Jersey Future Hospital Project

Outline Business Case

Appendix 17 – BREEAM Pre-Assessment

CLIENT:
THE STATES OF JERSEY

PROJECT NUMBER:
FUTURE HOSPITAL PROJECT

ISSUING COMPANY:
GLEEDS ADVISORY

Document Control

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V3	24.10.2017	Template updated	T Nicholls

States of Jersey

Jersey Future Hospital

BREEAM International 2016 Pre-Assessment Report

JFH-ARP-M-XX-RP-Y-0004

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Document Verification

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Contents

1 Introduction

Arup have been appointed by States of Jersey to undertake a BREEAM Pre-Assessment for the proposed **Jersey Future Hospital** Main Building in Jersey.

The new hospital building is required to achieve a BREEAM *Excellent* rating and the purpose of this report is to highlight the design team's responsibilities in relation to achieving this.

The initial review was undertaken during RIBA Stage 1 and the pre-assessment has been completed in collaboration with Hassell Studio, Gleeds and Arup.

Following a full design team Pre-Assessment workshop (24th January 2017), the team have finalised the BREEAM 2014 targets prior to the Concept Design (RIBA Stage 2).

This Pre-Assessment was undertaken by licensed BREEAM Assessor and Accredited Professional (BREEAMAP0588):

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This report contains estimated ratings with the assumption that equal importance will be applied to each of the BREEAM categories for the purposes of illustrating the points which need to be achieved in each category.

This pre-assessment is based on the Jersey Future Hospital Main Building being assessed using the BREEAM International New Construction 2016: Bespoke (Healthcare) scheme.

1.1 About BREEAM

BREEAM International New Construction 2016 is a performance based assessment method and certification scheme for new buildings. The primary aim of BREEAM New Construction is to mitigate the life cycle impacts of new buildings on the environment in a robust and cost effective manner. This is achieved through integration and use of the scheme by clients and their project teams at key stages in the design and procurement process.

It is important to recognise that BREEAM reflects the overall performance of the building rather than the opportunities or limitations placed on specific stakeholders involved in the procurement process. This means that the client, design team, principal contractor and BREEAM Assessor, as well as other specialist disciplines, have important roles to play if the desired performance level is to be achieved and reflected through the certified BREEAM rating. However, the onus of orientating the brief towards sustainability needs to come first and foremost from the client.

Our early involvement will ensure that realistic targets are set and can be met, appropriate responsibilities can be defined and understood and low or no cost solutions to environmental impacts can be sought and applied wherever possible.

This certification process measures the performance of the building against the Building Research Establishment's established criteria; the results are quantified by a number of individual measures and associated criteria stretching across a range of sustainability issues:

- Management
- Health & Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land Use & Ecology
- Pollution
- Innovation

Each category comprises a number of credits. Points are achieved through satisfying the requirements of these credits.

Once all the credits have been assessed, a percentage score for each category is calculated, and an environmental weighting applied to give an overall percentage score and rating (Pass ≥30, Good ≥45, Very Good ≥55, Excellent ≥70 or Outstanding ≥85).

Following the Initial Review, the BREEAM assessment is to be undertaken at two main stages of the development process:

- Design & Procurement Assessment
- Post Construction Review

The design and construction of the Jersey Future Hospital Main Building will be assessed using **BREEAM International New Construction: Bespoke (Healthcare); SD233: 1.0 – 2016**.

The development will be assessed as a *fully fitted* building.

1.2 The BREEAM Pre-Assessment

Given the wide scope of the BREEAM credits, it is a useful exercise to go through the pre-assessment checklist at an early stage. The process will increase the familiarity of the design team with BREEAM requirements, and should help to achieve a higher BREEAM rating and reduce costs associated with retro-fitting building systems etc.

It is important to note that estimated ratings may differ from those obtained through a formal assessment, which requires the submission of robust evidence to support each credit claimed. This exercise is typically carried out upon completion of the tender stage documentation.

The BREEAM Pre-Assessment document for the proposed building identifies how the scheme can secure the ≥70% to gain the required BREEAM Excellent rating in line with the design brief.

This Pre-Assessment is based on the Arup Initial Review and a workshop with the key design team members to identify the most appropriate route to achieving the BREEAM Excellent rating and integrate the sustainability mechanisms within the design process.

2 BREEAM International New Construction 2016

The Pre-Assessment below shows the team member who is responsible for ensuring that each targeted credit is achieved and any comments are provided for this stage of the design. It should be noted that while this table indicates a design team member assigned responsibility for each credit, some credits will require input from several design team members. Design team members should therefore make themselves familiar with all credits that may require their input.

