who have partnerships with over 40 local trusts in England, Wales and Ireland) has enabled projects to build sustainable communities through joint environmental action. Examples of such projects include:

- ◆ *Ellesmere Port, Cheshire* – improvements were carried out on the towpath leading into the town, a simple and proven way to make waterways look better and get more life onto them, making them safer for all users;
- ◆ Lighting up the Jewellery Quarter, Birmingham – Laser-cut images and colourful lighting has transformed the look of the Birmingham and Fazeley Canal. The scheme, designed by a local artist, has led to a reduction in crime and anti-social behaviour in an urban area being brought to new life;
- ◆ Gnosall Healthy Trail, Staffordshire – The trail encourages people of all ages and abilities to walk along the Shropshire Union Canal by grading different routes according to effort taken to walk them;
- ◆ Monmouthshire and Brecon Canal New Deal, Wales – Training projects, based around towpath improvements and lock gate construction, have been allied to the government's New Deal employment training;
- ◆ Laburnum Boat Club, London – Based on the Regent's Canal in Hackney, the Laburnum Boat Club offers canoeing and sailing for children and young people, and carries out water sports training with unemployed people;
- ◆ Probation Deal – In many regions the strong relationship between the Probation Service and British Waterways has enabled offenders to be involved in canal clean-ups and graffiti clearance work; and
- ◆ Osterley Lock, London – Parents and pupils from a local high school created art work that has been incorporated into the lock landscape of the Grand Union Canal site near Brentford in West London.

Housing & Services

8.123 The problems faced by deprived communities living adjacent to more prosperous areas can be severe as local wealth can often push up housing prices and the cost of local services or decrease the availability of public services (such as healthcare and local transport) causing problems for the deprived communities who depend upon them most.

8.124 For the scheme to tackle social inclusion outputs must be targeted at those who are currently excluded. One area that will require especial attention is access to property, as the effect of the scheme could be to put the price of residential property up. While 'gentrification' may make the figures appear better for wards along the canal line ward it won't actually help those who currently live there unless their

specific needs are targeted. The uplift resulting from increased property values due to the presence of the canal for any residential development could be used as justification to get a higher than average proportion affordable housing as well as contribute towards the canal itself.

- 8.125 Where local services (for example, convenience shopping) are at risk of closure or do not exist, the additional trade stemming from the canal can safeguard or create these. Services need to be well-signposted and mooring needs to be possible

Employment & Training

- 8.126 The number of job opportunities will be dependant on the phase of the restoration and associated development. These jobs are predominantly in the skilled blue collar/service sector and thus are all within the scope of unemployed local residents given suitable training. However, many of these jobs will not be that well paid. This again emphasises the need to keep services, and especially housing, affordable.
- 8.127 The construction phase of the canal has the potential to generate 826 FTE jobs. In view of the continued growth of the construction sector this is an excellent opportunity to train local residents with skills that are in demand within the area, which could be linked to local employment and skills training initiatives. Working on the waterways can enhance people's skills and employment opportunities, giving potential benefits for the workforce beyond the immediate prospect of employment during canal restoration. Schemes have already been used on Monmouthshire and Brecon Canal where training projects, based around towpath improvements and lock gate construction, have been allied to the government's New Deal employment training; there are many opportunities for working with local authorities and voluntary/public sector training organisations. In addition, this can make development more straightforward where crime rates are high; residents are less prone to pilfering from a site that offers them employment.
- 8.128 Nationally there is a particular shortage of skills in the heritage trades. Canal restorations offer potential for training in these trades which can be transferred to other parts of the country. Groups such as the Waterways Recovery Group (WRG) and the National Trust offer training in traditional skills as part of 'leisure' activities.

Education & Awareness

- 8.129 Canals are a wonderful way to engage children with heritage, nature and encourage healthy lifestyles, benefits which are long-lasting. BW are actively building links with schools across the UK and developing educational materials to link waterway-related learning into various elements and levels of the national curriculum; waterways can help bring subjects in the National Curriculum 'alive.' Imaginative interpretation associated with the canal, particularly around 'honeypot' sites, can raise local awareness of heritage, environmental and social issues, stimulating interest in further learning. There is potential, particularly with dedicated volunteer or paid support, to link to the work being carried out with schools by the rangers at Woodgate Valley

Country Park; heritage is underrepresented in the Visitor Centre offering and rangers have indicated they would welcome input from the Trust.⁹

