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Glasgow



## **Challenges of Retrofit Surface Water Management in Glasgow**

**Examples of retrofit surface water management in Glasgow using nature based solutions, and reflection on the challenges associated.**

**James Murray – MGSDP Manager**

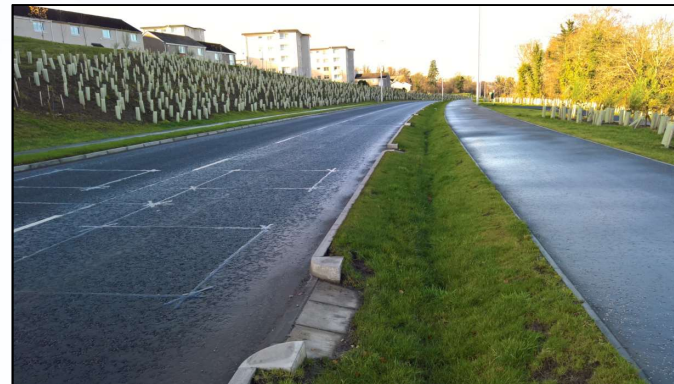
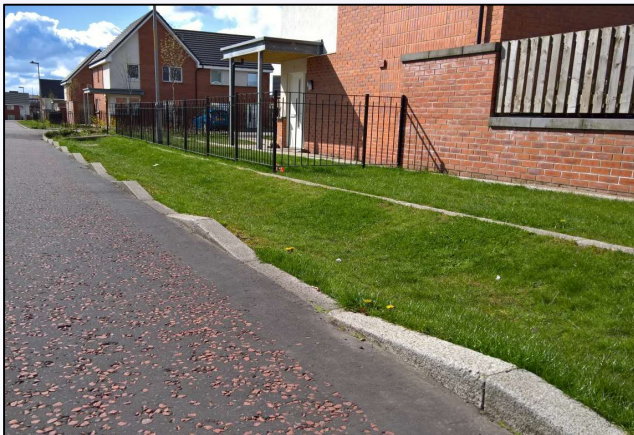


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# New Development

- ❑ Sustainable Drainage Systems (SuDS) mandatory (for more than one property).
- ❑ Easy to do minimum, but not easy to do it well using water nature based solutions.
- ❑ Easiest to do if an infrastructure first, blue-green, placemaking approach is taken, with early engagement.







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# New Development







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# Retrofit

## Clyde Gateway – Scotland's first Green Regeneration Innovation District



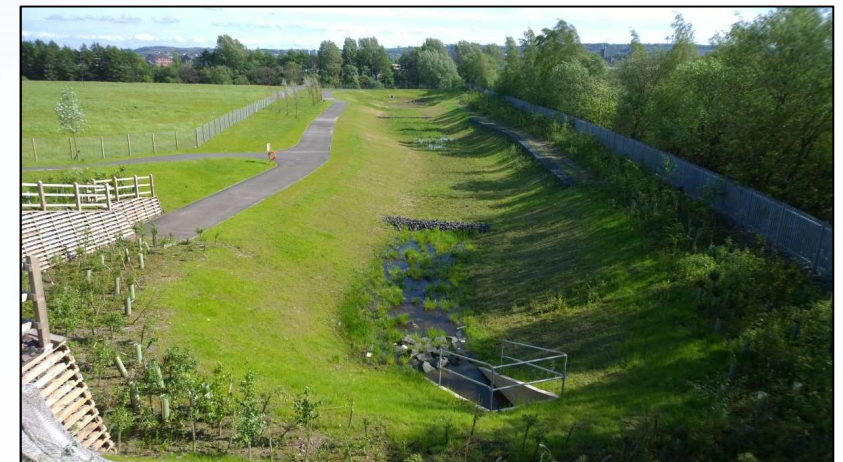
Carstairs Street



## Placemaking approach for multiple benefits



Colvend St



South  
Dalmarnock  
Regional  
SuDS Pond





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# Cardowan SWMP Croftcroighn Rd / Cranhill Park



Croftcroighn Rd



Croftcroighn Park



Cranhill Park

Retrofit SuDS for multi-functional greenspace.

Strategic surface water management.





