

Sidmouth Amphitheatre Dual use blue green infrastructure

Presented by:
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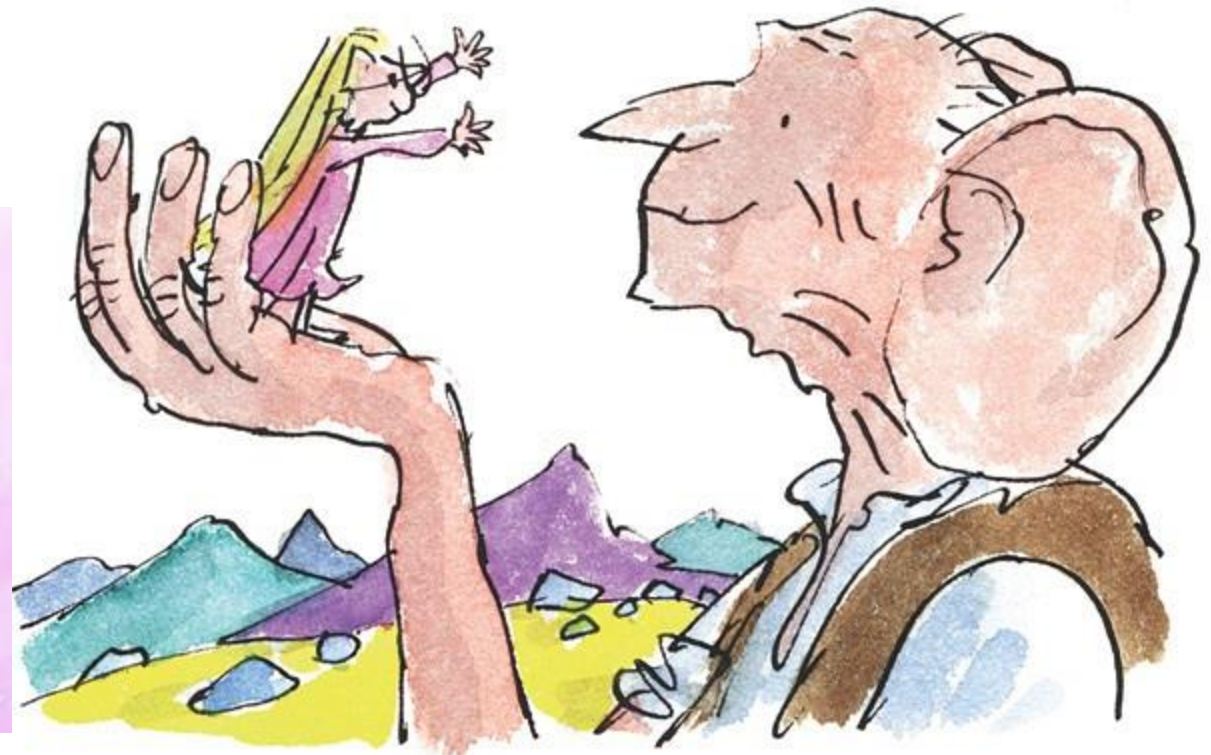
Challenging the accepted!!

If we are to combat climate change then dual use green blue infrastructure needs be business as usual...

"The matter with human beans," the BFG went on, "is that they is absolutely refusing to believe in anything unless they is actually seeing it right in front of their own schnozzles."

- The BFG by Roald Dahl

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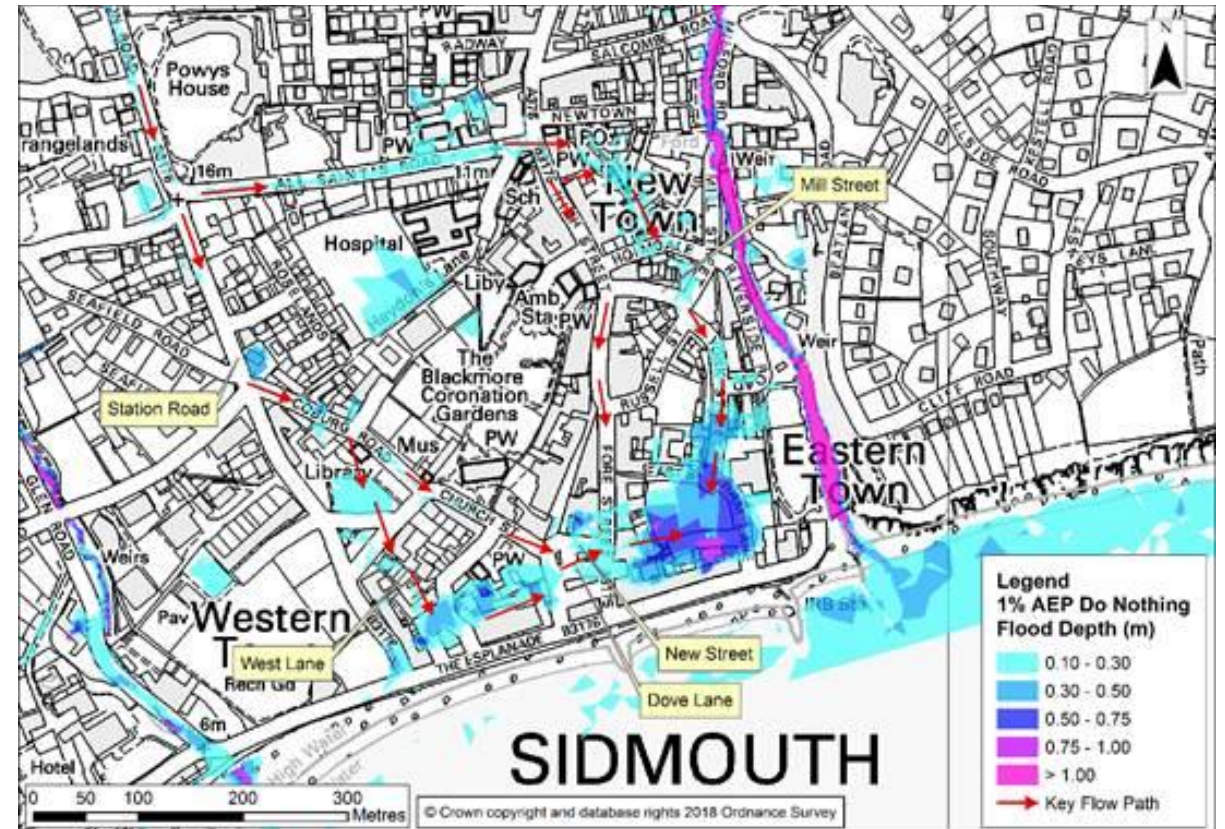
Source: The BFG, by Roald Dahl, illustrated by Quentin Blake