Health & recreation

- 8.130 The Government's action plan for Walking and Cycling, launched in 2004, aims to increase levels of walking and cycling in England. It recognizes that walking and cycling have the potential to make a positive contribution to many key public policy priorities, including health, liveability and urban congestion. Around 60% of men and 70% of women are currently not physically active enough to benefit their health. Walking and cycling offer the opportunity to build moderate, pleasant exercise into people's routines. This kind of exercise can help us to counteract problems of overweight and obesity as well as coronary heart disease, stroke, diabetes and cancer in addition to improving mental wellbeing. Many new areas of land have been opened to walkers for the first time as a result of the Countryside and Rights of Way Act. This provides further opportunities for local authorities to promote walking in the countryside within a Rights of Way Improvement Plan (which states how they will provide an integrated network of routes for walking and cycling.)
- 8.131 As outlined in the details on cycling, walking, angling and canoeing above, canals provide a valuable resource for exercise. With suitable surfacing and given the minimal gradient of most towpath, this resource is easily accessible to the disabled, parents with pushchairs, and those who may be averse to more 'adventurous' walks or new to the countryside. Example projects carried out between Groundwork UK (who have partnerships with over 40 local trusts in England, Wales and Ireland) and BW include:
- ◆ Gnosall Healthy Trail, Staffordshire – The trail encourages people of all ages and abilities to walk along the Shropshire Union Canal by grading different routes according to effort taken to walk them;
 - ◆ Laburnum Boat Club, London – Based on the Regent's Canal in Hackney, the Laburnum Boat Club offers canoeing and sailing for children and young people, and carries out water sports training with unemployed people;
- 8.132 The route between Manor Way and the M5 would also give easy access to open countryside and provide an additional 'green lung' between Halesowen and Woodgate as well as a safe cycle route. The current road links are hilly and on busy roads.
- 8.133 A study by Jake Elster (from the Centre for Analysis of Social Exclusion) in 2000 'Cycling and Social Inclusion' investigated and generated action on small-scale local cycling projects in the UK. The focus was on exploring the links between such projects and social inclusion, and how the potential social inclusion links could help to engage the interest of communities in cycling (www.sticerd.lse.ac.uk/dps/case/cr/CASEREport8.pdf). Support was given to community groups to help them develop their own cycling projects. Research found that there was a significant level of interest in such projects at the community level that youth, local authority and voluntary services were also keen to become involved

⁹ Conversation with Simon Needle, Head Ranger, 1/10/06

and that non-cycling related aims were also an important part of motivation to the groups taking part.

- 8.134 Projects completed reported a wide range of successful outcomes, including providing new services and facilities, promoting and increasing cycling, providing training and skills, and successful financial outcomes. In addition nearly twice as many groups had basic non-cycling related aims such as crime diversion, as had directly cycling related aims alone. Pilot projects achieved a wide range of positive outcomes, including engaging ‘at risk’ young people in challenging activities, providing new services, local people being employed and young people receiving training. It was found that community based small-scale cycling projects represented a way of engaging a much wider audience than the conventional approach of promoting cycling as transport. They are relevant to a range of high priority needs and priorities in different communities e.g. crime diversion, activities for young people, training and can be an effective tool for contributing to community development and social inclusion needs. Such small scale projects can help to create a supportive culture for cycling, however they often need a wide range of different types of support to help establish and maintain them, but with such support could contribute to many social inclusion agendas (www.sticerd.lse.ac.uk/dps/case/cr/CASEREport8.pdf).

Community & Volunteering

- 8.135 Waterways can help to bring different sections of the community together and provide a focus of local pride, and community consultation linked to planning change is a valuable form of social inclusion. In the case of deprived inner city areas, a waterway can bring vitality and a focus for community pride, whether or not economic benefits are gained. There is potential for linking the canal to projects targeted at young people ‘at risk’ of falling into criminal and anti-social behaviour, helping to provide skills and build pride and respect for the local environment. It is important for communities to take ‘ownership’ of ‘their’ canal to get maximum benefit – this can be achieved through various projects such as those highlighted above.
- 8.136 The people who are least likely to use the waterways are much the same people who suffer from other types of exclusion in the UK. Improving the waterway environment, easing safety fears and making the waterway more accessible will do much to eliminate exclusion, however such methods will not always be enough, community involvement and encouraging more people to visit the waterways is often needed. The Inland Waterways Amenity Advisory Council (IWAAC) commends partnership approaches between waterways authorities, local authorities and the voluntary sector. IWAAC believes that inland waterways are a beneficial community resource that can and should be used as such. The cycling and angling initiatives described earlier in this report are examples of ways in which the canal can link with wider social inclusion and health initiatives.
- 8.137 Volunteers are often regarded in this type of project as a ‘resource’; however research carried out by community, heritage and environmental organisations is increasingly demonstrating the value of volunteering, particularly its role in building skills, bonding communities and expanding employment opportunities. Encouraging young people to become involved in volunteering is seen as a key aim of many national organisations. The restoration project has already involved many people in

volunteering, expanding skills, building community spirit and introducing new people to local heritage, for example during work on the Leasowes section. Even once restoration is complete there will remain a strong role for volunteer involvement in areas such as education, interpretation and maintenance. Many trip boats, special events or guided walks are operated by canal trust volunteers nationwide; volunteering can extend to such activities as local area clean-ups and

Environmental enhancement

- 8.138 Canal restoration, while often disruptive during the construction phase, can offer opportunities in the medium and longer term for habitat creation and environmental enhancements.
- 8.139 While there appears to be plenty of open space and public rights of way in the local areas of the canal, these are not linked particularly well; the Birmingham UDP has gone some way to addressing this through highlighting walkways for improvement and targeting developer contributions. While the Castle Walkway is suitable for walkers and cyclists, the surroundings are not attractive and open and do not provide a feeling of a secure environment. The provision of a towpath as a recreational route would enhance local provision at the eastern section. In the more industrial Western section, the towpath provides a 'green corridor' through an otherwise unattractive environment.
- 8.140 If local authorities are convinced of these benefits, the potential for linking canal-related improvements to local residential developer contributions can be enhanced. While developer contributions would normally be linked to canalside development, there is potential, if local authorities are supportive of the canal's role as a local leisure resource, to benefit from development in the wider local area.

