DROITWICH JUNCTION LOCKS RESTORATION PROJECT PLAN

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DROITWICH JUNCTION LOCKS RESTORATION PLAN

Health and Safety Plan

This Plan has been prepared in conjunction with the Practical Restoration Handbook (PRH) and should be read alongside it.

WRG will work to the standards outlined below. Where a subcontractor works on the site they must either conform to the same standards or otherwise prove competence to the Project Leader.

All documents (Project Plan, Job Descriptions, PRH, etc.) shall be freely available on site at all times. They will be stored in the flight case taken on site every day. Volunteer details (next of kin, medical details, etc.) will also be kept on site in the flight case in case of any emergency.

In addition to the points made below each job will be detailed separately with a separate risk assessment and a resulting set of instructions to be followed. Particular care must be paid to any comments regarding the timing of other associated works. If in doubt the Project Leader must be consulted.

The following points should be noted for all work undertaken:

General practices
All work will be carried out to the standards described in the job instructions or in the PRH.
The Site Leader shall assess any volunteers competence before assigning them to a job.
Form F10 will be displayed in the site container.
A register of volunteers competent to inspect or assess various items will be kept with the Project Plan.
All WRG volunteers will only be allowed to work on site once they've completed an induction comprising of:

- the WRG safety video.
- a site specific talk outlining the management structure, on site hazards, emergency procedures to be followed and any other information required to work safely.
- reading of the WRG "Volunteers Health and Safety Guide".
- signing a form saying they agree to abide by the site leaders instructions at all times.

CDM/Project Management
For the purposes of CDM the defined roles are filled by:

- Client: Droitwich Canals Trust (Ivor Caplan)
- Planning Supervisor: British Waterways (Andrew Pennell)
- Principle Contractor: Waterway Recovery Group (Mike Palmer)
- Sub Contractors: British Waterways (Neil Bedford)
  Droitwich Canals Trust (Mick Yarker)

Contact Details are to be found later on in the Plan.

Site Location Details
Junction Locks
Alongside Hanbury Road (B4090)
Droitwich
Worcs

(Approx. 800yards west of the Eagle and Sun public house)

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Grid Reference: 920630
Site mobile phone 07850 422156 or 07850 422157

PPE
The entire site will be designated a “hard hat” site. Other PPE will be determined by the jobs.
Each volunteer will be issued with a PPE pack:

- a safety helmet to BS 5240
- eye protection to BS2092
- hearing protection to BS 5108
- disposable respiration to EN149
- suitable gloves

Other/additional supplies will be available in the welfare caravan on site (inc. hi vis jackets)

Specific site hazards

- Main road running alongside - this is a major hazard due to very fast moving cars. The road should not be obstructed, except for loading/unloading. All manoeuvres involving the highway should be supervised by experienced people wearing hi vis jackets. "Caution Site Entrance" signs are to be displayed 100m above and below the site whenever entrance and exit onto the road is required.
- There is a telegraph pole below Lock 3. This is not on the site but its supporting wires may cause access problems. They should always be marked with hazard tape.
- Dam below lock 3 - see section below on chamber work.
- Steep drops - these exist in several places on site particularly at the lock chambers and the side pounds. All volunteers should be specifically warned to be aware of edges. The edges to the chamber of lock 3 should always be fenced off to prevent access while people are working in the chamber or on scaffolding. Where access is required the fence should be temporarily removed and a banksman specifically appointed to ensure safety of personnel.

No other hazards are known.

Access/site conditions
The site must be kept well strimmed at all times particularly around steep drops.
No fences should be removed without consulting the Site Leader.
Beware access to and from the road. The traffic is very fast moving. See comments in “Specific Hazards” above.
The chamber scaffold must have an access at both ends when in use.
In the event of a major change in site conditions due to weather all jobs should be reassessed by the Site Leader.
Parking must be offsite (in the pub or boatyard).
The public route through the site is to be kept clear at all times. The mixing site is to be relocated down into the pound. If necessary the public access route will be diverted “upstream” of the Container onto the pavement.

Emergency Procedures
In the event of an accident or emergency the Site Leader should be informed. All work should be stopped and all volunteers should assemble by the site caravan or other safe location. If necessary emergency services should be summoned. The accident book and the WRG RIDDOR form should be completed. Only once jobs have been inspected and agreed safe by the Site Leader should work recommence.
Local emergency services information is to be included in the Health and safety Plan.

Chamber work
The chamber is not confined space - however no fumes are to be produced in the chamber unless natural ventilation has been assessed as acceptable.
The scaffolding must not be modified in any way without consulting the Site Leader. The loading restrictions given in 8.2.1 should always be observed.

When the chamber is pumped down the dam must be assessed before and during the pumping with a competent person making the assessment and recording it on form F91. Additional inspections are required should there be a major change in weather conditions or levels either side of the dam. No further earth moving from either side of the dam is to be attempted.

Plant, Equipment and Vehicles
WRG Driver Authorisation scheme will operate at all site on times.
Only when authorised and requested by the Site Leader will plant and equipment be used.
On site training will be provided by WRG approved instructors. Banksman will be used when vehicles are moving along the towpath or any other restricted routes.
All fuelling will be done via funnels from approved containers.

Materials storage
Cement and associated construction products will be stored in the site container. Bricks (old and new) will be stored safely on pallets in the bed of the canal. Fuel will be stored in the boatyard. At all times the site will be kept tidy with particular reference to rubble generated.

COSHH
Specific training will be given to all volunteers before they come into contact with any hazardous materials. All COSHH data sheets will be available in the PRH. Materials will be stored in the site container when not in use. All necessary PPE will be available.

Lifting and handling
This is dealt with in each job specification. However care should be taken to ensure the repetitive effects of handling on contiguous jobs do not build up to be a problem. British Waterways to provide a lifting and handling video.

Welfare provision
A caravan will be on site for rest, shelter, refreshments and washing down. Drinking water will be taken on site everyday. In addition showering and toilet facilities are available in the boatyard above Lock 1

First Aid provision on site will include:
- one HSE First Aid Kit for up to 50 employees
- additional eyewash facilities
- welfare kit.

Register of Competencies

Name	Scaffolding	Acrows	Dam	Comments
Mike Palmer	Yes	Yes	Yes	
Marcus Jones	Yes	Yes		
Matt Taylor	Yes	Yes	Yes	
Adrian Fry	Yes	Yes		
Gavin Moor	Yes	Yes		
S Collins	Yes		Yes	
Rick Barnes	Yes	Yes		

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Contact Details

CDM Named Officers

Client: Droitwich Canals Trust (Ivor Caplan)
Planning Supervisor: British Waterways (Andrew Pennell 01827 252025)
Principle Contractor: Waterway Recovery Group (Mike Palmer 01564 785293)
Sub Contractors: British Waterways (Neil Bedford 07710 175156)
Droitwich Canals Trust (Mick Yarker 01562 67072)

(Site mobile phone 07850 422156 or 07850 422157. Further contact details given below)

Emergency services
Ronkswood Infirmary, Worcester. 24 hour accident and emergency.
Directions:

From site head towards Droitwich. At the Traffic lights turn left towards Worcester A38. Go across two roundabouts following the A38 for Worcester. Continue along the A38 until you reach Worcester. Follow the A38 to a set of traffic lights where the A38 turns right towards the river. Follow the A38 and where the road bears left by the Racecourse the hospital is on the left.

Incident Contact Centre
This will deal with any reportable H&S incident and direct your report to all the relevant authorities
0845 3009923

British Waterways

Neil Bedford (Lapworth 01564 784634, mobile 07710 175156)
Keith Trinder (01827 252065, mobile 07710 175174)
Mike Crick (01827 252043, mobile 07710 175228, home 01827 311783)
Andrew Pennel (01827 252025)

Highways Agency

Landowners

Mr Weston
Westfields Farm (over the bridge at the top of the Junction)
Mark Pearman (Locks 4 and 5)
Raintree (land agent: Errol Mews

Suppliers (always obtain order number from Marcus Jones)

Travis Perkins: 01905 776019
Beaver 84: 0121 706 0000 (Paul)
Hewden Plant: 01905
Hewden Small Tools: 01905 724770
Cradley Special Bricks: 01384 635824