Agenda

1. How did we arrive at the design?
2. What did we do in Sidmouth?
3. Does it work?

Some context...

- 💧 Sidmouth is situated on the south coast of Devon in the south west of England
- 💧 Home to an international folk music festival
- 💧 Suffers from coastal, fluvial and surface water flooding
- 💧 >150 properties at risk from Surface Water flooding



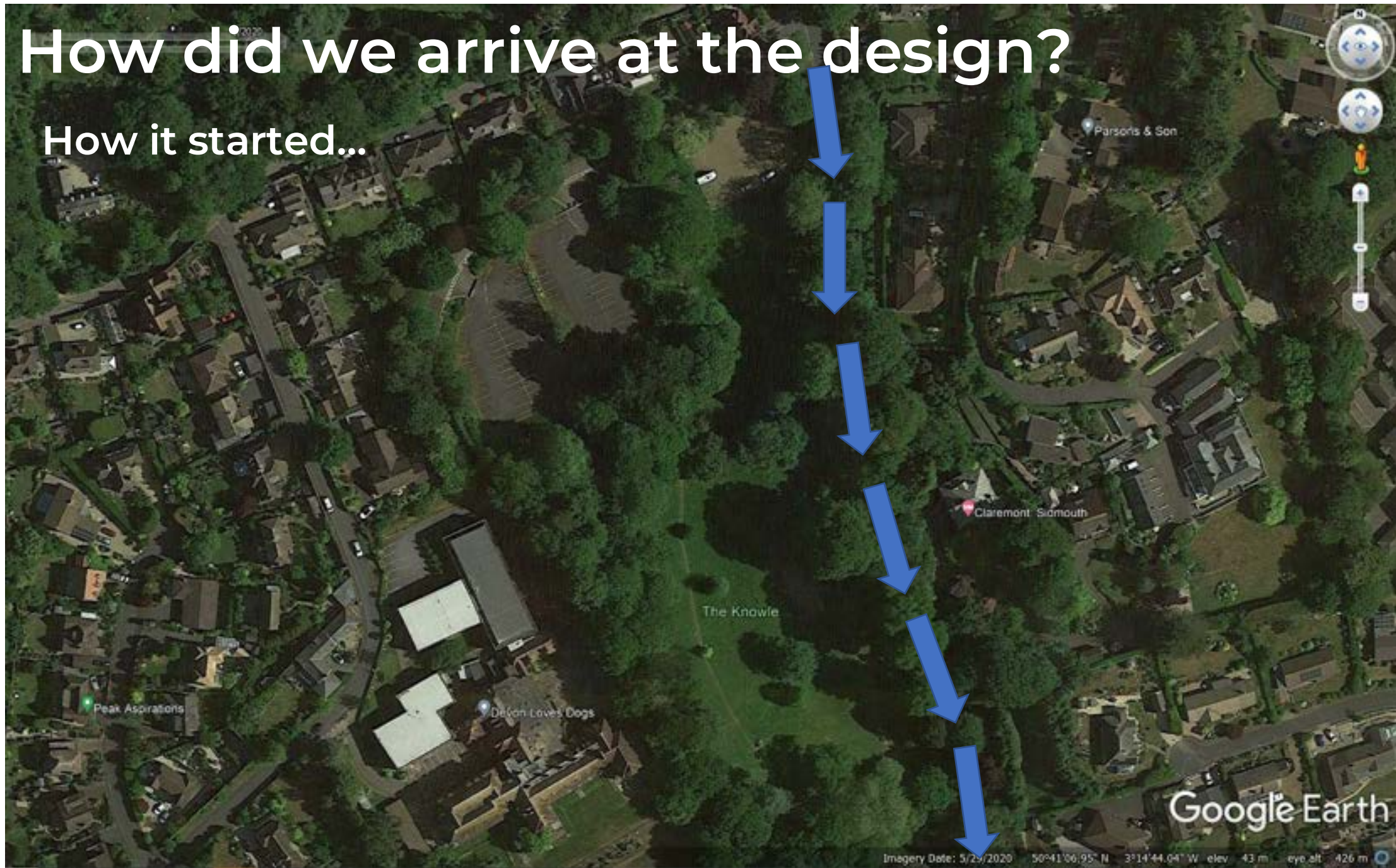
How did we arrive at the design?

How it started...



