CONSTITUTION HILL

PART 8 PLANNING REPORT **11 NOVEMBER 2022**

SUSTAINABILITY REPORT
MEEHAN GREEN

CH-MG-ZZ-XX-RP-Y-0001

Dublin City Council
Comhairle Cathrach Bhaile Átha Cliath

MEEHAN GREEN

Sustainability Consultants

HPI V.2
Final Part 8
Sustainability Statement

Project Reference:
21.H01

Date Submitted:
04.11.22

Prepared for:
Meehan Green

Project:
DCC Constitution Hill

Dublin 7,
Dublin,
Ireland

Contents

	Prepared by	Checked by	Rev. notes
Rev0 – 14.06.22	PAR	PJ	
Rev1- 05.08.22	PAR		
Rev2- 01.11.22	PAR		

Meehan Green, LEED APs, WELL APs, Sustainability Consultants
15 Clanwilliam Terrace, Dublin D02 AK51, Ireland | Portershed, Bowling Green, Galway, H91 HE9E, Ireland
Tel: +353 1 548 1903 | mail@meehangreen.ie | www.meehangreen.ie

1. Introduction

This report is prepared to be submitted to support the Final Part 8 of the project and includes an HPI scorecard aligned with the current design progression.

The report was created to summarize the results of HPI scores committed by the Design team to date, which may be beneficial for the Client and Contractor to define further measures to take in the progress of the project to achieve HPI certified.

2. Sustainability / Executive Summary

The sustainability strategy for the DCC Constitution Hill developments is largely driven by implementing measures that improve the buildings' energy performance, reduce their carbon footprint, and provide great quality homes, healthy and comfortable. These strategies will be informed by targeting Home Performance Index (HPI) certification on all units, HPI considers standards and criteria to produce homes with efficient use of resources, minimising waste and destruction of the environment, it is based on over 30 verifiable indicators, such as water efficiency, ventilation, thermal bridging, and enhanced airtightness.

The HPI criteria and strategy will be assessed separately for a) New Apartments; b) Existing Renovated Apartments; and c) Mews Houses.

The current design enables HPI certification target to be met, in some cases by adding sustainability related requirements to the performance specification or HPI contractor requirements document. However, this is an outline strategy and flexibility is allowed for the contractor to revise the strategy throughout subsequent project stages.

Sustainability strategies will target HPI Certification with Certified basic level, which will be assessed using the current HPI Technical Manual v2.1 for the new construction parts of the development.

IGBC is currently working on the release of the HPI Technical Manual v.3, which will apply to renovated units. For this report Renovated units will be preliminarily assessed using Technical Manual v.3 Draft.

3. Sustainability Strategies Overview

The following is a non-exhaustive list of active sustainability strategies implemented in the scheme.

Brownfield redevelopment: The project has a positive impact on the environment, through remediation of a brownfield site, restoring and improving a previously developed land.

Residential density: This is a high-density development achieving a density ratio of 2:1. Therefore promoting more rational and efficient use of land.

Transport impact: The urban location of the site with close access to public transport stops means less people will be driving short distances which is a major source of pollution.

Meehan Green, LEED APs, WELL APs, Sustainability Consultants
15 Clanwilliam Terrace, Dublin D02 AK51, Ireland | Portershed, Bowling Green, Galway, H91 HE9E, Ireland
Tel: +353 1 548 1903 | mail@meehangreen.ie | www.meehangreen.ie

Walkable Neighborhood: The location of the site is such that it promotes walkability. Therefore, reducing the dependence on cars for short travel distances.

Access to amenities: the project is surrounded by a large number of amenities, which reward community connectivity, assist in reducing transport-related emissions and traffic congestion, and promote communal life.

Surface water runoff: A SuDS system with a water treatment train approach will be implemented, limit peak surface water runoff to pre-development levels. This will reduce the risk of flooding and watercourse pollution.

Ecology: Ecologic features implemented in the landscaping design, such as nectar-rich vegetation, and a variety of species carrying fruits and berries, provide food for insects and birds throughout the year.

Embodied carbon: It is proposed to carry out a full cradle-to-grave Life Cycle Assessment for the typical units. This will help understand and reduce embodied carbon in the development. From the perspective of embodied impacts, the fact that the development is repurposing existing structures can reduce the number of new materials that have to be extracted, manufactured, and installed, significantly reducing the overall lifetime carbon impact of the project.

