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Delivering SuDS in Kent - *design and delivery*

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Dan Samaila – Associate Director, WSP

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Presenters

Glenn Holliday

o Background

- Engineering Manager, Redrow South East
- Civils engineering background
- Design Engineer
- Highway Authority Adoptions Engineer

Dan Samaila

o Background

- Associate Director, WSP
- Chartered Civil Engineer
- APM - Project Management Qualification (PMQ)
- Highway Design
- Urban Realm Design
- Sustainable Drainage
- Project Steering Group Member - CIRIA C737
(Structural and Geotechnical Design of Modular Geocellular Drainage Systems)

Development

What Developers Want

Key Drivers:

- Build high quality homes
- Create places where people really want to live
- Building sustainable, vibrant communities
- More recently Promote Biodiversity Net Gain

What Designers Want

Key Drivers:

- Functional
- Fit for purpose
- Compliant with design guides and standards

SuDS – Key to enhance development!

Development

How do we achieve this?



- Designed for Connection
- Community Spaces
- Promote Walking & Cycling

Development

How do we achieve this?



- Green Routes
- Natural 'usable' open spaces
- Help People Connect with Nature on their Doorstep

Development

How do we achieve this?

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Keeping it
local

Promote:

- Freedom to Roam
- Peace and Quiet
- Family Fun



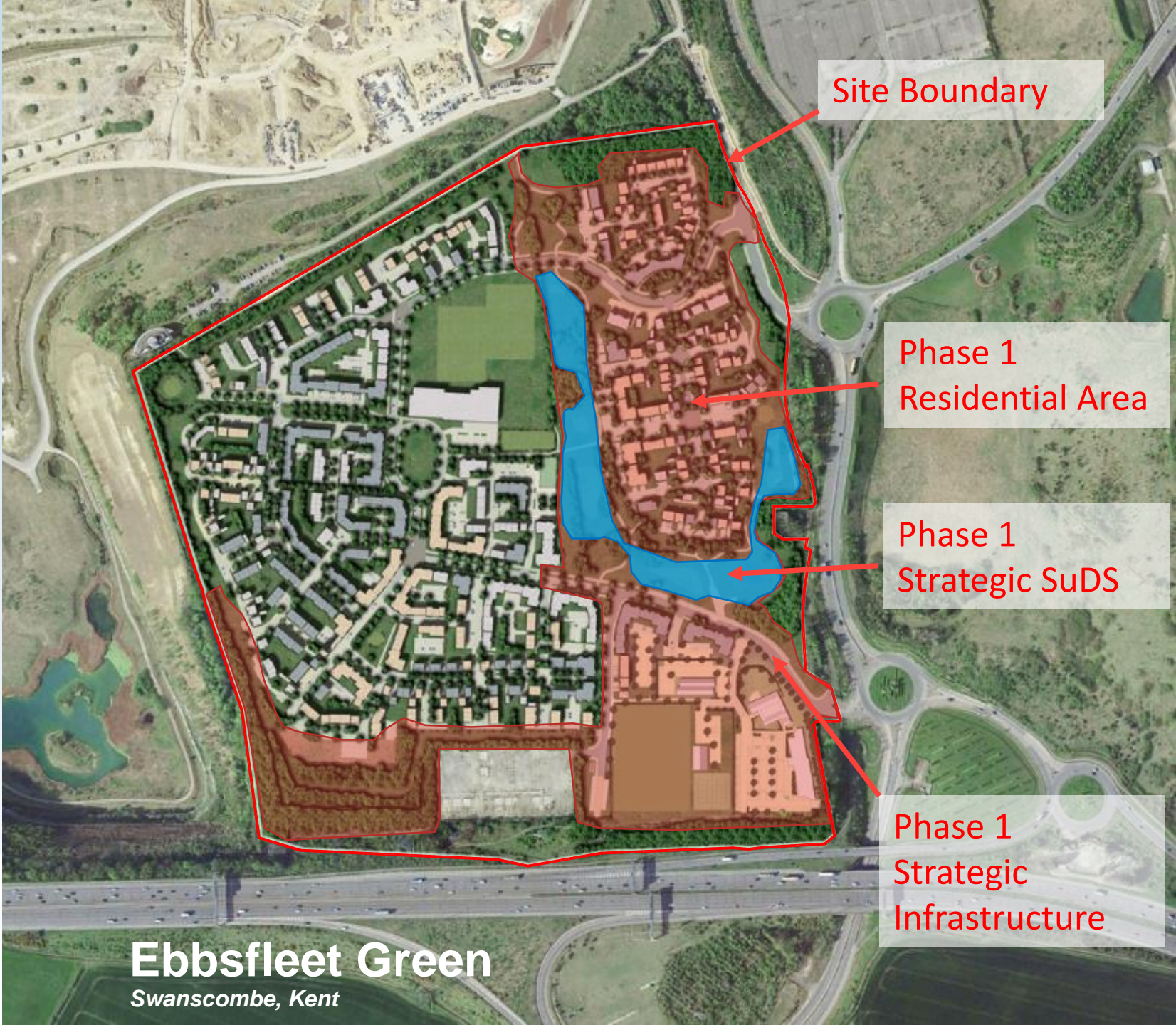
Delivering SuDS in Kent



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- Ebbsfleet Green
- Sutton Road, Maidstone
- Tilden Gill, Tenterden
- Woodlands, Staplehurst

