

Policy into Practice

Denbigh Flood Risk Management Scheme

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Coastal and Fluvial Engineers

Denbigh Flood Risk Management Scheme

DENBIGH: County town of Denbighshire, North Wales

PROBLEM

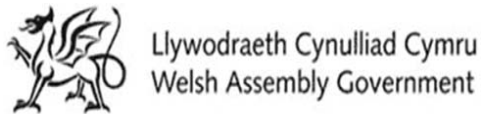
- Ordinary watercourse flowing through urban area
- Culverted on an ad-hoc basis over past 200 years
- Poor structural condition
- Limited maintenance regime
- Extensive commercial & residential development
- Regular and severe flooding
- 226 residential and 26 commercial properties at risk



Denbigh Flood Risk Management Scheme



Promoted by Denbighshire County Council



Grant aid from Welsh Assembly Government



EU Convergence Funding



Designed and supervised by MWA



Constructed through a contractor framework



- GallifordTry
- McPhillips
- Barhale



Denbigh Flood Risk Management Scheme

SCHEME OBJECTIVE

To significantly reduce the **RISK** posed by flooding in Denbigh

where **RISK** is...

**LIKELIHOOD OF
FLOODING**

X

**CONSEQUENCES OF
FLOODING**

Denbigh Flood Risk Management Scheme

TRADITIONAL

- 1) Improve existing infrastructure

NEW APPROACHES

- 1) Improve infrastructure
- 2) Increase built environment resilience
- 3) Raise public awareness
- 4) Enhance community resilience
- 5) Improve flood warnings
- 6) Better land use management
- 7) Improve emergency response/recovery
- 8) Develop better asset management
- 9) Collaboration with key stakeholders
- 10) Protect/enhance the environment

Denbigh Flood Risk Management Scheme

LIKELIHOOD OF FLOODING

X

CONSEQUENCES OF FLOODING

- 1) Improve existing infrastructure
- 2) Better land use management
- 3) Develop better asset management

- 1) Increase built environment resilience
- 2) Raise public awareness
- 3) Enhance community resilience
- 4) Improve flood warnings
- 5) Improve emergency response and recovery

Denbigh Flood Risk Management Scheme

LIKELIHOOD OF FLOODING

X

CONSEQUENCES OF FLOODING

- 1) Improve existing infrastructure
- 2) Better land use management
- 3) Develop better asset management

- 1) Increase built environment resilience
- 2) Raise public awareness
- 3) Enhance community resilience
- 4) Improve flood warnings
- 5) Improve emergency response and recovery

Denbigh Flood Risk Management Scheme

IMPROVING EXISTING INFRASTRUCTURE

- 1,440m of new pipes and culverts ranging in size from 300mm to 2.1m x 1.0m
- Combination of open cut and tunnelling
- 635m of watercourse reprofiling and improvements
- Repair of existing culverts
- New screens
- New flood storage areas

Denbigh Flood Risk Management Scheme

INCREASING BUILT ENVIRONMENT RESILIENCE

- Predicting and ‘managing’ the route of overland flood flows (constructing walls, altering kerblines, reprofiling carriageways, etc.)
- Identifying and protecting key infrastructure (sub-stations, emergency routes, etc)
- Domestic improvements (increased thresholds, altering air bricks, tiled floors, raised electrical sockets, etc)
- Developing SuDS (large residential developments to individual water butts)



Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS



Denbighshire Flood Awareness Event

Saturday 12 Sep 2009

Local Authority

Environment Agency

Emergency Services

Private Sector

Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS



Public Exhibitions

Local libraries

Town Hall

Shops



Community events

Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS

DENBIGH FLOOD RISK MANAGEMENT SCHEME

Martin Wright Associates
Coastal and flood risk management engineers



CATEGORY
Fluvial

KEY FEATURES
Project Appraisal Report
Catchment Modelling
ISIS Hydrological Modelling
CDMC
Project Management
Engineering Design
New Approaches to Flood Risk Management
Site Supervision

PROGRAMME
Commencement – January 2009
Planned completion – April 2011

CONTRACT VALUE
£5 Million

CLIENT
Denbighshire County Council

CONTACT US
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Unit 1,
Lea Hall Farm Buildings,
Lea Hall Lane,
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Chester,
CH3 6JQ

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mail@martinwrightassociates.com

DENBIGH FLOOD RISK MANAGEMENT SCHEME

Denbigh is a small market town surrounded by the agricultural land of the Vale of Clwyd and situated some thirteen miles inland from the coastal town of Rhyl. Historical records, personal experiences and detailed hydraulic modelling indicate that over 250 properties in Denbigh are at risk of flooding with the degree of risk varying from location to location. In the Lenten Pool area of the town several properties have suffered flooding on a regular basis over many years. The main source of flooding is from ordinary watercourse, known locally as Henllan Brook, which runs through the town. The brook has been culverted on an ad-hoc basis over the past two centuries as the town has expanded and been developed. Many of the culverted lengths are hydraulically inadequate and some critical lengths are also structurally unsound.