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Programme of Works

Ref	Date	Event	Key Works to be started
CC01	7th – 16th April	Easter Camp	Test the proposed techniques for Lock 3 chamber wall repairs.
			Install top paddles (BW to instruct)
			Clear chamber of Lock 3.
			Complete chamber and structure survey
WE1	28th/29th April		Culvert on Lock 3 side pond - excavate, install pipe, rebrick and cover over.
Train1	Late May	Training weekend	Scaffolding training. Scaffolding of Lock 3.
			Lifting and Handling training
			Bricklaying training
TA1	9/10/11 June	TA weekend	Scaffolding/brickwork
CC02	23rd – 30th June	Summer Camp	Tail walls on Lock 2.
		(Adrian + Ian)	Demolition of chamber of lock 3.
			Stopplank sill of Lock 2
CC03	30th June – 7th July	Summer Camp	Repairs to Lock 3 chamber.
		(Zoe + Gavin)	Lock 3 Head Wall
			Tail walls of Lock 2
CC14	4th –11th Aug	Summer Camp	Repairs to Lock 3 chamber
		(Marcus + Rick)	Install iron buffer beam on Lock 3.
			Coping stones and concrete
CC17	11th -18th Aug	Summer Camp	Repairs to Lock 3 chamber
		(Spencer + Rob)	Tail Wall Lock 3 offside
			Coping stones and concrete
CC21	8th - 15th Sept	September Camp	Landscaping/Towpath works?
		(Roger and Steve)	Tail Wall lock 3 nearside

Ongoing work by Local Volunteers:

Gate Construction and fitting
Paddle fitting
Side pond paddle pit covers
Stop planks

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JOB STATUS

Job Ref	Description	Cost	Status
1.2.1	Towpath works		A Advice
2.1.1	Installation of paddles		75%
2.1.2	Construction and fitting of gates		Completed
2.2.1	Investigation and seal of leaks in forebay of Lock 1	£100	In Schedule
2.2.2	Paddle Pit plank covers		Done
5.2.1	Completion of pound wall		Completed
5.2.2	Final levelling out of backfilling behind copers on pound wall		Completed
5.2.3	Pound hydraulic testing		Completed
5.2.4	Reed removal		Completed
6.1.1	Installation of paddles		75%
6.1.2	Construction and fitting of gates		Completed
6.2.1	Refurbish overflow weir	£50	95%
6.2.2	Install rubbing strake		Completed
6.2.3	Install missing coping stones and check existing ones.		Completed
6.2.4	Repair damaged coping stone	£50	In Schedule
6.2.5	Refurbishment of sidepond		Completed
6.2.6	Refurbishment in the sidepond paddle pit		Completed
6.2.7	Coping Brick replacement		Completed
6.2.8	Repair of coping stone	£50	In Schedule
6.2.9	Repair on gate recess		Completed
6.2.10	Refurbishment/rebuild of tail wall		90%
6.2.11/12	Pointing of below water sections of Flank walls.		Completed
6.2.13	Refurbishment of pissoir		Completed
6.2.14	Nearside Flank wall rebuild		85%
6.2.15	Landscaping of Offside Of Lock 2		90%
6.2.16	Refurbishment of tail stopplank grooves		Completed
7.2.1	Pound wall backfilling		Completed
7.2.3	Pointing of lower section of wall		Completed
7.2.4	Coping of pound wall (plus extra course of bricks)		Completed
7.2.5	Pound hydraulic testing.		In Schedule
7.2.6	Offside bank piling		On Hold
8.1.1	Installation of paddles		75%
8.1.2	Construction and fitting of gates		Completed
8.2.1	Chamber wall repairs		Completed
8.2.2	Repairs to coping stones	£250	In Schedule
8.2.3	Repair of arch wall		Completed
8.2.3a	Repair of Culvert for sidepond feed		Completed
8.2.4	Replace coping stones		Completed
8.2.5	Repair of weir area		Completed
8.2.6	Repairs to paddle pit face wall		Completed
8.2.7/8	Reconstruction of “long” side pond wall and upstream wall		Completed
8.2.9	Rebuild of downstream side pond wall		Completed
8.2.10	Failed downstream chamberside side pond wall		Completed
8.2.11	Paddle pit repairs		90%

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8.2.12	Rebuild of head wall	£180	95%
8.2.13	Repair of offside tail/flank wall		60%
8.2.14	Repair of nearside tail wall		Completed
8.2.15	Repair of nearside lower gate recess		Completed
8.2.16	Repair of nearside flank wall		Completed
8.2.17	Refurbishment of pissoir		Completed
8.2.18	Installation of Piling Dam and clearance of tail		Completed
8.2.19	Refurbishment of stopplank grooves		Completed
14.1.1	Dredging of pound below Lock 3		A Decision
		£680	

Key	
A Advice	Awaiting advice
A Decision	Awaiting a decision from DCT Council or BW
Local	Job being completed by Local Volunteers (M Yarker coordinating)
In Schedule	Job not started but planned and in the works programme
On Hold	Job postponed due to lack of funds
N%	Job is N% complete (in manpower terms)
Completed	Job Completed and signed off

Overheads associated with construction works:

Item	**Cost**
Movement of WRG Excavator (Blue)	£400
Diesel fuel for site use	£600
Petrol fuel for site use	£150
Dumper hire (2 weeks)	£260
Mixer:	WRG providing one
Safety budget	£250
Site clearance at end of project:	£200

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Job Ref:1.2.1

Job Description: Towpath works

Location: Between Lock 1 and the Junction

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

This section not completed

Schedule/Timing: Probably Spring 2002

Personnel requirements:

Equipment needed:

Materials:

Details: Awaiting report from BW WES.

Work in progress notes:

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Job Ref:2.1.1

Job Description: Installation of Paddles

Location: Lock1 (including sideponds)

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details: This job to be carried out by DCT Volunteers. Includes removal of old paddle gear and fitting new frames, jackheads, etc.

Work in progress notes:

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Job Ref:2.1.2

Job Description: Construction and fitting of gates

Location: Lock 1

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details: This job to be carried out by DCT Volunteers.

Work in progress notes:

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:2.2.1

Job Description: Investigation and seal of leaks in forebay of Lock 1

Location: Forebay of Lock 1

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

This work must only be attempted when the phone number of the BW supervisor on duty is known and when permission from Neil Bedford has been obtained. Note these stopplanks hold back the entire Worcs and Brum pound, any accident could be catastrophic. If an excavator is used then a banksman should be appointed, WRG authorised operators must operate the plant and care should be taken with public on the towpath. Regular inspections by the site supervisor are recommended. Also note that clay is heavy and difficult to work with.

Schedule/Timing: Scheduled for Easter 2001

Personnel requirements: One experienced, intelligent person plus diggers/punners

Equipment needed: Mini excavator is almost essential, shovels and wheel barrows.

Materials: Puddling clay (to be supplied by BW)

Details: There are several leaks around the stopplank grooves in the forebay of Lock 1. Currently there is a set of old stopplanks in place and a significant (2m) bund of clay. The stopplanks are not serviceable (split and broken) and it is the clay that is holding back the water. When the lock is returned to navigation it will be necessary to remove the bund but the leaks must be sealed first. Excavations should be made behind the head walls to see if any voids or poor quality infill can be discovered. This must be replaced with good quality clay that has been well

punned in (by machine or feet). Obviously very great care should be taken when excavating behind the walls. Unless permission has been gained from BW or MKP excavations should not be left overnight. One side should be completed and made good before the other is started. The clay bund must only be removed once the excavations have been made good and once it has been inspected by BW or MKP.

Work in progress notes:

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Job Ref:2.2.2

Job Description: Paddle Pit plank covers

Location: Lock 1 side pond paddle pit

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

This section not completed yet.

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details: The paddle pit requires some stout planks to cover it and a method of fixing them down. The local volunteers have this in hand.

Work in progress notes:

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Job Ref:5.2.1

Job Description: Completion of pound wall

Location: Pound wall between Locks 1 and 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Beware mortar burns.

Schedule/Timing: As soon as possible (depending on temperature and access).

Personnel requirements: Nothing special (though some brickie experience would be handy).

Equipment needed: Hawks, pointing trowels, mixer, shovels, barrows, wire brushes, plugging chisels, club hammers.

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4), plasticiser as directed by manufacturer if needed to improve elasticity.

Details: The pointing at the downstream end of the wall that has eroded due to frost needs to be raked out and thoroughly cleaned. It must then be pointed and soft brushed a few hours afterwards. This section will be very difficult to access later on and so it needs to be done well. There are also a few bricks that have cracked out, these need to be chiseled clean and replaced (using a matching brick from the many piles around the site), these will not be structural repairs and the wall is solidly backfilled, but are just for aesthetic reasons. The pound may well have some water in it so wellies are advised.

Work in progress notes: Job completed by WRG Canal Camp 9803.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:5.2.2

Job Description: Final levelling out of backfilling behind copers on pound wall.

Location: Pound wall between Locks 1 and 2.

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

This job will remove a trip hazard.

Schedule/Timing: To be completed as soon as possible.

Personnel requirements: The more the merrier.