- Woodlands, Staplehurst
- Hoplands, Hersden
- Conningbrook Park, Ashford



Site Boundary

Phase 1 Residential Area

Phase 1 Strategic SuDS

Phase 1 Strategic Infrastructure

Ebbsfleet Green

Swanscombe, Kent



+ 51mAOD

Existing Outfall
Restriction to 40.7l/s

+ 18mAOD

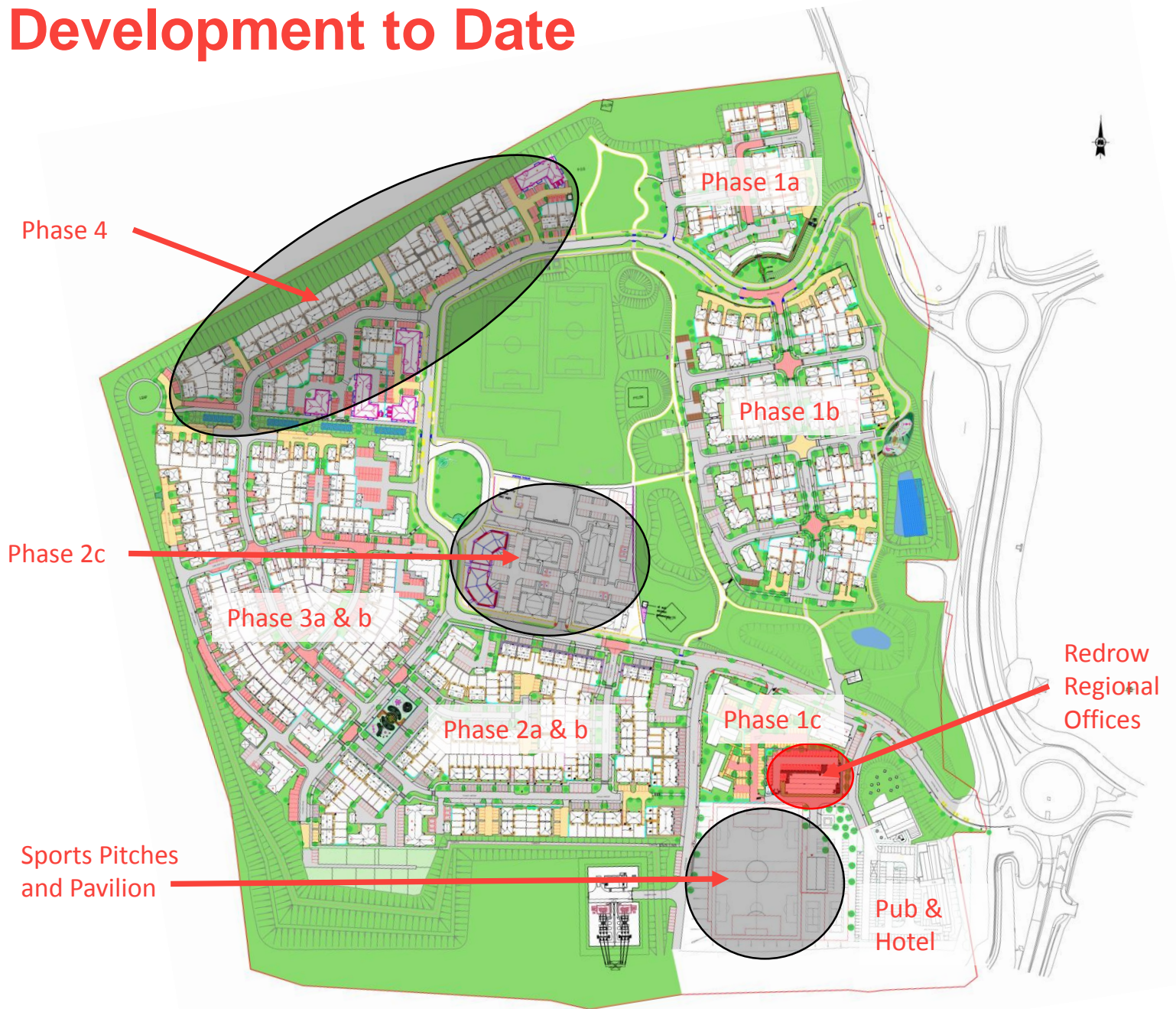
Electricity Pylons
and Cables

Noise Bund
& Fence

A2 - Noise

Ebbsfleet Green
Swanscombe, Kent

Development to Date



Relationships

Key Relationships

- Design Team - Planning Architects/Landscape Architects/Civil Engineers.
- Kent LLFA
- Ebbsfleet Development Corporation /

Processes

- Pre-Apps
- Statutory Stakeholder Consultations
- Delivery Team
 - Landscapers
