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Wellhouse Crescent Flooding SWM Opportunities Workshop 3

17th November 2021 | Scottish Water

Terms of Reference – Wellhouse Crescent SWM Opportunities – Mtg 3

DATE: 17th November 2021

VENUE: Microsoft Teams

CHAIR: Neil Beveridge

OBJECTIVES

Surface Water Management Opportunities have been identified to reduce flooding at Wellhouse Crescent in Glasgow. The objective of this 3rd meeting is to obtain feedback on the ongoing development of “quick win” interventions identified during the second SWM meeting. The meeting will also provide the opportunity to give updates on ongoing activities linked to the reduction of flooding in the Wellhouse HA area.

GROUND RULES

- Come prepared
- Minimise background noise (please go on mute when not speaking)
- Start and finish on time
- Respect everyone’s opinion
- Think proactively – What is best for Glasgow and not just your own needs
- Think outside the box and not what we have done before

INPUTS

- Hydraulic Model / GIS / Sewers and Watercourse / Background Mapping
- Hydraulic Model Results
- Current SWM intervention proposals
- Others, as required

OUTPUTS

- Stakeholder feedback on interventions discussed
- Meeting record circulated within 3 weeks of meeting
- Action log circulated to attendees

ATTENDEES

Scottish Water

Kieran Downey (Flooding Manager); Arshid Karim (Catchment Planner); Neil Beveridge (Value & Benefits Co-Ordinator); Martin Hagen (Intervention Manager); Annelies McMillan (Flood Risk Management Team Planner); Grant Vanson (Flood Risk Management Team Lead).

m²

Richard McGowan (Project Principal); Stephen Friend (Strategic Lead); Michael McWhinnie (Project Manager); Wayne Potter (Wellhouse Hydraulic Modelling Lead); Mairi Shaw (Graduate Civil Engineer); Fraser Hogg (Graduate Civil Engineer); Lan Lyu (Landscape Architect).

Glasgow City Council

David Hay (Engineering Group Manager); James Murray (MGSDP Manager); Brendan Frankgate (Group Manager, Transformation Projects); Mic Ralph (Transport Planning Manager); Catherine Scott (Natural Environment Officer); David Frew (Assistant Group Manager).

Wellhouse Housing Association

Maureen Morris (Community Representative); Alex Hogg (Maintenance Officer).

Green Action Trust

Rachel Howlett (Raingardens Development Officer)

Scottish Government

David Faichney (Policy Development Manager, Blue – Green Infrastructure)

Agenda

Time	Topic
10:00	WELCOME AND INTRODUCTIONS
10:10	REVIEW OF LAST MEETING ACTIONS
10:30	QUICK WINS – WELLHOUSE WEST AREA
11:00	BREAK
11:10	QUICK WINS – LANGBAR CRESCENT SSO
11:40	WELLHOUSE & NEWHILLS FLOODING PROJECT UPDATES
12:10	CONCLUSIONS AND ACTION PLAN
12:30	FINISH

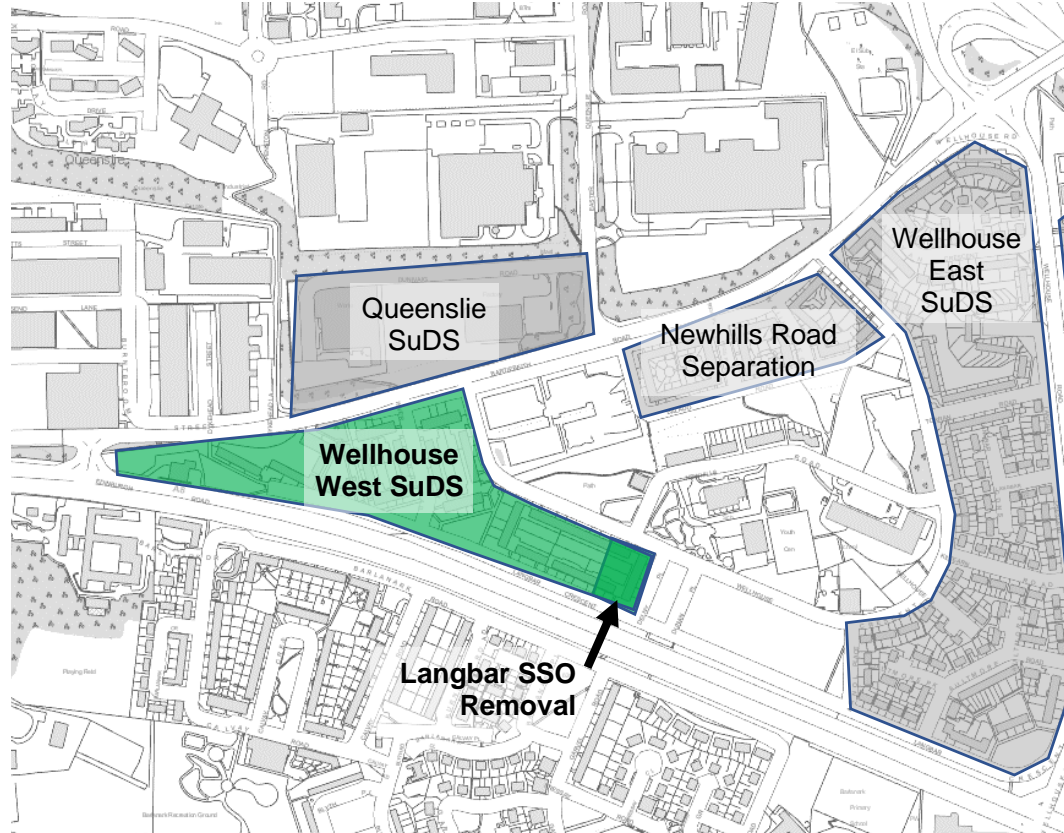
Workshop 2 – Action Plan

Action	Description	Owner	Status
1	Update engagement matrix.	MM	Completed
2	Quick win opportunities for surface water management to focus on Wellhouse west area. m² to progress discussions with Wellhouse Housing Association (WHA).	m ² /WHA	Option to be discussed during meeting
3	Langbar SSO – Detriment impact at Barlanark park to be investigated to understand impact on adjacent properties. Understand the flooding impact and how long flooding will remain. Recommendations for interventions to be identified.	m ² /SW/GCC	Detriment investigated Option to be discussed during meeting
4	Camlachie Burn – Opportunities for Surface Water Management Plan in woodland area at Barlanark Park (note environmental constraints e.g. badger set). Recommendations for interventions to be identified.	m ² /SW/GCC	Ongoing
5	Discussion on potential for using roads infrastructure for interventions at Newhills Road. RMit to meet with MR to discuss.	m ² /GCC (RMit/MR)	Completed
6	Update and distribute meeting plan for future meetings.	m ²	To be agreed with stakeholders
7	In parallel to the other actions, develop a communication strategy and associated material (maximising use of existing info) for engaging with communities / customers / tenants with regard to the SWM measures being considered.	SF/MM/AK/MH/JM/HA's	Ongoing
8	In parallel to the other actions, agree a number of pilot locations for SWM Raingardens / SUDS Planters with the Housing Associations. Design and Implement.	SF/MM/AK/MH/HA's	Ongoing

Wellhouse West Area

Images not obtained from site visits are reproduced from SUSDRAIN website, Glasgow City Council and the SuDS Manual.

