

# Rainwise

## Sustainable Drainage Solutions

Working with communities to  
manage rainwater

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**Gibside View, Winlaton,  
Gateshead**



Gibside View is located in the community of Winlaton, Gateshead. The area is predominantly residential, served by a separate system of drainage and occupying an elevated position overlooking open fields to the south east which fall steadily towards the River Derwent.



Figure 1: Location of Gibside View



Figure 2: Gibside View Area

Four properties in Gibside View had suffered internal flooding in recent years. Investigations into these incidents identified the cause to be incapacity of the surface water sewers in the area however, with the availability of green space nearby an opportunity existed to deliver a sustainable solution by retrofitting SuDS and enhance the environment.

In response to these investigations the relevant risk management authorities (RMA) of Northumbrian Water (NW) and Gateshead Council (GC) determined that the residents would be best served by a collaborative sustainable approach to reduce the risk of further repeat flooding.



GC is the Lead Local Flood Authority (LLFA) and owns the land in which the basin is located. The introduction of a surface water management scheme also provided the added benefit to GC of an improved highway drainage system.

#### SuDS used

At an early stage the RMA decided to maximise the social, environmental and financial benefits of the scheme by choosing to promote surface water management options rather than a traditional below ground tank storage system. The principle opportunity was to utilise a triangular area of open space for the location of an attenuation basin. The basin provides 360m<sup>3</sup> of surface water storage which, together with upsized sewers, provides property protection for up to a 40-year rainfall event. This approach was delivered by 2 components:

1. Upsizing of public sewers and the introduction of flow control measures
2. Use of public open space to create a surface water attenuation area.

The project comprised two phases. The first was the construction of 270m of new sewer in the size range 300-525mm diameter to increase the capacity of the local network.

The second phase involved construction of the storage basin, inlet and outlet structures and connections to and from the new sewer. The storage basin is located in land adjacent to the junction of Parkgate Lane and Park Lane.

#### How it works:

Surface water flows from the upstream areas of the catchment connect to a new 450mm dia sewer in Parkgate Lane. This sewer connects to an overflow chamber adjacent to the basin where low flows return to the sewer network via a 225 mm dia pipe. Flows in excess of this pipe's capacity are diverted into the basin for storage.

The basin has one inlet pipe, a 450 mm dia and one outlet, 225 mm dia, which returns flows to the network. Flow leaving the basin re-connects with the surface water system in Park Lane before turning to the south east, ultimately discharging into the River Derwent at Winlaton Mill.

The basin will normally be dry, only coming into operation during the larger storm events when the capacity of the old and new sewers is exceeded. The natural geology in the area is clay and therefore there was no need for a lining to the basin. The basin is designed for a maximum water depth of 1.0m.

