

**In attendance:**

<b>(Name)</b>	<b>(Role)</b>	<b>(Company)</b>
Warren Arnold	Sales and Service Engineer	Bauer Equipment
Katie Atherton	Senior Environmental Advisor	Cementation Skanska
Dafydd Belshaw	QES Group Manager	Bachy Soletanche
Angela Blakesley	HSQE Advisor	Van Elle
Craig Burton	Senior Design Engineer	Pile Designs
Jack Clayton	Design Engineer	Rock & Alluvium
David Clement	Production Director	Roger Bullivant
Luke Deamer	Practitioner Doctorate in Sustainability	Keller
Sharon Foley	Group QMS Manager	Martello Piling
Kriss Hemming	Estimating Engineer	Bauer Technologies
Peter Kerr	HSEQ Manager	DAWSON-WAM
Alice Liddell	Senior Environmental Advisor	Expanded
Sam Nicole	Contracts Manager	Central Piling
Stuart Norman <b>(Chair)</b>	MD Keltbray Piling	Keltbray
Tomasz Paprocki	Senior Geotechnical Engineer	BAM Ritchies
Alasdair Revie	HSEQ Manager	FK Lowry
Ash Rogers	Design Manager	Aarsleff
Colin Ryan	Senior Design Engineer	Bachy Soletanche
Benjamin Smith	Pre-Construction Director	JRL
Matt Smith	Operations Leader	Expanded
Paul Smith	HSEQ Manager	Roger Bullivant
Kiro Tamer	Group Energy Manager	Keltbray
Nirmal Tiwari	(Retired Bid Manager)	BBGE
Andrew Waghorn	Operations Director	Murphy GE
Mark Williams	Development & Marketing Director	Keller

**Present:**

Ciaran Jennings	FPS Secretary
Isabel Jennings	FPS Secretariat

Owner	Actions	Date Due
All	Review and provide feedback on the FPS Sustainability Charter	Next Meeting
All	Volunteer to be involved in any of the discussed TG's/guidance: <ul style="list-style-type: none"> <li>• Carbon metrics TG</li> <li>• 'State of the nation' for LCC, HVO fuels etc.</li> <li>• Best practice for Water reduction</li> <li>• FPS Sustainability Charter review</li> <li>• Involvement with EFFC/FPS LCC webinar (early 2021)</li> <li>• 'State of the nation' for re-using Piles</li> </ul>	Next Meeting
FPS Secretary/ Stuart Norman	Organise a conversation with the Plant and Technical committees	Next Meeting
FPS Secretary	Organise a meeting between AM Plant Manufactures, Plant committee and Sustainability group.	Next Meeting
Luke Deamer	Share research on different pre-qualifications for tender	Next Meeting
Stuart Norman	Share Keltbray research on LCC	Next Meeting
Sam Nicole	Share a quick overview of HVO lessons learnt	Next Meeting

Minutes		
1.	<p><b>Apologies</b></p> <p>Esher Lovelace (Keltbray), Laura Williams (Keller), Sabrina Irfan (Keller).</p>	
2.	<p><b>Welcome &amp; Roundtable Introductions</b></p> <p>Please see attendance sheet for information.</p>	
3.	<p><b>Introduction to Environmental Sustainability WG</b></p> <p>Ciaran provided a top-line overview of the aims of the new environmental sustainability WG. This covered the "initial thoughts" document (<a href="#">here</a>) from Stuart, circulated as part of the meeting documents. Stuart added that he hoped the group would be able to update the FPS Sustainability charter (<a href="#">here</a>) and create new targets/benchmarks for the industry.</p>	
4.	<p><b>What is currently happening in the industry?</b></p> <ul style="list-style-type: none"> <li>• EFFC Sustainability WG</li> </ul> <p>Please find Luke's PowerPoint presentation (<a href="#">here</a>).</p> <p>Luke started by providing a quick summary of the current dynamics of the EFFC Sustainability WG.</p> <p>Luke went on to provide an overview of the WG's previous work. Luke recommended that the group read through the EFFC Sustainability Overview (<a href="#">here</a>), as it introduces key terminology and concepts without</p>	

assuming any prior knowledge of the topic. It was noted that this overview was circulated as part of the meeting documents. Luke explained that the EFC Carbon Calculator (CC) ([here](#) – please note the CC has recently been updated to V4) is a valuable tool for the industry as it covers scope 1-3 emissions and covers most geotechnical solutions. Luke noted that the CC has been getting a lot of industry attention lately and that there has been a FPS Sustainability webinar ([here](#)) which outlines how to use the tool. Luke also mentioned that the group has recently played an integral part in FIEC's Circular Economy Action Plan response ([here](#)).