Quick Wins – Wellhouse West Area



- Standard building type throughout area.
- Space for retrofit SuDS.
- Potential amenity and biodiversity benefits.



WELLHOUSE WEST AREA: DISCONNECTION OPPORTUNITIES

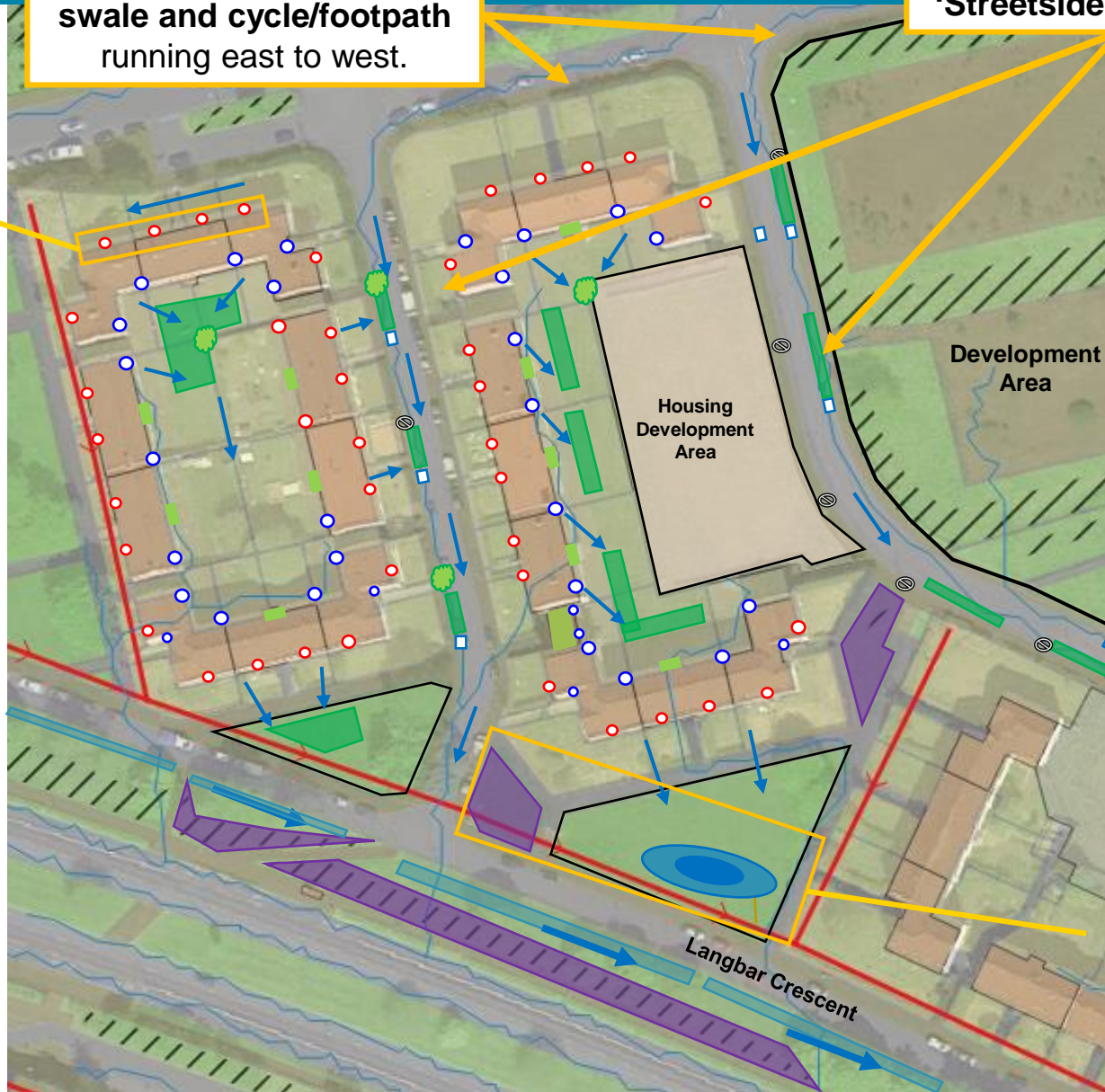
Raised SuDS Planters
with diverted downpipe



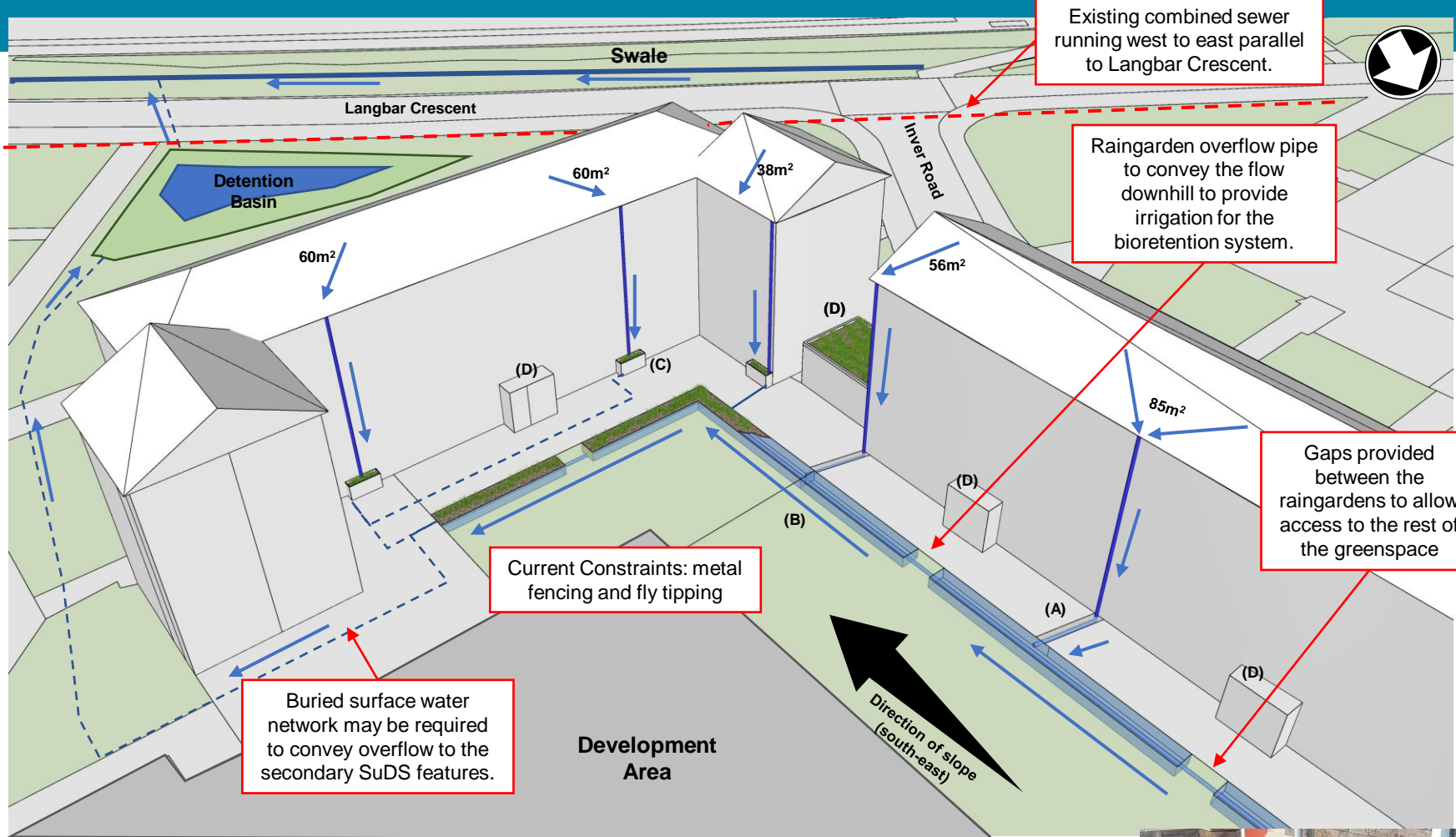
Replace side street with
swale and cycle/footpath
running east to west.