Equipment needed: Wheelbarrows, mattocks, shovels, rake.

Materials: Locally excavated earth with no solids over 25mm.

Details: Behind the pound wall copers the earth backfilling has settled and a trip hazard now exists. The gap in backfilling is not great and only about 50mm needs to be built up. Because the gap is so small it is not necessary to grass seed the additional backfill. The material should be excavated locally (without creating a new trip hazard!).

Work in progress notes: Job completed by WRG Canal Camp 9803

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Job Ref:5.2.3

Job Description: Pound hydraulic testing

Location: Pound between Lock 1 and Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

It must be ensured that the landowners and BW are aware of the tests.

Considerable care must be taken to build up the level in the pound gradually and a careful eye kept for leaks.

Schedule/Timing: Only once Lock 2 stopplanks are in place and checked.

Personnel requirements: Someone with a brain

Equipment needed:

Materials: A surplus of water

Details: A sensible method of controlling water down into the pound must be established and a safe but quick method of getting the pound emptied in the event of an emergency. Once the pound has been proved it is hoped to leave it in water over Winter 98 to prove that the pound and structures are fully watertight.

Work in progress notes: The pound was flooded by MKP during the very heavy Easter 98 rains using three 3" syphons. Over a day the level was raised to within twelve inches of the rubbing strake. The level was left to slowly leak out over 12 hours or so. No leaks were observed in either bank nor any around the paddle hole area of Lock 2. However the stopplank grooves themselves leak quite a lot as they are very uneven and the temporary stopplanks are too short to provide a good seal. The stopplank cill base also leaks quite badly but not appallingly considering it has been dry all this time. A leak appears to exist in the wall of the overflow weir at the head of Lock 2 as the sump behind

the wall filled up as the level rose. Once the grooves have been improved and the coping stones have been replaced the test needs to be repeated up to full level.

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Job Ref:5.2.4

Job Description: Reed removal

Location: Pound bed between Lock 1 and 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Note comments for job 5.2.3

Schedule/Timing: Leave until just prior to completion of the project when appropriate mitigation measures will have been taken and liaison with local Wildlife Trust will have occurred.

Personnel requirements: The more the merrier.

Equipment needed: Kebs and possibly a small boat if successful.

Materials:

Details: It is not necessary or productive to remove these reeds until just before the pound is flooded. Just before flooding the pound the bed should be dragged with kebs to disturb the roots and then the pound flooded. Most of the vegetation should float out and can be recovered from the surface.

Work in progress notes:

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Job Ref:6.1.1

Job Description: Installation of Paddles

Location: Lock 2 (including sideponds)

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details: This job to be carried out by Local Volunteers. Includes removal of old paddle gear and fitting new frames, jackheads, etc.

Work in progress notes:

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Job Ref:6.1.2

Job Description: Construction and fitting of gates

Location: Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details: This job to be carried out by Local Volunteers.

Work in progress notes:

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Job Ref:6.2.1

Job Description: Refurbish overflow weir

Location: Head of Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Ensure safe lifting and handling of large coping bricks.

Schedule/Timing: As soon as possible

Personnel requirements: 2 heavy diggers, 2 rakers/pointers, 2 coping brick layers.

Equipment needed: Hawks, pointing trowels, mixer, shovels, barrows, wire brushes, plugging chisels, club hammers, spirit level.

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4).It will probably need to be quite dry for seating the coping bricks on.

Details: Excavate all around the weir so that the below ground state of the existing copers can be determined. It is also necessary to drastically reduce the scrub and vegetation inherent in the surrounding ground so any roots, brambles, etc. should be removed from excavated soil and burnt. The excavated soil should be piled next to the rubble pile as shown on the diagram below. Assuming the copers look OK then the structure should be raked out fully and carefully repointed (and softbrushed 6 hours later). The upstream run of copers is missing (approximately 20 bricks) and these need to be replaced from the stack on the offside of Lock 2 flank wall. These will need cleaning. The new copers will need a fillet of concrete to support them and it may be desirable to concrete the whole of the area between the weir and the head wall to further strengthen the arch beneath. If this is done

then at least 100mm ground cover must still be achieved when landscaping. All landscaping should be done using locally excavated soil that has been checked for excess roots/vegetation. Additional work is the minor raking out and pointing in the corner of the Lock 2 head wall. (Best viewed down in the pound).

Work in progress notes: Completed by WRG Canal Camp 9804 but flood testing revealed a leak in the wall of the weir as the downstream sump filled with water as the level in the pound rose. This must be remedied before the pound is returned to level.

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Job Ref:6.2.2

Job Description: Install rubbing strake

Location: Offside head wall on Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Considerable care when lifting and moving as it is very heavy, mechanical lifting will initially be required to place the ironwork in position. Fencepost rollers are available from beside the container at Hampton Road yard. Ensure any workers in the forebay have clear, unrestricted exit routes in the event of an accident. Ensure there is no risk of fingers being trapped.

Schedule/Timing: As soon as possible

Personnel requirements: Strong, competent team of 6 minimum.

Equipment needed: Rollers, bars, broom, shovel. Excavator for initial lifting and placement.

Materials: Whenever mortar comes in contact with the iron it must be a lime mortar (2 lime/1 cement/9 sand).

Details: Ensure the wall and its backfill are completely clean and brushed down. Check the strake will actually fit the wall before you attempt to move it. Then er....move it.

Work in progress notes: Rubbing strake positioned and installed by WRG Canal Camp 9803. The wall had to be considerably “adjusted” as it is quite frankly appalling. The fit is the best possible given that the upstream section of wall and strake is wrongly placed. Short of totally demolishing the entire length of wall and

starting again (not until I get some real money!) it is the best we can do. The fit is such that currently the width is 6' 10.5". This is less than Lock 1 (7' 1").
The decision regarding the rebuilding of this wall will be taken by the project group soon.

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Job Ref:6.2.3

Job Description: Install missing coping stones and check existing ones.

Location: Offside head wall on Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Care when lifting and moving stones as they are heavy and fragile. Fencepost rollers are available from beside the container at Hampton Road yard. Ensure any workers in the forebay have clear, unrestricted exit routes in the event of an accident. Ensure there is no risk of fingers being trapped.

Schedule/Timing: As soon as possible

Personnel requirements: Strong, competent team of 6 minimum

Equipment needed: Shovels, mattock, rollers, bars, brush.

Materials: Mortar mix - whenever mortar comes in contact with the iron it must be a lime mortar (2 lime/1 cement/9 sand), concrete for backfill fillets.

Details: Excavate all along the wall behind the coping stones as indicated on the diagram for a minimum of 500mm back and a depth such that the whole of the coping stone and its supporting wall can be seen. It is essential that all roots and vegetation are removed from the soil and burnt. Excavated soil can be piled up by the rubble pile as indicated on the diagram. If the existing stones (and more importantly their seating) are deemed structurally sound then they can be backfilled with a small fillet of concrete. The missing stones must be recovered and installed on a bed of mortar. One stone is by the offside bank of pound 1-2, one is at the nearside head of Lock 2, who knows where the rest are. All these stones will need to be thoroughly cleaned and perhaps cut to length. Once

installed and backfilled the whole area can be landscaped using clean, locally excavated soil. The entire run of copers can then be pointed.

Work in progress notes: Job completed except for a small amount of pointing required under the rubbing strake. May need to be redone in light of 6.2.2.

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Job Ref:6.2.4

Job Description: Repair damaged coping stone

Location: Offside wall of forebay on Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing: Not to be started yet.

Personnel requirements:

Equipment needed:

Materials:

Details: See also Heritage Survey

Work in progress notes: Awaiting advice from BW Hatton.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.5

Job Description: Refurbishment of sidepond

Location: Sidepond of Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Care to be taken when working on top of chamberside wall of sidepond especially if strimming.

Schedule/Timing: As soon as possible

Personnel requirements: Nothing special

Equipment needed: Hawks, pointing trowels, mixer, shovels, barrows, wire brushes, plugging chisels, club hammers, strimmer.

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4)

Details: The eastern half of the chamberside wall needs to be carefully raked out, cleaned and repointed, there are also some minor chopping out and replacing of brickwork to be done. The top of the chamberside wall needs to be strimmed and profiled so as not to present a trip hazard.

Work in progress notes: Completed by CC0101 with advice from BW Hatton.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.6

Job Description: Refurbishment in the sidepond paddle pit

Location: Paddle pit on sidepond on Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Use well seated trestles in the paddle pit if internal access is required. Ensure copers have been rolled back and are secure.

