



WRG

Registered Charity No. 212342

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Waterway Recovery Group

in conjunction with

Canal and River Trust and Grantham Canal Society

WRG 2018 Task Plan

Site: Lock 14, Grantham Canal

Task Name: Site establishment and demolition

Version: v2

Date: 3 October 2018

Name: Mikk Bradley

**Position: Technical Support Officer Inland waterways
Association**



CC201818,21,24,25
Method Statement
Volunteers must also refer to site wide Project Plan
Version: v2 Date: 03/10/2018

Site	Grantham Canal	MS Title	Lock restoration	Ref	CC201818,21,24,25
Work Area	Lock 14, Woolsthorpe Flight				
Camp Dates	11 – 18 th , 18 – 12 th , 25 th August – 1 st September, 20 – 27 th October 2018				
Assessor	Mikk Bradley	Date Assessed	17 th July 2018 and 3 October 2018		
TASK DESCRIPTION					
<p><i>The list of tasks from CRT is as follows;</i></p> <ul style="list-style-type: none"> - Task Plan – Task 1; Bywash pipe installation (creation of channel route & correct levels, veg & tree root clearance, installing pipes, constructing connections to canal). - Task Plan – Task 2; Construction of towpath side soakaway (installation of 150mm dia pipe). - Task Plan – Task 3; Site fencing & gates (herrass). - Task Plan – Task 4; Construction of stone dams – substantial size as also vehicle access route across canal (CRT might get top dam completed before the camps). - Task Plan – Task 5; Clearing & lifting of coping stones along lock wall (including removal of existing fence & brackets). - Task Plan – Task 6; Reducing ground level on towpath side. - Task Plan – Task 7; Dismantling of towpath side lock wall. - Task Plan – Task 8; Construction of additional access track & parking area between Lock 14 & 13 (potential training task for WRG machine operators?). <p>The task list for the camp CC201825:</p> <ul style="list-style-type: none"> • Task plan – task 9; Complete the removal of silt and debris to expose the lock invert and timber approach floors at either end of the lock ready for engineering inspection. • Task plan – task 10; Complete the dismantling of the towpath and offside lock walls to invert level. • Task plan – task 11; Complete the ground excavation behind both lock walls to invert level. • Task plan – task 12; Breaking out and removal of concrete weir. • Task plan – task 13; Preparation for the concrete foundations for new lock walls including placing blinding layer both sides. 					
WRG LOGISTICS					
Site Leader(s) CC201818	[REDACTED]				
Site Leader(s) CC201821	[REDACTED]				
Site Leader(s) CC201824	[REDACTED]				
Site Leader(s) CC201825	[REDACTED]				
Local Contact	[REDACTED]				
CRT Contact (if nec)	[REDACTED]				
Number of Volunteers	For this task:10 for camp CC201825				
METHOD STATEMENT					
Tasks					
<p>Task 1: Bywash pipe installation (Layout of pipe to be provided by CRT) This method assumes that the rock dam has been installed across the canal from the site compound,</p>					

all materials will be delivered to the site compound.

