

Halfway Community Park – Innovative SuDS Collaborative retrofit Large constrained development

Moss Heights also known as Halfway Park is located in, Cardonald, to the southwest of Glasgow city centre. The development (5.24 ha) was Glasgow Corporation's first experiment in the use of high-rise flats in 1953, comprising 263 homes reflecting an architectural philosophy of building modern, high-density housing surrounded by large, often inactive expanses of green space or 'green deserts'. The surrounding neighbourhood is a built-up area, with the prevalence of high-rise housing where there was a need for better outdoor facilities, and better use of underused open spaces.



Raingardens in front of the flats

The aim was to transform underused open space, (rated low quality by Glasgow City Council's open space audit) and create a new urban park which included: reconfiguring space, diverse planting, community growing/orchard areas, new paths, sustainable 'home zones', new recreation and play facilities and green infrastructure. This offers access to facilities and resources for all ages, aimed at encouraging people to develop more active lifestyles to improve health and wellbeing. Full planning consent was secured in 2015 and construction completed in 2020.

The proposal by Southside Housing Association, a registered charity (<https://southside-ha.org/>) offered the opportunity for Glasgow City Council to retrofit and integrate flood risk management measures as part of their surface water masterplan developed in collaboration with the Metropolitan Glasgow Strategic Drainage Partnership (<https://www.mgsdp.org/>). Retrofitting innovative BGI in the upper catchment with a focus on managing runoff in the many source control measures linked to site controls for storage/release at controlled rates to the combined sewer (also creating head room / capacity) meant that downstream flooding could also be addressed.

The topography of the development proved challenging, as the flats are located at the top of a steep slope. A variety of SUDS measures in series were introduced to manage runoff at source including raingardens, swales, pervious paving that discharges into either a geocellular structure to the east or a detention basin to the west of the development. A rainwater harvesting tank was implemented to

serve a Community Growing Area, allowing water to be stored and used as an accessible water supply for residents. Roof drainage has been disconnected from the combined system, now discharging to the basin for treatment and attenuation prior to discharge.

Implementation of source control provided the benefit of reducing storage size in site controls which was important as available space was limited on the constrained site. A series of shallow, gently sloping swales manage runoff generated from car parks behind the flats with pervious paving managing runoff generated by car parking areas adjacent to the flats. Raingardens serve paved areas to the front of the flats, which replaced access roads with 'home zones'. Runoff enters the raingardens via sheet flow through gaps between the kerbs (Figure X).

Exceedance flows are managed by the construction of a multiple purpose football pitch/sport facility linked to a detention basin, both providing additional flood storage with final controlled discharge into the existing Scottish Water network. The discharge rate is restricted to 12.9 l/s for the western catchment, with an attenuation volume of 421.5 m³ (243m³ [basin] + 28.5 m³ [raingardens] + 150 m³ [football pitch]). The eastern catchment discharge rate is 9.7 l/s, with an attenuation volume of 141.4 m³ (120.7 m³ [geocellular] + 20.7 m³ [raingardens]). Design storms accommodate 1 in 200 year plus 30% for climate change uplift.

The SuDS were designed to be low maintenance. Maintenance is undertaken by Southside Housing Association, as part of grounds maintenance. The Friends of Halfway Park Group will assist with routine maintenance activities (i.e., litter picking and re-planting if needed).

Lessons learnt: There will always be technical challenges associated with retrofitting SuDS but these can be overcome with a collaborative approach. The development was funded by a diverse range of organisations to achieve multiple benefits through the integration of drainage infrastructure with landscape design, enhanced greenspace and place making benefits to support regeneration. The pooling of resources and expertise meant that environmental improvement costs were shared and attracted additional funding opportunities. Collaborative working is successful with a protocol now in place that can be replicated in other areas across Glasgow. An additional benefit is runoff quality improvement by applying a SuDS management train approach. Although discharges are to combined sewer, the aspiration was always to ultimately create a blue/green link to the local watercourse.

Further information

Glasgow City Council: Planting Scheme to Improve Biodiversity at Community Park in Cardonald <https://www.glasgow.gov.uk/article/26480/Planting-Scheme-to-Improve-Biodiversity-at-Community-Park-in-Cardonald>

NaturScot: Halfway Community Park - The transformation of an underused, awkward to access and bland open space at Moss Heights into a community park <https://www.nature.scot/funding-and-projects/green-infrastructure-strategic-intervention/projects/gi-fund-projects/halfway-community-park>

Southside Housing Association, Halfway Community Park Development <https://southside-ha.org/new-development/halfway-community-park/>

susdrain 2020 awards, Halfway Community Park: https://www.susdrain.org/community/SuDSAwards2020/SuDS_Award_entries/Large_retrofit/halfway_community_park_glasgow_2020_awards.pdf