COST BENEFIT ANALYSIS

Comparison of costs and benefits

- 8.141 The benefits identified in this report have been set against the cost to provide an initial indication of value for money. This has been done by using recognised techniques for cost benefit analysis. This is not simply setting the capital costs of the scheme against the annual benefits. To do this would be the equivalent of getting an interest free loan to undertake the project. In practice, we have taken the capital costs for the scheme and compared them with the benefits over a forty year period following completion.
- 8.142 The critical factor for this type of work is the discount rate. This is the rate at which future year costs are discounted compared to present day costs. The principle of this concept can be described in two ways. The first is to pose the question, which is worth more, £1,000 now or the same amount this time next year? The answer is clearly that the money now is worth more, as it could be invested to yield a greater sum by next year. Alternatively, if a sum of money was borrowed, how much would need to be raised to pay it back? Clearly a loan of £10 million could not be repaid with 10 annual payments of £1 million due to the interest accrued. Therefore the value of future expenditure and future monetary benefits is reduced compared to

present day values. The rate at which future year values are discounted is known as the discount rate.

8.143 For this exercise we have adopted a discount rate of 3.5%, the rate used by the Environment Agency (EA) which is featured in Treasury Guidelines. The EA model is directly comparable with the monetary costs and benefits used in our model. The effect of this is that for each future year the value of any cost incurred or benefit gained is reduced by 3.5% per annum.

8.144 To make the model more realistic the following assumptions have been made:

- ◆ Construction would be phased evenly over twenty years;
- ◆ During the construction period, benefits to the local economy will be from spending 35% of the construction cost in the local economy. In addition, early restoration benefits will come online in year three, on the assumption that works would attract land-based visitors and stimulate interest by boaters in visiting the extending waterway with the first improvements taking effect;
- ◆ Restoration use benefits would start at 10% of their predicted level, growing over twenty years to their full forecast value.
- ◆ The costs of maintenance post-restoration will be met from revenue to the navigation authority; therefore neither the revenue nor the costs are considered in the model.

8.145 The results from the model are shown in Table 8.7

Costs and Benefits	Value (£)
Capital Cost	£49,553,000
Annual Benefit	£1,106,783
Net Present Value (50 yrs)	-£4,395,132
Net Present Value (100 yrs)	£33,502

Table 8-7 – Summary of costs and benefits

8.146 The net present value has been assessed over one hundred years, as this is deemed by Treasury guidelines to be the life of the asset. However, canals, unlike many other projects, are likely to have a life of over 100 years.

8.147 It can be seen that the scheme results in a positive net present value within a 100 year lifetime of the asset. The scheme first yields a positive NPV in year 99 (that is, 79 years after the scheme is completed). However, a positive cost benefit equation in itself is not the only consideration.

8.148 Many of the costs included in the cost benefit analysis may be paid for from sources not seeking an economic return, such as the Heritage Lottery Fund or AWM, or seeking an economic return from a different source. In this case these costs do not need to be included in the cost benefit analysis. In addition, it is likely that much of the labour could be provided by volunteers or by job creation schemes. While this would reduce the total number of FTE jobs created, it would also reduce the overall costs and would increase the NPV of the scheme. The job-creation effect of the construction is calculated as 826 FTE jobs.

8.149 The effect of the annual benefits in terms of direct jobs is 27 FTE jobs for the full scheme. This is based on the premise that 1 full-time equivalent (FTE) job is assumed to result from each £34,000 expenditure on tourism and leisure, and 1 FTE is assumed to result from each £68,000 expenditure on boating materials and supplies. In practice, some of the jobs would be part time resulting in more people in total receiving employment. These jobs are based on the annual benefit not the net present value (NPV), therefore they would arise even if the net present value was either zero or negative.

Cost-benefit: conclusions

8.150 The likely economic benefits have been assessed and compared against the estimated costs using a standard discounting rate over 20 years of construction and 80 years following completion. The scheme just breaks even over a 100 year cost benefit analysis: this time period is in line with Treasury guidelines and therefore the acid test of value for money has been passed. However, it must be accepted that the scheme incurs considerable costs for a comparatively modest return.

8.151 The projected costs of the scheme are high relative to the annual benefits, but this gives comfort that the figures coming out of the analyses are of the right order as there are, in comparison to some other restoration schemes, a large number of obstacles to overcome (higher cost) with a shorter overall canal length (fewer opportunities to generate benefits).

8.152 Despite the apparently unfavourable cost/benefit ratio, the fact remains that on many measures, this is a good scheme with many potential positive outcomes. The economic analysis suggests that whilst the scheme would only pay back its capital costs over an extended period, the operating costs/benefits ratio is favourable.