Luke concluded his presentation by providing a quick overview of the groups ongoing projects:

- Creating a net-zero carbon pathway (incl. quick wins)
- Researching use and standards of Low Carbon Cements
- Creating an appropriate set of metrics for sustainability reporting within the federation

Stuart thanked Luke for his presentation and noted that he thought it would be beneficial for the two groups to align their metrics/benchmarking efforts. Luke agreed, noting he would like for the UK contingent of the EFC SWG to help lead the discourse at European level.

Stuart asked whether the EFC are considering asking members to use the CC as a way of calculating a project's total embodied carbon. Cianan noted that, at the moment, there are no plans for this, but that Chris Harnan has convinced the EFC executive to commit to collecting KPI's. Luke noted that comparing the end of project with the initial tender calculations could provide interesting case studies to demonstrate carbon savings and assess the accuracy of CC predictions.

Stuart opened the floor to the group asking whether anyone uses the calculator more than once a month, and whether the group feel it should be used more to calculate completed projects.

Katie noted that Cementation use the CC for every tender and that they will soon be committing to using it at the end of a project as a comparison tool. Stuart noted that, at Keltbray, they rarely do back calculations but that they would like to start using it more during the tender process. Dafydd stated that Bachy currently use the CC on projects above £1 million - although they have a target to use the CC for every project going forward. Dafydd noted that Bachy do not commit to back calculations but acknowledged that they should start doing this too. Mark commented that, at Keller, they have used the calculator 6-7 times in the last month

	<p>during tender and that they are planning to increase its use, especially when it comes to infrastructure.</p> <p>Sam commented that, at Central, they have completely reviewed their costing packages to include carbon calculations, but their clients are still predominately price driven. Stuart acknowledged that driven, pre-cast, small diameter CFA contractor's main driver is turnover. The high number of projects would also mean that requiring an embodied carbon calculation for each would be a lot of work. Stuart noted that using the CC more would help educate clients, and the wider society, to look past price alone. Matt commented that, at Expanded, producing carbon calculations is a client driven process.</p> <p>Ciaran explained that he has been involved in the conception of the EFFC CC since 2013. Ciaran noted that the CC tool was before its time and that it seems the industry is now starting to accept it as an important tool. Ciaran explained that, at EFFC level, the range of sustainable <i>enlightenment</i> between the members vary greatly. Ciaran concluded by saying that the EFFC believe it will take a legislative push, and high commercial incentive, for sustainability to be adopted by clients. Stuart noted that commercial incentives are a good start – as less cement inherently means less cost.</p>	
5.	<p><b>Working Group Objectives</b></p> <ul style="list-style-type: none"> <li>• Key issues <ul style="list-style-type: none"> <li>• <i>Carbon reduction targets and roadmap to net zero by 2050</i></li> </ul> </li> </ul> <p>Stuart noted that Keltbray have done a lot of work on the topic of low carbon concretes (LCC) and that he would be happy to share their test result information and the possible routes to market. Stuart suggested that it would be beneficial for the group to pull together a best practice document/general overview on Low Carbon Concrete (LCC). Stuart suggested that the FPS Technical committee might be able to help steer this guidance. Luke commented that his PhD is primarily based on best practices so would be happy to contribute to creating this document.</p> <p>Ciaran noted that the EFFC are looking into LCC and are planning to present a webinar on the topic early next year. Stuart noted that it would be good for the two groups to collaborate for this webinar.</p> <p>Ciaran also mentioned that the DFI have recently created a sustainability WG, primarily interested in energy piles, and might be interested in collaborating with the FPS. Stuart asked whether there are any Associate Members who design any of these energy systems. Ash noted that Aarsleff have started to design some geothermal and energy piles – in the UK, Denmark and Poland. Stuart noted a 'state of the nation' document on this</p>	