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials: Reclaimed bricks, cement mortar as it is below ground

Details:

Work in progress notes: The top three courses have frost heaved. The rest of the brickwork is Ok. The stones need to be rolled back - dig behind them first and ensure they are safely chocked. Erect trestles in the pit and work from there. Replace the brickwork using good quality, reclaimed, engineering bricks. Reseat the stones using a cement/sand mortar. The paddle pit will also require some stout planks to cover it and a method of fixing them down. The locals have this in hand.

Brick/stonework completed by Phil Cardy on CC0005

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.7

Job Description: Coping Brick replacement

Location: East wall of sidepond of Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Consider safe access for bringing in materials and beware mortar burns.

Schedule/Timing: As soon as possible

Personnel requirements: 1 brickie, 1 supplier.

Equipment needed: Spot board, laying trowel, pointing trowel, wire brush, short line, short spirit level.

Materials: Mortar mix (4-1 mix but can be varied if inappropriate) and well cleaned, good quality, reclaimed engineering bricks.

Details: At the north east corner of the side pond wall about 10 of the copers are missing. These are just engineering bricks on end and they need to be replaced. Any further loose bricks should be removed and the whole area cleaned of loose mortar, rubble, dust, etc. The bricks should be replaced using a line and ensuring matching both in terms of the bricks and joints used. Because this is such a simple job it is an ideal training, "have a go" type job as it is no effort to remove any badly laid bricks. However when finished of course it must to an acceptable standard. Also the bottom course of bricks along this wall needs to raked out and pointed.

Work in progress notes: Job completed very badly with appalling pointing, if at all possible I would like this job redone. Job redone by Martin Ludgate in 2000.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.8

Job Description: Repair of coping stone

Location: Lock 2 chamber wall on towpath side

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing: Not to be started yet

Personnel requirements:

Equipment needed:

Materials:

Details:

Work in progress notes: Awaiting advice from BW Hatton.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.9

Job Description: Repair on gate recess

Location: Lower gate recess (both sides) of Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Ensure access above is prevented to avoid materials being dropped from above (suggest set up no go areas with orange hazard fence). Ensure no work in chamber as the scaffold tower will block egress. Scaffold tower to be checked by competent person. Follow guidance for Job 8.2.1

Schedule/Timing: Must not clash with repairs to tail walls going on above or any work in Chamber 2

Personnel requirements:

Equipment needed: Scaffold tower and brick kit

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4).

Details: Follow guidance for Job 8.2.1 Loose brickwork to be chopped out and replaced. Rake out and repoint as sensible. If significant amounts of brickwork come loose then stop and consult MKP.

Work in progress notes: Completed by Matt Taylor CC0101. Acrows to be removed 28th April. Acrows removed.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.10

Job Description: Refurbishment/rebuild of tail wall

Location: Offside tail wall (above waterline) on Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Beware cement and mortar burns. Ensure no work is going on beneath scaffolding. Scaffolding towers to be checked by a competent person. Care when loading scaffold. Concrete delivery method to be assessed by a competent person.

Schedule/Timing: Easter 2001

Personnel requirements: A good brickie plus support

Equipment needed: Brickie kit and a long line

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4). New bricks of the correct size.

Details: Some brickwork that has already been completed is below standard and a good hard look needs to be taken at what is acceptable and what is not. There is a perfectly good model to follow at lock 1 and considerable time should be taken in setting up the wall. Note that the smaller W&B coping bullnoses will be used for this wall and so the top will be slightly different to lock 1. The backfill must be C30 concrete at least 300mm deep (reinforced with A393 mesh). Considerable thought should be put into the method for the backfill delivery. The cheesewedge bricks are very valuable and should be carefully cleaned and reused.

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Particular care must be taken with this wall. It is the most visible of the lot and must be perfect. Particular attention to joint sizes and the curve along the wall must be paid.

Work in progress notes: All poor brickwork has been removed on CC0101. Considerable progress made by Matt Taylor and Sally Nutt on CC0102.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.11/12

Job Description: Pointing of below water sections of Flank walls.

Location: Lock 2.

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Beware mortar burns. The walls above are secure and safe but an eye should be kept on them and no work should occur above the pointing crew nor materials stacked above them as the edge is weak.

Schedule/Timing: As soon as possible (temperature dependant).

Personnel requirements: Nothing special

Equipment needed: Eye protection, mixer, wire brushes, club hammers, plugging chisels, buckets, shovels, wheelbarrow, spot boards, hawks, pointing trowels.

Materials: Mortar mix (5-1) but may be varied if inappropriate), plasticiser as directed by manufacturer if needed to improve elasticity.

Details: The pointing along the entire length of both flank walls that has eroded due to frost needs to be raked out and thoroughly cleaned. Once dry it must then be pointed neatly and soft brushed a few hours afterwards. This section will be very difficult to access later on and so it needs to be done well. This only corresponds to the wall below waterline, no attempt must be made to repair the walls above waterline (Job Ref:6.2.10 & 6.2.14) as these require considerably more work. There are some bricks (particularly on the nearside near the gates) that need to be chiselled out and replaced with matching bricks found from the many piles around the site.

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Work in progress notes: Job completed.

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Job Ref:6.2.13

Job Description: Refurbishment of Pissoir

Location: Nearside access steps on Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Care to be taken so that it does not interfere with job alongside on tail wall.

Beware possible fall to ground at end of steps.

Schedule/Timing:

Personnel requirements: One or two pointers

Equipment needed: Brick kit

Materials:

Details: Vegetation to be removed. The brickwork is to be raked out and repointed. Large faults are to be patched with matching brick. Ideally, if suitable bullnoses can be found in Hampton Road yard, the concrete capping is to be bricksawed off and replaced with nice double bullnose.

Work in progress notes: Repointing completed. There is no point progressing any brick work until 6.2.14 is completed.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.14

Job Description: Nearside flank wall rebuild

Location: Above waterline on Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Scaffolding to be checked by competent person. Care to be taken when loading scaffolding. Care with Mortar and repetitive lifting. Consideration to be given to method of placement of concrete backfill.

Schedule/Timing: Must not clash with access to Chamber 2

Personnel requirements: Good bricklayers and support

Equipment needed: Brick kit

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4).

Details: The wall must be carefully laid out taking into account the following factors:

- The pound wall is not at the original height.
- Different smaller coping bullnoses will be used
- The downstream edge of the pissoir has shifted and so only the upstream edge is as original.

It is intended that BW will assist with this laying out in Easter 2001.It is hoped that new bricks will be available. The missing cownose bricks had been replaced with ordinary square bricks. These have now been replaced by the cownose bricks from Lock 3 tail wall.

Care must be taken to ensure a good finish. Once completed the work must be backfilled with at least 300mm of C30 concrete (reinforced with A393 mesh). The

iron buffer beam must be kept clean of mortar splashes. The wall must be allowed to cure before backfilling is attempted.

Work in progress notes:

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.15

Job Description: Landscaping of Offside of Lock 2

Location: Obvious

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

This section not completed

Schedule/Timing: Once walls and stonework has been completed and no further heavy access is required to the offside.

Personnel requirements:

Equipment needed:

Materials:

Details: Wherever possible the opportunity should be taken to remove vegetation and roots from the soil. The soil should be allowed to compact and the job should be revisited to ensure no trip hazards have been formed.

Work in progress notes: Top soil stockpiled on offside during CC0102. Awaiting completion of wall.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:6.2.16

Job Description: Refurbishment of tail stopplank grooves

Location: Tail of Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Hand tools only to be used. Eye protection and gloves to be used. Ensure no one is working overhead suggest setting up a no go area with hazard fence and lamp irons.

Schedule/Timing: While no other work is ongoing in the area.

Personnel requirements:

Equipment needed: Hammer and chisel

Materials:

Details: Take great care with the iron. All the rust should be chiselled out of the groove. The sill timber should be checked for damage.

Work in progress notes:

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Job Ref:7.2.1

Job Description: Pound wall backfilling

Location: Pound wall between Lock 2 and 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Consideration to be given to the positioning of the readymix wagon so as not to block/obstruct traffic on the road. Beware concrete burns and splashes on discharging the readymix.

Schedule/Timing: As soon as possible (temp must be above 4 degrees C).

Personnel requirements: 3 shovels, 3 barrowers, 1 finisher, 2 spare

Equipment needed: 3 barrows, 5 shovels, 1 float, 2 buckets, wire brushes, broom, pointing trowels.

Materials: Est. 2.5m^2 of C30 readymix concrete (50mm slump).

Details: The area for the pour must be thoroughly cleaned and all organic material removed before the pour is started. Clean (non saline) water to be used if any is required to be added. No test cube required. Concrete to be brought to level with top of existing brick work and rough trowel finished suitable for laying a further course of headers on. If possible the wagon should discharge directly into the back of the wall, if not then it must be barrowed into place. Existing ties to be left in place, additional ties or reinforcing are not required. A vibrator is not required.