9. Funding

INTRODUCTION

- 9.1 The total capital cost of the restoration is predicted to be £49.6 million. This can be broken down into the three principal 'blocks' as described in the engineering section, with some smaller stretches of canal (principally the eastern section to Weoley Castle being able to be done piecemeal with significant volunteer input
- 9.2 There are many funders who focus in particular 'themes.' Where large capital sums are not forthcoming, it is useful, in terms of identifying funding, to also examine the different elements of the restoration which could be funded by different organisations. These include:
- ◆ physical engineering works to channel/locks;
 - ◆ highways alteration/improvement;
 - ◆ historic structure repair;
 - ◆ works to reduce flood risk;
 - ◆ environmental enhancements or mitigation;
 - ◆ community involvement;
 - ◆ sports/health development;
 - ◆ interpretation and education;
 - ◆ visitor facility construction.
- 9.3 Funding will need to be assembled from a range of sources to ensure that the work can proceed. In view of the long time scale of the project there is little point in examining in great detail every single funding source. An excellent overview is given in the IWA's Funding for Waterway Restoration chapter of their Practical Restoration Handbook. Typical sources of funds for canal restoration projects include:
- ◆ Lottery Funds;
 - ◆ The Waterways Trust;
 - ◆ National Waterways Restoration and Development Fund;
 - ◆ English Heritage;
 - ◆ Local Authority Resources;
 - ◆ Regional Development Agencies;
 - ◆ Land Fill Tax Credit ;
 - ◆ Private Sector;
 - ◆ European Structural Funds.
- 9.4 Of these, European structural funds are now extremely limited for UK projects, as funds are being diverted to new European countries. As there appears to be little opportunity for securing any European funding, Lottery and RDA funding targeted at regeneration and community enhancement therefore tend to be the principal larger sources of capital funding. The Lapal Canal finds itself at a slight disadvantage in that

the canal corridor is considered to be less or equally 'deprived' compared to the rest of Birmingham and Dudley and does not pass through any areas eligible for special assistance. In addition, the largely 'new build' aspect to the project (while following the original route) limits the eligibility for Heritage Lottery funds.

POTENTIAL SOURCES

GOVERNMENT SOURCES

Local Authority Resources

- 9.5 It is recognised that the two local authorities do not currently have the resources available or the will to fully fund a project of this scale. However, they may be able to part-fund certain aspects of the project and are likely to serve as the channel through which many alternative sources of funding may be secured. Local authorities will be particularly useful where the restoration conforms with planning policy and other strategies; it is important therefore to make efforts to ensure policies favourable to the restoration or which the restoration could enhance are incorporated into emerging Local Development Frameworks (LDFs).
- 9.6 No funding initiatives local to the canal route, which could be linked with the restoration, have been identified during the course of this study. However new initiatives arise all the time; active monitoring of upcoming regeneration initiatives and ongoing communication with the local authority stakeholders identified can help the Trust 'piggyback' or even lead local-authority funded projects

Regional Development Agency (AWM)

- 9.7 Advantage West Midlands (AWM) is responsible for economic development (and tourism) within the region. There is little possibility of direct project funding from this source; however, the regional and sub-regional tourism boards can serve as excellent sources of funding information and can advise on how best to link project elements to regional or local tourism goals in order to create attractive 'fundable' packages.

WATERWAYS-RELATED SOURCES

National Waterways Restoration and Development Fund

- 9.8 The Inland Waterways Association (IWA) supports the restoration of derelict waterways in a number of ways from lobbying to providing volunteer labour and financial aid. The IWA provides grants to assist with projects such as hands-on restoration schemes and helping to finance feasibility studies.
- 9.9 Grant awards tend to be up to £15,000 and are available to organisations that promote the restoration of inland waterways. Applications over £2,000 should demonstrate that the grant would apply to one of the following types of project:
- ◆ Construction – especially work relating to restoration of Navigation;

- ◆ Administration – for example, part funding a project officer;
- ◆ Professional services – such as funding or part funding a feasibility study;
- ◆ Land Purchase;
- ◆ Research on matters affecting waterway construction – including original research and literature reviews; and
- ◆ Education – for example, providing promotional information to local authorities or agencies.

9.10 An application over £2,000 should also demonstrate the extent to which it satisfies at least one of a number of conditions specified by the IWA. These conditions are:

- ◆ The grant would unlock a grant several times larger from another body;
- ◆ The grant would not replace grants available from other sources;
- ◆ The project does not qualify for grants from major funding agencies;
- ◆ The grant would enable a key project to be undertaken which would have a significant effect on the prospect of advancing the restoration and gaining funds from other sources for further restoration works;
- ◆ The result of the project would have a major influence over the progress of a number of other restoration projects; and
- ◆ The Restoration Committee would have a major influence on the management of the project, including the monitoring of expenditure.

The Waterways Trust Small Grants Scheme

9.11 Grants awarded are unlikely to exceed £5,000 and should represent a minimum of 20% of the total cost of the project. Grants may be considered for a phase of a larger project.

9.12 Eligibility for funding is based on a project fulfilling the following criteria:

- ◆ Waterway related;
- ◆ Provides lasting environmental enhancement;
- ◆ Encourages involvement in the waterways; and
- ◆ Involves and benefits the community.

9.13 The Waterways Trust is especially keen to assist projects where the award is being used to attract further funding, i.e. from local sponsors or where the scheme involves volunteer effort or gifts in kind. Applications are considered only twice per year (winter and summer) but can be received any time.

Projects supported by the Waterways Trusts Small Grant Scheme have included

- ◆ £1,500 towards a feasibility study on the Great Western Canal;
- ◆ £2,500 to the Shropshire Union Canal Society towards the restoration of Bryndyrwyn Lock and Montgomery Canal; and
- ◆ £7,500 to the Waterway Craft Guild for the restoration of the Shropshire Union Canal Flyboat Saturn.