'Streetside' Raingarden

Inver Road (daytime
– November 2021)



Community
Raingardens



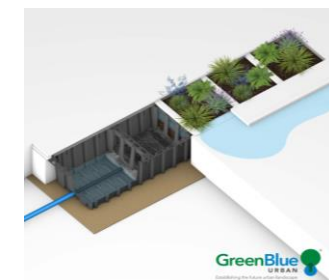
(A) Buried channel to convey the downpipe runoff to the adjacent linear raingarden

- Preferred to have conveyance feature buried as a Health & Safety precaution to prevent any overland ice formation during the winter
- Buried channels at an angle to allow flow to be gravity fed into the raingardens



(B) Linear Raingardens

As well as attenuating and utilising the roof runoff, the raingardens can capture surface water runoff from both the surrounding permeable and impermeable surfaces.



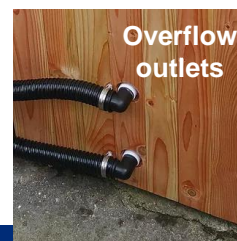
(D) Small Scale Green Roof Retrofit

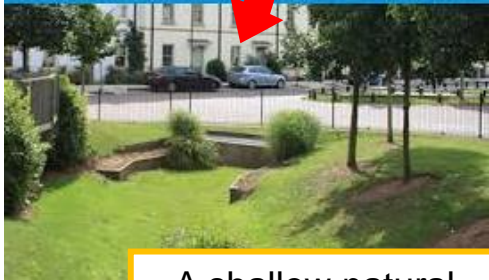
- High Voltage electrical power house with flat roof



(C) Raised Rainwater Planter

- Any downpipes which cannot be connected into a larger bioretention features can discharge roof runoff directly into a raised SuDS Planter.





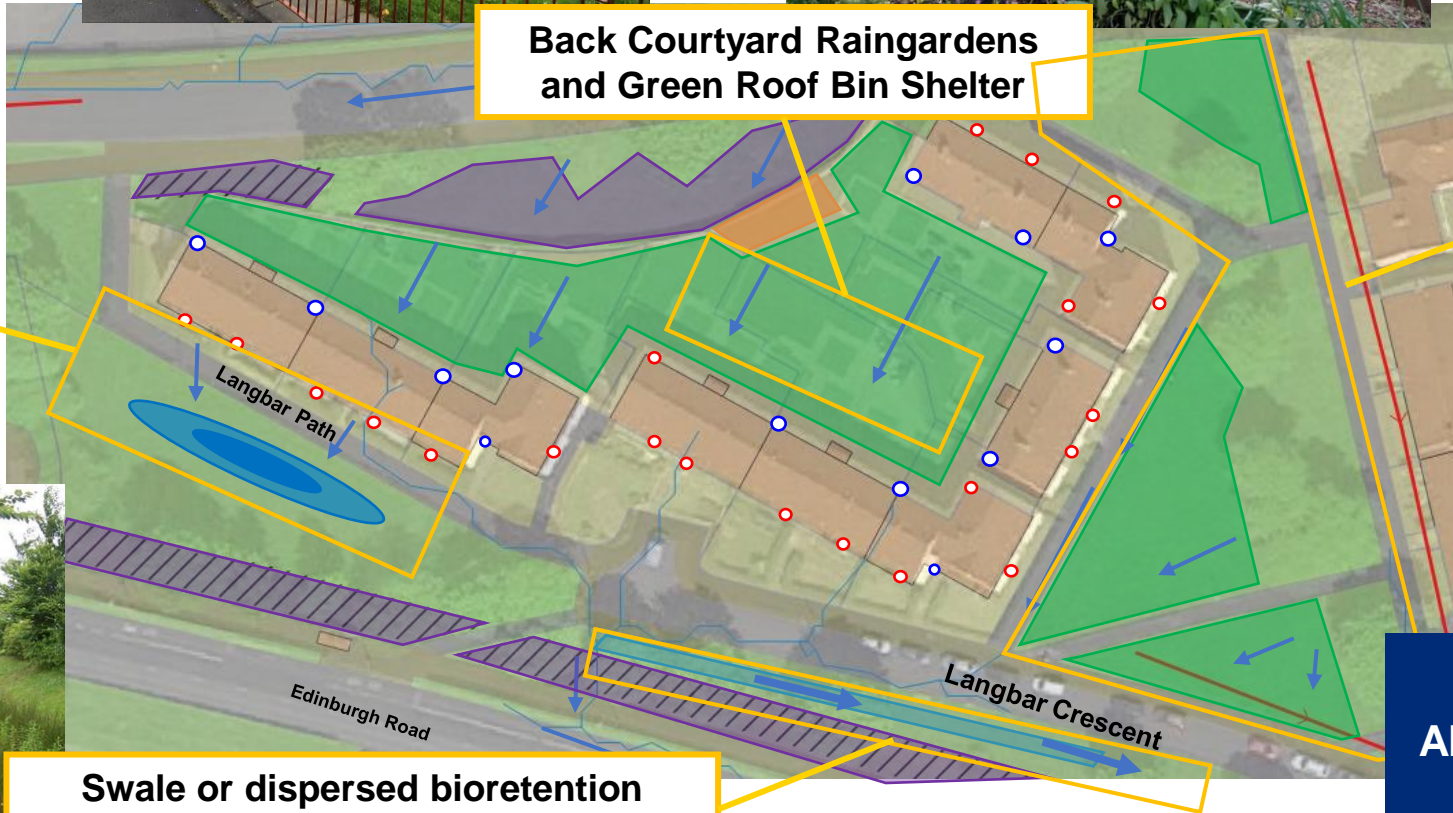
A shallow natural and planted
Detention Basin



**Back Courtyard Raingardens
and Green Roof Bin Shelter**



Community Raingardens



**Swale or dispersed bioretention
system with buried conveyance pipe**

**WELLHOUSE WEST
AREA: DISCONNECTION
OPPORTUNITIES**




Issues & Opportunities

- Future proofing for new adjacent development.
- Opportunities for additional benefits e.g. Active Travel.
- Retrofitting of downpipes? Maintenance concerns?
- Phasing of measures?
- Additional surveys (e.g. trees)?




