The Glencorse Water Project

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CIRIA Presentation - September 2013

Glencorse Project
Presentation Summary

1. No surprises
2. Deliver a blueprint for handling large scale projects
3. No surprises
4. Maintain delivery programme
5. Enhance reputation of Scottish Water & partners
6. No surprises

Presentation Overview

1. Review of location of WTW and pipelines
2. Assessment of main issues
3. Partnership of Scottish Water and Black & Veatch
4. Communication Methods
5. Customer DVD
History of Water - 1912

History of Water – 2007
Why is Glencorse WTW required?

1. Existing water treatment works reaching the end of their working life
2. To allow Edinburgh to grow

Strategic Objectives of Glencorse Project

1. Improvements to Water Quality
2. Long term strategic solution for supply of Edinburgh’s water
3. Release of development constraints
4. Replace ageing assets
5. Provide a 21st Century asset

Securing Edinburgh’s Water Supply For Future Generations
The Need for Change

- Alnwickhill WTW and Fairmilehead WTW cannot provide drinking water to the required high standards

- This investment is necessary to improve the quality of Edinburgh’s water and to meet the needs of future development in the city
The Options

- To build a new WTW at Fairmilehead incorporating the treatment capacity of Alnwickhill WTW
- To build a new WTW at new site location in Midlothian incorporating the treatment capacity of Fairmilehead WTW & Alnwickhill WTW
Fairmilehead Option

- The new WTW would be built within the boundary of the existing site
- The area available is very small
- The new WTW would be very large and proximity to existing neighbours would be an issue
- Excavation work would be carried out and spoil would have to be taken off site via hundreds of lorry movements
- Existing WTW would need to be maintained without interruption whilst new WTW is constructed

New Site Option

- We would use raw water from the existing aquaduct mains and deliver treated water back into the existing distribution network by gravity
- The search area was determined by the proximity of infrastructure and hydraulics
- Land availability, the slope & elevation of the site and road access were key factors
You want to put it where?
Five new sites in Midlothian identified
Overall Site Selection

- Six separate sites subject to identical study & evaluation
- Engineering, Environmental & Economic factors considered

Detailed Site Selection

- Wide consultation process carried out
- Utilised a combination of inhouse engineering teams and external experts
Further Analysis

- Site Selection subject to rigorous review and verification
- All material made available following announcement
- Recommendation reviewed by Independent Consultants
- Recommendation made to Board in April 2007

Scottish Water’s Preferred Site

- Glencorse
- New Development Area E
- Located north of Belwood Road & Mauricewood Road near Penicuik and close to the A702
- Site Selection approved by Board in May 2007
- Decision announced in June 2007
1. Involvement, D&B, commitment, investment, previous experience, partnership.
2. Benefits, knowledge for design and construction and delivery
Benefits of Glencorse

1. Engineering: Proximity to existing infrastructure. Water quality can be improved without compromising existing assets or levels of service.

2. Sustainability: New site requires less vehicle movements, less CO2, less pumping power. Accommodates need for more recycling of materials & less waste.

3. Environment: New site allows best opportunity for screening and environmental enhancement.

4. Flexibility: The new site solution will give Scottish Water the flexibility to provide more water and wastewater services to more places in future.

5. Economics: The whole life cost of the new site option is significantly less than FMH option.

A More Sustainable Solution.
Glencorse - Announcement

- Public announcement June 12th 2007
- 1150 letters & leaflets sent out
- www.scottishwater.co.uk/edinburghwater
- Press Coverage

EDWP: Press

Tues 12th June 2007
SW Announcement
Edinburgh Evening News

Glencorse to be source of city’s £60m waterworks

ADAM MORRIS
adamr@edinburghnews.com

A £60 million pound water treatment works for Edinburgh is to be built in Midlothian.

Scottish Water announced today that it would close treatment facilities at Fairmilehead and Hawthornhill in favour of moving wholesale to Glencorse. Subject to planning permission, it is hoped work on the £60 million project will start next spring and be complete by 2010.

Water bosses, who look set for a windfall through the sale of prime land at the two current sites in the south of the city, said today that the new plant would result in a drastic improvement in the quality of drinking water in the city.
'Water purity scheme must be given go-ahead'

It didn’t take long for the predictable objections against Scottish Water’s plan to expand a works at Carad in and they should not be allowed to delay the new £60 million water treatment facility near Glencorse needlessly.

While no citizen or organisation should be denied the ability to lodge objections to any development, a balance has to be struck over what is seen as reasoned protest.

That one or two have individual gripes should not be seen as legitimate grounds for halting a scheme with a major impact on the lives of thousands.