	<p>would be valuable. Ciaran noted the GSHPA are especially interested in this topic.</p> <p>Stuart suggested that it might be useful to see if the Safety, Plant and Operations committee could help advise on a 'state of the nation' on the different machinery which allow the use of alternative fuels. Warren noted that Bauer are looking to develop an alternative fuel source BG piling rig – which is just beyond the developmental stage. Warren also commented that Liebherr has the LB16 which is a lithium iron battery powered rig but that, unfortunately, they cannot create a rig any larger than this because of kilowatt requirements to drive hydraulics. Warren noted that a few customers have been researching alternative fuel power, but that he has not got any progress reports from them. Ciaran noted that JCB have recently invested in a hydrogen plant in Northern Ireland. Ciaran asked Warren whether he felt hydrogen fuel is likely to be the expected route forward, opposed to lithium batteries. Warren noted that for HS2 a lot of companies have had to review their fleets already. There are companies looking into different energy sources, but Warren noted they are very dependent upon collaboration with other manufacturers that provide key rig parts. Stuart noted that he did not want to step on the toes of the plant group, but that there is clearly some collaborative work to raise awareness to be done here. It was agreed that Stuart and Ciaran would devise a way to involve the plant group.</p> <p>Katie noted that they have faced barriers with HVO fuels and the fact that it could potentially void machine warranties. Ciaran noted that it might be beneficial to pull together a meeting of rig-manufacturer Associate Members and the Plant group to see what can be agreed here. Katie stated that she thought this would be a worthwhile process. Sam noted that they are currently trialling HVO in a Caterpillar machine, and that it might be worth having a discussion on lessons learnt and how to navigate the HVO issues. Stuart noted that it might be good to compile a quick FPS brochure to raise awareness on what's available HVO wise.</p> <p>Nirmal noted that he would be interested in collaborating with the Plant group on this.</p> <ul style="list-style-type: none"> <li>• <i>Sustainability Charter</i></li> </ul> <p>It was agreed that the group should evaluate what changes need to be made to the Sustainability Charter. It was agreed that the group should go away and review the charter to see what needs to be edited.</p> <ul style="list-style-type: none"> <li>• <i>Carbon Emission Benchmarks</i></li> </ul>	<p>Stuart Ciaran</p> <p>Ciaran</p> <p>Sam</p> <p>All</p>
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<p>Stuart recommended that the group should look to benchmark sustainability and create a minimum FPS sustainability standard. Stuart suggested that this could be as simple as requiring a back calculation on any project over £1 million, with the intention to move the benchmark down as the process becomes more established. Luke noted that he thought this approach would be good, as it would help encourage sustainability to be viewed as part of core business, especially as these larger projects already value carbon. Stuart suggested this could be a two-tiered approach, with projects over £1 million requiring a specific calculation, and those under £1 million having a set of standard metrics (e.g., per metre/per £ turnover) to help benchmark a +/- 10% ballpark figure. Stuart concluded that this might take some of the burden away from smaller members. Luke agreed, noting that the group might be able to simplify the CC or adopt from a different part of sustainability.</p> <p>Stuart noted that it would be beneficial to research what statements are being made across the industry on why sustainability is important. Luke noted that he has done prior research on tenders, and the pre-qualifications other than price, which he would be happy to share. On this point, Luke suggested it might be a better strategy to encourage the carbon calculations to be done at tender stage so carbon can inform client decisions.</p> <p>Ciaran noted that these sustainability commitments could become a point of market differentiation for FPS members. Luke commented that it could be a market differentiator now but that the wider industry will be looking to catch up in the same way. Luke noted that Sustainability could easily be framed as the H&amp;S of 20 years ago and challenged that it should not take a company to be bumped off a project for the industry to reform best practices.</p> <p>Stuart stated that he felt it could be difficult to get MD's to buy into the process of using the CC during every tender process. Instead, Stuart commented that he would be keen for a defined set of metrics to be used at tender stage, with the CC used at project competition to assess. Katie asserted that using the CC should be framed as "business as usual", an expectation not a client requested add-on. Dafydd agreed with Katie, stating that this is where Bachy want to be. Andrew noted that he favoured Stuart's plan of creating a quick set of metrics and only using the CC, initially, on projects &gt;£1 million. Stuart stated that this would help bridge the gap between members who are less advanced/educated regards sustainability. Katie challenged this by saying that education comes with use/practise and that the CC should be viewed as a very basic requirement. Katie concluded that, if the group were to simplify the process, it should only be simplified a little to ensure coherent education on the topic. Sam agreed that the CC should be standard but noted that</p>	<p>Luke</p>
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this process would only be viable for Central if it were automated (e.g., could come up with a rough ballpark figure) as Central takes on a wide range of smaller projects and does not have the manpower to complete carbon calculations manually for each.