British Waterways

- 9.14 Navigation authorities, particularly BW, can be sources of match funding, expertise and have great influence with planning and other statutory bodies. These bodies can often access third party funds even if they have no core funding themselves to offer: BW are currently managing a number of restoration projects which are funded by others but BW's expertise has been fundamental in obtaining the funding; a local example is the Droitwich. These resources are only available, however, if the navigation authority would anticipate adopting the waterway following restoration..
- 9.15 The Lapal Canal is not listed as a priority in BW's 'Waterways 2025' listing of restoration priorities. However, BW supports, in principle, restoration efforts. If the restoration proposals are well worked through and seen to be viable, BW is likely to be more interested, although BW is not permitted to add any waterway to its portfolio that is not predicted to be self-sustaining in the future. If planning and remediation issues could be resolved, there is potential for marina development which is seen as a growth area for BW. In this respect the canal fulfils one of BW's key criteria in the 2025 strategy, in releasing pressure on the waterways network.
- 9.16 Factors likely to influence BW to look favourably on the restoration scheme are:
- ◆ An agreed technically feasible and fully costed solution to restoration that has the ability to be incorporated in local development frameworks and which can ensure no additional long-term financial liability to BW
 - ◆ The opportunity for marina and other development to provide revenue stream to BW from which they can fund the maintenance and operation of the canal.
 - ◆ Packaging of the restoration as "desirable" and "well supported" locally
 - ◆ Presentation of a strategic argument for restoration and emphasis on the improved likelihood of restoration with BW involvement.

Community Arts Funding

- 9.17 Community Arts are funded through a plethora of different sources and may well be funded as a subsidiary to some other initiative. Grants may be available for public works of art such as sculptures, designed perhaps to reflect the heritage of the canal. The community could be involved in the design of interpretation boards, waymarkers, and seating, for example, so as to give them an element of ownership of the restoration scheme.

HERITAGE PRESERVATION SOURCES

Heritage Lottery Fund

- 9.18 The Heritage Lottery Fund uses money from the National Lottery to give grants to support a wide range of projects involving the local, regional and national heritage of the United Kingdom. The aim is to help groups and organisations of all sizes with projects that aim to:
- ◆ Care for and protect heritage;
 - ◆ Increase understanding and enjoyment of our heritage;

- ◆ Give people a better opportunity to experience heritage by improving access; and
 - ◆ Improve people's quality of life by benefiting the community and wider public.
- 9.19 These aims are grouped into four strategic priorities that guide Heritage Lottery Fund Policy and underpin its decision on funding. These priorities are: Heritage Conservation, National Heritage, Local Heritage and Heritage Education and Access. It is recognised that 'heritage' covers a range of things, places and people, from photographic collections to sites linked to industrial, transport and maritime history. Currently the Heritage Lottery Grants are divided by scale and theme, with the largest grants (over £5 million) being administered nationally. Given the excess demand for grants and the amount of new build in the canal project, it is more likely the Heritage Lottery fund would fund small-scale works at an earlier stage of the restoration than part fund the restoration of the entire canal.

English Heritage

- 9.20 English Heritage has indicated that it is only able to consider grant aid for canals in England if the canal itself lies within a designated conservation area. Grant aid may also be available for individual canal structures located outside of conservation areas if they are listed at Grade I or II*.

LOTTERY FUND & ASSOCIATED SOCIAL/ENVIRONMENTAL FUNDERS

- 9.21 Lottery funding can cover many areas including Heritage, as above; however a principal focus is to address social issues in various guises. The lottery is often combined with other sources (eg Sport England or the Arts Council) to create specific funds; these change constantly. Key potential sources at present include:

Big Lottery Fund (formerly the New Opportunities Fund)

- 9.22 The **Big Lottery Fund** provides lottery funding for educational, health and environmental projects which help create lasting improvements to quality of life, particularly in disadvantaged communities. Quality of life projects that may be supported include those that improve elements of local value and projects that complement the work of the Heritage Lottery Fund. There is an increasing emphasis on health, sport, education and social inclusion, with some focus on environmental improvements. New schemes or 'funds' are constantly being introduced; certain funds may have limited timescales or budgets, so constant monitoring is critical, to ensure that the LCT identifies likely sources.
- 9.23 The **Community Champions Fund** supports the work of local people who can encourage others to get more involved in renewing their neighbourhoods. The fund is region-based and offers grants of up to £2000 and is designed to increase the skills levels of individuals to enable them to act as inspirational figures, community entrepreneurs, and community mentors/leaders, in order to increase community involvement in regeneration and learning activity. An emphasis is placed on supporting individuals who have already shown leadership in stimulating community activity, or who have ideas for encouraging greater community activity. The Fund will

also support small-scale community inspired projects as part of supporting potential champions who have not previously sought funding. The Fund also encourages older (50+) volunteers to get involved in helping their communities. The main type of funded activity is very small-scale but it is activity that makes a real difference. The fund has, for example, provided training in giving presentations, or enabled individuals to attend conferences that are relevant to what they are trying to do in their community. The fund would not pay for the restoration itself but could, for example, be used to train LCT or other volunteers in fundraising techniques.