In January 2009 Martin Wright Associates were appointed by Denbighshire County Council to undertake the Project Appraisal Report (PAR) the preferred solution would be a cost effective balance between the reduction in flood risk that could be achieved through:

- traditional infrastructure improvement works
- works that can be carried out to 'manage' and control residual flooding
- improving flood warning, awareness and resilience and through effectively managing assets.

Following the successful submission of the PAR, MWA were appointed to undertake the detailed design and prepare the contract documentation in July 2009.

The scheme proposals will see the construction of flood storage areas in the upper catchment, the construction of new culverts at various locations in the town and the improvement of certain lengths of the watercourse. This will be further enhanced by utilising some of the 'New Approaches' initiatives such as awareness raising and localized resilience building. A combination of all of these elements will effectively provide a level of protection of at least 1:100 years (plus 20% allowance for climate change).

Phase 1 of the contract was awarded to Morrison Construction and works commenced on site February 2010.



www.martinwrightassociates.com

Press & Publicity

Press releases

(convergence funding, scheme award, construction start, Ministerial visit)

Leaflets, letters and newsletters

Factsheets

Political briefings

(Community Councillors, County Councillors, Assembly Minister, Assembly Member, MP)

Scheme branding

(scheme sign board, etc)

Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS

Denbigh

Flood Risk Management Scheme



[Home](#) [News](#) [Background](#) [Proposals](#) [Timescales](#) [FAQ](#) [Useful Links](#) [Contact](#)

Welcome

This website is being developed to keep you up to date with progress on the Denbigh Flood Risk Management Scheme. You can explore the site to find out why the scheme is happening and exactly what is being done to reduce flood risk in the town.

As work progresses, new information and updates will appear and you will be encouraged to use the site to ask questions or to comment upon the scheme.



Oblique aerial view of Denbigh looking North (picture courtesy of Google)

CONTACT DETAILS

If you would like to talk to someone about any aspect of the scheme, please contact Martin Wright Associates on 01244 677856 or email: mail@martinwrightassociates.com

KEY FACTS

SCHEME PROMOTED BY:
Denbighshire County Council

FUNDED BY:
Denbighshire County council
Welsh Assembly
Government
EU Convergence Funding

PREMISES AT RISK OF FLOODING:
226 residential
26 commercial

ESTIMATED COST OF SCHEME:
£4.1 MILLION

TIMESCALES:
Feb 2010 - Phase 1 works
Apr 2010 - Phase 2 works
July 2010 - Phase 3 works
Apr 2011 - Completion

OBJECTIVE:
To significantly reduce the risk of flooding in Denbigh.



Website

www.denbighflood.co.uk

www.llifogydddnbych.co.uk

Latest news

Background information

Proposed works

Timescales

FAQs

Advice

Contact details

Feedback

Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS

Working with schools

- Talks and interactive sessions
- Relating the scheme to the curriculum
- Questionnaires to take home to parents
- Competitions and prizes
- Site visits
- Weather centre
- Visualisations





Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS

How do you measure how effective it is?

Getting a baseline and monitoring improvements using ACTIVOTE



Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS

What is Floodline?

- a) A weather forecasting service
- b) A service you can order sandbags from
- c) A free service that provides flood warnings direct to you by telephone, mobile, email or text message
- d) A local plumbing service
- e) A length of rope that you can throw to someone who is drowning
- f) A local takeaway

Floodline
0845 988 1188

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VOTE NOW

Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS

Could you be affected by a flood?

- a) I don't think so - we've never been flooded before
- b) No, we live on a hill
- c) Yes, but what can I do about it
- d) Yes, but I have prepared. I have a flood plan and I know what to do to minimise the risk
- e) I don't know
- f) No, I keep a boat in the garage

Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS

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RAISING PUBLIC AWARENESS

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Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS

Flood kits – what is in them?

Flood plans – what are they and where are they?

Maintenance responsibilities – who does what?

Provision of sandbags – where do I get them from?

Playing in watercourses & culverts – what are the dangers?

Flood risk – how do I find out more?

Flood maps – what are they and where are they?

Denbigh Flood Risk Management Scheme

RAISING PUBLIC AWARENESS

How do you measure how effective it is?

**LIKELIHOOD OF
FLOODING**

X

**CONSEQUENCES
OF FLOODING**

1% risk reduction?

5% risk reduction?

10% risk reduction?

25% risk reduction?

How long lasting is a public awareness campaign?

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