Work in progress notes: Job completed by NWPG and Local volunteers. 3.0m^2 of readymix actually used.

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Job Ref:7.2.3

Job Description: Pointing of lower section of wall

Location: Pound wall between Lock 2 and Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Beware mortar and concrete burns.

Schedule/Timing: As soon as possible (temperature dependant).

Personnel requirements: Nothing special.

Equipment needed: Hawks, pointing trowels, mixer, shovels, barrows, wire brushes, plugging chisels, club hammers.

Materials: Mortar mix (5-1mix but may be varied if inappropriate), plasticiser as directed by manufacturer if needed to improve elasticity.

Details:

The pointing along the entire length of the wall that has eroded due to frost needs to be raked out and thoroughly cleaned. It must then be pointed and soft brushed a few hours afterwards. This section will be very difficult to access later on and so it needs to be done well.

Work in progress notes: Job completed by NWPG and Local volunteers.

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Job Ref:7.2.4

Job Description: Coping of pound wall (plus extra course of bricks).

Location: Pound wall between Lock 2 and 3.

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Ensure materials are stacked safely. The weight of the coping brick is within site limits. This will widen the safe width of the towpath by 600mm.

Schedule/Timing: As soon as possible

Personnel requirements: Teams comprising 1 mixer/supplier, 2 or 3 bricklayers.

Equipment needed: Mixer, spotboards, brick laying kit (esp. line and spirit level)

Materials: Engineering blues (380 off) from Ladywood cottage and coping bullnoses (380 off) from Cradley Special Bricks. Note the engineering blues are very bad seconds and care will be needed in selecting good header faces. Mortar mix is to be 4 -1 with plasticiser added as per manufacturers instructions to improve workability.

Details: A course of headers is to be laid on top of the existing wall using any decent blues from the stack at Ladywood. On top of this the bullnose copers are to be laid. Joints are to be approximately 10mm. Note that the free board of the wall is 300mm therefore the joint is at water level and so must be pointed very well. (For information: at the Lock 2 end of the wall it is intended to continue up the flank wall with the same smaller blue coping bricks). NOTE THAT THIS WILL BE A VERY VISIBLE JOB ONCE COMPLETE AND IT IS ESSENTIAL THAT THE COPERS ARE LAID EXTREMELY ACCURATELY AND THE POINTING IS DONE VERY CAREFULLY SO THAT THE FINISHED JOB IS PLEASING TO THE EYE. IN PARTICULAR IT IS IMPORTANT THAT MORTAR STAINS ON THE FACE OF

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THE COPERS ARE REMOVED IMMEDIATELY. A substantial fillet of concrete is to be placed against the back of the copers covering all the brick work and at least 50% of the copers. The area is to be landscaped off using locally excavated material. No seeding required. All brickwork left exposed overnight is to be covered with polythene sheeting or similar.

Work in progress notes: All brickwork done and approximately 80 coping bricks laid on 7/8th Feb. Extra stretcher course added at back of headers to improve temp. support for copers.

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Job Ref:7.2.5

Job Description: Pound hydraulic testing**.**

Location: Pound between Lock 2 and Lock 3.

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

It must be ensured that the landowners and BW are aware of the tests.

Considerable care must be taken to built up the level in the pound gradually and a careful eye kept for leaks.

Schedule/Timing: Only once an earth dam or stopplanks are in place at the head of Lock 3 and the repairs to the head wall of the bywash overflow are complete (Job ref. 8.2.3). Also it will be necessary to complete 7.2.6 to test the pound to full depth.

Personnel requirements: Someone with a brain

Equipment needed:

Materials: A surplus of water

Details: A sensible method of controlling water down into the pound must be established and a safe but quick method of getting the pound emptied in the event of an emergency. The intention will be to leave the pound in water for a period of time to prove itself watertight to everyone's satisfaction.

Work in progress notes:

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Job Ref:7.2.6

Job Description: Offside bank piling

Location: Offside bank between Locks 2 and 3.

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Follow advice in PRH "dewatering". Ear defenders to be worn when driving piles and gloves to be worn whenever handling piles. Safety man at the compressor required at all times during piling operations. A dedicated piling hammer such as Aldridge Piling Equipments is to be used. A safe access scaffold is to be used. A note of the existence of these piles and their location must be transferred to the Health and Safety File on completion.

Schedule/Timing: Not to be completed yet

Personnel requirements: Minimum team of 5

Equipment needed: Air compressor & hoses, APE hammer, mattocks, shovels.

Materials: Fuel for compressor, oil for hammer, 2m plastic piles from HL Plastics of Derby.

Details: There has been considerable animal and vegetation damage. In addition excavations have revealed very little clay in the bank. The line of trees closest to the bank should be cut down to 600mm and Tirfor winched out before the piling operation begins. It is proposed to use plastic piles which can be driven through the existing dredgings heaped against the original bank. The top 400mm should be scraped back from the top of the bank and the piling driven to 125mm proud of the top. The piles should then be covered back over and the bank top landscaped. It may also be necessary to line the bank with a butyl liner (piles for strength, rubber for sealing).

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Work in progress notes: All trees winched out by local volunteers.

Job Ref:8.1.1

Job Description: Installation of Paddles

Location: Lock1 (including sideponds)

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details: This job to be carried out by Local Volunteers. Includes removal of old paddle gear and fitting new frames, jackheads, etc.

Work in progress notes:

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Job Ref:8.1.2

Job Description: Construction and fitting of gates

Location: Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details: This job to be carried out by Local Volunteers.

Work in progress notes:

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Job Ref:8.2.1

Job Description: Chamber wall repairs (assuming repair of 9 courses over 140')

Location: Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

See Job Specific Risk Assessment table below.

Schedule/Timing: Coping stone survey & trial method of temporary support during Camp 01 using tower scaffold for access, complete chamber walls during Camps 02,03,14,17 following completion of chamber scaffolding.

Personnel requirements: Competent person to check acrow props and supervise jacking of coping stones, Bricklayers, Power tool operators

Equipment needed: 30 No. 3m Acrow props, 4 No. Bottle Jacks, Kango Hammers, 450mm long Brick Drill, Cartridge type resin applicator

Materials:

Support: 30 No. 1m lengths 4x4" timber, 60 No. 8" nails, 10 No. 1m x 20mm Dia steel pins

Replacement: 280 No. 500mm x 8mm Dia Stainless steel anchors, 280 applications of Exchem Resifix / SBR Lockset, 160m^2 x 9" brickwork, Brick Bonding agent

Details:

1. Install access scaffold (requires chamber clearance and pumping). The design overleaf must be followed. It must not be modified without reference to the Site Leader. The scaffold should be checked upon pump down (particular reference must be paid to the wooden chocks) and when each days work starts or after a significat change in the weather. Inspections should be recorded on F91.

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2. Working in pairs of coping stones opposite to each other, remove 2 bricks below each coping stone and insert 4”x4” L shaped timber strut in place, bracing each strut 1/3 from the base of the coping stone across the chamber with an acrow prop nailed at each end, ensure no movement of coping stones takes place whilst tightening both acrow props together, then wire in place.
3. Fractured coping stones may require steel pins to be driven in below to support loose masonry and 3 acrow props may be used per stone instead of the usual 2.
4. Using kango hammers remove front 9” of damaged brickwork working from the top down along with all organic matter.
5. Clean work area thoroughly, applying bonding agent to backfill and existing brickwork.
6. Replace 9” brickwork using 1:5:0.5 (cement, sand, lime) mortar up to the base of coping stones, ensuring voids between face and backfill are completely filled every 3 courses and brickwork is tied to anchors.
7. Drill 450mm deep holes into the backfill (preferably at an angle) at a spacing of 3 courses vertically and 1m horizontally to suit brick coursing.
8. Insert stainless steel anchors into backfill, ensuring depth of hole is filled completely with resin, then bend anchor to lie 50mm from front face of brickwork and within a joint.
9. Where horizontal or vertical adjustment of coping stones is required the back should be excavated to full depth of stone. The acrow props may be used to gently apply horizontal force with steel pins or kentelidge blocks used to strengthen the opposing coping stone.
10. Where vertical adjustment is required the face brickwork should be first brought up to within 0.3m of the base of the coping stone. Removal of the backfill in two pillars to the full breadth of the stone will allow 4 No. bottle jacks to be inserted

and only after the weight of the coping has been transferred to the jacks can removal of the bedding material continue.