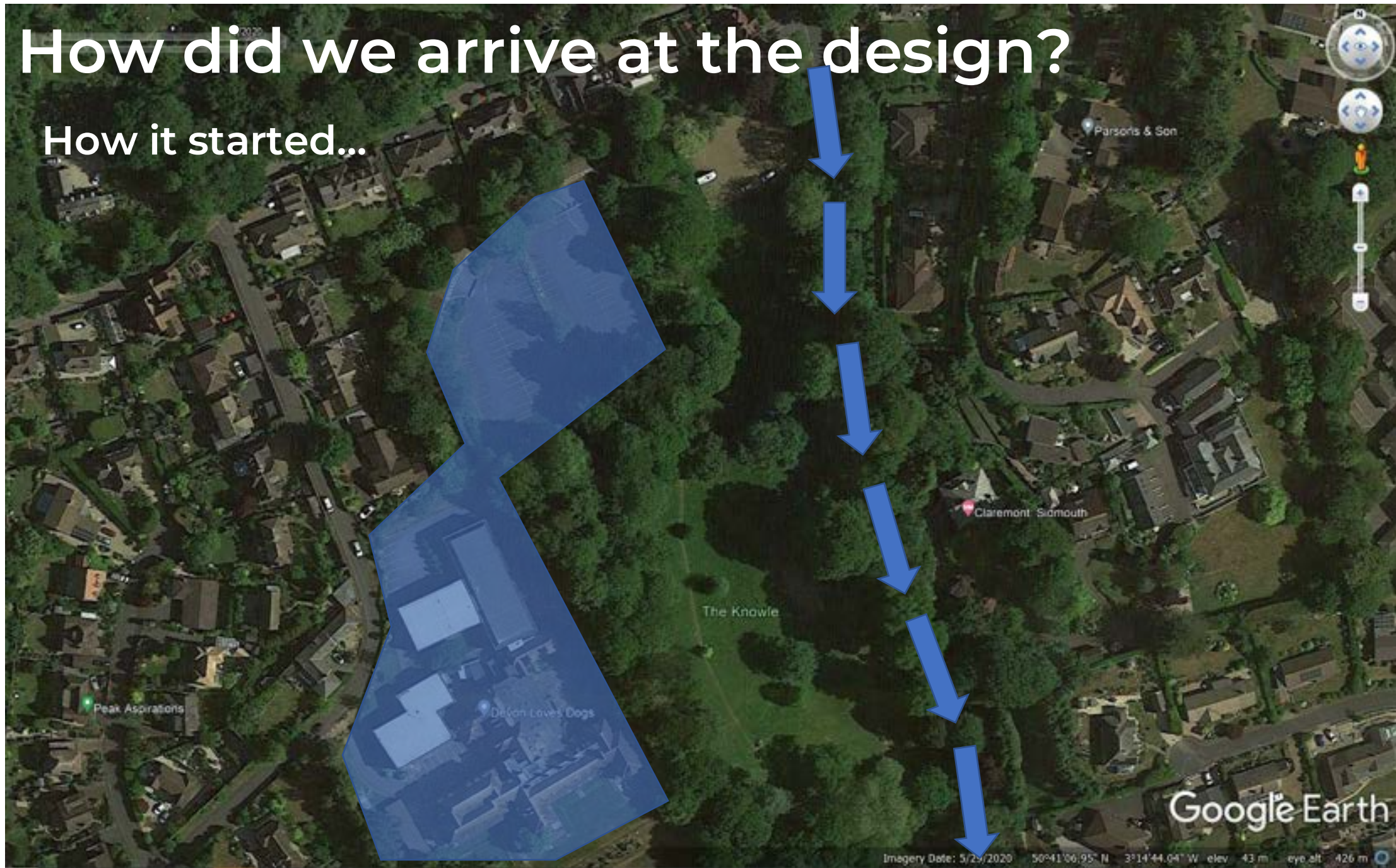
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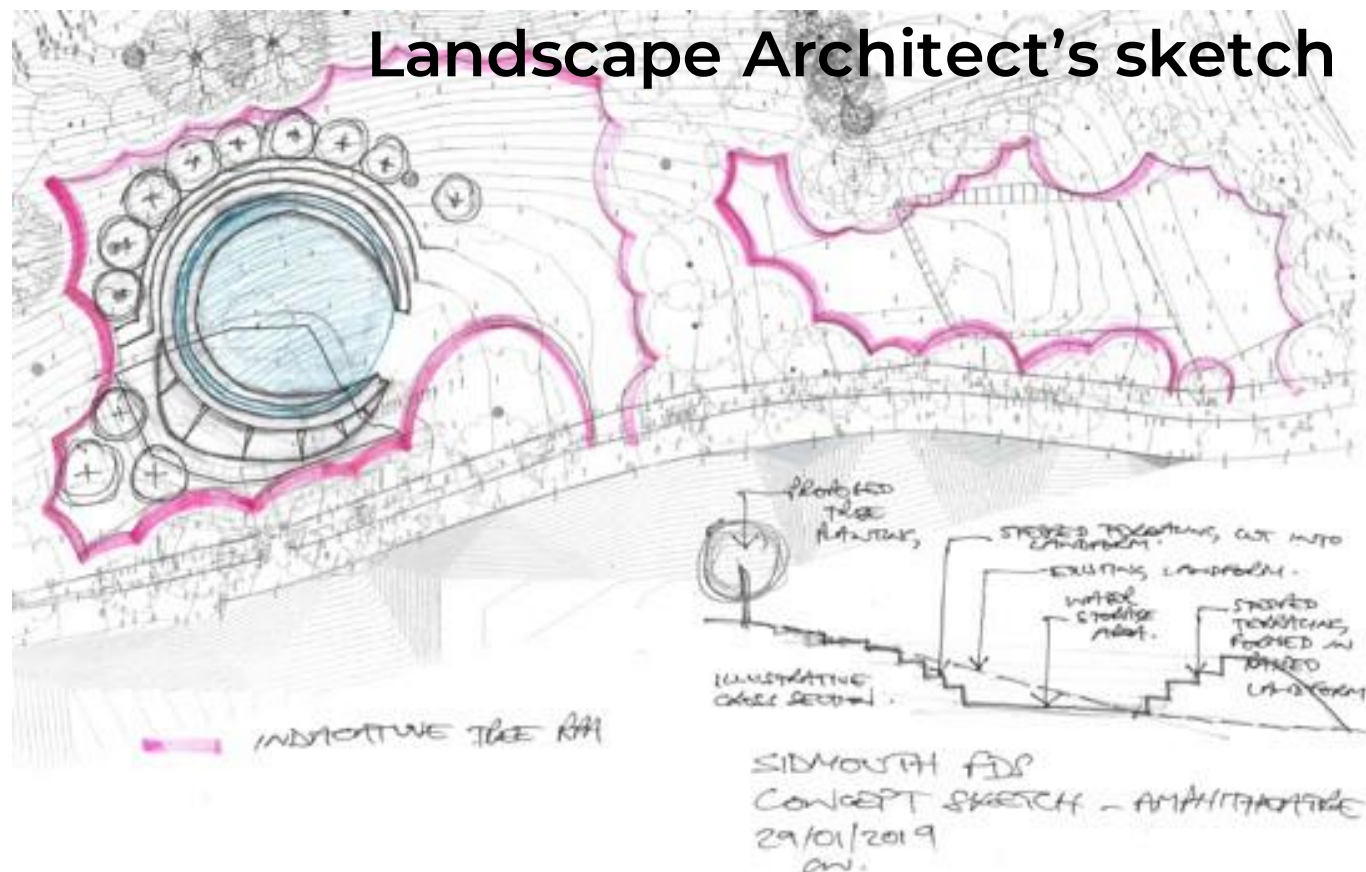
How did we arrive at the design?