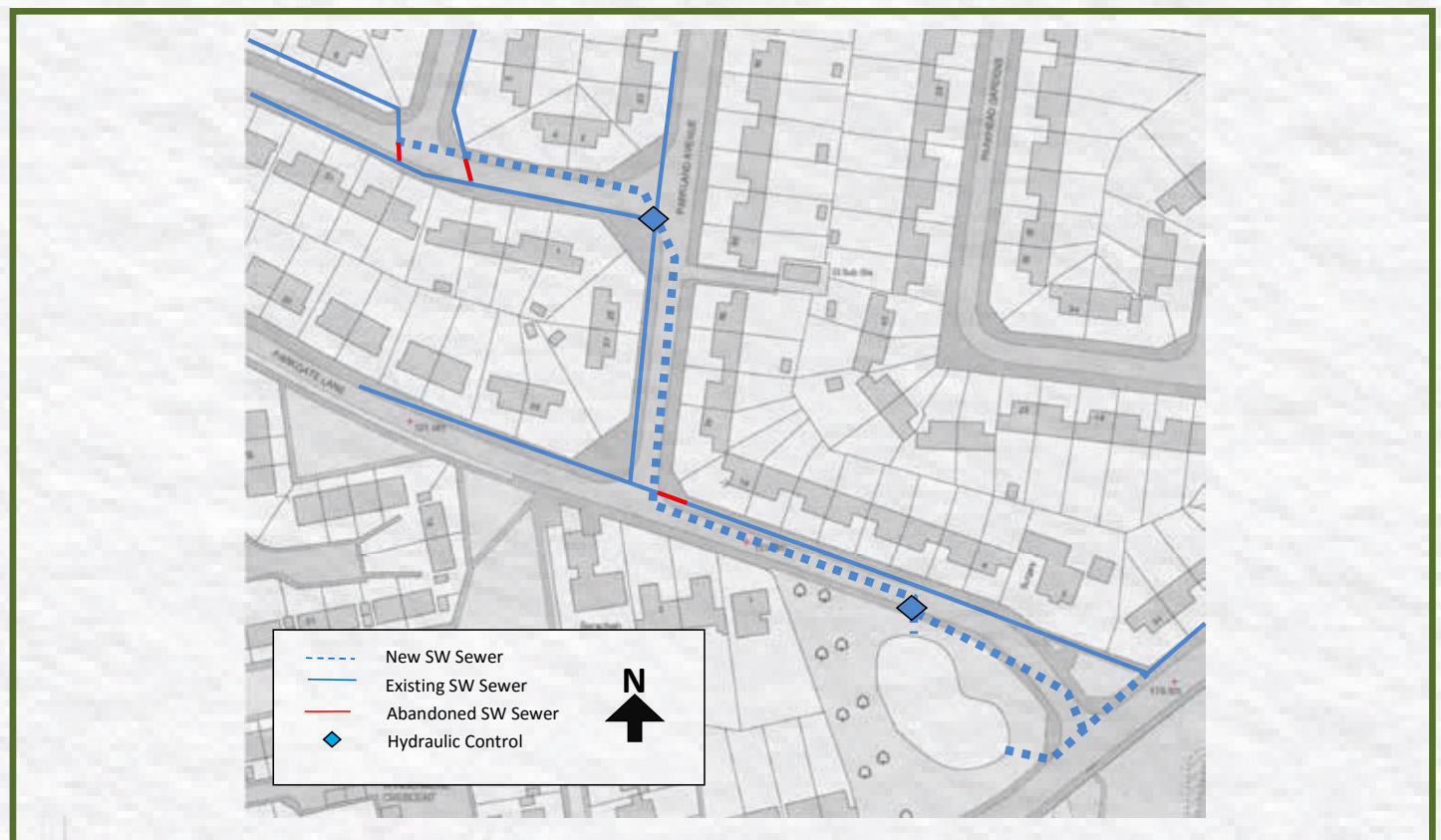


Figure 3: Schematic plan



Figure 3: Completed detention basin.

## Specific project details

The project team foresaw a high level of local interest in the scheme since the location of the basin was in an open area, in the heart of the community and close to the local school.

Key stakeholders were identified and the delivery team compiled a stakeholder engagement plan.

As well as briefing ward councillors who were important for local facilitation and corresponding directly with the residents a customer information session was held in the nearby school. This gave an opportunity to explain the proposals in more detail and proactively deal with any concerns or queries. The main questions raised in these forums focussed on concerns about the potential for anti-social behaviour in the dry basin.

## Maintenance and operation

NW's collaboration with GC enabled future operational and maintenance issues to be considered at an early stage. The public open space where the basin was constructed is owned by GC who were very supportive of the design principles. This ultimately led to an agreement that they would be responsible for future maintenance of the attenuation basin whilst NW would be responsible for the management and maintenance of the ancillary structures. The base and sides of the basin are grass covered with gradients 1 in 3 to allow safe maintenance and cutting.



## Achievements

In reducing the risk of predicted flooding in Gibside View the partnership of NW and GC has introduced a storage system which is unobtrusive and sympathetic to the local environment. The SuDS basin was located in an area of amenity grassland which had very few mature trees however this has been enhanced by a planting scheme which has helped it to blend in with its surroundings and establish new habitats.

One innovative element employed during the consultation process was the introduction of a frequently asked questions board for the customer event. It displayed the most likely asked questions, with answers, in an easy to read format. It satisfied some customers whilst for others it led to more detailed questions which event team fielded. The local school, Parkhead Community Primary School, has expressed an interest in conducting studies of the area in future to broaden their environmental curriculum.

## Challenges and lessons learnt

Whilst the majority of residents supported the proposals some concerns were raised regarding the size, depth and slopes of the basins however, these were overcome by engaging with the residents to explain and clarify the proposals thereby allaying their concerns. This demonstrated that public acceptance of SuDS features cannot be taken for granted and a comprehensive stakeholder engagement process is essential.

This project has added to the partners' understanding of how to present and negotiate proposals for sustainable assets including agreements on how they are maintained. It showed that negotiating stakeholder and customer buy-in for long term community benefits are at the heart of sustainable projects. This demonstrates that public acceptance of SuDS projects cannot be taken for granted and a comprehensive stakeholder engagement process is essential. It is therefore necessary to factor in sufficient time for persuasion and negotiation on SuDS proposals.