- 9.24 **Active England** is a £108.5 million programme jointly funded by Sport England and the Big Lottery Fund. It aims to increase community participation in sport and physical activity across nine regions in England. Active England's wider policies and strategies aim to improve health and well-being of people in communities and communities as a whole, through actively promoting healthy exercise. Active England looks to include everyone in their vision of the 'most active and successful sporting nation in the world'. Active England will fund over 250 projects throughout the next four years and wants these projects to be innovative in the way it creates opportunities for people to join in. Active England has funded various towpath improvements elsewhere including at Bletchley on the Grand Union, through links with Sustrans. This source could be considered for, for example, support in construction of a towpath/cycle route linked with other regional walking/cycling routes, and the regional towpath network, and regional community health benefits. The Active England Learning Zone, which monitors projects for Sport England, has a useful discussion forum <http://www.aelz.org/forum/category-view.asp>
- 9.25 Awards for All is the small grants scheme run by the Big Lottery Fund on behalf of Lottery good cause funders, the Arts Council England, Heritage Lottery Fund and Sport England. The scheme makes awards of between £500 and £5000 to grass roots community groups and voluntary organisations. Sports clubs, arts societies, charities, voluntary groups, heritage and history groups, parish councils, environmental groups, schools and music societies are among the organisations receiving grants, whose work in turn will help improve the lives of thousands of local people. More than £287 million has been rolled out to over 78,000 projects since the scheme began eight years ago.
- 9.26 The **Breathing Places** grants programme is a UK wide small grants programme, developed in partnership with the BBC. It complements the BBC's Breathing Places campaign and is designed to provide funding for small groups who are inspired by this campaign. Its aims are to: Increase participation and access to local breathing places by encouraging people to become actively involved in them, and by supporting activities that are open and accessible to everyone; and to make a lasting improvement to the local environment by supporting activities that develop existing breathing places or help create and sustain new ones.
- 9.27 Funding aims to bring about the following changes:
- Improved biodiversity, and wildlife habitats which are accessible to all
 - Increased community use of local breathing places
 - Increased opportunities and support for volunteers
 - Improved skills to manage local breathing places
- 9.28 Breathing Places is being run in two phases. Phase one closed in July 2006 and provided funding for local groups getting local people involved in and funding for

improvements to existing Breathing Places. Phase two will open in the autumn of 2006 and will focus on the creation of new breathing places. Grants are for between £300 and £10,000.

Private Sector

- 9.29 Opportunities for private sector funding include business sponsorship and Section 106 contributions on private sector developments.

Developer contributions

- 9.30 Developer contributions are likely to be a significant funding source for the restoration and this is an area requiring much negotiation. The value of development to the canal will depend upon the will of local authorities to implement S106 contributions and the links that can be built with developers to demonstrate the value of the canal to development; planning support from local authorities is crucial to the success of private sector funding endeavours. Whilst it is recognised that some parts of the canal and associated development opportunities would class as development within green belt, the canal is seen as a strategic development which would be included in future local plans. The planning authorities would have to take a view as to facilitating limited supporting development in order to fund or part fund the wider objective of canal restoration.
- 9.31 A recent Audit Commission report (Ref 23) has advised that there are wide variations across the UK in what councils secure in terms of developer contributions (these vary from approx £500 to £30,000 per home), and that many communities may be missing out. There may be scope for increased S106 gain along the canal line. The Hereford & Gloucestershire Canal is an excellent example of how concerted efforts on the part of a canal trust and partnership working with the local authority have resulted in very substantial contributions to the future restoration of the canal line, including securing agreements for funding the ongoing maintenance of the canal once restored.
- 9.32 There is no real potential for large-scale housing development within the canal corridor; therefore, funding from this cannot be relied on. However leisure and sport facilities, as well as environmental improvements, are supported. There could be potential for developments slightly distant from the canal to make contributions to the canal as a local leisure resource, as well as to improvements to local open space; this would need to be balanced against the case for focusing contributions to areas more local to those developments.
- 9.33 Marina development is necessary to the restoration, as discussed in section 8. These developments, which offer attractive returns to investors, can, through contributions, help fund the restoration on which their success depends. The creation of a marina at California as part of Phase 3 (this area is not green belt) would free up funds early on in the restoration process while offering investors a secure return (ie investors are not reliant on the full restoration taking place in order to operate the marina, as boats will link to the Worcester & Birmingham at Selly Oak)

Business sponsorship

- 9.34 Many corporations operate small charitable trusts which fund projects in the areas in which they operate. Examples include the BAA 21st Century Communities Fund,

Tesco's community projects and the Landfill Tax Credit scheme (regulated by Entrust) which, though substantially reduced in recent years, funds projects related to improvements to community facilities, regeneration of local landscapes, or conservation of natural and built heritage within 10 miles radius of a landfill site. Business sponsorship can also take the form of donations of materials or services (benefits in kind) and is often linked to Corporate Social Responsibility programmes; large local companies such as Cadbury's would be typical donors.

BENEFITS IN KIND

- 9.35 The LCT benefits from the efforts and expertise of its volunteers and from the donations made by local firms. These benefits in kind can be used as match funding for other sources. Bodies such as HLF set out specific rates at which manual and professional services can be costed towards matching funding requirements. Other possible sources of free (or cheap) labour are open prisons, the probation services, Duke of Edinburgh Awards scheme, British Trust for Conservation Volunteers (BTCV), the Waterway Recovery Group (WRG) and the range of constantly-changing government schemes for enabling those out of work to help in the community.