How it developed...

Hand sketches initially inspired by National Trust property in Esher west London

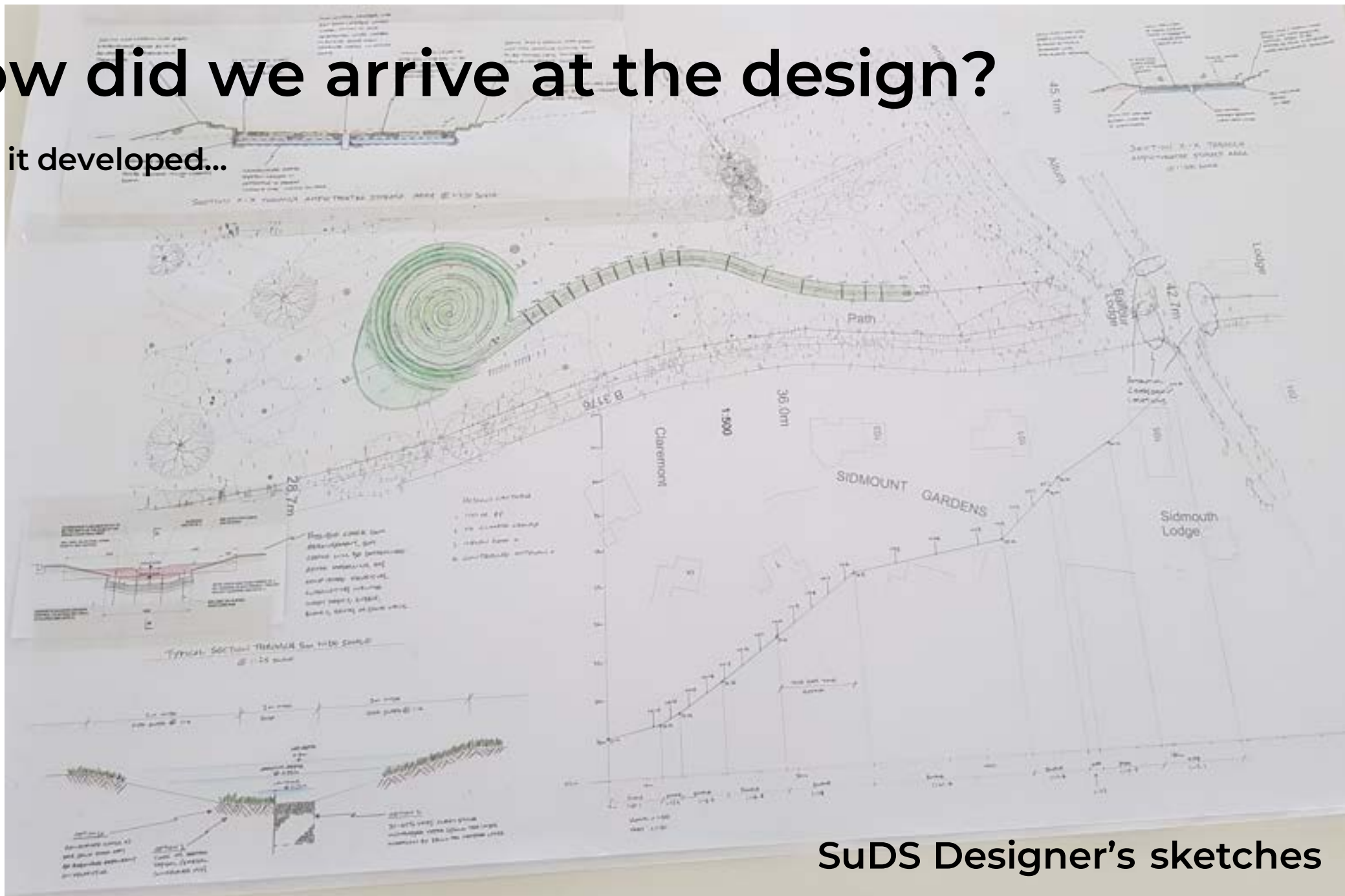


Claremont Landscape Gardens



How did we arrive at the design?