*Proposed Development Areas –
November 2020)*



Wellhouse West Area

Type of measure	Include?	Key Stakeholders Identified at SWM 2	Comments & Actions
Rain gardens/ SuDS Planters (property) 	Yes	GCC - Margaret Orzell (Housing) WHA - Martin Wilkie-McFarlane	<ul style="list-style-type: none"> • Comment from GCC Housing to be determined post workshop due to availability. • Potential for raised planters to be progressed ahead of further downstream SuDS measures.
Rain gardens (non-property) 	Yes	SW - <i>Grant Vanson/ Annelies McMillan (FRM)</i> GCC - Seamus Connolly (Parks) GCC - <i>James Murray (FRM)</i> GCC - <i>Mic Ralph (Transport Planning)</i>	<ul style="list-style-type: none"> • Consideration should be given to promoting naturalised raingardens in favour of proprietary systems.
Roadside retrofits (bioretention, tree pits) 	Yes	GCC - Mic Ralph (Transport Planning) GCC - Brendan Frankgate (Roads) WHA - Martin Wilkie-McFarlane	<ul style="list-style-type: none"> • Road runoff accounts for significant proportion of current incapacity issues. • Potential for community resistance to proposals involving loss of parking. • Potential for integration with Active Travel strategy.

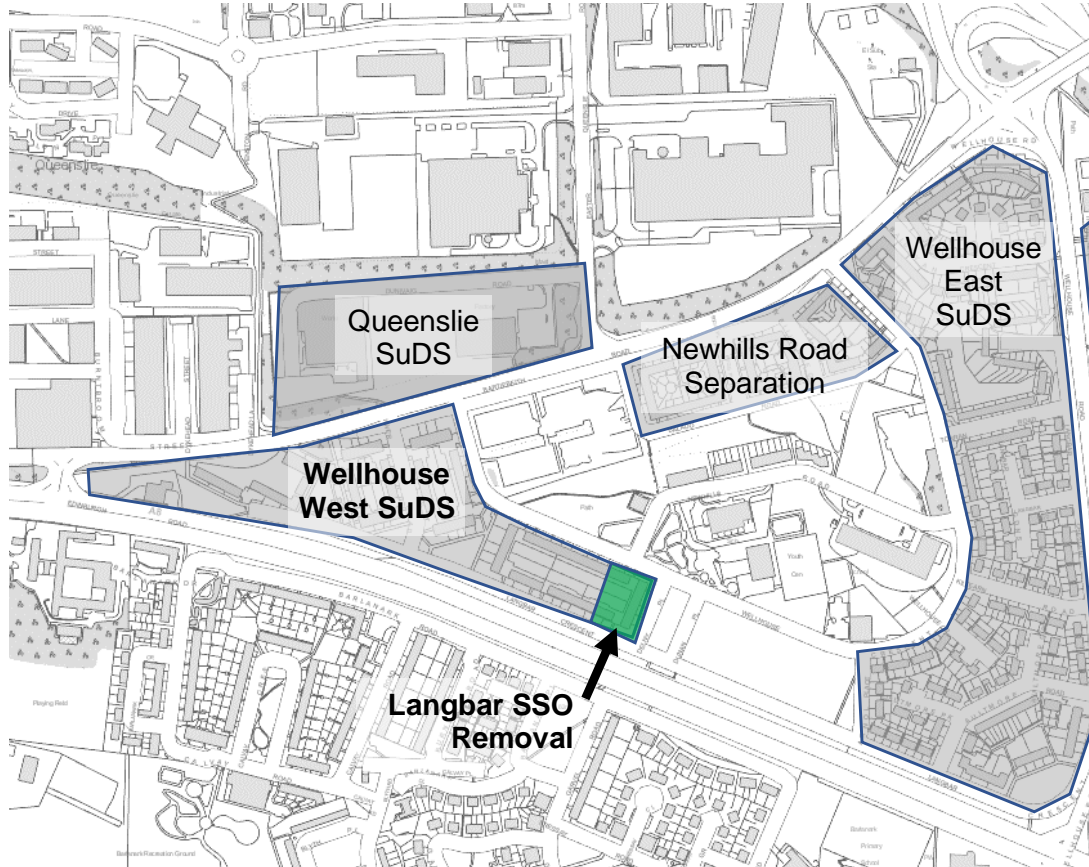
Wellhouse West Area

Type of measure	Include?	Key Stakeholders Identified at SWM 2	Comments & Actions
Detention basins/ storage 	Yes	SW - Grant Vanson/ Annelies McMillan (FRM) GCC - Seamus Connolly (Parks) GCC - James Murray (FRM) GCC - Mic Ralph (Transport Planning)	<ul style="list-style-type: none"> Potential opportunities to combine with planned development drainage strategy. Local input into land use for amenity benefits.
Swales 	Yes	SW - Grant Vanson/ Annelies McMillan (FRM) GCC - Seamus Connolly (Parks) GCC - Mic Ralph (Transport Planning) GCC - James Murray (FRM) GCC - Brendan Frankgate (Roads)	<ul style="list-style-type: none"> Potential for habitat creation. Potential for integration with Active Travel strategy. Location of nearby mature trees may prevent continuous use of swales. Linking of swales features using constructed/ proprietary measures with narrower footprint could be considered in these situations.
Green roofs (property) 	Yes	GCC - Margaret Orzell (Housing) WHA - Martin Wilkie-McFarlane	<ul style="list-style-type: none"> Comment from GCC Housing to be determined post workshop due to availability.

Langbar Crescent SSO

Images not obtained from site visits are reproduced from SUSDRAIN website, Glasgow City Council and the SuDS Manual.