1. Carry out a walk over survey to identify the approximate line of the bywash pipe.
2. Clear vegetation from the line of the pipe.
3. Carry out a survey to confirm line and level of the bywash pipe and set up survey pegs. Mark out positions of manhole chambers.
4. In consultation with the CRT ecologist, agree the requirement for tree protection.
5. Install shutters for manhole chamber bases and cast the concrete. Concrete mixed in the site compound and transported to the location of the bases by dumper. **Details of manhole chambers to be provided by CRT.**
6. Construct the outfall at the downstream end of the bywash pipeline. **Detail to be provided by CRT.**
7. Lay the bywash pipe. Starting at the downstream end place bedding material along the length to receive the pipe (this will need the filling of the drainage channel between the towpath and Sustrans cycleway). Transport one length of pipe from the site compound, using the excavator. The pipe should be properly slung from the excavator and have ropes at each end to allow the pipe to be manoeuvred along the site. Place the pipe in position on the prepared bed. Secure the pipe at the outfall at the downstream end. Place bedding material along the length to receive the second length of pipe. Transport the pipe from the site compound, as before. Place the pipe in position and pull joint together. **(the method of jointing needs to be identified)** Continue laying the pipe as above to the manhole base, where the pipe should be secured in position. Continue laying the pipe as above to the next manhole base, where the pipe should be secured in position. Lay the pipe as above to the location of the upstream offtake. This will need the filling of the drainage channel between the towpath and Sustrans cycleway).
8. Build the manhole chambers. **Details to be provided before the method can be developed.**
9. Lower the water level in the pound between locks 14 and 15 by removing part of the weir at the top end of lock 14.
10. Build the offtake structure. **Details to be provided before the method statement can be developed further.**
11. Allow the water level in the pound between locks 14 and 15 to rise by waterproofing the upstream dam.

Task 2: Construction of towpath side soakaway

This method assumes that the rock dam has been installed across the canal from the site compound, all materials will be delivered to the site compound.

1. Carry out a walk over survey to identify the approximate line of the soakaway pipe.
2. Clear vegetation from the line of the pipe.
3. Carry out a survey to confirm line and level of the soakaway pipe and set up survey pegs.
4. Lay the pipe using the following sequence; place bedding material, transport the pipe from the site compound (several lengths will be transported using the excavator, as above), lay the pipe from the downstream end, pull joints of adjacent pipes, provide concrete support to the pipe at the joints, provide backfill protection over the pipe. Mark the line of the pipe.

Task 3: Site fencing and Gates

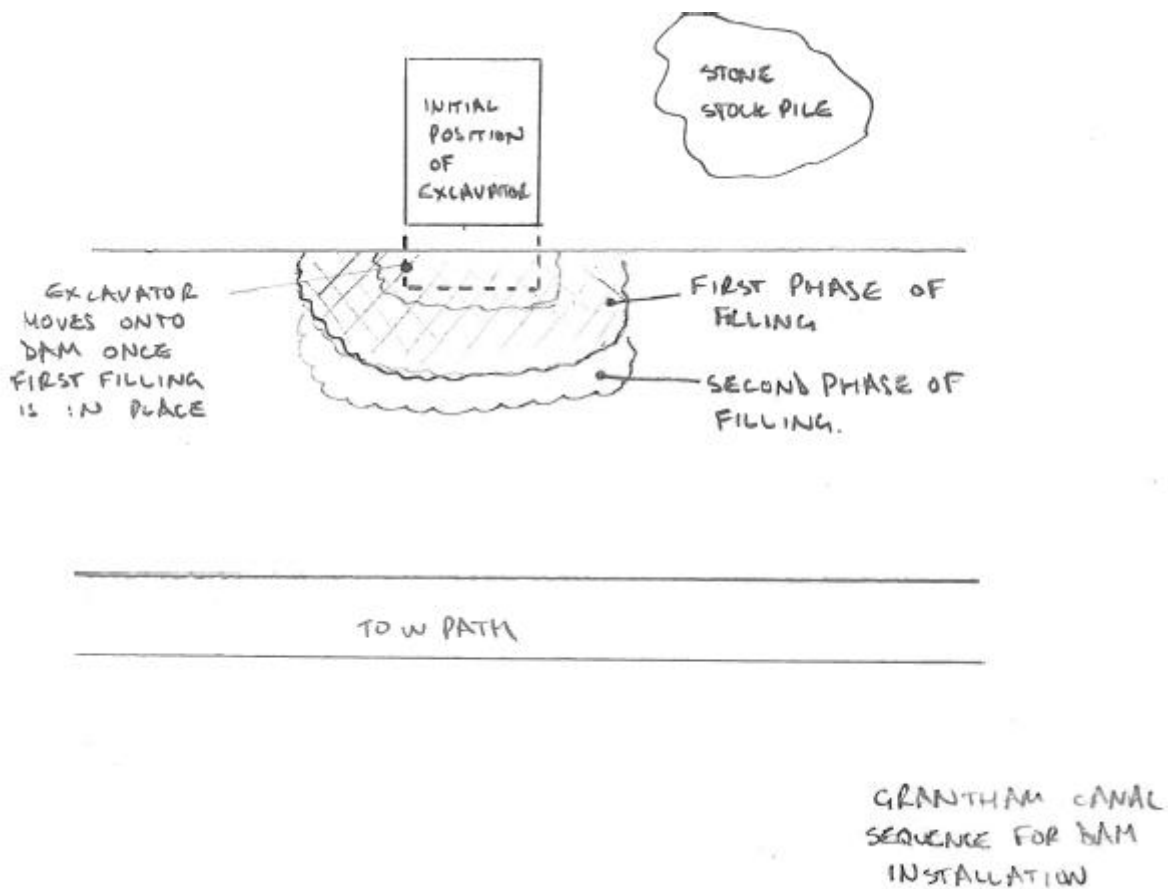
This method assumes that the rock dam has been installed across the canal from the site compound, all materials will be delivered to the site compound. Stockproof fencing will be installed by others to secure the access track and site compound.