How it developed...

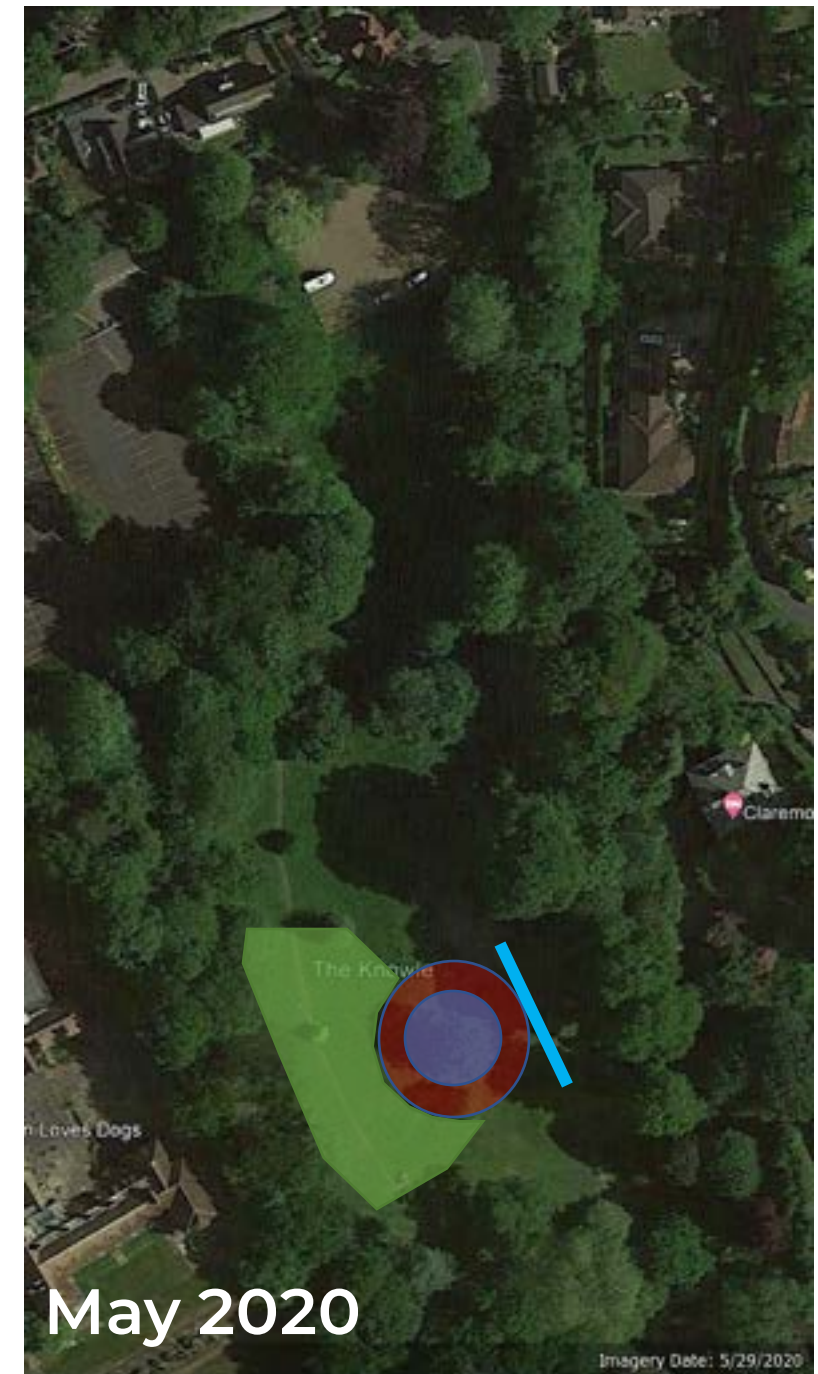


SuDS Designer's sketches

How did we arrive at the design?

How it developed...

1. Ground investigations showed soil on site would be unstable if cut to the steepness originally envisaged.
2. Sheet piles needed due to insufficient space for earthworks on western side
3. Groundwater (periodically higher than expected), and thus design needed to allow for groundwater as well as surface water



How did we arrive at the design?

How it developed...

- Future provision of car park impacted swale length
- Swale alignment selected to minimise impact on trees
- Sub-surface crates ensure that the dual use function of the amphitheatre is retained for most of the more frequent storms



What did we do in Sidmouth?

From a public and stakeholder engagement perspective...



Artist's impression

What did we do in Sidmouth?

From a public and stakeholder engagement perspective...



Infraworks basic fly through

What did we do in Sidmouth?