 - Contractors
 - Management Companies
- Verification/compliance inspections/reports



Key Requirements

Up Front

- Early engagement with LLFA and LPA
- Clear vision for the scheme
- Design Team buy in to the vision

Design

- Cross between functional and desirable
- Incorporate areas for nature/biodiversity

Delivery

- Competent contractors
- Comprehensive records of installation.

The Journey



Where we are now

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Where we are now

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Where we are now



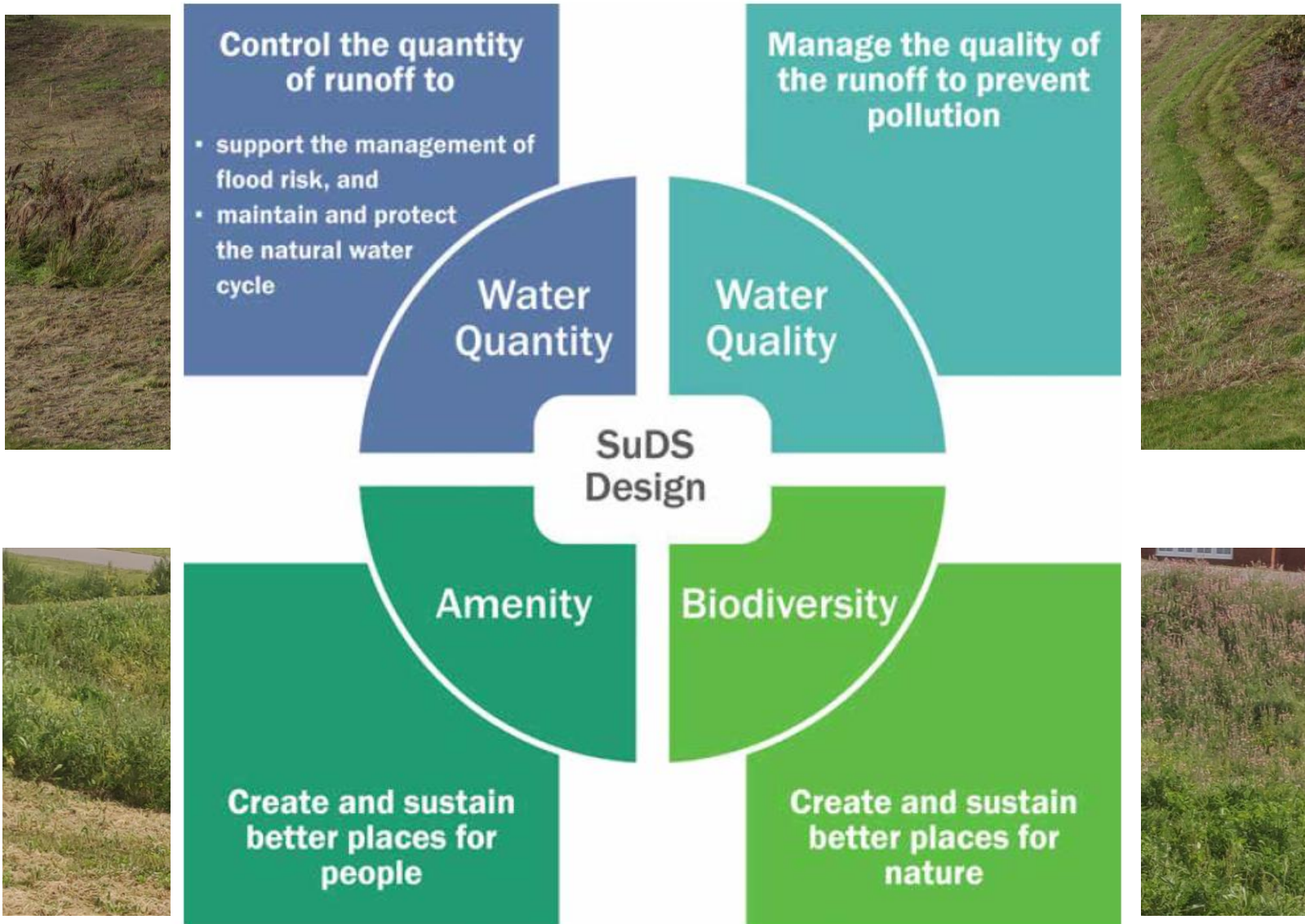
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Where we are now



