

Appendix B – Risk Register

Uttoxeter Canal Restoration

Risk Register - Rev 1 dated 2nd June 2009

Dr Avoid, A = Accept, R = Reduce, T = Transfer

| Serial No. | Item | Description | Initial Probability (Y/N) | Initial Consequence (Y/N/M/L) | Effect of Occurrence (Cost/Time/Quality/Environment) | DART Classification | Method of Control (Refer to Generic Risk Database) | Risk Owner | Risk Managed/Action by | Compression Event (Y/N) | Risk/Prob (Y/N/M/L) | Risk/Con (Y/N/M/L) | @Risk Per Cost Analysis | | | | @Risk Per Time Analysis | | | | | | | |
|-------------------------------------|--|---|---------------------------|-------------------------------|--|---------------------|---|-------------------|------------------------|-------------------------|---------------------|--------------------|-------------------------|------------------|----------|-----------|-------------------------|------------------|------------|--------------------|------------|-------------|-----|-----|
| | | | | | | | | | | | | | Min (£k) | Most Likely (£k) | Max (£k) | Cost (£k) | Cost (£k) 5%ile | Cost (£k) 95%ile | Min (Week) | Most Likely (Week) | Max (Week) | Time (Week) | | |
| 1 | Financial Risks | Support needs to be covered down, lack of buy from community | H | H | Cost | D | Develop funding strategies and appoint fund raising manager to oversee process | Client | Client | N | M | M | | | | | | | | | | | | |
| 2 | Land not in ownership of project partners | Uncertainty over land ownership possible refusal of landowners | H | H | Cost / Time / Quality | R | Number of active operators who can be avoided if required | Client | Client / Consultant | Y | H | H | | 0 | 100 | 250 | 108.39 | 1.99 | 2.32 | 0 | 0 | 8 | 1.3 | |
| 3 | Unknown details of service dimensions required | An incorrect cost has been found by comparing with services, however this cost may be lower if the necessary preparatory work is required | H | H | Cost | R | Detailed assessment of the service locations and dimensions to be undertaken. Site visits undertaken with the asset owners. | Client | Client | N | H | H | | 0 | 800 | 2500 | 750.00 | 1.93 | 2.32 | 0 | 0 | 1 | 0.5 | |
| 4 | Excavated material found to be contaminated | Additional disposal costs | M | H | Cost | R | Site investigations to pinpoint any problems or hotspots | Client | Client | Y | M | M | | 0 | 50 | 5000 | 583.39 | 1.99 | 2.32 | 0 | 0 | 0 | 0 | |
| 5 | Reverberating noise from material disposal | Surplus spoil needing to be taken to landfill or designated tip | M | H | Cost/ Time | R | Development of a project waste management plan to ensure that surplus material and sediments are disposed of in a timely and appropriate manner. | Client | Client | Y | M | M | | 0 | 200 | 1000 | 300.00 | 1.93 | 2.32 | 0 | 0 | 1 | 0.5 | |
| 6 | Cost increases inflation | Project needs to be scaled down to meet funding available | H | H | Cost | R | Use of temporary OS and estimate for materials. Further development of options for managing cost overruns and a risk register to record any cost increases. | Client | Client | N | L | M | | 0 | 200 | 900 | 218.67 | 1.93 | 2.32 | 0 | 0 | 0 | 0 | |
| 7 | Income generated by waterway could not cover the operating costs | Insufficient maintenance results in deterioration of canal | H | H | Cost / Quality | R | Detailed economic assessment to be carried out to determine if an investment to be favored over the capital cost of the scheme | Client | Client | N | H | M | | 0 | 50 | 500 | 118.67 | 1.93 | 2.32 | 0 | 0 | 0 | 0 | |
| 8 | Operating cost higher than envisaged | Insufficient maintenance results in deterioration of the canal | M | M | Cost/ Quality | R | Estimate of maintenance cost to seek advice from the Environment Agency as to whether it is possible to transfer the maintenance to the EA | Client | Client | N | L | L | | 0 | 20 | 50 | 218.67 | 1.93 | 2.32 | 0 | 0 | 0 | 0 | |
| Management / Programme Risks | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Programme | Failure to monitor and update programme progress to ensure complete works as scheduled. | M | H | Cost/ Time Environment | R | Develop an early warning system. Early identification of potential delays and detailed progress monitoring as well as regular communication with the EA. Ensure all parties are aware of the programme and time constraints. | Client/Consultant | Client/Consultant | Y | L | M | | 0 | 50 | 250 | 75.00 | 1.97 | 1.65 | 0 | 0 | 0.5 | 4 | 1.0 |