Responsible procurement: The planning and specification documents will emphasise the use of FSC/ PEFC certified wood where viable in this development. This strategy contributes to establishing sustainable forestry and contributes to resource efficiency in the building industry.

Daylighting: Daylighting analysis will be carried out to ensure good daylighting and thereby reduce the need for energy to light the home.

Winter comfort: All windows to be installed will be triple glazed, this will ensure all the homes are designed for comfort in winter by avoiding extensive cold surfaces, especially around windows and ensure heating systems can work effectively and efficiently.

Health and Wellbeing: Only low-VOC paints and varnishes (as defined by the EU Ecolabel) will be specified for indoor applications. This will minimise occupant health impacts for both occupants and construction workers.

Universal Design: The development has been designed to maximise the Universal Design measures following the National Disability Authority guideline.

Consumer Information and Aftercare: Project team to ensure that clear and sufficient information is provided in the homeowner's manual, to ensure the homes are managed effectively to reduce environmental impacts associated with their operation.

Contractor requirements: The contractor's HPI responsibilities cover a wide range of items including site related waste diversion from landfill, sourcing of sustainable materials, installing water fittings with reduced water usage and the installation of products that provide a healthy indoor environment.

Meehan Green, LEED APs, WELL APs, Sustainability Consultants
15 Clanwilliam Terrace, Dublin D02 AK51, Ireland | Portershed, Bowling Green, Galway, H91 HE9E, Ireland
Tel: +353 1 548 1903 | mail@meehangreen.ie | www.meehangreen.ie

4. HPI Scorecard Summary

HPI sustainable strategies for the new development may be shown in Table 1, it is named each HPI indicator and its current or potential points to be targeted.

A minimum of 45% score is required to achieve HPI Certified.

The design team has ensured that their design package and performance specification enable the development to achieve, 45.75% score on the HPI scorecard. In addition to this, 15.5% score is deemed likely and to be confirmed during detailed design or construction stages.

TABLE 1 NEW DEVELOPMENT SCORECARD SUMMARY

Environment - Indicators +Sub-Indicators						
Categories	**Indicator Name**	**Requirement**	**Max. Points Available**	**Currently achievable Points**	**Potential additional points**	**Current +Potential Points Envisage**
EN 1.0	Land use	Mandatory	3	2	0	2
EN 2.0	Residential Density	Mandatory	6	6	0	6
EN 3.0	Surface Water Run-off	Voluntary	3	3	0	3
EN 4.1	Internal Water Use	Mandatory	7	3	1	4
EN 4.2	External Water Use	Voluntary	1	1	0	1
EN 5.0	Ecology	Voluntary	6	4	0	4
EN 6.1	Energy in Use	Mandatory	8	2	2	4
EN 6.2	Carbon in Use	Mandatory	8	2	2	4
EN 7.0	Embodied impacts of Homes and LCA	Voluntary	14	11		11
EN 8.1	Waste Management during Construction	Voluntary	6	2	4	6
EN 8.2	Organic and Recycled Waste Management	Voluntary	3	3	0	3
EN 9.0	Responsible Procurement of Timber	Voluntary	3	1	0	1
EN 10.0	Environmental Product Declarations	Voluntary	4	1	2	3
EN 11.0	Transport Impact (Generated by SL)	Mandatory	11	7	0	7
EN 12.0	Dwelling Size Adjustment factor	Mandatory	-4	-2	0	-2
	Max Environment Points Available		**83**	**46**	**11**	**57**
	Max Environment Percentage %		**41.5**	**23**	**5.5**	**28.5**
Health and Wellbeing - Indicators +Sub-Indicators						

Meehan Green, LEED APs, WELL APs, Sustainability Consultants
15 Clanwilliam Terrace, Dublin D02 AK51, Ireland | Portershed, Bowling Green, Galway, H91 HE9E, Ireland
Tel: +353 1 548 1903 | mail@meehangreen.ie | www.meehangreen.ie

