

**Castle Hills Primary Academy SuDS scheme
Submitted by Sudsplanter Ltd**

**Awards category
Regeneration and retrofit – public buildings**



Lead or collaborating organisation(s)	Sudsplanter Ltd., Doncaster City Council, Yorkshire Water, S.M.I.L.E horticulture learning centre
Location of SuDS	DN5 9ED W3W – dairy.views.hails

1. SuDS overview

SuDS components used	<ul style="list-style-type: none"> • 18 SuDS planter Units • 5 disconnection features • Educational Signage • Interactive Hand Pump Features
Size of the scheme and its local context	Typical primary academy. Total school site approx. 3.5 Ha with total roof area being drained of 0.37 Ha
Approximate age of scheme (years)	0 years (3 months)
Benefits of the scheme	<ul style="list-style-type: none"> • Managing local flood risk. • Increases biodiversity. • Improves water quality within the local area. • Bringing interactive aspects to SuDS • Provides educational intervention for every class in the school. • Provides teaching aid for Science, Technology, Engineering and Maths. • Uplifting the school environment. • Outdoor classroom aid.
Briefly describe the scheme	<p>Castle Hills Primary Academy, located in the suburbs of Doncaster, provides a learning environment for 500 children. The surrounding sewer system has suffered from increasing flows causing sewer flooding issues within the surrounding catchment. Castle Hills Primary Academy is part of a larger scheme to expand and aid in:</p> <ul style="list-style-type: none"> • Interactive play opportunities • Slow the flow of roof run-off • Education • Biodiversity Net Gain (BNG) • Adoptable solutions for all to engage with (parents, teachers, and pupils) • Collaborative solution benefiting local suppliers <p>Simple retrofit solution aimed at providing an installation which reduced disruption to the school timetable and allowed interaction with pupils during the install process.</p>

2. SuDS details

No.	Question	Answer
1	What difference has this scheme made to the local community or area?	<p>It has added diverse green space to the school grounds, provided teaching opportunities and interaction with SuDS planter units and learning about the environment and biodiversity. The simple addition of integrated seating encourages interaction and engagement with the pupils.</p> <ul style="list-style-type: none"> • Biodiversity Net Gain (BNG) • Flood protection to school and surrounding housing • Educational tool for the local children, and community • Aesthetically pleasing • Interactive teaching tool • Uplifting a concrete environment
2	What is exceptional about this scheme beyond a standard approach?	<p>From an early stage the partners worked together to engage the children of the school, explaining why SuDS have been proposed in the area and what opportunities the children have in developing their own colour palette and planting theme within each SuDS planter. Education tools have been provided to engage the children on the 4 STEM topics to help increase interaction with the SuDS planter once in situ.</p> <p>Working alongside S.M.I.L.E. we provided a planting scheme which utilises locally sourced plants and allowed the children to visit the nursery and help with the growing process prior to planting onsite.</p>
3	How much work went into getting this scheme realised?	<p>The process to implement SuDS planters within the school itself went very smoothly. Castle Hills Primary Academy were extremely cooperative and willing to engage with the scheme. City of Doncaster Council and Yorkshire Water had meetings with the school helping to explain the wider scheme and the benefits to the school and the wider community.</p>




4	Is this scheme part of a masterplan or integrated into other initiatives?	This scheme is part of a much wider proposal to deliver SuDS features within the local streetscape to help reduce surface water runoff from the highway, flooding on the school premises and lessen the impact on the local sewer system. The City of Doncaster Council and Yorkshire Water are working towards developing these proposals with the local community and embedding the SuDS solutions into the local landscape whilst teaching the people who live locally about the necessity of these additions to their neighbourhoods.
5	What value does this scheme provide to the local area and beyond?	The introduction of a colourful, interactive, environmentally friendly SuDS scheme within a school setting means future generations of parents and children will have the opportunity to engage with SuDS on a personal level. The SuDS planter units provide a low maintenance, long lasting, environmentally sound, retrofit solution that is personalised to Castle Hills Academy and encourages ownership and pride in the project and the products received.
6	What challenges/problems needed to be addressed to realise this scheme?	<ul style="list-style-type: none"> • Creating a planting arrangement which worked with a small charity nursery that grows all their stock from seed. • Delivering a planting scheme which was seasonal. • Teaching 500 children about the system and the environmental benefits of SuDS features within the local landscape. • Realigning some of the existing gutter system to enable flows to be directed into some of the SuDS planter units. • The use of delivery vehicles needed to be timed to fit with the school timetable so ensuring delivery could be made safely, with the space required to store SuDS planters prior to installation.