The dock is ticking against Scottish Water in its race to upgrade the city’s drinking water in time to meet tough new quality controls. There is nothing wrong with the purity of the supply, but as thousands of consumers are only too well aware, in some areas the taste and colour leave a lot to be desired.
Sustainability

- Stakeholder Management
- Community Involvement
- Environmental Awareness
- Landscape Design
- Carbon Footprint
- Innovations
- Renewable Energy
- Education
The Plan

Comms Plan

- Stakeholder mapping
- Relationship Managers accountable for all stakeholders
- Key messages
- Internal Communication Plan
- Media management
- Intelligence & drivers for stakeholders & groups
- Customer Project Champions for Call Centre
- Calendar of events/briefings
- Partnership approach throughout

Project Website

- Will be open with content & sharing information
- Will be used to ease burden on Councils, Stakeholders & Scottish Water
- Will establish dedicated 'mini-site', linked from Scottish Water website
- Will be used for web-based consultation

Stakeholder Contact

Jeremy Purvis MSP
Rhona Brankin MSP
David Hamilton MP
Midlothian Council Planning Department
Midlothian Councillors, Wards 1 & 4
City of Edinburgh Council, City Development
Pentland Hills Regional Park
Friends of the Pentlands
Penicuik Schools
Scottish Natural Heritage (SNH)
Scottish Environmental Protection Agency (SEPA)
Historic Scotland
Community Councils (Damhead, Penicuik & District, Liberton and Fairmilehead)
Penicuik Community Development Trust
Waterwatch Scotland
Local Residents, landowners & tenants
Various landowners along pipeline route
Newspapers & Local Radio
Midlothian Enterprise Trust
Edinburgh & Midlothian Chamber of Commerce
Project Website

Clear Communication

- Over 1150 copies sent out
- Available to download on website
Vision Statement / Brief

‘...Scottish Water wishes to promote the new works as an innovative, intelligent and low impact development.’

‘The siting of the new works... will be sympathetic to the local environment and community.’

‘... architectural and landscape design ... to the highest standard.’

‘The project will be informed by and establish water industry best-practice in sustainability...’

‘...ensure that the works are cost-efficient and environmentally and socially responsible over their whole life...’

B&V up to this point

1. Involvement, D&B, commitment, investment, previous experience, partnership.
2. Benefits, knowledge for design and construction and delivery
3. Next steps involved speaking with stakeholders to share aspirations of all .....  
4. Important to optimise design progress
5. Clear stance of Client & Contractor
Volume & massing

Industrial Volume
- Pros: Easy to maintain, cost-effective, reduces the need for additional green space.
- Cons: Large scale, can often lead to negative visual impact and reduced biodiversity.

Agricultural Volume
- Pros: Can provide additional income through crop production, reduces waste and can help in carbon sequestration.
- Cons: Requires significant land area and can lead to loss of green space.

Residential Volume
- Pros: Can help in reducing urban heat island effect, provides an aesthetic appeal.
- Cons: Requires careful planning to ensure the balance between development and green space.

Landscape’s role

Boundary Hedging
- Pros: Provides privacy, reduces noise, and can help in reducing wind speeds.
- Cons: Requires regular maintenance and can lead to increased weed growth.

Local Boundary Hedgerows
- Pros: Provides a visual barrier, reduces noise, and can help in reducing wind speeds.
- Cons: Requires regular maintenance and can lead to increased weed growth.

Buffer & Deciduous Hedgerows
- Pros: Provides privacy, reduces noise, and can help in reducing wind speeds.
- Cons: Requires regular maintenance and can lead to increased weed growth.

Earth Mounding
- Pros: Can help in reducing soil erosion, provides a natural barrier, and can help in reducing noise.
- Cons: Requires regular maintenance and can lead to increased weed growth.

Green Roofing
- Pros: Can help in reducing urban heat island effect, provides an aesthetic appeal, and can help in carbon sequestration.
- Cons: Requires significant maintenance and can lead to increased water runoff.

Partial/Full & Green Roofs
- Pros: Can help in reducing urban heat island effect, provides an aesthetic appeal, and can help in carbon sequestration.
- Cons: Requires significant maintenance and can lead to increased water runoff.
Landscape as-art

Green Roofs
Landscape Principles

- Visual integration and a good landscape fit
- Improve biodiversity with new habitats
- Sustainable use of materials

Grasscrete
Murrayfield training pitches
Netlon
Charles Jencks – GOMA Edinburgh
Geogrid – recycled plastic

Hard Landscaping

Grasscrete
Murrayfield training pitches
Netlon
Charles Jencks – GOMA Edinburgh
Geogrid – recycled plastic
Soft Landscaping

Boundary Landscaping
Community Involvement

- Result - Planning Consent was achieved in 10 weeks.
- Similar project in Glasgow took 2.5 years
Stakeholder Management

- Dedicated Communications Plan with regular review
- Tailoured Web pages within Scottish Water website
- Meet the Team Events
- Quarterly e-newsletters to VIP list
- Community Forum with site visits
- Project Champions within Call Centre
- Community involvement with Charities & Groups
- Education Programme
Meet The Team Sessions

- Local residents invited to meet the people involved in the project.
- Actions recorded and summary distributed to locals.