Categories	Indicator Name	Requirement	Max. Points Available	Currently achievable Points	Potential additional points	Current+ Potential points
HW 1.0	Indoor Air Quality- Ventilation	Mandatory	8	4	2	6
HW 2.0	Daylighting	Mandatory	6	2	2	4
HW 3.1	Airborne Sound insulation - Walls	Voluntary	2	0	1	1
HW 3.2	Airborne Sound insulation - Floors	Voluntary	2	0	1	1
HW 3.3	Impact Sound insulation - Walls	Voluntary	2	0	1	1
HW 3.4	Internal Sources of Noise	Voluntary	2	0	1	1
HW 4.1	Summer comfort- Risk of overheating	Voluntary	4	4	0	4
HW 4.2	Winter Comfort - Radiant asymmetry	Voluntary	1	0	1	1
HW 5.0	Low VOC specification and Testing	Voluntary	3	1	0	1
HW 6.0	Radon Testing	Voluntary	2	0		0
HW 7.0	Water Quality	Voluntary	1	0		0
HW 8.0	Walkable Neighbourhood (Generated by SL)	Voluntary	9	9	0	9
Max Health and Wellbeing Points Available			**42**	**20**	**9**	**29**
Max Environment Percentage (%)			**21**	**10**	**4.5**	**14.5**
Economic - Indicators +Sub-Indicators						
Categories	**Indicator Name**	**Requirement**	**Max. Points Available**	**Currently achievablePoints**	**Potential additional points**	**Current+Potential points**
EC 1.0	Net space Heat Demand (Range of points across Units)	Mandatory	8	0	4	4
EC 2.0	Energy Cost Impacts	Mandatory	6	1	3	4
EC 3.0	Transport Cost Impacts (Generated by SL)	Voluntary	8	7	0	7
EC 4.0	Universal Design	Voluntary	4	1	0	1
EC 5.0	Smart Monitoring	Voluntary	4	0	0	0
EC 6.0	Energy labelled Goods	Voluntary	4	1	0	1
EC 7.0	Flood Risk	Voluntary	4	3	0	3
Max Economic Points Available			**38**	**13**	**7**	**20**
Max Economic Percentage %			**19**	**6.5**	**3.5**	**10**
Quality Assurance- Indicators +Sub-Indicators						
Categories	**Indicator Name**	**Requirement**	**Max. Points Available**	**Currently achievable Points**	**Potential additional points**	**Current +Potential Points**
QA 1.0	Quality of the building shell - Air infiltration	Mandatory	6	0	0	0
QA 2.0	Quality of the building shell - Thermal Bridging	Mandatory	6	2	0	2

Meehan Green, LEED APs, WELL APs, Sustainability Consultants
15 Clanwilliam Terrace, Dublin D02 AK51, Ireland | Portershed, Bowling Green, Galway, H91 HE9E, Ireland
Tel: +353 1 548 1903 | mail@meehangreen.ie | www.meehangreen.ie

QA3.0	Quality of Oversight and testing	Voluntary	4	0	2	2
QA 4.0	Construction Team skills	Mandatory	4	0	2	2
QA 5.1	Design team skills	Mandatory	4	2	0	2
QA 5.2	Design Team Planning	Voluntary	1	1	0	1
QA 6.0	Commissioning of services	Voluntary	4	2	0	2
QA 7.0	Post Occupancy Evaluation	Voluntary	4	2	0	2
QA 8.0	Consumer Information and Aftercare	Voluntary	4	3.5	0	3.5
Max Quality Assurance Points Available			**37**	**12.5**	**4**	**16.5**
Max Quality Assurance Percentage %			**18.5**	**6.25**	**2**	**8.25**
Overall Project HPI Scores for DCC Constitution Hill (New Construction)						
			Max. Points Available	**Currently achievable Points**	**Potential additional points**	**Current +Potential Points**
Total HPI points			**200**	**91.5**	**31**	**122.5**
HPI Percentage			**100.00%**	**45.75%**	**15.50%**	**61.25%**
HPI certified				**Yes**	**Bridge**	**Yes**

A preliminary assessment of the Renovated Blocks is shown in Table 2.

HPI Technical Manual v.3 Draft indicates a minimum of 35% score is required to achieve HPI certification for Renovations, the levels of certification are Bronze (35%), Silver (45%) and Gold (55%).

The design approach and performance specification enable the Renovated units to achieve, a preliminary score of 46%, which is an HPI Silver level.