STRATEGY

Phasing

- 9.36 It should be noted that major restoration schemes tend to rely on one or two core funders making up 80% of the funding for major projects. These funders will normally be from the Lottery, the European Union and/or the Regional Development Agencies. The project needs to be broken down into independently viable, individually fundable 'packages', each of which has demonstrable value to the funder. Where private developers are the funding source, as is likely for some elements, these 'packages' need to be smaller and more 'worthwhile'.
- 9.37 At the early stages small-scale funding sources, such as Land Fill Tax Credit, The Waterways Trust, The Inland Waterways Association and Local Authorities will dominate. Some small-grant Lottery schemes can also help develop the scheme to the stage where major capital investment is needed and where the trust is in a position to be able to spend any available funds. While they may not appear to be related to the restoration itself, funding sources which help train community groups in skills such as marketing, fundraising or business development can prove useful in making LCT members more effective in their volunteer roles.
- 9.38 It is at this stage that links, further described in the following section, can help shape the project, by defining what other stakeholders might fund or what their objectives are. It is also important to develop the scheme (or the 'package' within the scheme) to the stage where LCT is in a position to be able to spend any available funds.
- 9.39 'Success-critical' 'single hit' works such as highway crossings will be reliant on, predominantly, developer contributions where core funders as outlined above are not relevant. Other works can be carried out over long periods as and when funding can be sourced; some continuity and momentum of works are necessary to maintain the profile of the restoration, demonstrate commitment and provide 'quick wins.'

- 9.40 In terms of overall phasing of the restoration, the greatest benefits are likely to be seen at the eastern end, and are associated with linking the canal to the wider waterway network. It is therefore crucial that potential funders are confident that the scheme will 'pay off' by making this connection; this is particularly important for private development which is dependant on the waterway being operational for its returns.

PROFILE-RAISING & JOINT WORKING

- 9.41 Fund-raising is made far easier if the project being funded conforms with strategies of either funding bodies or organisations who have influence with potential funders. Thus we would advise that the programme of lobbying local authorities and raising the canal's profile.

Local Authorities and LDFs

- 9.42 The 2004 Planning & Compulsory Purchase Act introduced a new planning system to England, and all local authorities are currently undergoing a move from the old local plan system to a system of Local Development Frameworks (LDFs). The timetable for drawing up documents is set out in each authority's Local Development Scheme (LDS). Each document is subject to extensive public consultation and to sustainability appraisal; both Birmingham and Dudley have recently adopted their old-style Local Plans and will be commencing preparation of the LDFs; there is ample opportunity for the LCT to input into documents and to gain the support of local authorities. The schedule for relevant documents is set out in the Planning Policy Analysis (Ref 21).
- 9.43 The importance of identifying and nurturing project 'champions' within the local authorities cannot be overestimated; local authorities can support or quash emerging plans for the restoration. They can provide match funding, participate in project consortiums, offer support and, critically, determine the type and level of developer contributions on which the funding of the restoration will rely.
- 9.44 The demographics of the canal route indicate that the sport/leisure/health, community, landscape and environmental improvements elements of the project will attract as much, if not more, support than economic and job-creation aspects within local government.
- 9.45 The role of the local authority in the early stages of restoration is as facilitator. The support of the authorities can ensure that the canal is included in emerging Local Development Documents (LDDs) and Areas Action Plans and more local non-land use documents such as community action plans or tourism strategies. The backing of the authority also ensures maximum planning gain is obtained from local development and that development is sympathetic to the future canal in terms of landscaping, design and access. In effect, the LPA acts as a catalyst and sets the scene for future development.
- 9.46 The funding environment is constantly changing, and local authorities can be involved in the management of projects to varying degrees. Taking regional projects as examples, the Droitwich Canal has Whychavon DC as a joint signatory to funding

contracts (with AWM and Heritage Lottery Fund) while for the Cotswolds restoration Stroud DC is not directly tied to funding contracts. In both cases, however, the Local Authority, having determined the economic and regeneration benefits to be gained from the restoration, has committed significant staff resources to the project. Dudley already has staff dedicated to canals and tourism development; the Lapal forms part of their portfolio. Direct financial commitments may range from 'pump-priming' to lever funds from other sources and demonstrate commitment to more significant funding contributions. It is understood from both Dudley and Birmingham that there is little direct funding available at present.

- 9.47 The line of the canal and towpath would normally be held in the ownership of the managing authority. Assuming BW to be the operating body following restoration, Dudley and Birmingham would normally transfer ownership of relevant land areas to BW.

Strategic Regional Bodies

- 9.48 While large-scale funding from AWM is unlikely given current other priorities, support from AWM for the objectives of the restoration can lend great weight to future negotiations or funding bids; AWM is currently part-funding the restoration of the Droitwich Canals, for example. The LCT would benefit from closely monitoring the priorities of AWM and seeing how AWM objectives could be linked to the objectives of the Trust.
- 9.49 An examination of material produced by AWM revealed no mention of the Lapal Canal, though canals feature highly in their strategies and examples of regeneration projects. Raising the profile of the canal and stressing linkages to existing strategies and priorities at regional and sub-regional level can bring valuable support 'on board.' In this way the LCT may also tap into information about future funding possibilities.
- 9.49a There is an ERDF structural fund available through AWM which, as one of its key objectives, specifically targets job creation, skills and training. IWA suggest part of this will be achieved by using linear industrial heritage within the West Midlands. However, Penny Russell of Dudley Council has indicated that AWM, British Waterways, and the councils are concentrating on other canals. The funding runs from 2007 to 2013 and the intention was to have finalised programmes in Spring 2007.

