

# THE HELIX CANAL PROJECT

## PROJECT DESCRIPTION

The Helix is a multi-phase development to regenerate an area between Falkirk and Grangemouth offering enhanced recreational facilities and included a 1km canal extension, incorporating locks, to provide improved access to the Forth estuary.

Based on the concept of creating local green space that connects and engages the local communities, the multiphase scheme has transformed 300 hectares of under-utilised and industrialised land between Falkirk and Grangemouth to become a major visitor attraction for both local and national visitors, featuring iconic 100ft Kelpie sculptures.

Sweco acted as the lead designer delivering a multidisciplinary design. The design services included the creation of a new 65m underbridge to the M9, taking the canal below a major trunk road, while keeping all traffic lanes open. A new lift bridge over the new canal extension at Glensburgh Road in Falkirk was also created to allow larger craft to pass along the canal. Sweco was also responsible for coordinating all service diversions and drainage works required to form the canal as well as producing the foundation design for the 300 tons Kelpie structures.

## PRIMARY SERVICES

- Road Geometry
- Earthworks Design
- Road Drainage Design (including SUDs)
- Pavement Design
- Streetscape Design / Public Realm
- Car Park Design
- Site Supervision
- Design of Bridges / Structures
- CDM 2015



### CLIENT

Balfour Beatty Construction Ltd / The Helix Trust (Ultimate)

### AWARD

Saltire Society 2014 Civil Engineering Award.

### LOCATION

Falkirk, Scotland

### OTHER FACT

Officially recognised for its excellence in Scottish civil engineering awards ceremony at the National Museum of Scotland.

### DATE

2012 - 2013

### VALUE

£13.5 million



## KEY ASPECTS

Extensive stakeholder engagement, including adjacent contracts, to understand aspirations and risks to project delivery and enable realistic and robust programming.

Consultation with Road Authority during local road design process to gain consents.

Management of sub-consultants responsible for the design of the Kerse Road lifting bridge to maintain existing road network.

Modelling of flood defences to protect the site and adjacent housing through the provision of bunding, reinforced concrete walls, moveable barriers and flood storage areas.

Management of public utility diversions (including large diameter water main serving commercial operations within Grangemouth) to meet programme.



Early ground investigation to inform the design of support bases to Kelpies sculptures requiring deep piling in soft ground conditions.

The judges commended The Helix for its involvement with a wide range of stakeholders from the conception to design stage, and also for the positive benefits the scheme has delivered to the local community, economy and environment.

## LESSONS LEARNT

Detailed collaborative planning is essential to ensure co-ordination across multi-disciplinary activities during the development of complex projects.



## DETAILS OF SERVICES PROVIDED

**Road Geometry** – design of access roads to DMRB and Falkirk Development Guidelines.

**Earthworks Design** – design of earthworks, flood defences, structural foundations and soft landscaping in accordance with DMRB including preparation of 600 Series Specification Appendices (MCHW).

**Pavement Design** – preparation of DMRB restricted pavement design and associated 700 Series Specification Appendices.

**Road Drainage Design (including SUDs)** – liaison with SEPA to develop attenuation and treatment measures for new tidal outfall associated with new drainage networks.

**Streetscape Design / Public Realm** – design of access routes to enable access for all including specification of hard and soft landscaping (MCHW).

**Car Park Design** – delivery of design associated with visitor parking at the Kelpies.

**Site Supervision** – monitoring of site works to ensure compliance with design requirements.

**Design of Bridges / Structures** – preparation of detailed design of M9 motorway underbridge, 1km of sheet piling for canal works, Kerse Road lifting bridge substructure, piling and base support for Kelpies sculptures and two canal lock structures to DMRB standards all in soft ground conditions.

**CDM 2015** – provision of as-built information and maintenance manuals for inclusion in the Safety File.