Stuart acknowledged Sam's comment and agreed the process would have to consider membership differences. In response to Katie, Stuart suggested that a basic estimation could be included in tenders, with the option for Clients to ask for more detail. Alice concluded that the membership would probably need the interim stage but that they should aim to get to full reporting ASAP.

Commenting on a previous conversation, Luke asked Dafydd whether he and Martin Stanley had successfully automated the CC. Dafydd noted that this is still a work in progress, which will be focused on in early 2021.

Andrew asked whether the CC can be used by other trades – noting that having our carbon calculations in isolation to the rest of the industry would not benefit clients. Stuart commented that, at the very least, this should start to educate Clients and hopefully encourage them to ask for carbon calculations from the rest of the industry. Luke noted that, due to CEEQUAL, BREEAM etc., larger infrastructure projects are likely reporting this information already.

Stuart concluded that a small group should come together to discuss standardising a set of metrics. Stuart asked whether Luke would be available to contribute on account of his interactions with the EFFC. Luke said he would be happy to contribute. Stuart also asked for 5-6 others to volunteer. Ash noted that the group would need to look ensure they are covering all disciplines – to ensure the parametrics are appropriate. Luke noted that the CC does have the ability to calculate across a range of geotechnical solutions.

(In the chat: Dafydd, Ash, Katie, Craig, Colin and Alice all noted their interest in being part of this task group).

- *Water use reduction targets*

Stuart noted that this would likely require a similar benchmarking/metrics set-up as carbon emissions. It was also acknowledged that there will be a difference in maturity on this topic within the membership. Kiro noted that, at Keltbray, water usage is very new on the agenda. Kiro commented that changes in trade effluent regulations has forced them to create a new process of monitoring and managing water usage. Ash noted that, at Centrum, they use rainwater capture and are exploring the commercial advantages of using standing water. Stuart noted that, off-site, it should be much easier to implement and manage rainwater storage/use whereas on-site water management is often a blind spot. Alice added that, at

	<p>Expanded, they looked at the possibility to recycle washdown water but that they hit problems with water quality regulations. Alice noted that they are currently using Mudtech’s BlueRinse system for concrete washout which helps to balance pH levels – allowing for some reuse. Kiro noted that water consumption is difficult because commercially mains water is cheap, and capture is expensive. Kiro explained that Keltbray is trying to stop wasting potable water on tasks which could use other non-potable water.</p> <p>The group concluded that, to raise awareness on the topic, it would be good to assemble a best practice document detailing different options for water management.</p>	
6.	<p><b>Working Group Strategy</b> Covered in section 4.</p>	
7.	<p><b>FPS Sustainability Webinar Series</b> Covered in section 3.</p>	
8.	<p><b>AOB</b></p> <ul style="list-style-type: none"> <li>• In the chat, Ben suggested that, to reduce carbon, the FPS should recommend load testing on every project. Ben also noted that there should be a shared database of pile load test results with the view to reduce partial factors. Ciaran noted that is one for the Technical committee who are currently working on the Eurocode 7 testing for this. Craig noted that reduction of partial factors is also a commercial issue as on smaller projects the reduction in pile size is not always enough to make it economically sustainable. Nirmal agreed that a cost benefit analysis is necessary for testing.</li> <li>• Nirmal noted he would be interested to learn more about Expanded’s new electric crane. Alice confirmed that they have approved the crane for use but have not got it working on any projects yet. Stuart noted that this is an example of membership good practice.</li> <li>• Luke asked whether anyone had any other sustainability priorities / issues. Nirmal noted that one key issue not directly mentioned is who owns the carbon for demolition of a pre-existing building. Luke agreed that a full life-cycle assessment should always be considered – cradle-gave / cradle-cradle. Luke suggested that he and Nirmal talk about this outside of the meeting. Ciaran asked whether there is a market for reusing pre-existing piles. Katie noted that pile reuse is currently on the agenda at Cementation and suggested that reusing piles is something the group should investigate further. Katie noted that she though it would be best</li> </ul>	



	<p>for this to be led by industry. Nirmal noted that when he was at BBGE, the testing of pre-existing piles was difficult and that they often ran into insurance issues. Stuart noted that the quality of information provided in the last 10-30 years will hopefully put the industry in better standing to re-use piles. Mark advised that BIM will likely improve the data available.</p>	
9.	<b>Next Meeting: TBC</b>	