11. The acrow props should be loosened and the 4 bottle jacks adjusted accordingly until the coping stone reaches its final position. The bedding material should be replaced to the full breadth of the stone and allowed to reach initial strength (min 7 days) before the bottle jacks are removed and complete backfilling of all voids with brickwork.
12. Upon completion of face brickwork to final level, cement grout shall be poured into bedding joint until it begins to flow out and allowed to cure for 24hrs, finally mortar should be rammed into the bedding joint and pointed to ensure that no voids remain.
13. Fractured coping stones should be treated where possible by removal of pieces, thorough cleaning of joints, and bonded with the use of resin and stainless steel pins drilled into adjacent sound masonry. Where the damage is too severe it may be more suitable to cut out and replace the affected area with a square sided block of masonry. Minor abrasions and fractures considered too impractical to treat in this way should be cleaned as best as possible and the joint filled completely with resin.
14. Acrow props and struts may be removed after the bedding mortar reaches initial strength (7-14 days) and heavy loads i.e.: gantry, plant permitted only after final strength is reached (28 days).

Work in progress notes: Technique tested on Easter Camp CC0101 successfully. Much of the demolition has been done but it all needs to be checked carefully. There has been a trial of the anchor installation.

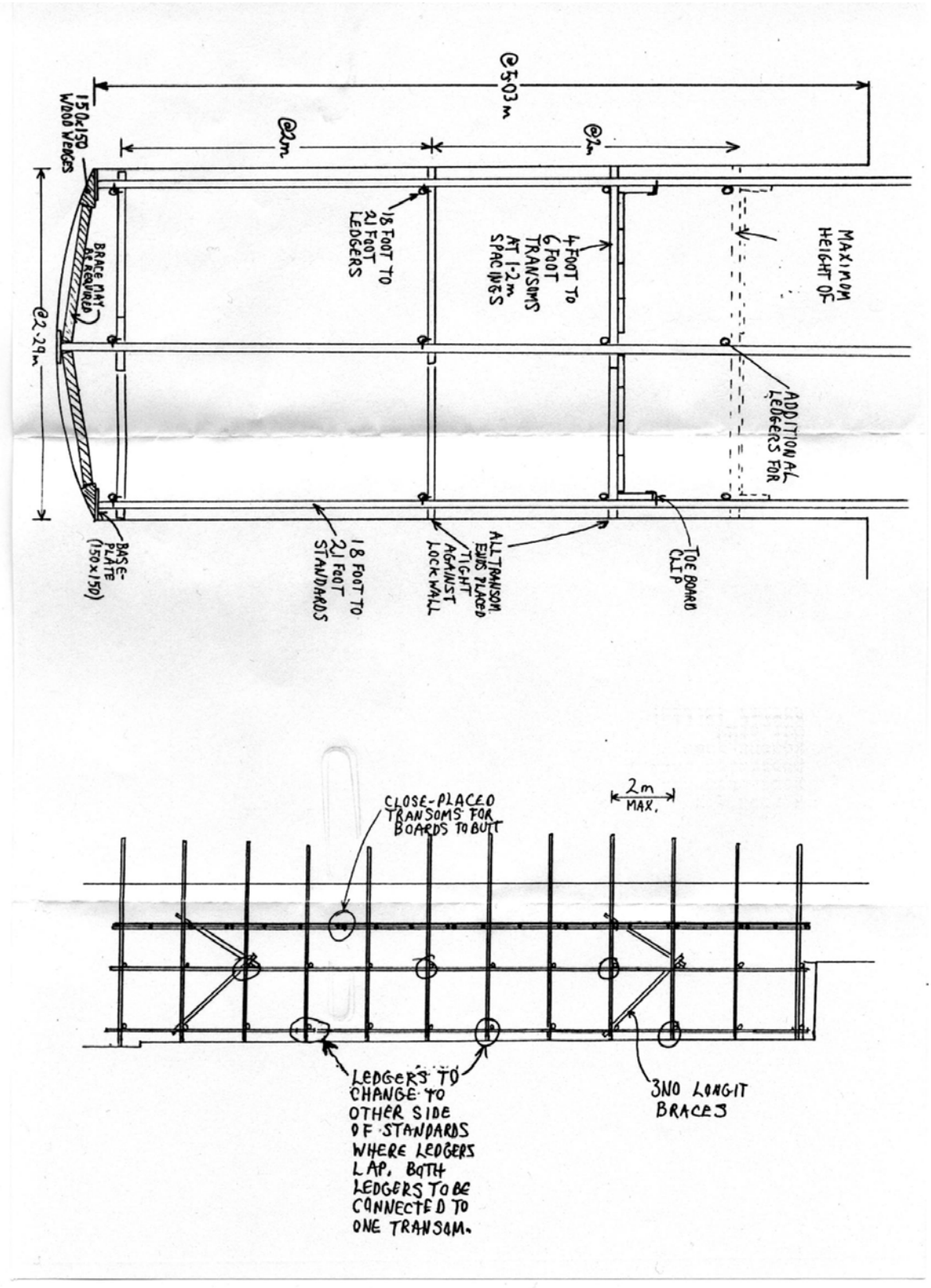
Job Specific Risk Assessment **Job Ref : 8.2.1**				
Description of Risk	**Likelihood L/M/H**	**Severity L/M/H**	**Risk Value**	**Mitigation of Risk**

Large sections of brickwork falling during demolition	H	M	3x2=6	Remove bwk in small pieces, use of gloves & steel toe caps, no persons to work below scaffold, kango operator to work with an assistant, minimise fall distance to scaffold platform, escape routes from chamber
Failure of Acrow Prop / Bottle Jack	L	H	1x3=3	Use only correctly rated and well maintained equipment
Unanticipated movement of Coping Stones	M	H	2x3=6	Maintain a spare supply of timber struts / acrow props & bottle jacks, evacuate non-essential personnel, do not over excavate beneath stones, use tools instead of hands when working beneath stones, competent person to supervise jacking operations
Collapse of temporary support system or scaffolding.	M	H	2x3=6	Install each support with a minimum of three persons from a full width scaffold, nail & wire supports in place, competent person to inspect supports regularly. Ensure both acrows and scaffolding are inspected by competent people and inspections are recorded on F91. Scaffolding not to be modified without consultation with Site Leader.

Additional safety comments to Job 8.2.1

Inspection during demolition has revealed two stones on the towpath wall that are significantly damaged by vegetation growth. This has spilt/de-laminated both stones and resulted in severe disintegration of the underneath and rear of the stones. It has been decided that to attempt any repairs to these stones would be too dangerous using the method described above. To remove and clean up the brickwork beneath these stones would be likely to result in an uncontrolled movement that would not be stopped by the acrow props. Thus the two stones are to be left in situ and fenced off on the scaffolding

level. The rest of the walls will be rebuilt to solidify the rest of the structure. Once this is complete a decision on the two stones and the wall beneath them will be taken.



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Job Ref:8.2.2

Job Description: Minor repairs to coping stones

Location: General along Lock 3 (especially offside lower gate recess)

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing: As soon as possible

Personnel requirements:

Equipment needed: Bucket, lump hammer, wire brush, pointing trowel

Materials: Coping stone rubble/offcuts, PVA adhesive

Details: Crush down the coping stone materials (eye protection required) using the lump hammer until a fine powder is obtained. Add to a mix of half water/half PVA adhesive. Wire brush and clean the damaged sections of coping stone and re-patch using the PVA mixture. Once the first stages of curing have occurred then a further match can be improved by "donkey-stoning" the patch with another piece of coping stone. The mixture and application can be tweaked in the light of experience (current repair-meister is Alistair Brown of Bristol).

Work in progress notes: May be modified by advice from BW Hatton due this Easter.

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Job Ref:8.2.3

Job Description: Repair of arch wall

Location: Lock 3 side pond inlet weir

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing: As soon as possible

Personnel requirements:

Equipment needed:

Materials:

Details: Repair and repoint the arch section of this wall.

Work in progress notes: Job completed by local volunteers

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Job Ref:8.2.3a

Job Description: Repair of Culvert for sidepond feed

Location: Beside Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Beware trench sides (shallow wide excavation so no shoring required). All recovered materials to be stacked safely out of the way. All excavated materials to be heaped 1m from trench. If excavator is used then WRG authorised operators must be used. Appropriate lifting and handling techniques should be used.

Schedule/Timing: Consider access requirements to offside of Lock 3 by plant.

Personnel requirements:

Equipment needed: Excavator would make this easy. Digging equipment.