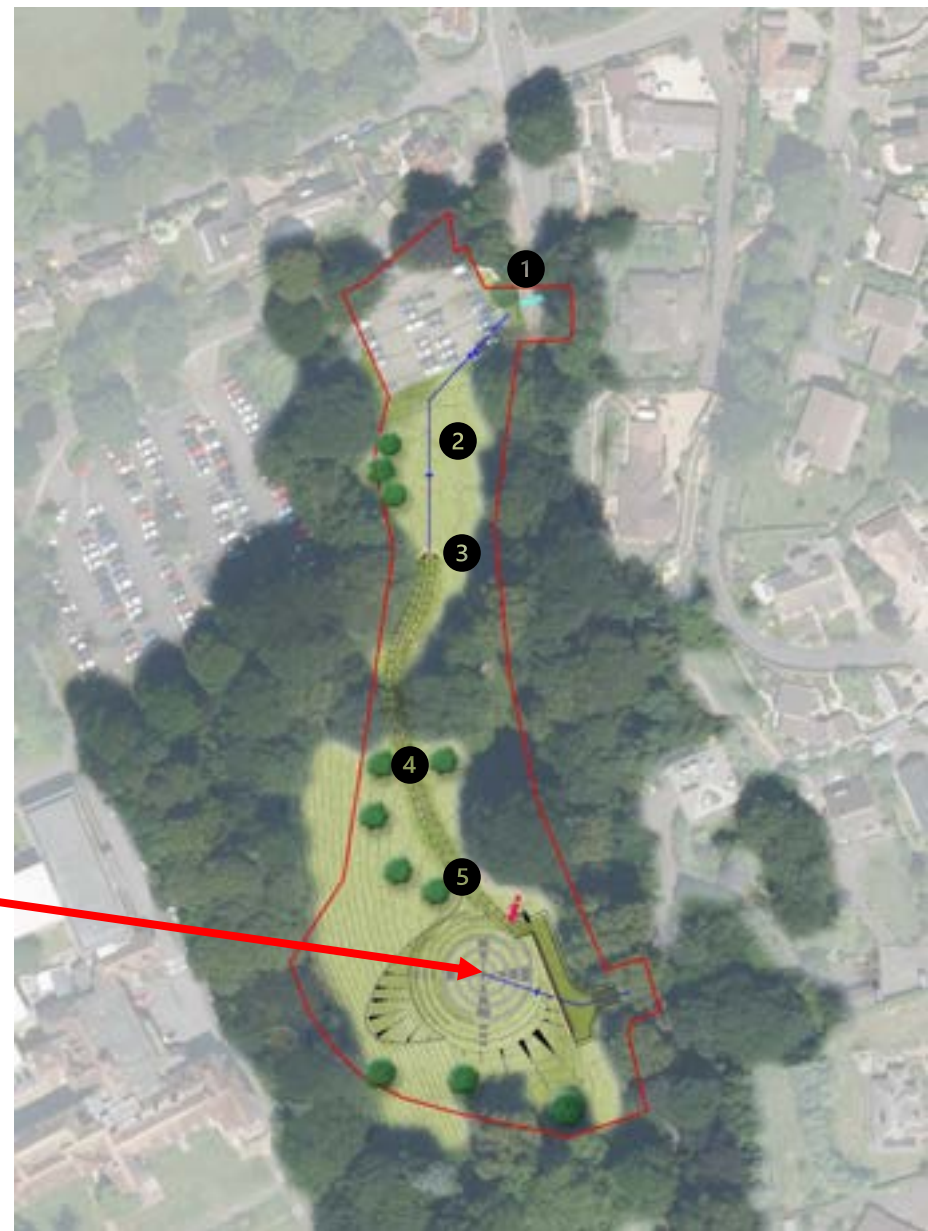
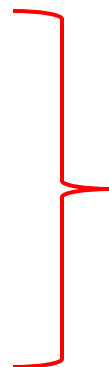
From a public and stakeholder engagement perspective...



What did we do in Sidmouth?

From an engineering perspective...

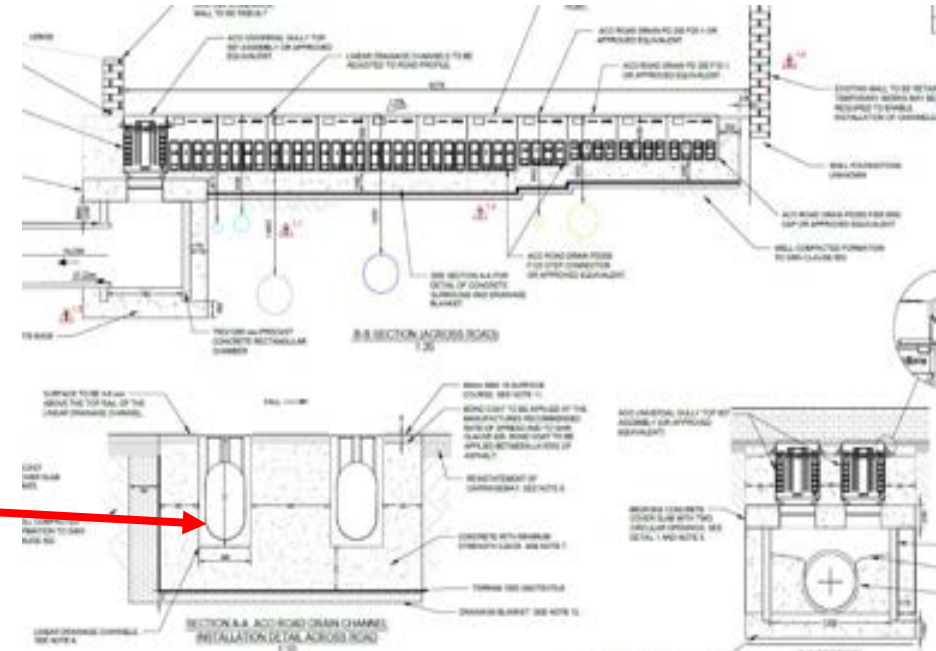
1. Crossdrains to intercept exceedance flows
2. Length of pipework into parkland due to level differences
3. Energy dissipation feature combined with sediment trap
4. 90m long, 5m wide swale
5. Final check dam
6. 140m long spiral filter drain
7. 20m diameter upper drainage blanket
8. 400m³ infiltration / detention tank formed from 3,000 geo-cellular crates
9. 20m diameter lower drainage blanket
10. Central flow control chamber
11. 20m diameter (300m³) reinforced grass detention basin
12. Spillway for exceedance event



What did we do in Sidmouth?