Waterways bodies

- 9.50 Where British Waterways have become involved in individual canal restorations, they have generally supported waterways trusts with restoration programmes, both financially and through their expertise. Current high-profile examples are the restorations of the Droitwich and of the Cotswolds canals, where BW are heading up consortiums of local stakeholders to drive the restorations forward. As discussed in the Navigation Report (Ref 2), thought must be given to the future management of the canal; potential for partnership with BW should be explored.
- 9.51 Management of the waterway is discussed in other technical reports as part of this study. It is desirable that BW ultimately run the waterway because their expertise in the field is second to none. In addition if BW decide to back the waterway before full restoration is achieved then their expertise in funding will advance the restoration

more rapidly. The role that BW take (ownership or being contracted to run the waterway) will depend on the political climate of the time and any other changes that may have occurred to the management of the local canal network. A strong relationship between BW and the LCT would help ensure proposals were supported

Private sector

- 9.52 While the planning environment is not, at present, conducive to more than pocket development along the line of the canal, policy may change with time. It is likely that developers who might have an interest in canalside development or marina development may be prepared to partner the LCT in any lobbying activities; major developers are likely to have resources to back up feasibility studies, EIAs and planning applications that the LCT does not.
- 9.53 Exploring links with potential local developers of residential, leisure or commercial property, and particularly with marina developers, may reveal commercial opportunities or may convince potential development partners of the benefits of the restoration to their interests. This in turn will make the negotiation of S106 agreements to fund the restoration itself less problematic.

Monitoring of funding opportunities

- 9.54 New funding sources are constantly emerging, each with a different focus. It is essential to maintain ongoing monitoring of the funding sources listed above and undertake periodic review of available sources; over the lifetime of this project the funding environment is likely to change greatly. A range of funding finder databases is available on a subscription basis; however it is often through the links created with the key individuals and organisations discussed above that information on upcoming funding sources will be obtained. The IWA is also a source of up to date information.
- 9.55 Finally, it is important to 'think outside the box' when researching funding opportunities. As stated in the IWA 'Practical Restoration Handbook': *"For private/public sector funding, it must be remembered that the funding body will invariably have a specific remit into which any project must fit to stand a chance of success. Instead of working out projects to the smallest detail and then looking for potential funders, consider the matter from the opposite perspective. Here is a funding body that is known to support X, Y and Z; can the Society produce a project that delivers on X, Y and Z as well as meeting its own needs? If nothing else, the concept should encourage more lateral thinking!"*

10. Executive Summary

- 10.1 Atkins were commissioned by the Lapal Canal Trust to report on the feasibility of restoring the Dudley No.2 (Lapal) Canal between Hawne Basin near Halesowen and Harborne Lane Bridge in Selly Oak.
- 10.2 Previous reports were studied and a walk over survey undertaken, followed by a detailed study of engineering options and costings, relevant central and local government policy, the existing natural and built heritage, potential benefits of the scheme and opportunities for funding.
- 10.3 The key conclusions of the study and report are as follows:
- Restoration of the canal on or close to its original line is technically feasible, with the exception of the Lapal Tunnel, which would not be suitable for modern craft and safety standard if it was restored;
 - A new tunnel, either on the line of the old tunnel or parallel to it would be technically feasible, but very costly;
 - An alternative alignment is possible, climbing from the Black Horse Pub towards the M5 roughly parallel to Manor Way, and then tunnelling under the M5 and the Quinton Expressway to emerge in Woodgate Valley Country Park, which would be followed to rejoin the original alignment at California;
 - The alternative option offers significantly more socio-economic benefits to the community;
 - There are no insurmountable obstacles in terms of natural and built heritage;
 - Current central and local government policies are supportive of canal restoration;
 - Initial conservative estimates place the construction cost for the entire scheme (assuming it was delivered with no volunteer assistance) at a little under £50 million;
 - The scheme would deliver an estimated total annual benefit of £1.1 million to the local economy.
- 10.4 The following recommendations are made:
- 10.5 It is recommended that the trust re-align its objectives from being centred on a restoration of the tunnel to the objective of re-connecting the canal, in recognition of the increased benefits and reduced costs that the up-and-over option represents.
- 10.6 Further study of Atkins' proposals should be undertaken to ascertain whether the construction cost estimate can be reduced by verifying the assumptions made in the initial study and applying "value engineering" techniques to the key structures;

- 10.7 Planning support for the proposed restoration should be established in principle and planning protection for the proposed canal alignment should be negotiated into Local Development Documents.
- 10.8 Consideration should be given in early course to the creating of a Lapal Canal “walkway”, a network of paths and cycleways, which could be formed primarily of existing routes, with appropriate signage and interpretation. This would re-establish the line of the route and complete the pedestrian link between the two ends of the canal, as well as raising awareness of the former canal.
- 10.9 A phased approach to the restoration should be adopted with each stage reaching a suitable local attraction (e.g. Weoley Castle). The report includes details of the proposed phasing and budget costings for each stage. Phasing should be kept under review in the light of the changing availability of funding.
- 10.10 Prior to commencement of each phase, a detailed feasibility study for that section should be undertaken, considering not only the engineering and funding aspects, but also built heritage and archaeology, ecology and sustainability aspects of the proposals.
- 10.11 Restoration of the canal through Selly Oak Park should be considered in the short term to continue the momentum which will be generated by the redevelopment of the Battery Park site and restoration of the canal east of Harborne Lane.