| 10 | Delays due to slow decisions | Delays due to lack of project stakeholder agreement | M | M | Cost/ Time / Quality | R | Identify key decision points and key decision dates early in programme. Sign off on key decisions as early as possible to avoid delays to the programme. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client | Client | N | L | M | | 0 | 20 | 100 | 30.00 | 1.99 | 2.32 | 0 | 0 | 0.5 | 2 | 0.7 |
| 11 | Staff churn | Distraction to project team, lack of continuity | M | M | Time | A | Identify key staff and ensure that they are not over-committed to other projects or have other commitments which may affect their availability | Client | Client | N | M | L | | 0 | 20 | 50 | 218.67 | 1.93 | 2.32 | 0 | 0 | 0.5 | 1 | 0.5 |
| 12 | Small management team | Delays due to lack of resources, overwork | M | M | Cost/ Time | R | Ensure that there is a back-up person for each of the key roles in the programme and that staff are not over-committed | Client | Client | N | L | L | | 0 | 20 | 40 | 20.00 | 1.93 | 2.32 | 0 | 0 | 0.5 | 1 | 0.5 |
| Market / 3rd Party Risks | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Flood Risk Assessment | Approvals withheld | H | H | Cost/ Time | R | Early discussion with the Environment Agency in order to identify what work will be required to avoid flooding. Ensure that the EA is kept up to date on progress and any issues. Assess risks. Consider to be completed during normal working hours. Ensure timely completion of flood risk assessments. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | Y | L | M | | 0 | 15 | 50 | 183.3 | 1.93 | 2.32 | 0 | 0 | 0 | 12 | 2.0 |
| 14 | Landowners / Residents | Impact of construction and use of land on owners and occupiers | M | M | Cost/ Time | R | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client | Client | Y | L | M | | 0 | 100 | 250 | 108.39 | 2.34 | 2.69 | 0 | 0 | 1 | 4 | 1.3 |
| 15 | Communications with landowners | Failure to communicate terms and conditions of entry to landowners prior to commencement | M | H | Cost/ Time/ Quality | D | Ensure timely observation of procedures. Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client | Client | Y | L | M | | 0 | 50 | 100 | 50.00 | 1.92 | 1.65 | 0 | 0 | 1 | 2 | 1.0 |
| 16 | Approvals | Approval of the EA for the project is withheld | M | M | Cost/ Time | R | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | Y | L | M | | 0 | 10 | 40 | 133.3 | 0.99 | 0.69 | 0 | 0 | 1 | 4 | 1.3 |
| 17 | Approvals | EA objections to scheme on development constraints | M | M | Cost/ Time | D | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | Y | L | M | | 0 | 20 | 50 | 218.67 | 0.90 | 0.69 | 0 | 0 | 1 | 4 | 1.3 |
| 18 | Land drainage consents | Approvals withheld | M | H | Cost/ Time | R | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | N | L | M | | 0 | 10 | 20 | 10.00 | 0.55 | 0.66 | 0 | 0 | 0 | 4 | 0.7 |
| 19 | Communications | Poor communication or in understanding of information | M | H | Cost/ Time/ Quality/ Environment | D | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | N | L | M | | 0 | 10 | 20 | 10.00 | 0.40 | 0.48 | 0 | 0 | 0 | 1 | 0.2 |
| 20 | Tim in with adjacent developers | Failure to agree terms for the use of adjacent land | H | H | Cost | R | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | Y | L | M | | 0 | 10 | 20 | 10.00 | 1.99 | 2.32 | 0 | 0 | 0.5 | 2 | 0.7 |
| 21 | Planning permissions | Approvals withheld | M | H | Cost/ Time | R | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | Y | L | M | | 0 | 5 | 50 | 118.67 | 1.99 | 2.32 | 0 | 0 | 0 | 16 | 2.7 |
| 22 | Public buy in | Failure to engage the public, rejection of scheme | H | H | Cost/ Time | R | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | Y | L | L | | 0 | 25 | 50 | 25.00 | 1.93 | 2.32 | 0 | 0 | 1 | 4 | 1.3 |
| Technical Risks | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | Overseen Services | Hiing buried or overhead services during construction | M | H | Cost/ Time | R | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | Y | M | M | | 0 | 50 | 150 | 83.33 | 1.93 | 2.32 | 0 | 0 | 4 | 8 | 4.0 |
| 24 | Overseen Ground Conditions | Failure to identify or allow for ground conditions or planning approval | M | H | Cost/ Time Environment | R | Ensure that all parties are aware of the programme and time constraints. Agree an escalation process for the greater speed of the programme not to be used unless necessary. | Client/Consultant | Client/Consultant | Y | L | M | | 0 | 20 | 100 | 30.00 | 3.41 | 4.09 | 0 | 0 | 1 | 2 | 1.0 |