Making Contact Easy

- All correspondence contains our contact details.
- Contractor carries calling cards.
- Project Champions in Scottish Water’s Contact Centre.
Recording and Acting on Feedback

- Register to record all enquiries about the project.
- Details logged and outcomes recorded.
- Provides intelligence on customer contacts.

Greenfield site selected near Penicuik for a new WTW to supply Edinburgh, replacing two Victorian WTWs
Glencorse WTW location was chosen to allow it to be gravity fed from reservoirs 30km away in the Scottish Borders. In turn, the WTW feeds Edinburgh by gravity with no need for energy-intensive pumping.
Key Project Facts

- New water treatment works for Edinburgh
- Scottish Water’s largest ever Capital Project
- £130m budget
- Will provide drinking water for up to 450,000 people
- Maximum Capacity of 175MLD (175,000,000 litres per day)
Stakeholder Management Opportunities

- CocoDaff
- Roman Marching Camp & Archaeological finds
- Grass Roof, wetlands
- Hydroturbine
- Plastic Pipe production
- Pipejacking under City By-pass
- Community involvement - volunteering
- Educational visits
- Awards

Glencorse Grass Roof

KEEP OFF THE GRASS
Green roof on Main Treatment Building

Roof was harvested at Turf Farm near Loch Leven

Local Investment
Glencorse in the news…..

**Keeping it Local**

- Scottish Larch from a sustainable source used for wood cladding
- Concrete batching plant within 2 miles
- Local subcontractors and labour used
**Technical Innovations**

**COCODAFF – Comparison Of Footprint**

- FLOCCULATORS FOR COCODAFF
- DAF PLANT
- RGF
- COCODAFF

**Innovative Water Treatment Process**

**CoCoDAFF: Counter Current Dissolved Air Flotation & Filtration**

Rapid Gravity Filter and Dissolved Air Flotation combined into one unit.

Benefits:
- Efficient use of space
- Reduces building footprint
- Capital savings
Summary of Sustainability - Economic

During Construction:
- Local sub-contractors and labour
- Locally sourced materials where possible

Long Term:
- Project reduces development constraints by providing increased capacity to supply water
- Adding to the tourism experience by providing a high quality drinking product

Summary of Sustainability - Environmental

During Construction:
- 75% of excavated soil retained on site.
- Mobile pipe production plant.
- Locally sourced materials and labour used where possible.

Long Term:
- Site selection allowed Edinburgh to be gravity fed.
- Inclusion of Scotland’s largest green roof and additional habitat areas.
- Hydro-electric turbine to generate electricity.
Summary of Sustainability – Social

During Construction:
- Education Programme
- Community Work

Long Term:
- Minimal impact on neighbours and users of Pentlands Park

Environmental Impact Assessment

- Assessment carried out to understand impact on wildlife, plants, air quality, habitats etc.
- Mitigations and monitoring put in place e.g. pipeline route changed to avoid badger setts
Spoil

- 430,000 m³ of spoil generated
- 2 fields approx 5ha for interim storage.
- Resulted in minimum HGV movements and restrictions.
Archaeology Open Day

170 locals came along to see WWII camp discovered on pipeline route.
Technical Innovations

Mobile Pipe Production concept

WORLD FIRST: Mobile Pipe Production at Glencorse

- Site based pipe factory manufactured 15km of pipe
- Allowed extra long pipe sections to be made
- Massive reduction in vehicle movements, carbon footprint as well as time & cost savings
Pipeline Route to Damhead
Tunnelling Operation at Bypass

Concrete Pipes

Hydraulic Ram

Digging Arm
Technical Innovations

Hydroturbines

Green Energy

The hydro turbine generates the power required to run WTW.
Education

- Primary
- Secondary
- Graduate/Post Graduate

Education Programme

Over 500 young people visited the site over three years:
4 Primary Schools
2 High Schools
3 Universities

1000 student visits
Primary school programme has covered various topics including Health & Safety in construction, water treatment, water pollution and the environment.
Excellence
Legacy

“It is rare for school children to take part in a project of this scale and importance, on their own doorstep from its beginning to its completion.

“Such inspiration will leave a living legacy for Glencorse, here in Midlothian.”
Moira Brady, Head Teacher, Cornbank Primary School
Inside the Clear Water Tank

Example of Feedback - Seagull Problem -

Hawk Kites
Internal Communications

- 50 people within Scottish Water who contribute to success of project.
- Without excellent internal consultation results could be 50,000 – 200,000 people experiencing interruptions to supply.

When staff are customers too.....

- Work carried out in proximity of Scottish Water’s Edinburgh Office.
- Traffic management on Biggar Road for 12 months.
- Temporary carpark provided
Volunteering in the Community

Refurbishment of picnic area in Pentland’s Park

Creation of Community Garden at Dick Vet School

Fundraising for local charity
Success

Glencorse Video
Thank You