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Challenges in Delivering SuDS



Water Quantity
Water Quality
Amenity
Biodiversity

Challenges in Delivering SuDS



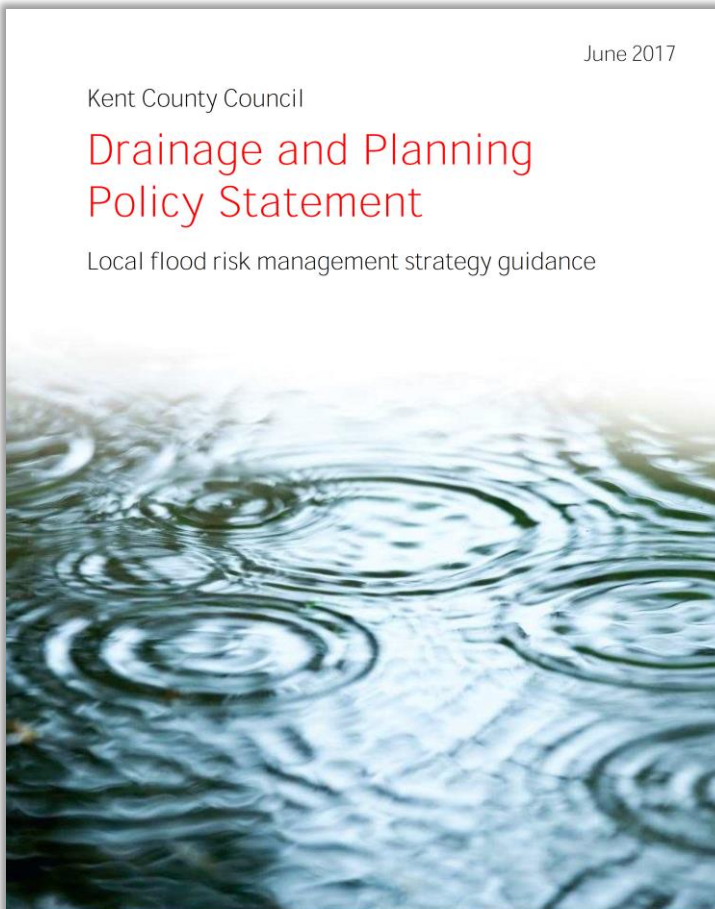
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Challenges in Delivering SuDS