| Item | Category | Severity | Impact | Cost/Time/Quality/Environment | Control | Residual Risk | Client / Consultant | Responsible Party | Y | L | M | H | 0 | 100 | 300 | 116.67 | 2.38 | 2.85 | 0 | 1 | 2 | 1.0 | |
|--------------------------------|------------------------|----------|--------|-------------------------------|-------------------|--|---------------------|-------------------|---|---|---|---|---|-----|------|--------|---------------|------|---|---|-----|-----|---|
| 25 | Physical condition | H | H | Cost/Time/Quality/Environment | Client/Consultant | Use of known contractor familiar with the area and requirements. Investigation specified by a new station layout and programmatic feasibility. | Client/Consultant | Consultant | Y | L | M | H | 0 | 100 | 300 | 116.67 | 2.38 | 2.85 | 0 | 1 | 2 | 1.0 | |
| | | M | M | Cost/Time/Quality/Environment | Client/Consultant | Excavated materials used for civil lining and weepholes disposed in accordance with appropriate disposal or support measures. | Client/Consultant | Consultant | Y | L | M | H | 0 | 100 | 300 | 116.67 | 2.38 | 2.85 | 0 | 1 | 5 | 1.5 | |
| | | H | H | Cost/Time/Quality/Environment | Client/Consultant | Adverse weather conditions (eg high intensity rainfall or others) during construction. | Client/Consultant | Consultant | Y | L | M | H | 0 | 50 | 500 | 116.67 | 2.38 | 2.85 | 0 | 1 | 10 | 2.3 | |
| | | M | M | Cost/Time/Quality/Environment | Client/Consultant | Adverse water levels in rivers, wetland and other climatic conditions. | Client/Consultant | Client | Y | M | M | H | 0 | 100 | 300 | 116.67 | 2.38 | 2.85 | 0 | 2 | 6 | 2.3 | |
| | | M | M | Cost/Time/Quality/Environment | Client/Consultant | Excessive groundwater pumping in adjacent areas. | Client/Consultant | Consultant | N | L | M | H | 0 | 100 | 300 | 116.67 | 2.38 | 2.85 | 0 | 2 | 4 | 2.0 | |
| | | H | H | Cost/Time/Quality/Environment | Client/Consultant | Change in design during construction. | Client/Consultant | Consultant | Y | L | M | H | 0 | 100 | 300 | 116.67 | 0.79 | 0.95 | 0 | 1 | 2 | 1.0 | |
| | | M | M | Cost | Client/Consultant | Constructive safety relations to cover site conditions. | Client/Consultant | Consultant | Y | L | M | H | 0 | 100 | 300 | 116.67 | 0.35 | 0.42 | 0 | 1 | 2 | 1.0 | |
| | | H | H | Cost/Time/Quality/Environment | Client/Consultant | Additional works in relation to water management. | Client/Consultant | Consultant | N | M | M | H | 0 | 500 | 2500 | 760.00 | 0.35 | 0.42 | 0 | 0 | 0 | 0 | 0 |
| Environmental Risks | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | Environmental Impact | M | M | Cost/Time/Quality/Environment | Client/Consultant | Non compliance with environmental legislation, regulatory plans (Joint & External). | Client/Consultant | Consultant | N | L | M | H | 0 | 10 | 20 | 10.00 | 0.96 | 1.03 | 0 | 0 | 2 | 0.3 | |
| | | M | M | Cost/Time/Quality/Environment | Client/Consultant | Consent or contractor failure to comply with environmental legislation. | Client/Consultant | Consultant | N | L | M | H | 0 | 10 | 50 | 15.00 | 0.90 | 0.98 | 0 | 0 | 2 | 0.3 | |