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# Hillington SWMP Ph1 Moss Heights







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# South East Glasgow SWMP Highway Raingardens







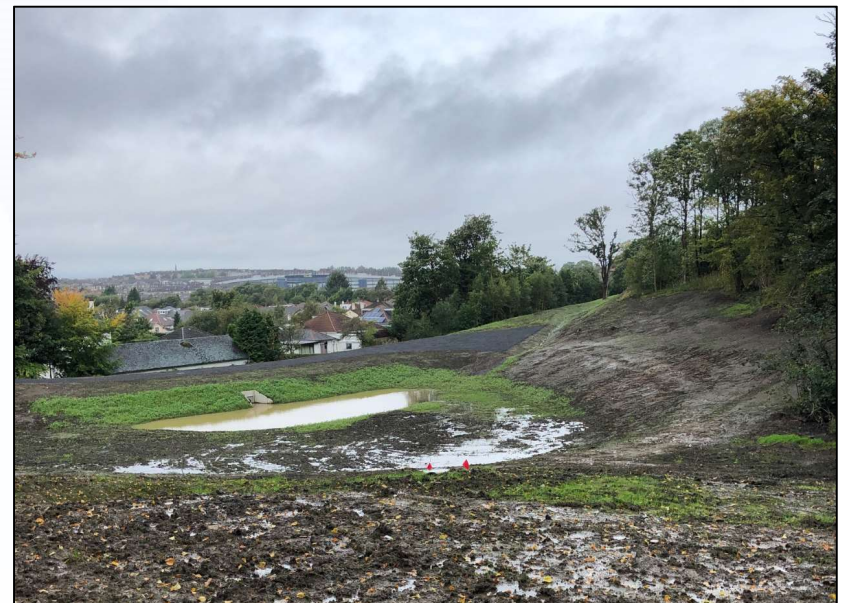
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# South East Glasgow SWMP New Watercourse and SuDS

Multi-functional greenspace.

Deculverted watercourse and SuDS basins.