- Public Perceptions / Acceptance
- Planning Policy

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Kent County Council

June 2017

Drainage and Planning Policy Statement

Local flood risk management strategy guidance

Drainage Strategy Summary

1. Site details	
Site/development name	
Address including post code	
Grid reference	
LPA reference	
Type of application	
Has pre-application advice been so if so, KCC Reference Number:	
Pre-application Meeting Date:	
Site condition	
2. Existing drainage	
Total site area (ha)	
Impermeable area (ha)	
Final discharge location	Infiltr Wate Sew Tidal
Where applicable specify catchment runoff rates:	Gre
QBAR (l/s)	
1 in 1 year (l/s)	
1 in 30 year (l/s)	
1 in 100 year (l/s)	
3. Proposed drainage areas	
Impermeable area (ha)	Oth
Permeable area (ha)	Oti
Final discharge location	Infiltr Wate Sew Tidal
Climate change allowance included in design	20%

June 2017 v.2



4. Post-Development Discharge rates, with mitigation				Document/Plan where information is stated:
Describe development drainage strategy in general terms:				
(a) Soil type and discharge	Permeable <input type="checkbox"/> No off-site discharge i.e. Infiltration <input type="checkbox"/>	Semi-permeable <input type="checkbox"/> infiltration maximised, QBAR off-site <input type="checkbox"/>	Impermeable <input type="checkbox"/>	Staged discharge <input type="checkbox"/>
(b) Controlled developed discharge rates (l/s)	1 in 1 year			
	1 in 30 year			
	1 in 100 year			
	1 in 100 year + CC			
5. Discharge Volumes				Document/Plan where information is stated:
	Existing volume (m ³)	Proposed volume (m ³)		
1 in 1 year				
1 in 30 year				
1 in 100 year				
1 in 100 year + CC				
6. Plans/Drawings				Document/Plan where information is stated:
A schematic of the drainage strategy has been included?				
Yes <input type="checkbox"/> No <input type="checkbox"/>				
A schematic of the drainage network model has been included?				
Yes <input type="checkbox"/> No <input type="checkbox"/>				

All information presented above should be contained within the attached Flood Risk Assessment, Drainage Strategy or Statement and be substantiated through plans and appropriate calculations.

Form completed by	
Qualifications	
Company	
Telephone	
Email	
On behalf of (client's details)	
Date	

June 2017 v.2

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Challenges in Delivering SuDS

Public Perceptions / Acceptance

Planning Conditions

- KCC – Verification Reports

Basin 6

Asset Management Template

Category	Storage/Attenuation	
Type of structures or features		
Unique ID	Ebsfleet Green Basin 6 (Refer to drawing 2392-SW-D-006 for further det	
Location Name	Southfleet Road, Swanscombe, Kent DA10 0BE	
Adoption	N/a	
Owners Name	Redrow Homes	
Address	Redrow Homes Limited Prince Regent House Quayside, Chatham Kent, ME4 4QZ	
Owners Contact Number	Glenn holliday Telephone: [REDACTED] Mobile: [REDACTED] Extension: [REDACTED] Website: www.redrow.co.uk	
Maintained By	[REDACTED] Senior Property Manager HML 94 Park Lane Croydon Surrey CR0 1JB [REDACTED]	
National Grid Reference (NGR)	N/a	Easting and Northing
Cover Level	23.250m	
Invert Level	21.500m	
Max volume	2770m ³	
Height	Key dimensions of the feature (in Metres, if appli	
Diameter/Width	N/a	
Length	N/a	
Depth	1.400m	
Designed Flow Rate	40.7 L/s	

Basin 6

Any Additional Uses	N/a
Photos	
	
	



Lessons Learnt:

What went well

- Understanding of the SUDS approval process
- Early Engagement with the LLFA
- User friendly guidance from Kent LLFA

What could be improved

- SFA 8 ?
- Installation records - Staged Inspection (by who??)
- More inclusive designs/layouts

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Next Steps:

- Continue to work with LLFA and LPAs to implement SuDS
- Application of lessons learnt on upcoming developments:

Conningbrook, Ashford



Tilden Gill, Tenterden



Thank you!