1. Transport a limited number of Heras panels from the site compound to the towpath at two locations.
2. Install Heras panels across the towpath and secure in place with posts driven into the ground to effect the towpath closure.
3. Install signage for the towpath diversion and warnings of work in progress.
4. Transport Heras panels from the site compound to the side of the drainage channel next to the Sustrans cycleway.
5. Install Heras panels along the side of the Sustrans cycleway over the length of the site, to include both ends of the by-wash pipework.

Task 4: Construction of stone dams. Details of dams to be provided by CRT.

Materials will be delivered to the site compound and stockpiled close to the dam locations.

1. Mark out location of dams on the offside and towpath banks.
2. Clear the banks of vegetation to ground level. Consent may be required from the CRT ecologist in case of protected / invasive species. **CRT to advise / confirm.**
3. The excavator will stand on the offside on a sound foundation. Some preparation may be required depending on ground condition. The leader and machine operator will make an assessment on site.
4. The upstream dam will be installed first. The downstream dam may require the compound / access to be extended.
5. Using the excavator the stone will be placed in the canal channel working out from the offside bank in layers, see sequence plan below;



6. The layers of the dam will be built high to allow the excavator to compact the stone by tracking the layers to level.
7. As construction continues the excavator will move out onto the dam to allow stone to be placed to the towpath side. The stockpile of stone will move progressively towards the location of the dam so that the excavator can reach the stone.
8. Once the dam has been installed across the canal the excavator will track across several times to compact the stone. Any depressions will be filled and the stone compacted.

Task 5: Clearing and lifting coping stones along lock wall

This work cannot be started until the site fencing is installed and the site secured. It should be started with the canal in water. This method assumes that the rock dam has been installed across the canal from the site compound.

1. Life jackets are to be worn when working lockside. Throw lines are to be made available. No lone working.
2. Excavate the towpath to a depth of 300mm below the bottom of the coping stones. Excavated materials will be disposed into the drainage channel between the towpath and Sustrans cycleway. The topsoil should be stored separately to the general fill material.
3. Cut the rails adjacent to the fence posts. And dispose to the site compound.

4. Working from the reduced ground level unbolt the fence brackets if possible. If the bolts cannot be undone, the brackets should be prised up using a crowbar with a timber packer placed on top of the coping stone to prevent damaging the stone in case they are reused.
5. Once the fence posts have been removed the mortar between the stones should be cut out using hand tools with care being taken not to damage the coping stones.
6. Using the excavator standing in the towpath area, carefully prise each coping stone from the wall back onto the reduced towpath. Once clear of the wall the coping stone can be loaded into the dumper for transport back to the site compound.