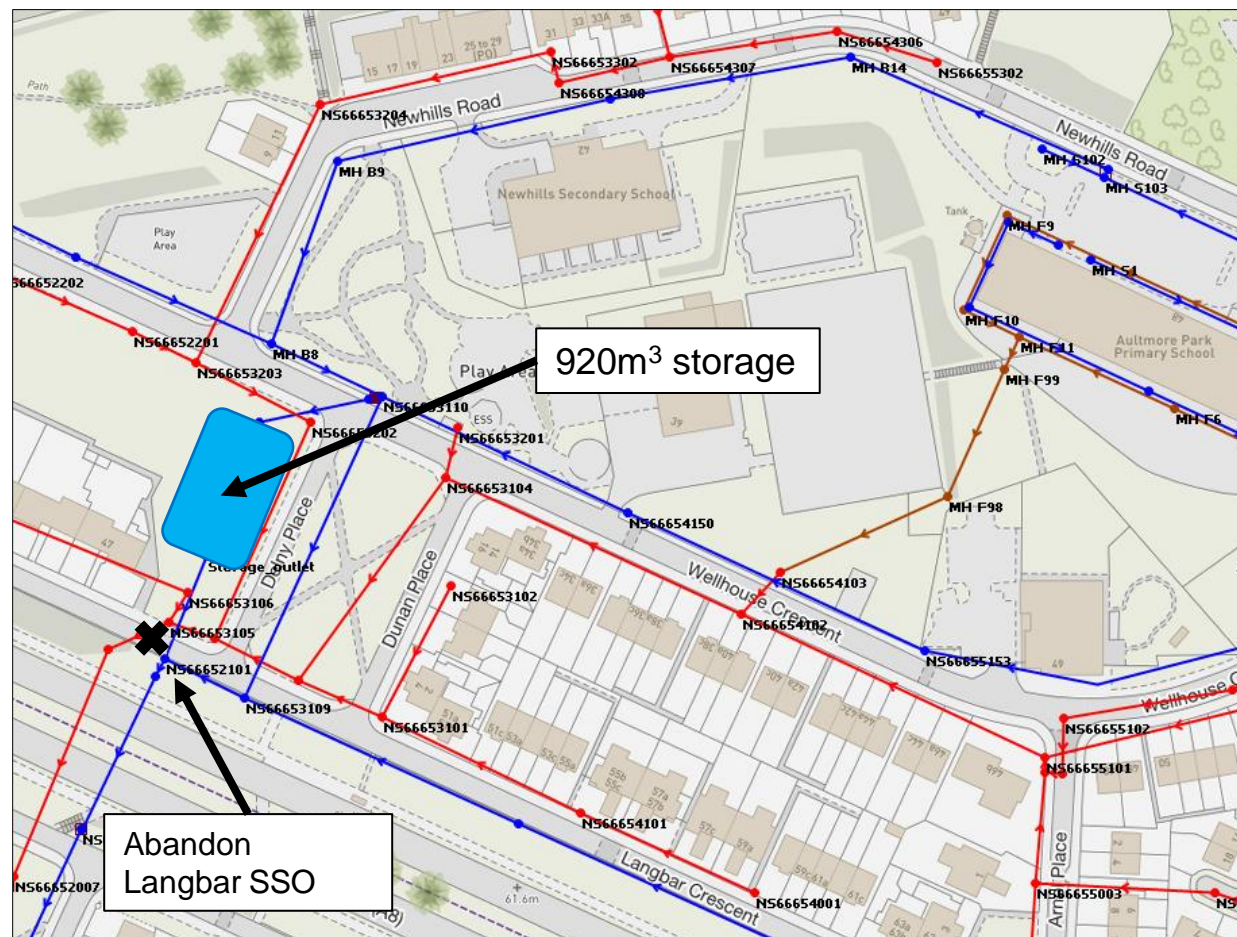
Quick Wins – Langbar SSO



- Separate storm sewer flows from combined sewer flooding.
- Potential to combine SuDS with other planned development.
- Potential amenity and biodiversity benefits.