Materials: 625mm external diameter twinwall pipe, reclaimed bricks, cement mortar, rea gravel for compacted base, geotextile

Details: The culvert has collapsed and needs to be replaced. We shall excavate the culvert and reclaim all the bricks. If the culvert is a consistent fall then we should leave the bottom bricks in as the pipe can sit on this base. However I believe the culvert has a significant kink in it. In addition the pipe looks like it will be 250mm so the join of the pipe to the original brickwork will need to be enlarged anyway. This probably means sections of the brickwork may have to come out and a new base of compacted pea gravel on geotextile will have to be prepared. Alternatively it may be that the brick base is too low in sections and here it will have to be build up with pea gravel. Depending on the structure/strength of the pipe it may be necessary to cover it over with earth reinforced with on or two layers of geotextile. Note that the opportunity should be taken to remove all roots

and vegetation from the excavated earth. Care should be taken at both ends of the culvert during the demolition as the intention is to brick out from the original ends around the pipe until the whole lot can taken and covered in either concrete or clay as deemed appropriate on site. Careful planning should be made regarding the delivery of the concrete or clay - it is not a lot required but it is a difficult barrow run.

Work in progress notes: Excavation prepared during CC0101. Job now completed.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.4

Job Description: Replace coping stones

Location: Lock 3 offside Head wall

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Care with heavy stones. The method for moving the stones onto site and into position should avoid manual handling if at all possible.

Schedule/Timing: Once the stones are sourced

Personnel requirements:

Equipment needed:

Materials:

Details: MKP to investigate a source of new or reclaimed new coping stones. 35' of 18" deep,12" high red sandstone. Approx. 4' lengths. Radius of front nose is approx. 50mm. Possible recovery from Lock 4? BW investigating.

Work in progress notes:

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.5

Job Description: Repair of weir area

Location: Lock 3 Sidepond inlet weir

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details:

Work in progress notes: Completed by local volunteers/ Camp CC980 /London WRG

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.6

Job Description: Repairs to paddle pit face wall

Location: Lock 3 side pond

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Ensure no possibility of materials being dropped from above. A no go zone should be established using orange hazard fencing. Eye protection required. Consider access for materials. A tower scaffold would be the safest access if it will fit.

Schedule/Timing: Not to be attempted until chamberside sidepond walls are complete.

Personnel requirements: No more than two pointers.

Equipment needed:

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4).

Details: Roy Sutton suggests the walls have stopped moving and the cracks should not be getting any bigger. The joints and crack should be raked out and filled with mortar. If possible a movement indicator should be fitted. Additional information is available in Roys report of 19th Nov 1999

Work in progress notes: Paddle fixing will be done by local volunteers. Decision needed on solution for wall from BW. The solution is that we will place a support of crushed rubble 600mm up the wall. Surveys have shown that in the other side ponds the brick floor was at least 600mm higher up the walls and thus they were better supported. A below the waterline rubble pile will be hidden, will use up all that rubble lying around and can easily be removed if a better solution comes along.

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DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.7/8

Job Description: Reconstruction of "long" side pond wall and upstream wall

Location: Lock 3 side pond

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Beware of use of cement

Schedule/Timing: As soon as possible

Personnel requirements: Bricklayers and support

Equipment needed: Bricklaying kit, brick cleaning kit, mixer**.**

Materials: Cement, sand. Mortar mix (5-1) (but may be varied if inappropriate), plasticiser as directed by manufacturer if needed to improve elasticity.

Details: The wall may be divided into two halves, the upstream half has had its face removed. This must be rebuilt using a double skin of brick. This new skin needs to be tied to the old wall by chasing out header courses every four courses for a length of 1m at alternate centres (see drawing overleaf).

New headers should be fitted into these gaps and any other gaps filled with cement mortar. The existing structure (batter/bond/etc) should be followed. The lower sections of the wall below the soil line need to be **carefully** raked out and a cement mortar used to repoint them.

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The downstream half has minor damage to it's face from frost damage. This is not a problem and the vegetation should be cleaned off, the joints repointed where appropriate and the loose top courses rebuilt**.**

The upstream wall is a simple repair. It is already demolished to a solid base and needs to rebuilt using reclaimed brick and cement mortar. The only reason to hold back on this job is if it is required for machinery to access the side pond as it will be easier to ramp into the chamber from a half demolished wall.

Work in progress notes: Incorrectly built wall has been removed and old wall prepared for rebuilding. It is proposed to use this as a training wall for the chamber wall bricklayers. Upstream wall rebuilt by Phill Cardy CC0101.
Long wall completed by CC0102, concrete backfilled (4 cu. m of C35 readymix c/w waterproofer) and landscaped. Rubble left at back of bank as sloworm/invertebrate habitat.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.9

Job Description: Rebuild of downstream side pond wall

Location: Side pond of Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Beware moving heavy coping stoners from weir section of wall by culvert. Beware of use of cement.

Schedule/Timing: After completion of "long" side pond wall

Personnel requirements: Demolition team (suggest at least 4 to move stones), bricklayers and support

Equipment needed: Bricklaying kit, mixer, hand demolition kit.

Materials: Cement, sand, all in concrete aggregate

Details: The wall is divided into two halves. The section without the culvert needs to be demolished down to solid brickwork and rebuilt using reclaimed bricks and cement mortar. The wall must be re-established to the same batter and the backfill material behind the wall should not be disturbed so as to maintain the properties of the soil conditions.

The second section needs to be demolished right down to solid brickwork below the blow-out section where the water has burst through into the culvert. Care should be taken in removing the weir stones and the operation should be carefully assessed by a competent person. All materials from the wall should be cleaned and reused. It is likely that some form of concrete apron will be required to prevent this blow out occurring again. It is necessary to excavate a 300mm trench along the face of this wall (to at least 300mm below the blow out) for the entire length of

the weir section of this wall. Once this is done the size and construction of the required apron can be assessed.

Work in progress notes: This wall has been rebuilt incorrectly however I think we will live with it. Except the top three courses which we can improve on.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.10

Job Description: Failed downstream chamberside side pond wall

Location: Lock 3 sidepond

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Considerable care to be exercised when digging behind the wall, no personnel to be working in the proximity of the wall (consider erecting temporary barrier during excavations. Excavate trail pit in front of wall before excavations behind it are due to start. The pit behind it should be covered safely when personal are not working in there.

Schedule/Timing: Excavation required immediately to enable survey

Personnel requirements:

Equipment needed: Shovels

Materials:

Details: See notes 8.2.6 also. This wall has failed. However to assess what remedial steps are to be taken it is necessary to assess what foundations the wall is built on, the structure of the wall and the soil conditions. A pit should be dug at least 600mm long in front of the wall to the base of the foundations.

Also a pit should be dug at least 1200mm behind the wall. This should reach to the bulge in the brickwork. Both pits should be at the point of maximum bulge in the wall. The pit should be at least 600mm square. Careful check on the ground conditions should be made and appropriate steps taken to ensure safety of those digging. Excavated spoil should be safely stacked close to the pit ready to fill it in.

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Work in progress notes: Roy Sutton has investigated the excavations and provided a report (10th Nov 1999). The wall currently requires no further works.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.11

Job Description: Paddle pit repairs

Location: Lock 3 side pond

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Ensure no chance of materials being dropped from above. Fence off top of paddle pit while repairs are ongoing. This is not a confined space as such but it is recommended that an observer is present outside of the paddle pit while repairs are ongoing as the nature and quantity of the silt is unknown in the paddle pit/main chamber. If silt exists in significant quantities then the site leader should obtain a suitable gas monitor and all volunteers briefed on its use. The inside of the paddle pit must be well lit while there are people in it.

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details: Two cracks in the arch will need to be repaired with lime mortar. Some repatching and repointing required. The top three courses have frost heaved. The stones need to be rolled back - dig behind them first and ensure they are safely chocked. Erect trestles in the pit and work from there. Replace the brickwork using good quality, reclaimed, engineering bricks. Reseat the stones using a cement/sand mortar. The paddle pit will also require some stout planks to cover it and a method of fixing them down. The locals have this in hand.

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Work in progress notes: The upper brickwork has been repatched and the stones reseated.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.12

Job Description: Rebuild of head wall (iron rubbing strake and coping stones)

Location: Lock 3 towpath side

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Care when lifting and moving stones as they are heavy and fragile. Mechanical assistance suggested for initial lifting and placing of the rubbing strakes. Fencepost rollers are available from beside the container at Hampton Road yard. Ensure any workers in the forebay have clear, unrestricted exit routes in the event of an accident. Ensure there is no risk of fingers being trapped. Extreme care with rubbing strake – it is heavy and fragile.

Schedule/Timing: Awaiting decision by Project team regarding width of locks.

Personnel requirements:

Equipment needed: Bricklaying kit, mixer, spirit level, barrows for backfilling (lots of them)For moving iron work: Excavator preferably, rollers, strops, bars

Materials: Cement, sand, bricks. Whenever mortar comes in contact with the iron it must be a lime mortar (2 lime/1 cement/9 sand), C30 concrete for backfill.