Task 6 and task 7: Reducing ground level on the towpath side and Dismantling of towpath side lock wall

These tasks are to be carried out concurrently in stages so that the lock wall will provide edge protection.

1. Mark out the width and length of the excavation to allow for batters at each end. Once the coping stones have been removed and transported to the site compound the excavation can start. The excavator will be placed on the towpath and will excavate behind the wall in layers to the width required. **CRT to supply details of wall reconstruction in order to establish width of ground level reduction.**
2. The ground will be reduced in level to a depth of 1.5m before wall dismantling can take place.
3. The wall will be dismantled in 0.5m drops to ensure that a minimum of 1m wall is standing at all times to provide edge protection.
4. Once 0.5m of wall is dismantled a further 0.5m of excavation can take place.
5. This sequence should be followed until the towpath side lock wall has been dismantled to the same level as the partially collapsed offside lock wall.

Task 8: Construction of additional access track and parking area between Lock 14 and 13.

This is a potential training task for WRG excavator operators.

1. Mark out the extent of the track and parking area. **CRT to supply details of track extension and parking area.**
2. Strip topsoil and place in a designated area for future reuse.
3. Lay geotextile over the prepared area.
4. Supplier to tip stone / backfill on geotextile working from the end of the current access track. The material will be spread to level and tracked in using the excavator. The laid section will be compacted using an appropriate roller. Subsequent lorry loads will be tipped at the end of the last section of track formed.
5. Once the full length of track and parking area has been laid any soft spots or depressions will be made good and compacted.

Task 9: Complete removal of the silt and debris to expose the lock invert and timber approach floors at either end of the lock ready for engineering inspection.

This task cannot be started until the lock is dewatered and a pumping system has been established to deal with any inflows of water. The excavation will take place from the partially demolished lock wall.

1. With the excavator positioned on the bank, excavate the silt and debris from the lock chamber and load into dumper. A banksman will be used to direct the excavator driver working below the lock side walls.
2. The excavated material will be disposed on site in a designated area where water can be allowed to drain.
3. Once the bulk of the silt and debris has been removed volunteers will enter the lock chamber to clear any silt and debris left, loading it into the bucket of the excavator.
4. The lock invert and timber approach floors will be swept clear of any remaining silt to allow inspection.

Task 10 and 11: Complete reducing ground level on the towpath side and offside and dismantling of towpath side and offside lock walls to invert level.

This is a continuation of tasks 6 and 7 and will be carried out with no water in the lock chamber.

1. Mark out the width and length of the excavation to allow for batters at each end on the offside. The excavator will be placed on the lockside and will excavate behind the wall in layers to the width

required. **CRT to supply details of wall reconstruction in order to establish width of ground level reduction.**

2. The ground will be reduced in level to a depth of 1.5m before wall dismantling can take place. Excavated material will be loaded into dumpers to be stockpiled on site.
3. The wall will be dismantled in 0.5m drops to ensure that a minimum of 1m wall is standing at all times to provide edge protection. The arising from the dismantled wall will be loaded into dumpers and disposed in a designated area on site.
4. Once 0.5m of wall is dismantled a further 0.5m of excavation can take place.
5. This process will be repeated until 1.5m height of wall remains. The wall will be dismantled in layers to invert level.

Task 12: Breaking out and removal of concrete weir.

CRT are to advise whether a machine mounted breaker can be used. Prior to breaking out the weir, edge protection needs to be provided at the edge of the top cill to the lock. Acrow props will be set up at 3 levels (0.2m, 0.5m and 1.1m above floor level) across the lock chamber and braced. Sheets of 18mm thick ply will be attached to the acrow props using tying wire through holes drilled in the ply.

1. A 3t excavator with breaker attachment will be positioned in the canal channel upstream of the dam and will proceed to break out the concrete weir. A banksman will be used to direct the excavator operator.
2. Breaking will cease to allow the arisings to be hand loaded into an excavator bucket on a machine standing on the lockside. Arisings will be loaded into a dumper to be disposed on site.
3. Final concrete removal from the lock walls and invert will be carried out using hand tools to preserve the structure.