From an engineering perspective...

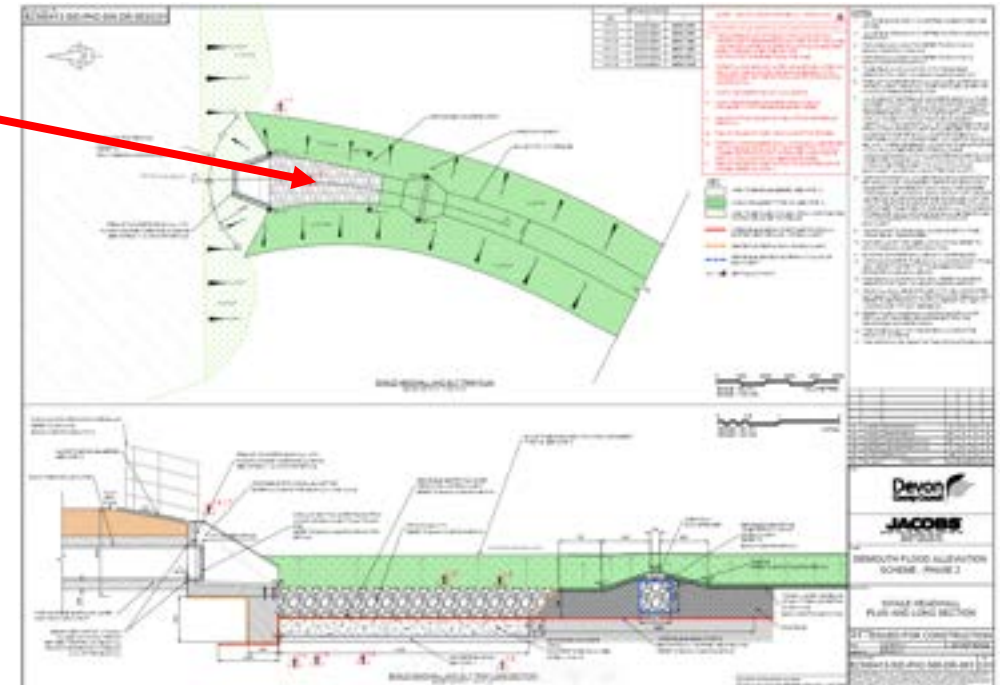
- 💧 Crossdrains to intercept exceedance flows



What did we do in Sidmouth?

From an engineering perspective...

- 💧 Energy dissipation feature combined with sediment trap



What did we do in Sidmouth?

From an engineering perspective...

- 💧 90m long, 5m wide swale



What did we do in Sidmouth?

From an engineering perspective...

- 💧 400m³ infiltration / detention tank formed from 3,000 geo-cellular crates
- 💧 Central flow control chamber

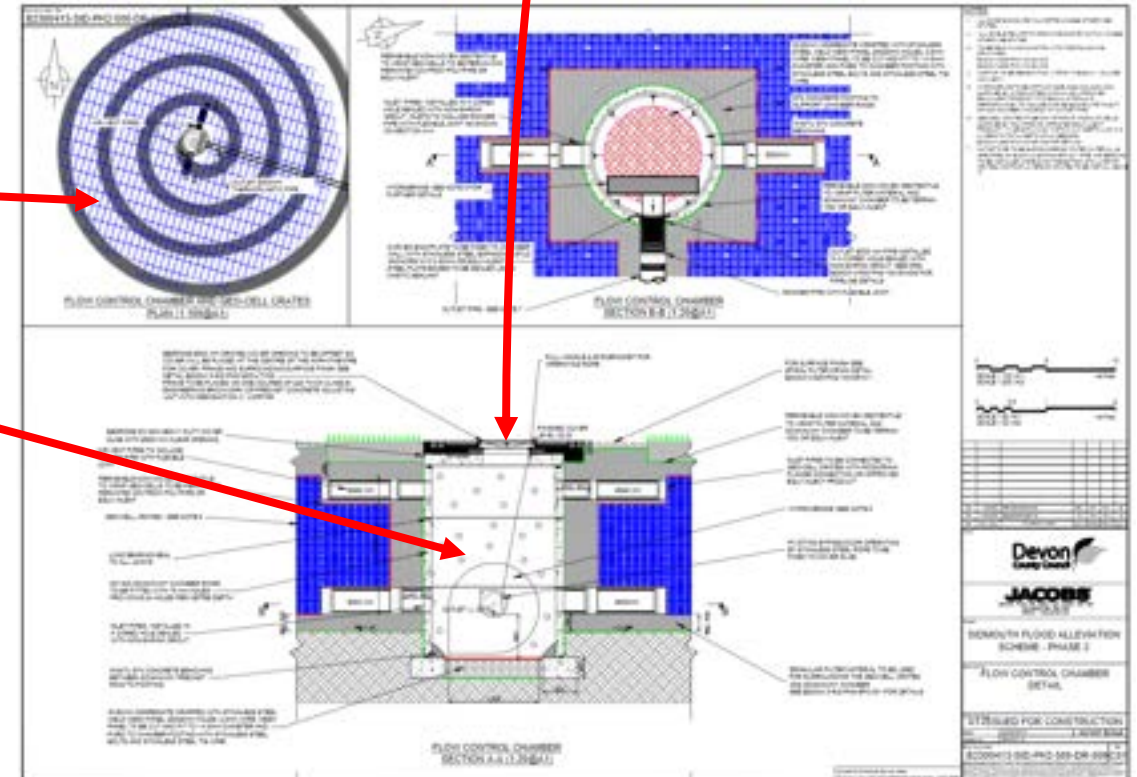




What did we do in Sidmouth?

