



STEM

Knowle Winter Works Jobs & Decisions

Pick a Job



Job Profile: Ecologist

Key words: **protect, wildlife and biodiversity.**

I conduct wildlife and plant assessments around the waterways. I provide advice on soil, land use, biodiversity strategies and environment protection.



Job Profile: Craft Operative

Key words: **skilled, craft and teamwork.**

I work within a team of skilled craftspeople on-site, around our canals and rivers. We conduct maintenance and repair work like masonry and carpentry on heritage structures.



Job Profile: Construction Manager

Key words: **organise, manage and safety.**

I coordinate and supervise the construction and maintenance works. I make sure that the operations are done safely, on-time and within budget.



Job Profile: Engineer

Key words: **design, technical and specialist.**

I design and manage the maintenance, repair and renewal of our heritage assets like bridges and locks. I provide guidance and technical advice to teams and contractors.



Job Profile: Heritage Advisor

Key words: **protect conservation and history.**

I ensure that any work that the Canal & River Trust do on the waterways conserves and maintains the integrity and authenticity of the historical assets.



Job Profile: Mobilisation Supervisor

Key words: **solutions, technical and safety.**

I coordinate and supervise the delivery and movement of machinery, equipment and supplies around the project site. I make sure the work can get underway smoothly.



Job Roles

Ideas, problems and challenges often arise in a project like the **Knowle Winter Works**. We choose the right specialist to handle the decision.

Using the six example job roles, decide who is best suited to finding a solution to the following issues at Knowle...



Decision Time 1

We need to hire **equipment** to lift the heavy gates. Who will help to decide what method we use for the job?

- Ecologist
- Craft Operative
- Construction Manager
- Engineer
- Heritage Advisor
- Mobilisation Supervisor

DISCUSS: Which method should we choose and why?



Gantry



vessel crane



Spider crane

Decision 1 – Finding a Solution



Here is our Mobilisation Supervisor talking about how we solved the problem at Knowle.

At the Knowle Winter Works, crane hire cost: **£44,600!**

<https://www.youtube.com/watch?v=NH-q-Vuyh7w>



Canal &
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Decision Time 2

Site security is taking the project over budget. Who in the team would be able to give information about this?

- Ecologist
- Craft Operative
- Construction Manager
- Engineer
- Heritage Advisor
- Mobilisation Supervisor

DISCUSS: Why is site security so important?



Decision 2 – Finding a Solution

Site security is important to the whole team but the Construction Manager and Mobilisation Supervisor will have a big input in the overall decisions.

Security is important because:

- We need to keep the public safe
- We need to protect against theft
- We need to keep staff and contractors safe

At the Knowle Winter Works, security cost: **£5,150.00!**

Decision Time 3

A carpenter has suggested that we should use a cheaper material to strengthen the lock gates. Who would need to be consulted about this?

- Ecologist
- Craft Operative
- Construction Manager
- Engineer
- Heritage Advisor
- Mobilisation Supervisor



DISCUSS: What elements might we need to consider in this decision?

Decision 3 – Finding a Solution

The **Engineer** and **Heritage Advisor** will have an input on gate design.

Although it is often more expensive, we try to use traditional techniques that protect the heritage of the canals.

This video shows more about the materials and techniques we use:

www.youtube.com/watch?v=4uDDqtLs34E

A pair of new lock gates can cost up to **£30,000!**

Decision Time 4

During the fish rescue, a large number of **Zander** have been found. These are an **invasive** species of fish. Who would give advice about this?

- Ecologist
- Craft Operative
- Construction Manager
- Engineer
- Heritage Advisor
- Mobilisation Supervisor

DISCUSS: Why might the Zander species be a problem in our Waterways?



Decision 4 – Finding a Solution

Here is our Ecologist talking about the wildlife found at Knowle Locks.



<https://www.youtube.com/watch?v=NH-q-Vuyh7w>

Hiring a fishery service team can cost up to: **£2,000!**



Decision Time 5

The safety ladders inside the lock are being replaced and brick-work needs to be cut away. Who would give guidance about this?

- Ecologist
- Craft Operative
- Construction Manager
- Engineer
- Heritage Advisor
- Mobilisation Supervisor



DISCUSS: Why might the Canal & River Trust hire people to help with certain areas of a project?

Decision 5 – Finding a Solution

We depend on skilled staff like **Craft Operatives** who are able to provide knowledge and experience.

Hear from one of our Craft Operatives:
www.youtube.com/watch?v=htBliclGqw0

It makes sense to **hire** certain contactors such as scaffolders, as they may not be required all year round. They also have their own equipment and safety certificates.

The scaffolding contract for Knowle Winter Works cost: **£7,700!**



Great Work!

As you can see, teamwork is very important in large engineering projects. We work together to solve problems and get the job done.

Each project is a careful balance of requirements, safety, costs and conservation.

Make a budget **spreadsheet** for the project costs we have found out so far. What other items might appear on the spreadsheet?