If a machine mounted breaker cannot be used, a road breaker will be used. A scaffold will be erected upstream of the weir and all work will be carried out from the scaffold. The working platform of the scaffold will need to be lowered as the weir is demolished.

1. Install a scaffold across the canal upstream of the weir.
2. The concrete weir will be broken out from the scaffold with arisings falling to the lock side or onto the scaffold platform.
3. Arisings will be hand loaded into an excavator bucket on a machine standing on the lockside. Arisings will be loaded into a dumper to be disposed on site.
4. Final concrete removal from the lock walls and invert will be carried out using hand tools to preserve the structure.

Task 13: Preparation for the concrete foundations for new lock walls including placing blinding layer both sides.

CRT will need to supply details of the dimensions of the foundation.

1. Mark out the footprint of the foundation and determine depth of any excavation.
2. Excavate to depth and trim excavated surface. Excavated material will be loaded into dumpers to be stockpiled for later reuse.
3. Timber edge boards with timber stakes will be set up to the top level of the blinding or the sides of the excavation will be used to support the sides. To ensure the correct top level of the blinding, steel pins will be driven into the ground at 1.0m centres with the top of the pin at top level of the blinding.
4. Materials for the concrete will be moved by excavator and dumper close to the excavation.
5. Concrete will be mixed on site close to the area to be blinded. The concrete will be moved in wheel barrows.
6. Concrete will be tipped into the area to receive the blinding and will be spread to level manually using rakes and shovels and will be tamped to level with timber tamping boards.

Morning Checks

Erect WRG gazebo

Set up first aid point and signs.

Set up warning signs.

Set up and turn on Burco.

Plant to be checked by authorised operator. Any apparent defects to be reported to camp leader.

Tools, Equipment and Plant

Normal WRG kit to be supplied.

All volunteers inexperienced in the use of any equipment will be given a toolbox talk by the camp leader/designated experienced person, and supervised until they have demonstrated appropriate competence.

Excavators, mini excavator, dumper, roller, brush cutter, bricksaw, pipe puller if 600mm pipe needs pulling at the joints.

**Additional for tasks 9 – 13.
Breaker for excavator or road breaker, rakes**

Materials

Fuel for plant and power tools, generator.
 Survey pegs and setting out boards.
 Clean stone for the dams across the canal.
 Heras fence panels, slippers and clips. Posts for securing the towpath closure fencing. Signage boards and mounting posts.
 150mm dia upvc pipe and couplings.
 600mm dia twin wall pipe and couplings.
 Bulk bags of aggregate and sand, cement for concrete and mortar. Dense concrete blocks, covers for manhole chambers.
 Materials for the offtake and outlet structures to the by-wash pipe. **CRT to supply details.**
 Geotextile and backfill stone for the extension to the access track and parking area.

Additional for tasks 9 – 13.
 Bulk bags of aggregate and cement for concrete.
 Timber edge boards and stakes.
 Steel pins.

Task specific Permissions

No specific permissions are required for the tasks.

Environmental Factors (for task)

*CRT have carried out an Environmental Appraisal for the site. This is a separate document.
 Some vegetation clearance has been undertaken, but a survey for protected species will be carried out by CRT prior to any further vegetation clearance or demolition works. Prior to any tree felling the CRT ecologist will carry out a check for bat roosts and nesting birds.
 Invasive species, Water Fern has been identified. CRT will provide guidance on dealing with this s required.
 The cottage at Lock 13 is listed, however this work is located away from the cottage.
 Tree protection to be installed as directed by CRT ecologist. No spoil stored over tree roots.*

Refuelling plant and equipment: Funnels will be available for refuelling, together with a spill kit.
 Small tools will be refuelled in a designated area. Drip trays will be used for static plant.

End of the day

Changes on the day...

