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## Grangewood Manor, LFE



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Environment and Transport Department


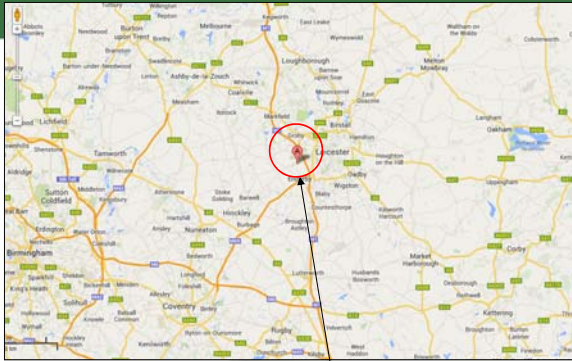


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## Location



GRANGEWOOD MANOR





Beggars Lane  
Leicester Forest East  
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## Structure

- The Drivers
- The Site
- Relationships
- Communication
- Design Criteria
- Design Evaluation
- Challenges
- Adoption Mechanism
- Lessons Learnt
- Summary



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## The Drivers

- LCC have set up a SAB Team
- Hold working groups with developers and LPA's
- The purpose of the working groups is to...
  - encourage developers to **trial SuDS strategies on sites** (case studies)
  - create awareness
  - offer opportunities for all parties to learn lessons and get familiar with the processes
  - allow for an easier transitional period once Sch.3 is in place





## Relationships

- Various stakeholders involved in the process:

**Taylor  
Wimpey**

**jpp  
consulting**  
Civil & Structural Engineers

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**Blaby**  
District Council  
*the heart of Leicestershire*


- Communication was VITAL and the scheme couldn't have worked without the good working relationship.



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## Communication


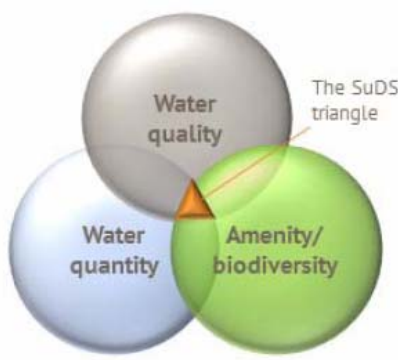
- Preliminary meetings at pre application stage
- Drainage Strategy
- The drainage strategy was included as one of the influences on the site layout, as well as:
  - access to features for maintenance
  - public open space
  - ecology
  - existing services



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## Design Criteria


- Once a strategy was agreed, the design criteria was discussed.
- The philosophy was to meet the vision of the FWMA2010 and also the SuDS Manual (C697)



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## Design Evaluation

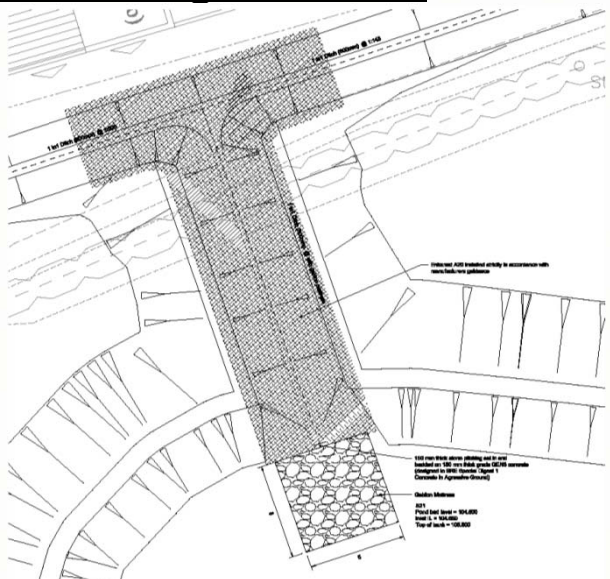
- Further meetings
- This was then appraised to ensure it was in accordance with C697.
- Inlet and Outlets
- Hydraulic modelling checked by drainage engineers.



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## Evaluation of the design cont...