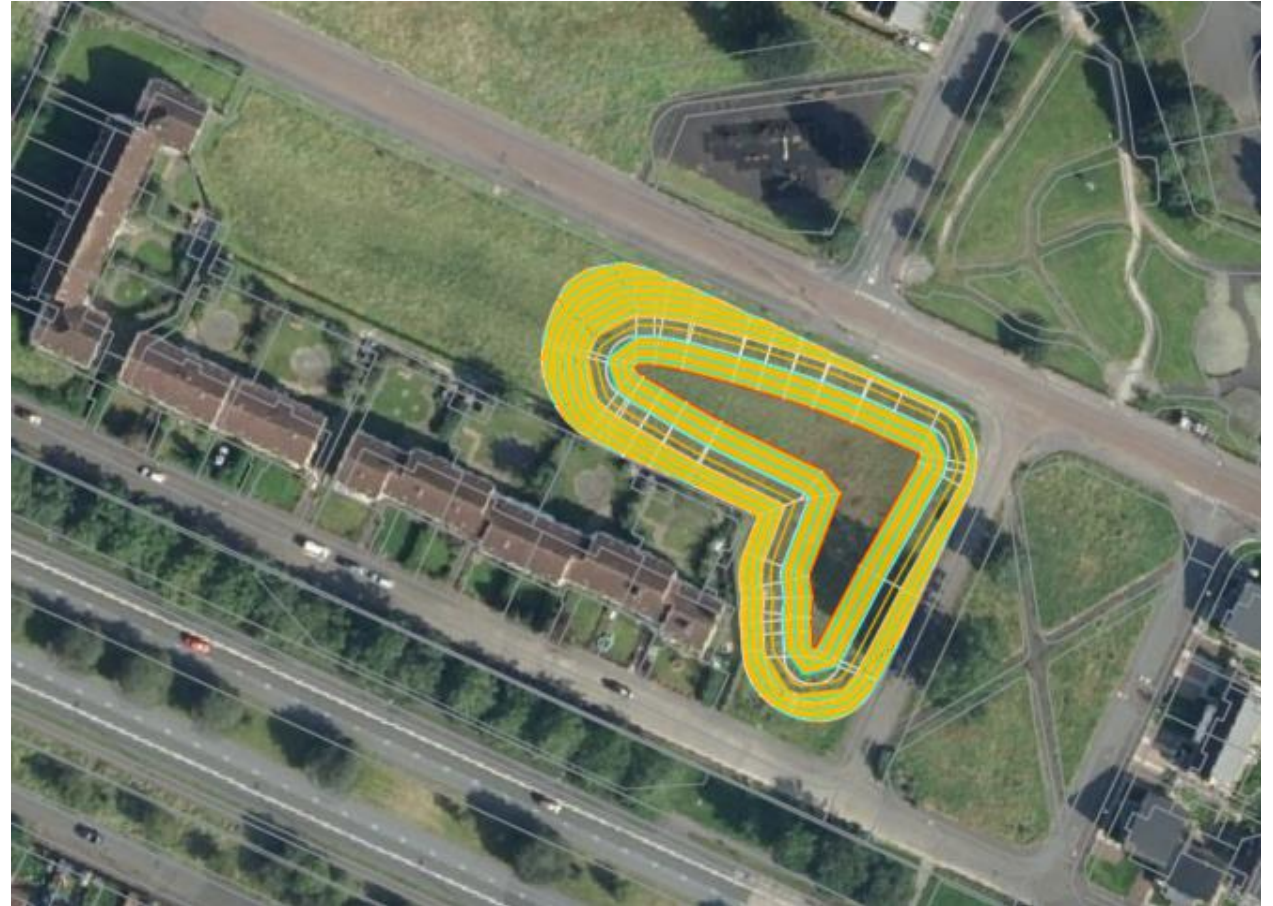
Langbar SSO – Abandon and provide SuDS



Manhole Reference	30yr Baseline (Future)	30yr Option (Future)	200yr Baseline (Future)	200yr Option (Future)
NS66646499	13.5	7.9	101.1	94.5
NS66652050	48.1	31.5	215.7	203.9
NS66653110	101.7	-	273.6	25.5
MH B8	262.3	-	619.4	171.2
NS66654102	443.3	245.4	920.6	603
NS66653104	187.9	43.3	455.5	149.8
NS66656101	233.2	223.1	485.6	467.9
NS66655101	262.2	211.4	651.9	501.2
NS66656302	52.2	51.2	141.7	142
NS66653201	73.4	15	199.4	59.9
NS66653202	12.2	0.3	61.9	26.3
NS66654103	366.1	235.5	889.6	590.3
NS66655003	29.7	27.4	143.7	108.6
NS66655102	103.6	87.5	311.4	271.8
NS66655103	222.5	191.2	580.2	500.1
NS66655104	304.2	262.2	755.1	611.8
Total flooding	2,716.1	1,632.9	6,806.4	4,527.8
Difference (m³)		-1,083.2		-2,278.6
Difference (%)		-40%		-33%

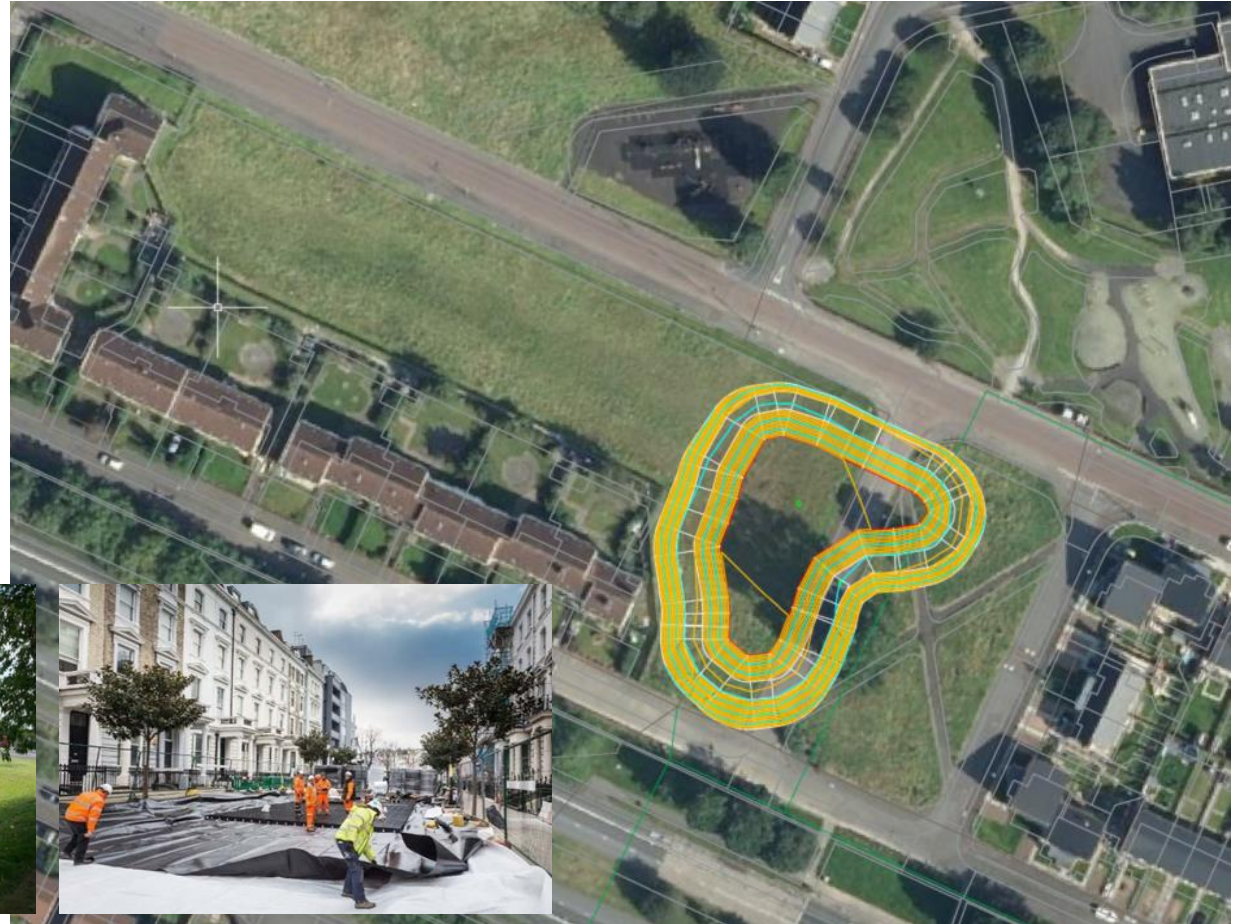
Langbar SSO - Location

- Sewers for Scotland compliant.
- 30yr flood volume stored to 1m water depth within pond.
- 200yr flood volume stored within 1.3m water depth (TBC).
- Shape of basin required to fit existing land not in line with best practice.
- Close to existing properties.