If work plan changes please add details here: (use a separate sheet if necessary)

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RISK ASSESSMENT

Think about all the things which could go wrong while this job is being carried out, which could cause injury or damage to people or things or affect how and whether the task can be completed.
In addition to this you will need to complete a risk register which will incorporate full risk assessments.

Key Task Risks	For the following sub headings (and other site specific risks you come across) consider the following – What could go wrong? What effect will this have? How serious are the consequences? How will you mitigate the risk?	Risk Register no: (This is your risk assessment that covers the risks in more detail)
<i>Public</i>	<i>A towpath closure and diversion will be in place and reinforced with good signage. Site will be enclosed with Heras fencing as part of this project. Visitors to report to site office for briefing.</i>	30
<i>Sustrans path</i>	<i>This is outside the site, but the installation of the by-pass pipework will be carried out adjacent to the path. Caution is needed when working on the path outside the work area.</i>	31
<i>Water control</i>	<i>The weir at the top end of the lock can be adjusted to lower the water level for the installation of the offtake for the by-wash diversion. Dams are being installed as part of this project.</i>	20
<i>Plant</i>	<i>There will be segregated route for plant and pedestrians. Safe working zones and banksmen will be used.</i>	4, 10, 17, 18, 23, 24, 26, 27
<i>Volunteers</i>	<i>Volunteers will receive a safety briefing at the start of the camp. Any GCS volunteers will receive a site induction.</i>	2, 3, 5, 6, 16, 19, 25, 28
<i>Materials</i>	<i>Wherever possible materials movements will be carried out by mechanical means. The demolition may require manual sorting and storing of materials. Manual handling will be included in the safety induction.</i>	8, 9, 11, 12, 13, 14, 15, 29
<i>Working near Water</i>	<i>Life jackets and throw lines will be available on site. No lone working will be allowed.</i>	21, 22
<i>Slips/Trips</i>	<i>The sides of the open channel between the towpath and Sustrans cycle path are steep, uneven and covered with vegetation. Access points will be established, vegetation cleared along the working lies. Volunteers will be made aware of the hazards.</i>	1
<i>Working at height</i>	<i>When the lock chamber is dewatered and during demolition of the lock chamber walls there will be an exposed drop. The method of demolition will require that a safe height of wall is retained to provide edge protection.</i>	7



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PPE (Tick appropriate boxes)			COMPETENCY
Safety helmet	Y	<i>At all times</i>	Volunteers to be instructed in working methods and equipment as appropriate. All volunteers will be given a standard induction before starting work and Toolbox Talks given as the camp progresses as seen fit by the Camp Leader. <i>Are there any specific competencies required? List DA authorisations here TBA</i>
Hi-viz vest	Y	<i>At all times</i>	
Safety footwear	Y	<i>At all times</i>	WRG Van Drivers: TBA
Gloves	Y	<i>Recommended at all times and when mixing/handling concrete</i>	SUPERVISION
Long sleeve clothing	Y	<i>When mixing and placing concrete</i>	Camp Leader: [REDACTED] Task Supervisors: <i>Identified as required by Leader for the task based on level of expertise.</i>
Safety goggles	Y	<i>At all times</i>	
Face mask	Y	<i>When mixing concrete</i>	SCHEDULING
Ear Defenders	Y	<i>When using brick saw, brushcutter, road breaker</i>	<i>Tasks 9, 10/11 and 12 can be carried out concurrently. Task 13 to follow task 10/11.</i>
<i>Other</i>			

Approved by		Signed		Date	
Retired by		Signed		Date	
REVIEWED					
Date	Nature of Review	Changes Required		Reviewer	
	Internal Review				
	Trust Review				
	Approved by Insurers/ HO				

Health and Safety Declaration:

I was present at the Method Statement talk given by the Canal Camp leader (or an appointed substitute) and agree to follow the method outlined above or instructions given by the Canal Camp leader or assistant following a review of the method during the course of the work. (Note: This information will be kept on record)

Name	Signature	Name	Signature



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