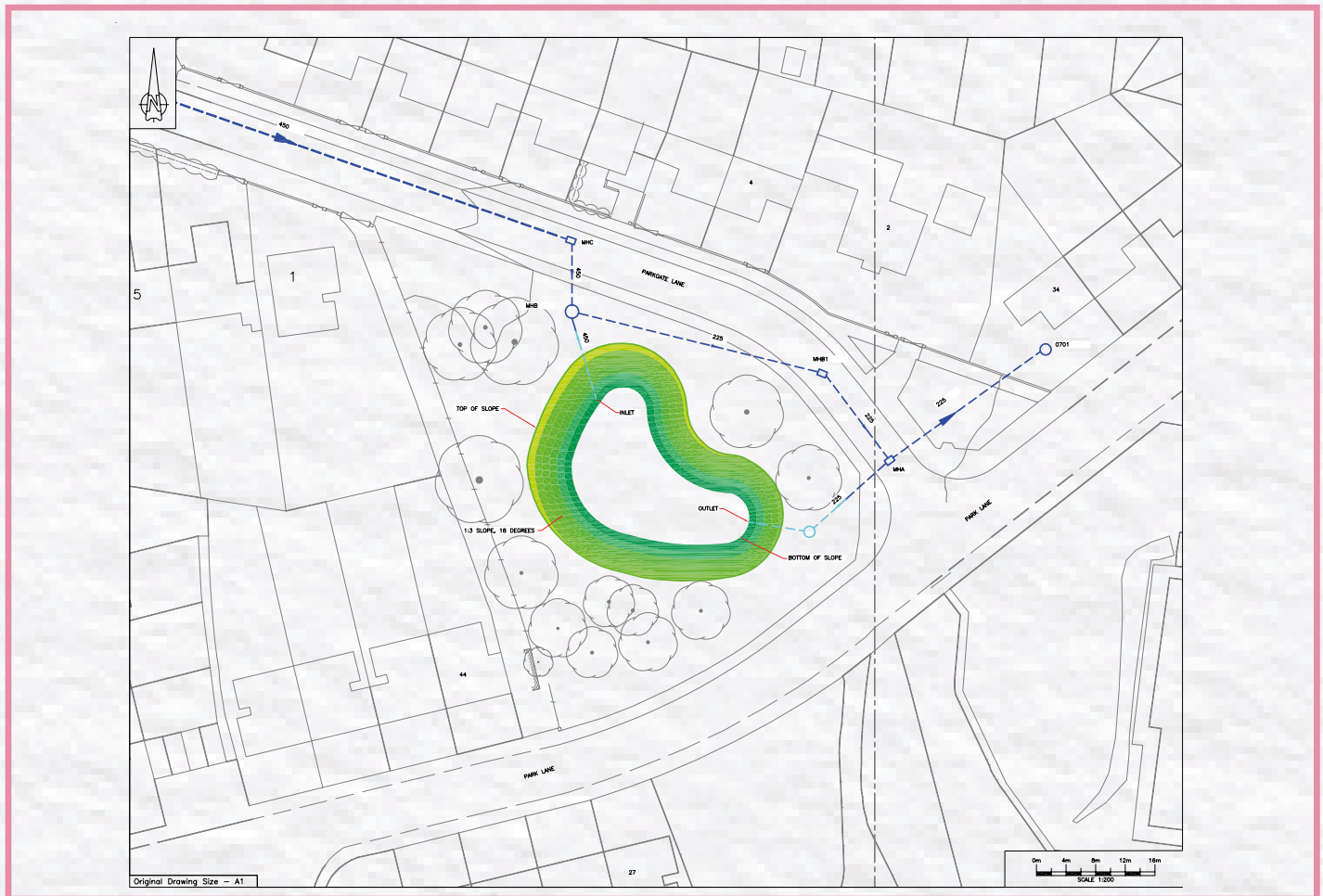


Figure 5: As built drawing



**Budget and funding**

The total cost of project was £587k of which £145k was the phase 2 works. NW designed and project managed both phases of the scheme and provided the funding. GC provided the land for the basin, its future maintenance, the support of members and officers and assistance with customer engagement.

**Project Team**

Risk Management Authorities

Northumbrian Water

Gateshead Council

Consultant Engineer

Amec Foster Wheeler

Contractor

Seymour Civil Engineering, Hartlepool

**Status**

The project commenced in January 2014 and with a short gap between phases was completed in late August 2014.

For further information please email [rainwise@nwl.co.uk](mailto:rainwise@nwl.co.uk).