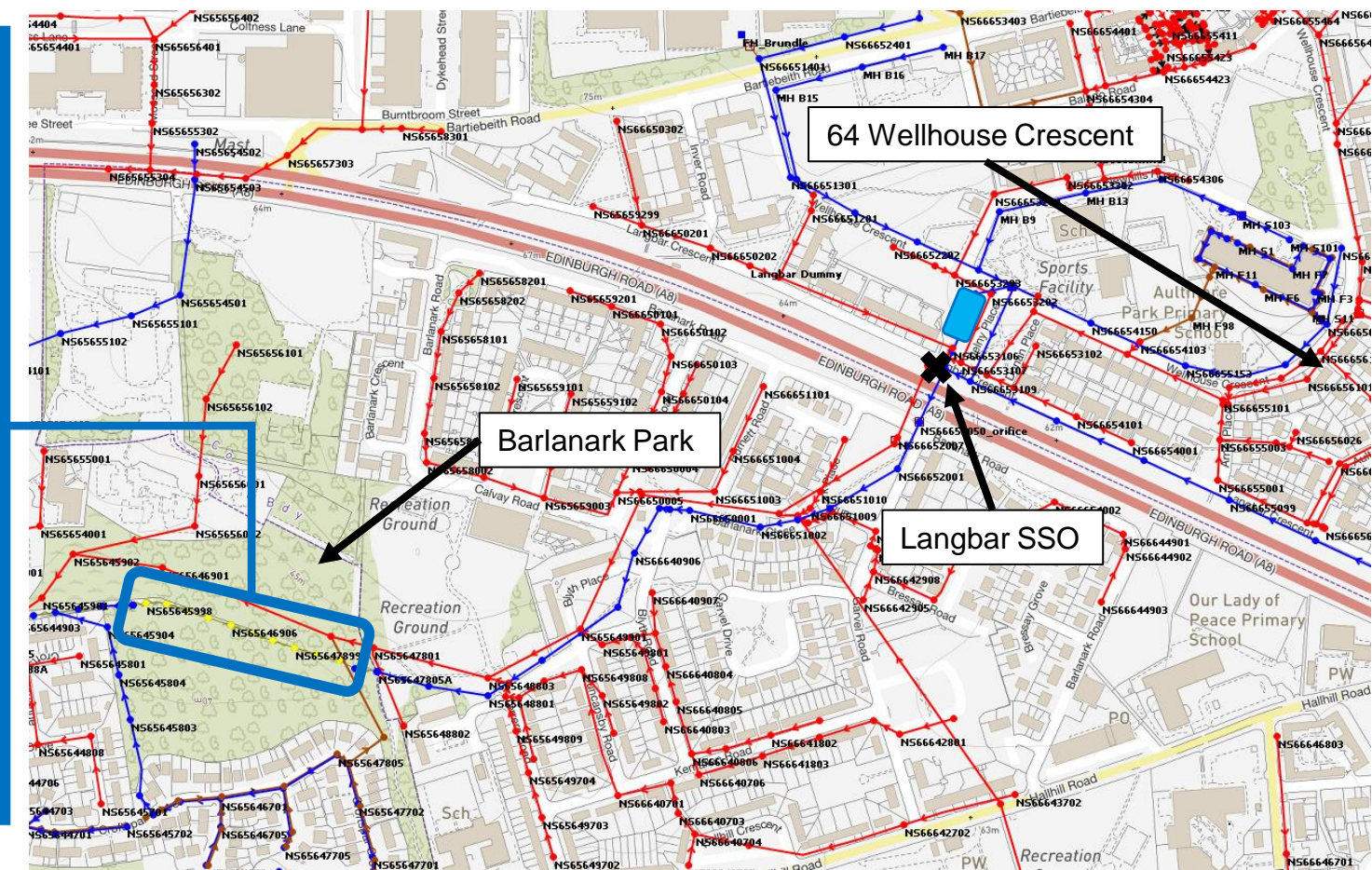
Langbar SSO – Alternative Location

- Alternative footprint with Delny Place repurposed as part of SuDS.
- Overflow to be routed to reduced risk to adjacent properties (e.g. to vacant land or road network).

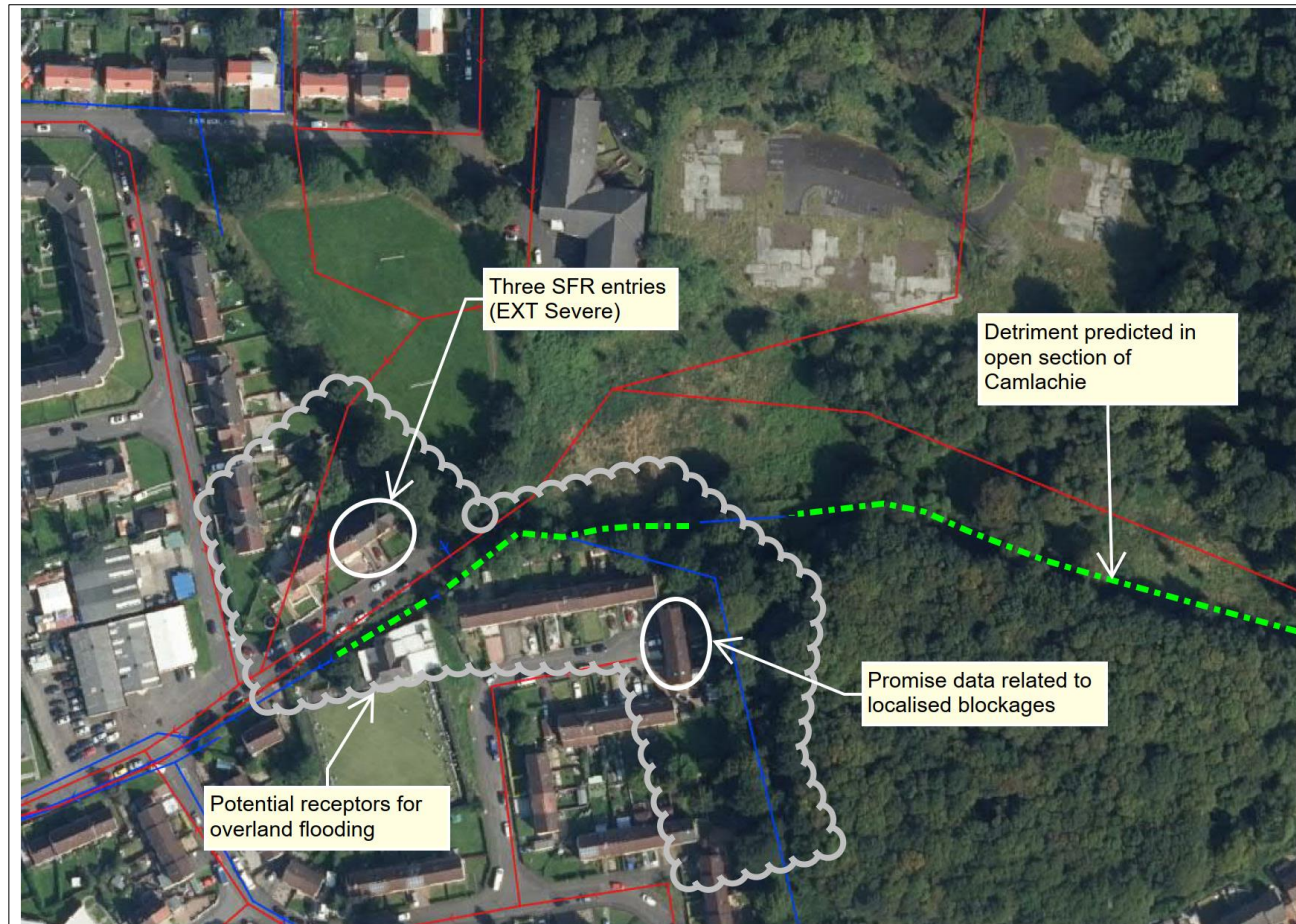


Langbar SSO – Downstream Flood Risk

Manhole Reference	30yr Baseline (Future)	30yr Option (Future)	200yr Baseline (Future)	200yr Option (Future)
NS65645998	132.9	147	303.1	360
NS65646904	121.3	134.9	289	345.2
NS65646906	151.1	165.1	319.2	375.4
NS65646997	210.5	224.6	380.8	437.7
NS65646998	113.2	126.3	282.2	339.1
NS65646999	294.1	308.3	464.4	521.3
NS65647803	0.1	0.6	38.5	69.6
NS65647898	61.1	70	212	268.9
NS65647899	114.1	127.3	283.2	340.2
NS65647999	58	66.6	206.8	263.7
Total flooding	1,256.4	1,451.3	2,779.2	3,321.1
Difference (m³)		114.3		541.9
Difference (%)		9%		19%