7	How does the scheme address related issues such as water scarcity, nutrient neutrality, or biodiversity net gain?	<p>Introduces almost 24m² of net new biodiversity planting into the school plus 10m³ of a specialist soil mix. This increases habitat value in the immediate vicinity and provides the optimal environment for the health of the plants.</p> <p>This also provides a natural filtration system for the roof run-off, improving the water quality discharging to the sewers and provides over 10m³ of water storage/attenuation capacity to alleviate pressures on the sewer.</p> <p>Two of Suds planters are configured to retain 50% of their storage volume for water reuse and irrigation accessed by a handpump, providing an additional engagement feature for the children.</p>
8	Is learning from the scheme continually captured and communicated? Please give examples.	<p>YW and DCC actively guided the project's development and delivery process, ensuring that the planting methodology and engagement approach effectively conveyed key messages on flood prevention. Insights gained were shared amongst project working group, informing future SuDS for Schools initiatives.</p> <p>This includes;</p> <ul style="list-style-type: none"> • The development of an information and maintenance pack for schools to engage and adopt the SuDS Planters • Development of a plant list capturing plant types accessible for S.M.I.L.E to grow within their licencing restrictions and seasonality. • Signage – messaging to accompany installs. • Engagement – promotion of this work to Councillors and local community through site visits and press releases.
9	What approaches/measures are taken to ensure the scheme is properly managed and maintained?	<p>The SuDS planter units are designed to minimise maintenance requirements, ensuring maximum success as a SuDS solution.</p> <p>As part of the installation process Sudsplanter Ltd provided a maintenance pack outlining the plant species and each of their ongoing maintenance needs including advice on introducing new plants and the variety of species which live in this specialist environment.</p> <p>This helps to ensure that the success of the planter and planting involves minimal maintenance and is sustainable and long lasting.</p>

<p>10</p>	<p>Have you collected any feedback on your scheme? What do people say about it? Can you provide any quotes?</p>	<p>Quote from Phil Jackson, Site Manager at Castle Hills Primary Academy. “City of Doncaster Council, Yorkshire Water and the Sudsplanter Ltd. team gave us a fantastic opportunity to not only improve the look of our school but also helped us to achieve our sustainability goals. Suds planter units have been a fantastic addition to our school, they have provided a talking point across the school and wider community. They have also made a visual impact to the look of our school”</p> <p>Quote from Hayley Parrish, Nature First Advisor for Yorkshire Water; “Working in partnership with Sudsplanter Ltd to deliver this scheme has been a great success. Their hands on approach from design to delivery has meant we have been able to deliver a bespoke project. Through tailoring designs the planters met our needs for water attenuation but also the needs of the school, allowing them to maximise the use of the planters as teaching aids. It’s been a brilliant project to be part of and I hope to work with Sudsplanter Ltd again in the future”</p> <p>Quote from Daniel House, Drainage Project Engineer for City of Doncaster Council; “The scheme as a whole was a great success the collaborative working between five parties was a challenge but one that was overcome. The engagement from the school and allowing us to interact with the children through education days, site talks and being able to have an input to the flora being implemented in the planters made for increased interest from the students and improved knowledge of sustainable drainage. The scheme aimed to peak interest and understanding with the students along with improving the flood risk, water quality, biodiversity and water quantity within the school and local area, it was great to see the students embracing the project along with other environmental aspects they have on site”</p>
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3. Supporting materials

Image (low resolution)	Caption	Image credit
	<p>Adding plants to one of the SuDS planter units with a water feature above it. The water runs off the roof, via a downpipe and through the clear pipework system creating a fun and eye-catching addition to the playground.</p>	<p>Sudsplanter Ltd</p>
	<p>Yorkshire Water team member Hayley, and Doncaster City Council member Danny, proudly standing next to one of the finished and installed planters outside one of the entrances to the school. This SuDS planter was fitted with an engaging rain cloud feature above to simulate rainfall from the clouds when the roof run-off is directed from the downpipe into a perforated tray behind.</p>	<p>Sudsplanter Ltd</p>
	<p>We purposefully worked with the colourful designs on the buildings, tying the wall art into the features on the planters. Here you can see a yellow watering can feature which directs the roof run-off into the SuDS planter. Above, you can see an educational sign providing information on bugs and insects and how SuDS features work. The addition of a step/bench allows smaller children and adults to enjoy the planter.</p>	<p>Sudsplanter Ltd</p>

	<p>The rear classrooms with before and after views showing the SuDS planter units. The array of bright coloured frames along with colourful planting uplifts the view from inside the classroom and provides an educational tool, just outside, that is easily accessible for the teachers to utilise during their classes.</p>	<p>Sudsplanter Ltd</p>
	<p>We aim to teach and involve as many children as we can during school installations. Here you can see Lorna Davis alongside some of the team from S.M.I.L.E helping the children to plant up the first SuDS planter unit installed at the school.</p>	<p>Sudsplanter Ltd</p>
	<p>Watering can features were included on two of the planters to direct the roof run-off onto custom made miniature gabion baskets. This dissipates the water's energy and helps disperse the water evenly across the soils surface and avoids splashing. The gabions also ensure a safe solution for including cobbles, thus reducing the health and safety/vandalism risk within a school setting.</p> <p>The features and frames have been powder coated in colours to match the Academy theme.</p>	<p>Sudsplanter Ltd</p>



Aerial view showing the locations of each of the SuDS planter units. A survey was carried out on the school initially to establish potential locations. Roof areas being drained into each downpipe. were calculated based measurements and observations taken during the survey as well as measurements taken from online aerial views. This allowed optimum SuDS planter sizes to be proposed based on sizing selection guidance provided by Sudsplanter Ltd.

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