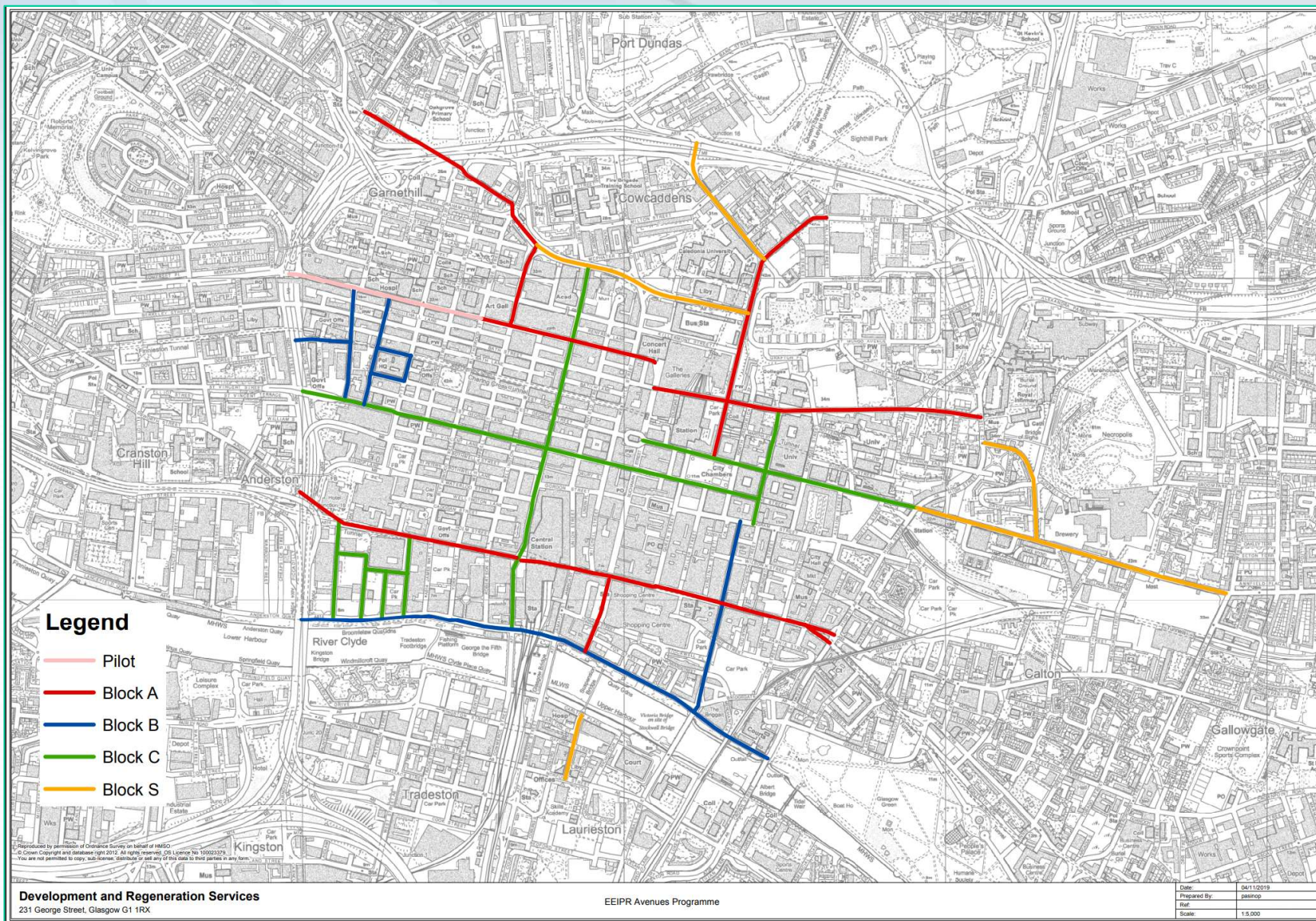




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# City Centre Avenues







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# Sauchiehall St Avenue



Before



Proposed



Now



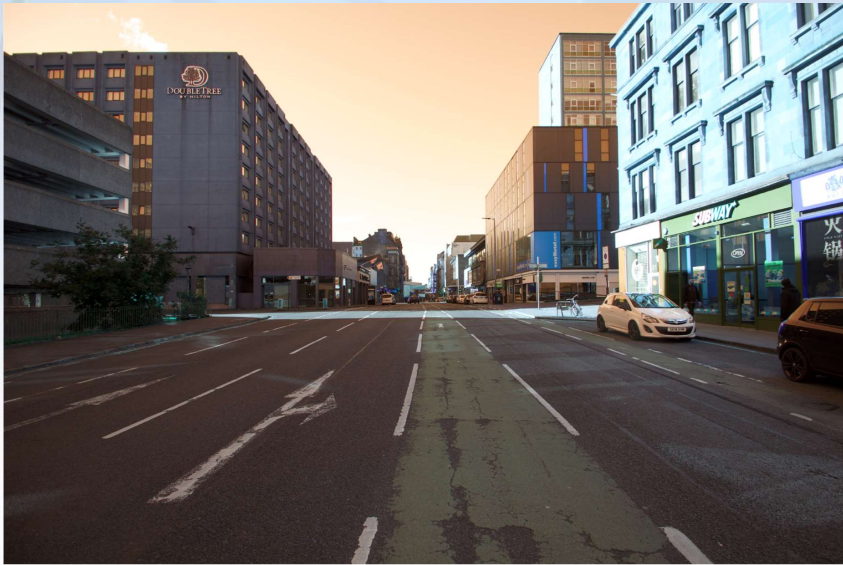




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# City Centre Avenues



Now

Future





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# Challenges

Stakeholder Buy-in

Delivery Model

What's Below the Surface?

Maintenance





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# Challenges

## Stakeholder Buy-in

- internal - engage, agree priorities, link to policy, seek collaborative opportunities, public sector must show leadership, and develop the concept with pilots;
- external - engage, understand perception of needs / priorities, personal impacts, concerns / risks;
- don't underestimate the resources required for meaningful engagement.

## Delivery Model

- retrofit is expensive - aligning multiple funders where possible (green infrastructure, active travel, sewer flooding, health, etc);
- design - how much contractor design, to ensure some ownership and flexibility on site;
- how is risk shared - increase funding or reduce scope.





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# Challenges

## What's Below the Surface?

- ❑ existing services - risk assess balance of investigation and diversion works before and during works;
- ❑ ground conditions - consider urban context, risk of contaminated soils and seek to minimise removal / disposal costs.

## Maintenance (Stewardship)

- ❑ what - engage with stakeholders and agree;
- ❑ who is best placed to undertake maintenance, balancing all the risks;
- ❑ funding - how do we 'value' the benefits, and who accrues these benefits?
- ❑ what happens if maintenance isn't done – does the concept fail?





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# Conclusions

Engage

Consider Risks

Retain Flexibility

Plan for the Future

Learn





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## **Challenges of Retrofit Surface Water Management in Glasgow**

**Thank You**

**James Murray – MGSDP Manager**