From an engineering perspective...

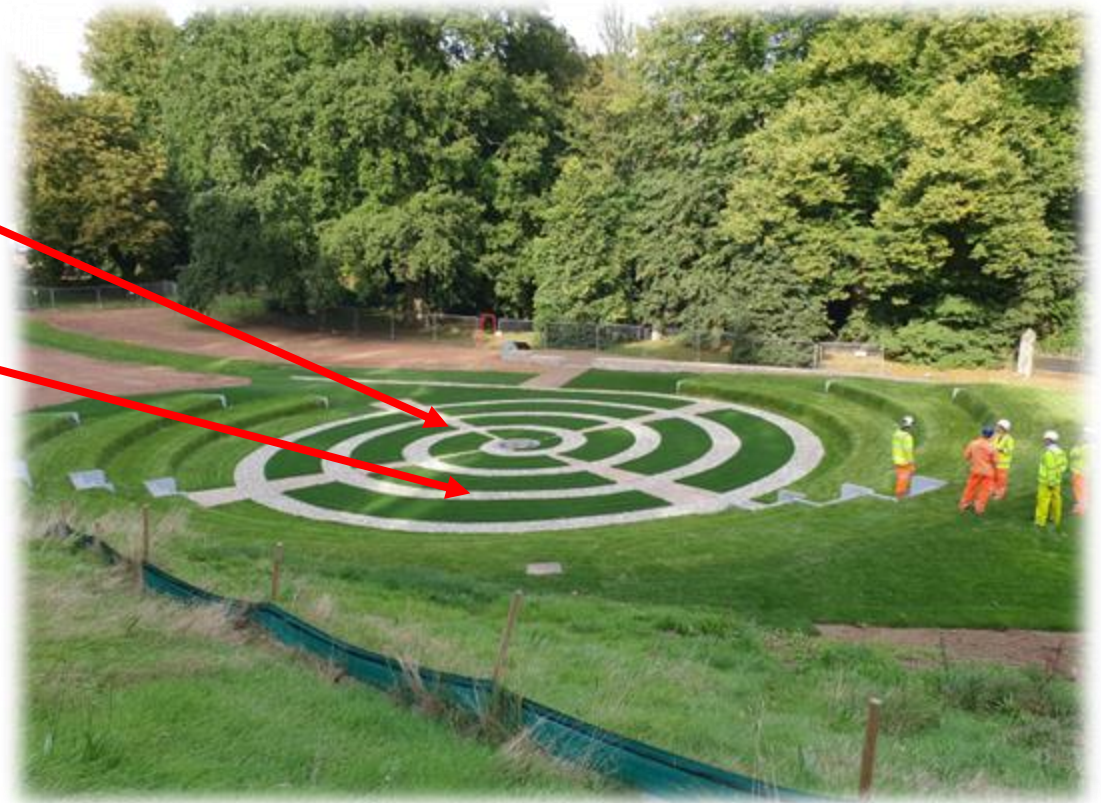
- 💧 400m³ infiltration / detention tank formed from 3,000 geo-cellular crates
- 💧 Central flow control chamber



What did we do in Sidmouth?

From an engineering perspective...

- 💧 140m long spiral filter drain
- 💧 20m diameter (300m³) reinforced grass detention basin



What did we do in Sidmouth?

From an engineering perspective...

- 💧 Spillway for exceedance event



What did we do in Sidmouth?

From a public open space and environmental perspective...

- Improved the drainage of an existing parkland area, which was often boggy during the winter months, making it more accessible to the community
- 2,500m² of wildflower meadows seeded, improving low grade grassland / scrub



What did we do in Sidmouth?

From a public open space and
environmental perspective...

- 💧 11 new trees planted, mitigating two
trees that were removed



What did we do in Sidmouth?

From a public open space and
environmental perspective...

- 💧 Pruned a diseased horse chestnut tree roots to accommodate swale under close supervision of arborist



What did we do in Sidmouth?

From a public open space and
environmental perspective...

- 💧 90m of wildflower turf to swale sides



What did we do in Sidmouth?

From a public open space and
environmental perspective...

- 💧 Aquifer recharge through infiltration
tank



What did we do in Sidmouth?

From a public open space and environmental perspective...

- Public information board explaining the project in layman's terms, providing engagement for children as well as adults
- Provision of a community performance space in the form of a grassed amphitheatre, with seating for approx. 300 people on its concentric steps, with additional seating possible in the base.



Does it work?

- 💧 YES!!!
- 💧 Don't take my word for it, listen to Councillor Hughes!
- 💧 We are currently exploring opportunities for remote monitoring at the site... watch this space!



Want to find out more?

Check out Jacobs'
YouTube Channel

The Knowle

May 2020



Imagery Date: 5/29/2020

The Knowle

Feb 2021



Imagery Date: 2/28/2021



The Knowle

Jun 2022



Imagery Date: 6/22/2022 50%

Reinventing tomorrow!

“If you do what you’ve always done, you’ll get what you’ve always got!”

Quote: Henry Ford

“Restoring biodiversity on Earth is the only way out of the crisis we have created.”

Quote: Sir David Attenborough

Let’s make dual use blue green infrastructure business as usual...

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Source: The dying planet, GETTY IMAGES ©