| | | M | M | Cost/Time/Quality/Environment | Client/Consultant | Unplanned matter arising from the project. | Client/Consultant | Client | Y | L | M | H | 0 | 10 | 50 | 15.00 | 0.28 | 0.33 | 0 | 0 | 4 | 0.7 | |
| | | L | L | Cost/Time/Quality/Environment | Client/Consultant | Discovery of buried (unknown) archaeological remains. | Client/Consultant | Client | Y | L | M | H | 0 | 10 | 50 | 15.00 | 0.31 | 0.37 | 0 | 0 | 2 | 0.3 | |
| | | H | H | Cost/Time/Quality/Environment | Client/Consultant | AS2 requires a separate investigation. | Client/Consultant | Consultant | Y | M | M | H | 0 | 25 | 150 | 41.67 | 0.95 | 1.14 | 0 | 1 | 8 | 2.0 | |
| | | M | M | Cost/Time/Quality/Environment | Client/Consultant | Requirement for detailed hydrological studies. | Client/Consultant | Client | Y | L | M | H | 0 | 10 | 20 | 10.00 | 0.95 | 1.14 | 0 | 0 | 1 | 0.2 | |
| | | H | H | Cost/Time/Quality/Environment | Client/Consultant | Further surveys and research required to inform hydrological studies. | Client/Consultant | Client | Y | L | M | H | 0 | 10 | 50 | 15.00 | 0.95 | 1.14 | 0 | 0 | 1 | 0.2 | |
| | | L | L | Cost/Time/Quality/Environment | Client/Consultant | Failure to meet demands for landscaping works. | Client/Consultant | Client | N | L | M | H | 0 | 10 | 20 | 10.00 | 0.95 | 1.14 | 0 | 0 | 0 | 0 | |
| | | M | M | Cost/Quality | Client/Consultant | Ability to deliver acceptable landscape design. | Client/Consultant | Client | Y | L | M | H | 0 | 50 | 200 | 66.67 | 1.21 | 1.45 | 0 | 0 | 2 | 0.3 | |
| | | M | M | Cost/Quality | Client/Consultant | Four perception from public. | Client/Consultant | Client | N | L | M | H | 0 | 100 | 200 | 100.00 | 1.93 | 2.32 | 0 | 0 | 0 | 0 | |
| Health and Safety Risks | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | Health and Safety | M | M | Cost/Time/Quality/Environment | Client/Consultant | Accidents, Trips, Falls, Hill walking close to river and potentially contaminated area. See also Designer's Risk Assessment. | Client/Consultant | Consultant | N | L | M | H | 0 | 10 | 20 | 10.00 | 1.05 | 1.28 | 0 | 0 | 1 | 0.2 | |
| 31 | Security and Vandalism | M | M | Cost/Time/Quality/Environment | Client/Consultant | Location of site presents risk to construction. | Client/Consultant | Contractor | N | L | M | H | 0 | 10 | 15 | 9.17 | 0.97 | 1.16 | 0 | 0 | 0.5 | 0.1 | |
| | | | | | | | | | | | | | | | | | Sum of column | | | | | | |
| | | | | | | | | | | | | | | | | | 50% like | | | | | | |
| | | | | | | | | | | | | | | | | | 90% like | | | | | | |
| | | | | | | | | | | | | | | | | | 95% like | | | | | | |
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| | | | | | | | | | | | | | | | | | 90% like | | | | | | |
| | | | | | | | | | | | | | | | | | 95% like | | | | | | |

Notes:

- 1. Don't use the risk figure in column A6.
- 2. Consider the value of 50% like and 90% like as expected. The risk figure in column A6 is the risk figure when you have covered the risk register.
- 3. Copy these risk values from column A6 and A5 (Risk) in to Column A6 and A5 (Risk) in the risk register.

Note: To calculate the residual risk register, review the risk register and the risk values on a regular basis and re-run the simulation.

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