Details: Wall to be rebuilt to accommodate new stopplank grooves. Minimum clearance between head walls to be maintained. Ready mix back fill intended. To be held off while stopplank arrangements are checked (finalised).

Work in progress notes: Backfilled and then realigned to fit the buffer beam. Wall is complete and is the right profile to support the beam. However it is in the wrong place if we wish to have 7' 1" boats using the locks.

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The buffer beam will need some additional strapping to join the separate parts together. The critical reference point is the stopplank groove. There must still be adequate clearance to get a boat through (at least as wide as Lock 1).
The choice of coping stones has not yet been made. These will need to be laid on a lime mortar bed, backfilled with concrete and then landscaped using locally available soil.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.13

Job Description: Repair of offside tail/flank wall

Location: Lock 3 tail

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

It is uncertain whether it is safer to erect scaffolding under the precarious wall and demolish from the scaffolding or to attempt to demolish the wall from above. Decision to be taken by MKP on site based on weather, wall condition, etc. During rebuild the scaffolding should be checked by a competent person and care taken when erecting or loading the scaffolding. The method for backfilling should be approved by MKP. No one should be below the wall during placement of backfill.

Schedule/Timing: So that it does not prevent safe access/egress to any works in the chamber.

Personnel requirements: Good bricklayers for the rebuild.

Equipment needed: Scaffold towers

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4).

Details: The blue bullnose copers must be reclaimed and stacked safely. The vegetation must be removed and the wall demolished down to a solid base. It is estimated that this should be above the buffer beam line. The ground behind the wall must be excavated back to at least 450mm (the material can be stacked safely away from the wall on the bank above. Once a solid base has been established the wall should be rebuilt to a high standard and recapped with the blue bullnoses. All bricks, especially the cheesewedge ones, should be reclaimed for future use though the wall may be rebuilt using new bricks. Once completed the wall must be backfilled with C30 concrete (reinforced with A393 mesh) to a

depth of 300mm and then landscaped. Ensure that the wall has fully gone off before placing the concrete! The wall will also need repointing below the waterline. This should obviously only be done once the wall has been made safe.

Work in progress notes:

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Job Ref:8.2.14

Job Description: Repair of nearside tail wall

Location: Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Ensure no work in the chamber

Schedule/Timing: So as not to conflict with access to chamber 3

Personnel requirements: Good bricklayer

Equipment needed: Brick kit

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4).

Details: The upper six courses of the wall have been removed and need to be rebricked and carefully recapped with large bullnose blues. Although the wall could be rebuilt as a skin and infilled with concrete it will probably be best to do it as solid.

Work in progress notes: Wall built as a skin and infilled with concrete so that two 10mm anchor rods could be drilled into the large end stone to help support it and stop it sliding as indicated by the cracks in the upstream step wall. Completed by Martin Ludgate CC0101.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.15

Job Description: Repair of nearside lower gate recess

Location: Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Ensure access above is prevented to avoid materials being dropped from above (suggest set up no go areas with orange hazard fence). Ensure no work in chamber as the scaffold tower will block egress. Scaffold tower to be checked by competent person. Follow guidance for Job 8.2.1

Schedule/Timing: Ensure no work in the chamber

Personnel requirements: One good brickie plus supplies

Equipment needed:

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4).

Details: Loose brickwork to be chopped out and replaced. Rake out and repoint as sensible. If significant amounts of brickwork come loose then stop and consult MKP. Follow guidance for job 8.2.1

Work in progress notes:

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.16

Job Description: Repair of nearside flank wall

Location: Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Scaffolding should be checked by a competent person and care taken when erecting or loading the scaffolding. The placing of the backfilling should be carefully considered. No one should be below the wall during placement.

Schedule/Timing: Awaiting a decision on the minor frost heave below the buffer beam.

Personnel requirements:

Equipment needed:

Materials: Mortar mix (Tellings Preblend or Posiment Heritage No 4).

Details: The wall has already been demolished. The setting out should be done with extreme care to ensure a good finish. It is hoped that new bricks will be available.

Work in progress notes: Temporary weak mix has been used to support edge bricks to prevent further deterioration. Job exclusively reserved for Mr Cardy until CC0121.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.17

Job Description: Refurbishment of pissoir

Location: Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Care to be taken so that it does not interfere with job alongside on tail wall.

Beware possible fall to ground at end of steps - if the water is removed from the chamber then it is necessary to construct a scaffold to fall onto.

Schedule/Timing:

Personnel requirements:

Equipment needed:

Materials:

Details: Vegetation to be removed. The brickwork is to be raked out and repointed. Large faults are to be patched with matching brick. Ideally, if suitable bullnoses can be found in Hampton Road yard, they should be installed.

Work in progress notes: Job started by Phill Cardy CC0101. Needs major excavation and underpinning of top two steps where rainwater has eroded the brickwork. Further work undertaken on CC0102. Job exclusively reserved for Mr Cardy until CC0121.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.18

Job Description: Installation of Piling Dam and clearance of tail

Location: Below Lock 2

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Experienced piling team are to be used. Piling is heavy and repetitive work. Ear protection, steel toe caps and gloves are mandatory. A dedicated piling hammer must be used. The design given below must be carefully followed. WRG authorised operators only to drive the excavator. No silt from within 2m of the piling is to be removed. Any areas of deep mud created should be clearly marked.

Schedule/Timing: Before clearance of Lock 3 can begin

Personnel requirements: 6 heavy volunteers

Equipment needed: Air compressor, piling hammer and dolly, excavator. Planks/Youngman boards to assist access.

Materials: 35 2m M7 piles, 35 2m M11 piles, 12 2m tie rods

Details: On of the purposes of the dam is to ensure that the chamber and tail of the lock can be pumped down safely without affecting the reed bed below 9whichj is a newt habitat). The dam will comprise two lines of piles (shallow profile on the upstream side) tied together every 4 piles and infilled with the silt cleared from the tail of Lock 3. Note the upstream line of piles must be so far away from the tail as to allow an access ramp for the excavator to drop down into the pan (ie 7' at least). The reeds should be cleared from between the lines of piles (they will inhibit compaction) and the silt/rubble excavated from the tail and placed in between the lines of piles. The lowest pile to be driven should be at the same height as the exit

channel at the downstream end of the reedbed. Other piles should be left with 200mm freeboard.

Work in progress notes: Dam completed

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:8.2.19

Job Description: Refurbishment of stopplank grooves

Location: Tail of Lock 3

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

eye protection required

Schedule/Timing:

Personnel requirements:

Equipment needed: Hammer and chisel

Materials:

Details: Take great care with the iron. All the rust should be chiselled out of the groove. The sill timber should be checked for damage.

Work in progress notes: Job Completed by Harriet T and Glenn S on CC0101. Two stopplanks installed to stop silt sliding back into chamber. Sill timber not perfect but acceptable.

DROITWICH JUNCTION LOCKS RESTORATION PLAN

Job Ref:14.1.1

Job Description: Dredging of pound below Lock 3

Location: Pound below Lock 3 to farmers crossing

Risk Assessment/Safety measures to be taken (see also Generic Assessments in the Project Plan and consult the Practical Restoration Handbook for further guidance) **:**

Beware communications cables and posts just below Lock 3 and by farmers gate, ensure a good towpath diversion exists through the hedge and along the pavement and ensure any dredging tips are well fenced off until solidified. Also ensure dredging and profiling actions do not weaken the bank edge so as to make dumper traffic unsafe.

Schedule/Timing: Only to be started once a suitable dredging tip has been approved by the Council and all permissions, etc have been obtained.

Personnel requirements: One excavator driver, one dumper driver (both WRG authorised drivers).

Equipment needed: 360 degree excavator (JS130 or similar), 3 or 5 tonne dumper dependent on safe towpath width.

Materials: None

Details: It is anticipated that this work will be undertaken by Land and Water or some other contractor so these notes are probably obsolete. The canal bed is to dredged to a traditional profile i.e. steep and deep on the towpath side and a shallow, gently sloping side on the offside bank, retaining some of the reeds. The dredging is to mainly remove the silt and reeds in the middle and nearside of the channel and is not to go any deeper once any puddle is discovered. Dredging tips suggested are either a general building up of the ground level on the downstream side of the farmers crossing or the filling in of the pool downstream of

the farmers crossing. Either way the dredgings must be contained so that no materials spills onto other land and the finished dredgings must be landscaped. If the pool is used then it must be checked that there is no water course under the farmers crossing back into the pound. If possible then the water should be pumped out of the pound but it will be possible to perform the dredging carefully with the pound full.

Work in progress notes: