



WindValue Conference
29th May, 2024

Environmental Research Institute, Cork

Dr. Angie Nagle
CEO & Co-founder BladeBridge



An aerial photograph of a recycling facility. The foreground is dominated by large, neatly stacked rolls of white material, likely paper or cardboard. In the background, a yellow truck is driving on a dirt road, kicking up a cloud of dust. The overall scene is set in a dry, brownish landscape.

~~Reuse~~

Repurposing

~~Recycling~~

Waste Valorisation



Blade Reverse Engineering



211



1. Geometric Shape Matching



211

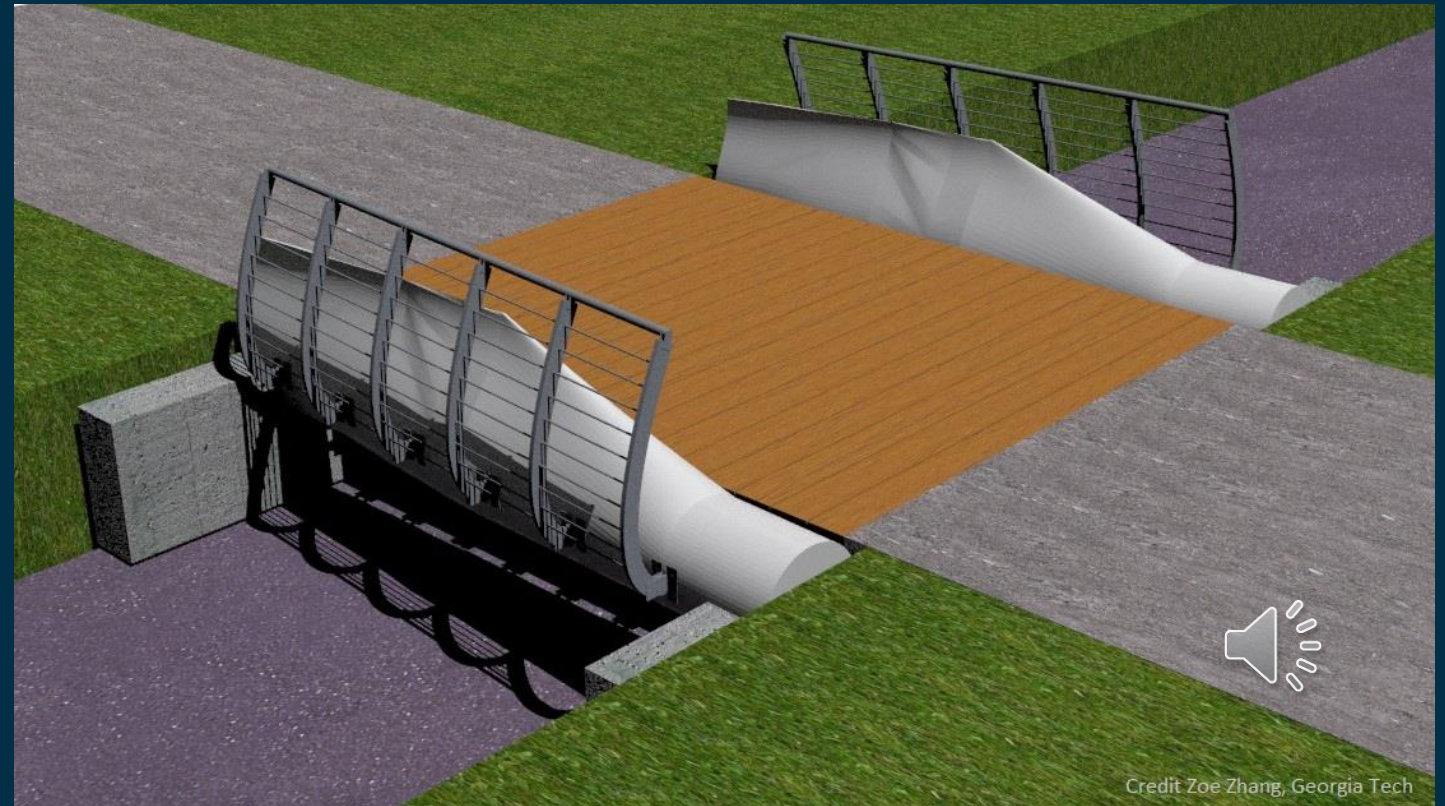




2. Substitution of high CO₂ materials



3. Potential to use lots of blades: Bridges for Ireland's expanding Cycling Network!



Credit Zoe Zhang, Georgia Tech

Ireland's First BladeBridge Installation

Cork
January 2022



~~Can we commercialise BladeBridge?~~



Environment

Society
within Environment

Economy
within Society

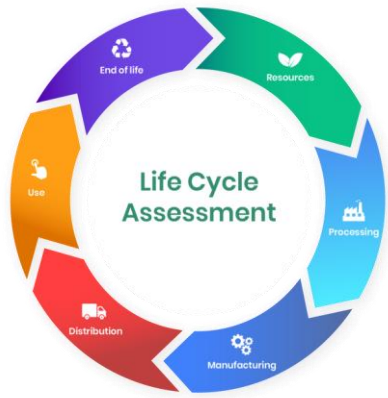
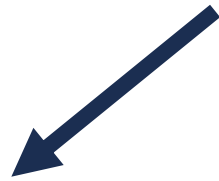
SHOULD we commercialise BladeBridge??



Environment

Society
within Environment

Economy
within Society



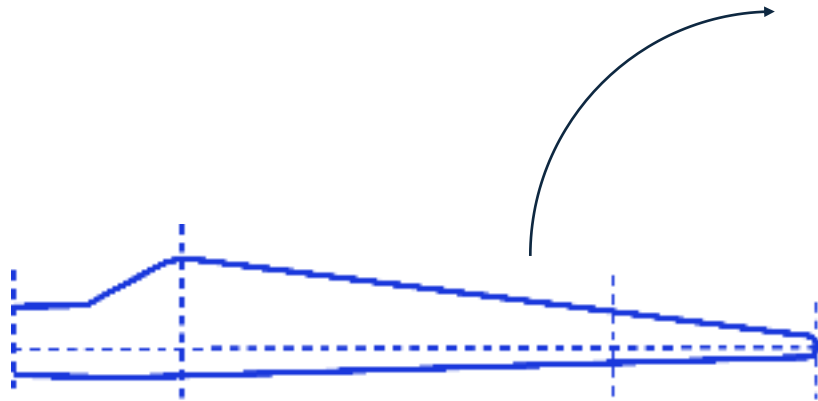


BladeBridge

From waste
to profit



80% of the steel in a pedestrian bridge can be replaced with blades that would have gone to landfill



BladeBridge Team

Operations/
Lead Fabricator



Creative Director



R&D

CTO/Structural
Engineer

CEO

Office Management
& Irish Sales

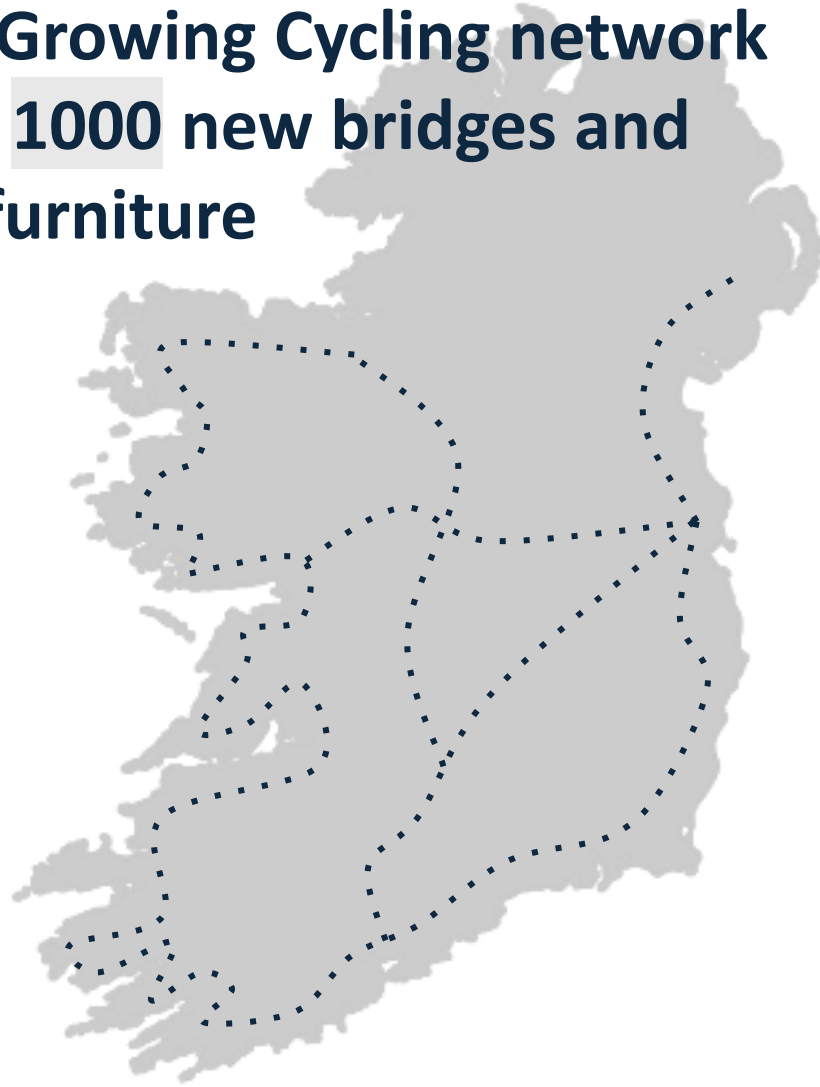
Blade Acquisition Commercial Aspects

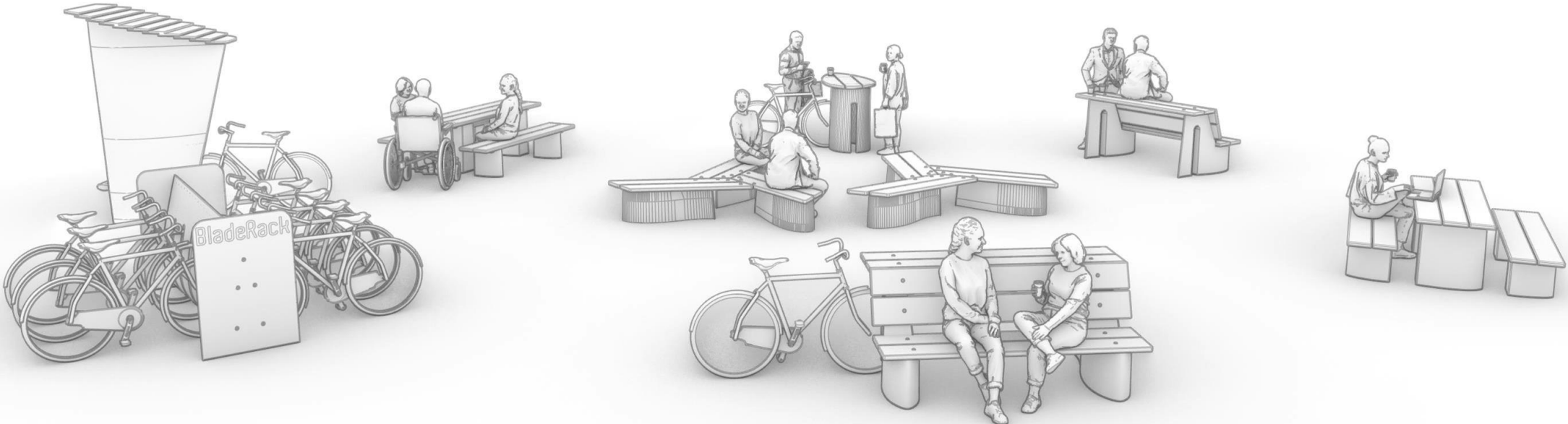


(We get paid to take the blades!)

- 6 blades from Sligo (SPR)
- 10 blades from Scotland
- 18 x 50m blades – in negotiations
- Over 100 per year from 2025 potentially available

Ireland's Growing Cycling network will need 1000 new bridges and outdoor furniture





Zephyr Bike Stand

This product seamlessly combines bike parking and a functional table.

Crafted for both practicality and leisure, it provides a space to park your bike while offering a convenient tabletop for enjoying coffee, lunch, and scenic moments with friends, effortlessly blending utility and social engagement.

These unique tables echo the organic form from the turbine blades, through the offset table top shapes, which are A-symmetrical, soft and stunning. We are able to offer these tables in a huge variety of sizes, to suit small or medium group sizes, depending on where along the blade length we make the sectional cuts.

Such an ultra simple possibility, which also comes with an option to place planting on the table top - like on our **Zephyr Bloom** furniture, to really bring a biophilic touch to the furniture piece.



Zephyr Bike Stand



Rendered Concept

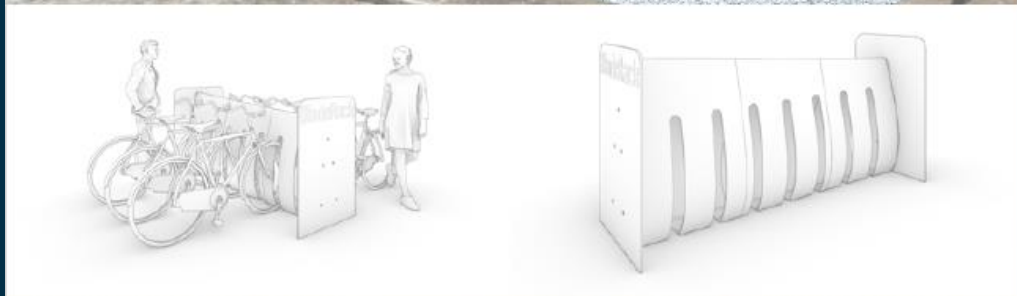


Zephyr Bloom

CAD Sketch

Photo: Spanish Point

Zephyr Bike Rack



Initial CAD Sketch

Initial CAD Sketch

Rendered Illustration
www.bladebridge.ie

Furniture Series

Zephyr Bike Rack

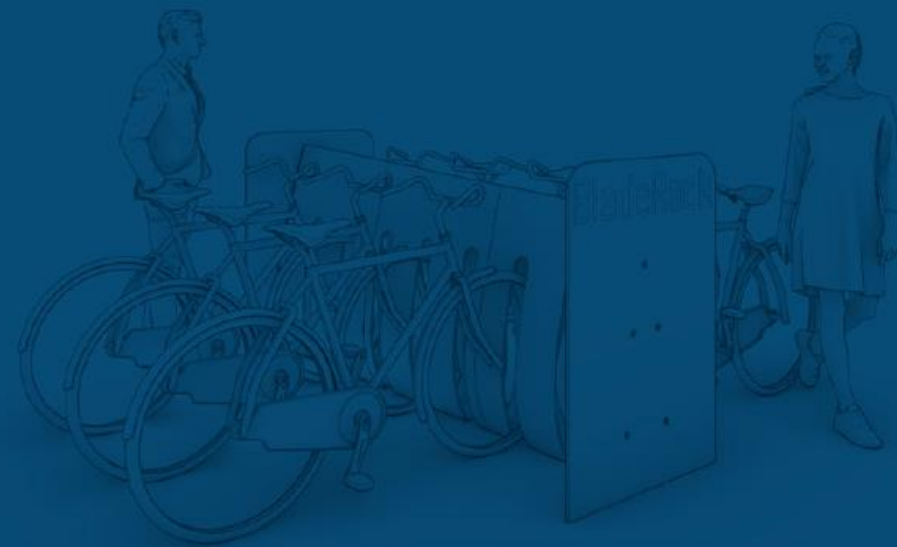
End-of-life turbine blades come in a variety of forms and lengths. In BladeBridge, we look for ways to make repeatable, dependable and elegant product designs, which play to the fiberglass' strength - it's strength!

Since the beginning, we envisaged the end products being used in public spaces. Bike Parks give us a perfect way to use sectional cuts of the blades, to accommodate a large amount of bikes, in a very simple and elegant form.

Our design and engineering team have developed solutions here which range from a simple parking bay, right through to fully electrified, charging station solutions, where we can install lighting and security options.

These hollow section blades are impervious to wear, tear and weather making them the perfect solution for bike parking and storage.

Talk to us about your specific requirements and we will do our best to customise a solution that is right for you and your space.



Furniture Series

Zephyr Haven

Step into innovation with our single-person shelter and bike parking unit, ingeniously crafted from repurposed wind turbine blades.

Take shelter from the elements, stop for a solo lunch or to read a book.

Offering a haven for both you and your bike, this eco-friendly marvel combines sustainability with practicality, ensuring you're sheltered from the elements while your bike rests securely behind you.

Embrace the future of outdoor convenience with this unique fusion of sustainability and functionality!



Zephyr Haven



Initial CAD Sketch



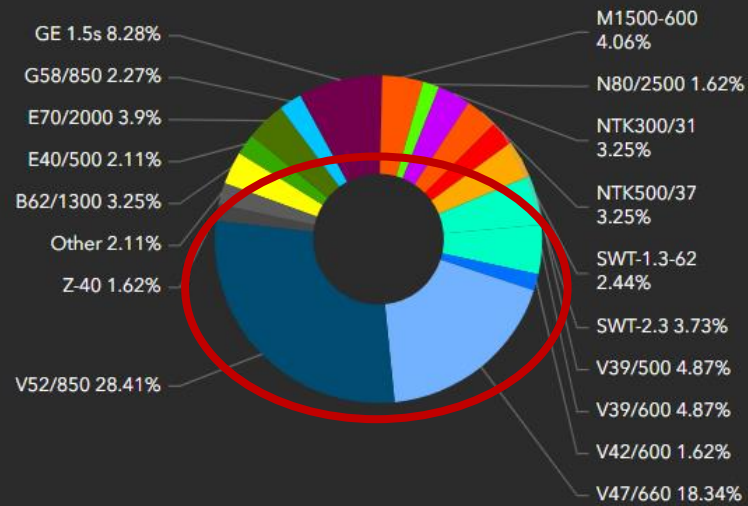
Initial CAD Sketch

Rendered Concept

Wind farms



Manufacturing Details



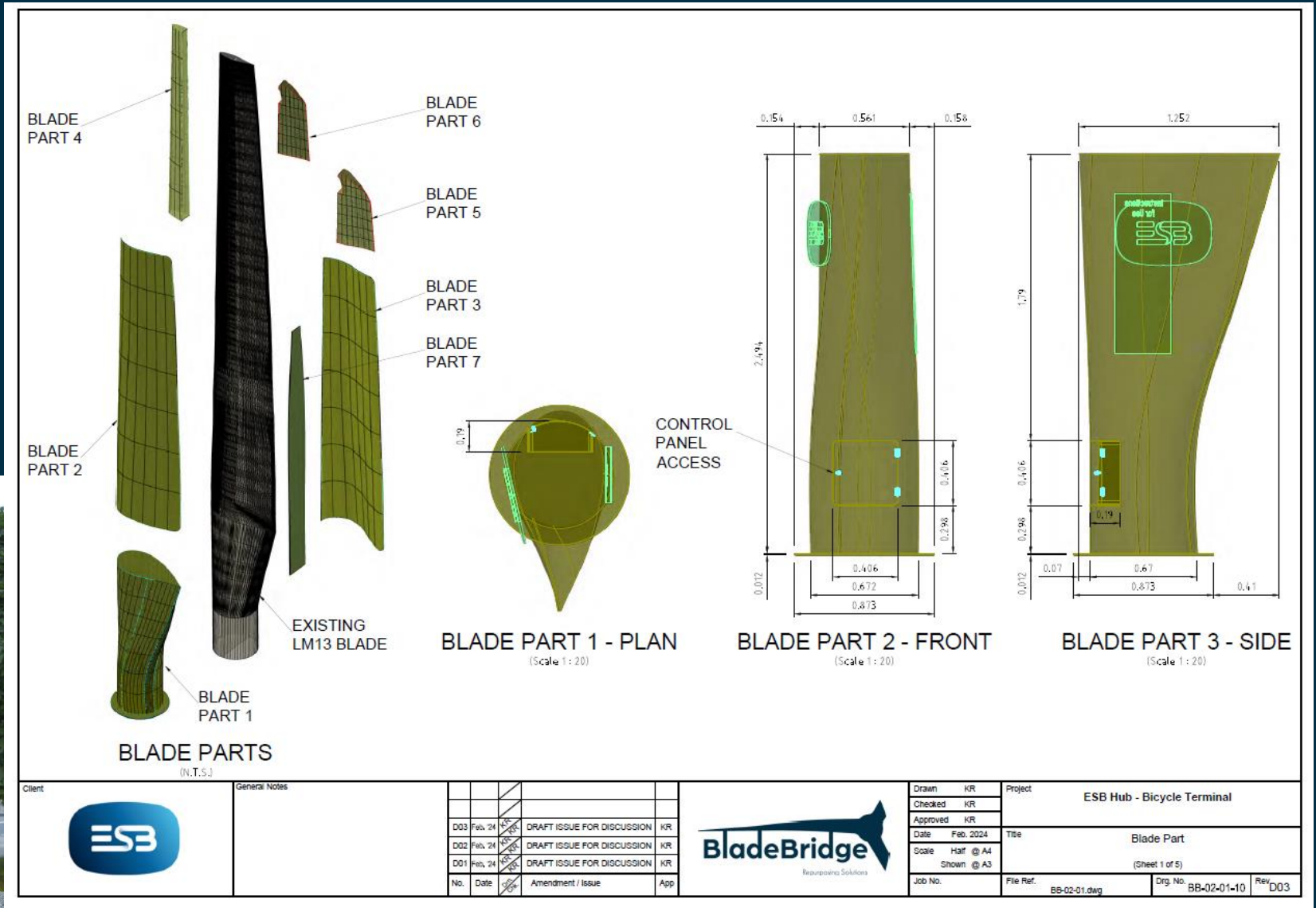
Wind Blade Type & Location





2050
accelerator



ESB E-Hub Pilot Project



Client		General Notes		<table border="1"> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>D03</td> <td>Feb. 24</td> <td>15%</td> <td>DRAFT ISSUE FOR DISCUSSION</td> <td>KR</td> <td></td> </tr> <tr> <td>D02</td> <td>Feb. 24</td> <td>15%</td> <td>DRAFT ISSUE FOR DISCUSSION</td> <td>KR</td> <td></td> </tr> <tr> <td>D01</td> <td>Feb. 24</td> <td>15%</td> <td>DRAFT ISSUE FOR DISCUSSION</td> <td>KR</td> <td></td> </tr> <tr> <td>No.</td> <td>Date</td> <td>%</td> <td>Amendment / Issue</td> <td>App</td> <td></td> </tr> </table>								D03	Feb. 24	15%	DRAFT ISSUE FOR DISCUSSION	KR		D02	Feb. 24	15%	DRAFT ISSUE FOR DISCUSSION	KR		D01	Feb. 24	15%	DRAFT ISSUE FOR DISCUSSION	KR		No.	