Langbar SSO – Downstream Flood Risk



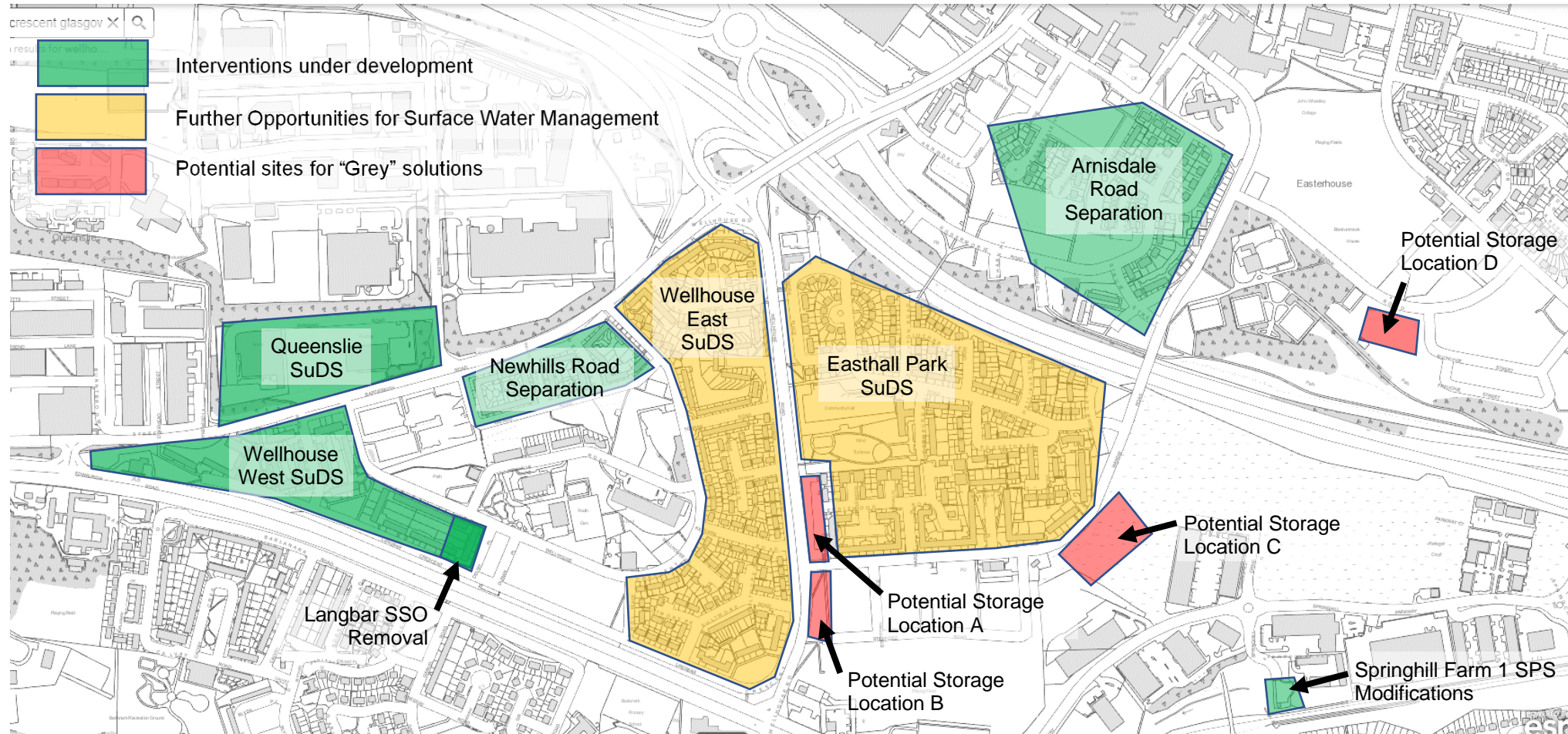
- Anecdotal evidence of flooding at SFR properties but no recorded incidents post-2002.
- No historic flooding issues identified to date by GCC.
- Planned GCC SWMP development in Barlanark Park.
 - Potential to address long term flood risk.

Langbar SSO

Type of measure	Include?	Key Stakeholders Identified at SWM 2	Comments & Actions
Detention basins/ storage 	Yes	SW - Grant Vanson/ Annelies McMillan (FRM) GCC - Seamus Connolly (Parks) GCC - James Murray (FRM) GCC - Mic Ralph (<i>Transport Planning</i>)	<ul style="list-style-type: none"> • Potential opportunities to combine with planned development drainage strategy. • Proposals should provide opportunity for naturalistic, usable space. • Local input should be obtained for usage of space. • Potential to incorporate peripheral traffic calming measures • Stopping up of Delny Place may be required to provide necessary volume. • Potential to split flood storage provision over several adjacent locations to reduce water depths.

Flooding Project Updates

Wellhouse Flooding – Strategic Overview



Other Planned Stakeholder Engagement

- Springhill Farm 1 SPS
 - GCC Engagement – Impact on Tollcross Burn – December 2021
 - SW Go no-Go – December 2021
 - Potential SEPA engagement (to be confirmed)
- Queenslie Industrial Estate SuDS
 - GCC/ WHA – Potential integration with Langbar SSO proposals
 - GCC Engagement – Impact on Camlachie Burn – January 2022
- Arnisdale Road Separation
 - GCC Engagement – Impact on Whamflet Burn – January/February 2022
- Easthall Park HA SuDS
 - Easthall Park HA – Targeted discussions January/February 2022

Conclusions & Action Plan

Refer also to separate meeting minutes

Action Plan

Action	Description	Owner	Action Due
1	Arrange meeting between m ² /GCC/ScW and agree a way forward on progressing the Langbar Crescent SSO removal. (This will encompass action No.4 from previous meeting to recommend opportunities for Surface Water Management on Camlachie Burn).	Scottish Water/m ²	December 2021
2	Prepare Scottish Water GoNoGo paper with recommendations for Langbar Crescent SSO removal.	m ²	January 2022
3	Discuss and agree a way forward on the potential impact on the Tollcross Burn from changes to the Springhill Farm PS. This will require input from GCC, ScW, m ² and possibly SEPA.	Scottish Water/m ²	December 2021
4	Consider integration of Queenslie Industrial Estate SuDS with Langbar Crescent SSO separation.	m ²	January 2022
5	Discuss and agree way forward on Arnisdale Road separation and impact on Whamflet Burn. This will require input from GCC, ScW and m ² .	Scottish Water/m ²	February 2022
6	Discuss with Easthall Park Housing Association around appetite for surface water management there.	m ²	February 2022
7	Obtain guidance from Scottish Water Specialist Services around appropriate time for tree and water vole surveys.	Scottish Water	December 2021
8	Check to be made of latest development plans for the Wellhouse area to ensure these reflect what has been used in hydraulic modelling.	m ²	December 2021
9	Develop and distribute plan for future meetings.	m ²	December 2021