- Lessons still being learnt.
- Some designs required slight modification
  - Inlet Details (see →)
  - Outlet Details



# Outfall details...

**ELEVATION ON PROPOSED HEADWALL 2**  
Scale: 1:20

**SECTION THROUGH PROPOSED HEADWALL 2**  
Scale: 1:20

**PLAN**  
Scale: 1:100

**SITE LOCATION PLAN**  
Scale: 1:2000

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**ipp consulting**  
Civil & Structural Engineers

Client: TAYLOR WIMPEY  
Project: HOUSING DEVELOPMENT  
LEICESTER FOREST EAST  
LEICESTER  
Team: FORD OUTFALL  
PROPOSALS

Scale at A3	Revised	Drawn by	JA	Checked by	JA	Date	20/12/13
Scale	FOR APPROVAL	Project no	GRO50/APP	Drawing no.	720	Revision	A

# Challenges

- Time spent - this was a SuDS first for LCC
- + View was time spent early is time saved later
- Lack of standards and guidance
- + Research, contacting other authorities, common sense, drainage engineers
- The unknown - how will these features perform after time?
- + Research, collect commuted sums to allow for ongoing maintenance, other case studies available

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## Adoption Mechanism

- LCC adopting SuDS features as highway (Section 38) in this interim period.
- Majority of the SuDS is either within highway (permeable paving) or similar to standard highway verge.
- Commuted Sums calculated to ensure the LA has monies for maintenance.



## Lessons learnt so far

- What would be done differently next time?
- Work closer with the LPA and their Landscape Architects and Ecologists.






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## Lessons Learnt...


- What would be done differently next time?
- Do more with the attenuation basin.
- Potential to retro-fit



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## Lessons Learnt...

- Swales
  - On this site we decided to have the swales slightly deeper to allow plot drainage to connect into the perforated pipe.
  - This is a combination of conventional plot drainage and the new SuDS approach.
- Lesson Learnt?
  - Combination of methods can give good sustainable results.





## Lessons Learnt...

Any good practice to share?...Yes. Be brave enough to try new things!

Trialled 4 options for permeable paving:

1. Lay the DBM Base in 2 layers in the same day, both laid by hand
2. Lay the DBM Base in 2 layers in the same day, first layer laid by hand, second layer by machine
3. Lay the DBM Base in one layer with a tracked machine as recommended in CIRIA guidance.
4. "Treat" the surface of the voided sub-base with blinding of GSP Type 1 to knit it together. Then machine lay one layer of DBM Base.



Hand laying 1<sup>st</sup> layer of Base

## Lessons Learnt

- How did all the different disciplines/organisations come together?
- Meetings throughout process. This made the site happen!
- How will this influence our approach to implementing FWMA?
- Realised how important working together is and how much time it can save down the line. Our SAB design and application process highlights the need to involve all parties at an early stage!

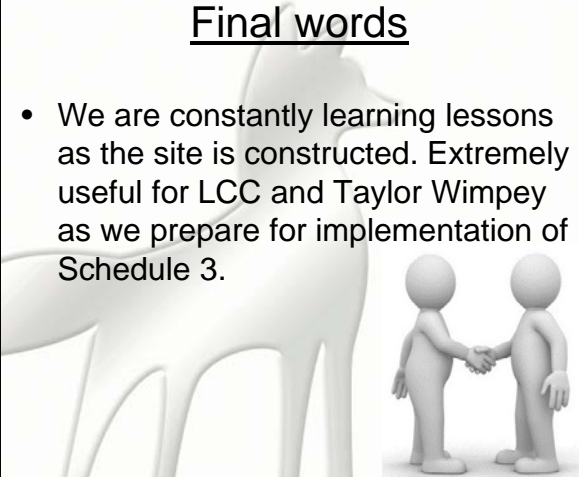

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## Summary

- What has been discussed?

## Final words

- We are constantly learning lessons as the site is constructed. Extremely useful for LCC and Taylor Wimpey as we prepare for implementation of Schedule 3.



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# THANKS FOR LISTENING