Meehan Green, LEED APs, WELL APs, Sustainability Consultants
15 Clanwilliam Terrace, Dublin D02 AK51, Ireland | Portershed, Bowling Green, Galway, H91 HE9E, Ireland
Tel: +353 1 548 1903 | mail@meehangreen.ie | www.meehangreen.ie

TABLE 2. RENOVATED BLOCKS SCORECARD OVERVIEW

HPI v.3 Draft Scorecard

Project Name:	DCC CHR Renovated blocks
Location:	Dublin, Ireland
MG Proj No.	21.H01
Date:	5/8/22 Rev. 0

KEY: **Y** = Yes, Highly Likely under Existing Conditions and Design
Y? = Yes, Likely but Needs Further Analysis and/or Cost impact
M? = Maybe, Less Likely with significant Design and/or Cost impact
N = No, Not Likely or Not Possible Under Existing Conditions

*** Reference Document:** HPI v.3 Not Available yet

Y	Y?	M?	N	
46%	77%	94%	111%	Bronze ≥ 35%, Silver ≥ 45%, Gold ≥ 55%
46	31	17	17	**Total Project Score**

Y	Y?	M?	No			
11.5	11	6	8	**Environment**		48.5%
			2	EN 1.0	Land use	2
3				EN 2.0	Residential density	3
0.5	0.5	1		EN 3.0	Surface water run-off	2
	1	1		EN 4.0	Internal water use	2
0.5	0.5	1	1	EN 5.0	Ecology	3
	2	1	1	EN 6.1	Energy use	4+1
	2	1	1	EN 6.2	Carbon in use	4+2
2	3		2	EN 7.0	Whole Life Carbon	7+9
2				EN 8.1	Pre-demolition Plan	2
	1			EN 8.2	Design for Disassembly	1
2				EN 8.3	Resource and Waste Management Plan	2
1				EN 9.0	Operational Waste Storage	1
0.5	0.5	0.5		EN 10.0	Responsible procurement of timber	2
	0.5	0.5	1.0	EN 11.0	Environmental product declaration	1+1
13.25	4.5	7.5	3.8	**Economic**		14.0%
	1	2		EC 1.0	Net space heat demand	2+1
		2		EC 2.0	Life Cycle costs	2
	0.5	0.5		EC 3.1	Adaptability	1
1	0.5	0.5		EC 3.2	Universal design	2
		2		EC 4.0	Smart monitoring	2+0.5
1	1			EC 5.0	Energy Labelled Goods	2
	1.5	0.5		EC 6.1	Climate Risk	4
11.25	0	0	3.8	**Sustainable Location**		15.0%
2.25			3.75	SL 1.0	Options for Transportation	6
9				EC 2.0	Access to Amenities	9

Y	Y?	M?	No			
6.5	5.5	3	1.5	**Health and Wellbeing**		20.5%
	1	1		HW 1.0	Indoor air quality - ventilation	2+4
1	0.5			HW 2.1	Daylighting	1.5
1.5				HW 2.2	Dual Aspect	1.5
	1			HW 3.1	Airborne sound insulation - walls	1
	1			HW 3.2	Airborne sound insulation - floors	1
	1			HW 3.3	Impact sound insulation - floors	1
	1			HW 3.4	Internal sources of noise	1
3				HW 4.0	Summer comfort - risk of overheating	3
1				HW 5.0	Low voc specification and testing	1
			1	HW 6.0	Radon testing	1
			0.5	HW 7.0	Water quality	1
		2		HW 8.0	Private Outdoor Space	2
3.5	9.5	0.5	4	**Quality Assurance**		19.5%
			2	QA 1.0	Quality of the building shell - air infiltration	2
1	1		1	QA 2.0	Quality of the building shell - thermal bridgin	3
	2			QA 3.0	Quality of oversight and testing	2
	2			QA 4.0	Construction team skills	2
0.5	0.5		1	QA 5.1	Design team skills	2
	1			QA 5.2	Design team planning	1
1	1			QA 6.0	Comissioning of services	2
1	1			QA 7.0	Post occupancy evaluation	2+1
`1	1	0.5		QA 8.0	Consumer information and aftercare	3

5. Conclusion

The sustainability strategy for the DCC Constitution Hill development project established by the design team is currently anticipated to achieve the target of HPI Certified on all new units, and Silver Level for the Renovated units, through designing good energy performance buildings and minimizing their carbon footprint.

Despite Renovated blocks being assessed using a Draft manual, no major issues have been identified for implementing the sustainability measures committed, otherwise, extra potential points are likely to be added throughout subsequent project stages.

Meehan Green, LEED APs, WELL APs, Sustainability Consultants
15 Clanwilliam Terrace, Dublin D02 AK51, Ireland | Portershed, Bowling Green, Galway, H91 HE9E, Ireland
Tel: +353 1 548 1903 | mail@meehangreen.ie | www.meehangreen.ie