Date	%	Amendment / Issue	App						<table border="1"> <tr> <td>Drawn</td> <td>KR</td> <td rowspan="5">Project</td> <td colspan="2">ESB Hub - Bicycle Terminal</td> </tr> <tr> <td>Checked</td> <td>KR</td> <td colspan="2"></td> </tr> <tr> <td>Approved</td> <td>KR</td> <td colspan="2"></td> </tr> <tr> <td>Date</td> <td>Feb. 2024</td> <td colspan="2">Title</td> </tr> <tr> <td>Scale</td> <td>Half @ A4</td> <td colspan="2">Blade Part</td> </tr> <tr> <td>Shown</td> <td>@ A3</td> <td colspan="2">(Sheet 1 of 5)</td> </tr> <tr> <td>Job No.</td> <td></td> <td>File Ref.</td> <td>BB-02-01.dwg</td> <td>Org. No.</td> <td>BB-02-01-10</td> <td>REV</td> <td>D03</td> </tr> </table>		Drawn	KR	Project	ESB Hub - Bicycle Terminal		Checked	KR			Approved	KR			Date	Feb. 2024	Title		Scale	Half @ A4	Blade Part		Shown	@ A3	(Sheet 1 of 5)		Job No.		File Ref.	BB-02-01.dwg	Org. No.	BB-02-01-10	REV	D03
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Process: ESB E-Hub Pilot Project



Transport Research Arena Conference

RDS

April 2024



Tower Pilot



EU MARKET OPPORTUNITY

EU: 420,000 TOWERS EXISTING

NEW TOWER INSTALLS @ 5-10% / YR

MARKET OPPORTUNITY @ 5%

UK & IRELAND = 2,250 / YR

EU = 21,000 / YR







Thank You!

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