The design team during the Concept Design of the development includes:

Client	-	States of Jersey
Project Manager		Gleeds
Contractor	-	TBC
Architect	-	Hassell Studio
MEP Engineers	-	Arup
Civil and Structures	-	Arup
Ecologist	-	Arup
Acoustician	-	Arup
Transport (Masterplan)	-	Arup
Landscape Architects	-	Hassell Studio
Sustainability (inc BREEAM AP)	-	Arup

2.1 BREEAM International 2016 Pre-Assessment

ARUP

BREEAM International 2016 Pre-Assessment

Bespoke : Healthcare (General Hospital)

Project Name: Jersey Future Hospital
Project Number: 237035
BREEAM Ref: BREEAM-0064-1019

Date: 24/01/2017
Issue: Stage 2
Revision: 1

*** Reference must be made to the current Technical Manual (SD233: 1.0) for full credits requirements ***

Target
Very Good = 55%
Excellent = 70%
Outstanding = 85%

Score		
Baseline	**Potential**	**Achieved**
71.94%	85.15%	0.00%
Excellent	**Outstanding**	**Unclassified**

Credit requires early stage actions
Potential credit to target
Credit not currently targeted
Mandatory credit to achieve Excellent rating

Credit		Ref	Credits					Design Team Member Responsible	Target Action Date	Outline Design Stage Actions
			Available	Baseline	Potential	Achieved	Weighting			
Management										
Management Section Weighting							**11.5%**			
Man 01	Stakeholder Consultation (Project Delivery)	Criteria 1-3	1	1	1		0.55%	Gleeds	Stage 1 - 2	The design team have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery. [Linked to Soft Landings]
	Stakeholder Consultation (Third Party)	Criteria 4-6	1	1	1		0.55%	Gleeds	Stage 1 - 3	Consultation plan to be provided including feedback in design. Evidence of consultation meetings. Demonstration of feedback from consultation.
	Sustainability Champion (Design)	Criteria 8-10	1	1	1		0.55%	Arup	Stage 2	BREEAM to be regular agenda item at DT meetings and produce AP progress reports
	Sustainability Champion (Monitoring Progress)	Criteria 11-12	1	1	1		0.55%	Arup	Stage 4	BREEAM to be regular agenda item at DT meetings AP progress reports
Man 02	Elemental Life Cycle Cost (LCC)	Criteria 1-2	2	2	2		1.10%	Gleeds	Stage 2	An elemental life cycle cost (LCC) analysis has been carried out
	Component Level LCC Plan	Criteria 3-4	1	1	1		0.55%		Stage 4	A component level LCC plan has been developed
	Capital Cost Reporting	Criterion 5	1	1	1		0.55%	Gleeds	Stage 5	Report the capital cost for the building in pounds per square metre (£k/ m2)
Man 03	Environmental Management	Criteria 1-3	1	1	1		0.55%	Gleeds	Stage 3	*Relevant commitments in Contractor Specification* The principal contractor operates an environmental management system (EMS) covering their main operations. A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data resulting from all on-site construction processes
	Sustainability Champion (Construction)	Criteria 4-6	1	1	1		0.55%		Stage 3	
	Considerate Construction	Criterion 7	2	2	2		1.10%		Stage 3	
	Monitoring of Construction Site Impacts	Criterion 8	Pre-requisite						Stage 3	
	Utility Consumption	Criteria 9-12	1	1	1		0.55%		Stage 3	
	Transport of Construction Materials & Waste	Criteria 13-14	1	1	1		0.55%		Stage 3	
Man 04	Commissioning Schedule and Responsibilities	Criteria 1-4	1	1	1		0.55%	Arup Contractor	Stage 2	A schedule of commissioning and testing
	Commissioning Building Services	Criterion 5	1	1	1		0.55%	Arup Contractor	Stage 2	A specialist commissioning manager is appointed by the contractor
	Commissioning Building Fabric	Criteria 6-8	1	1	1		0.55%	Hassell Contractor	Stage 2	This can be demonstrated through the completion of a thermographic survey and an airtightness test and inspection
	Handover	Criteria 10-13	1	1	1		0.55%	Gleeds Contractor	Stage 3	Building User Guide, Training Schedule will be developed by the contractor
Man 05	Aftercare Support	Criteria 1-2	1	1	1		0.55%	Arup Contractor	Stage 3	Operational infrastructure and resources in place to provide aftercare support to the building occupier
	Seasonal Commissioning	Criterion 3	1	1	1		0.55%	Arup Contractor	Stage 3	Seasonal commissioning activities will be completed over a minimum 12-month period,
	Post Occupancy Evaluation	Criteria 4-5	1	1	1		0.55%	Gleeds Client	Stage 3	The Client makes a commitment to carry out a third party post-occupancy evaluation (POE) exercise one year after initial building occupation.
Total			**21**	**21**	**21**	**0**	0.55%		**11.50%**	
Health and Wellbeing										
Health and Wellbeing Section Weighting							**13%**	**1%**		
Hea 01	High Frequency Ballasts	Criterion 1	Pre-requisite					Arup	Stage 2	All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts
	Glare Control	Criteria 2-3	1	0	1		0.00%	Hassell	Stage 2	The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas.
	Daylighting	Criterion 4	2	0	1		0.00%	Hassell	Stage 3	The relevant building areas meet good practice daylight factor(s) 1 credit = 80% of area has average daylight factor of 2% plus additional uniformity reqs Certain areas can be excluded from the requirements
	View Out	Criteria 5-6	2	0	1		0.00%	Hassell	Stage 2	95% of the floor area in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out. *The window/opening size required as a percentage of surrounding wall area depending on the distance of the desk or work space to the window or opening can vary.* The second credit can be awarded where the distance between the wall with the window/opening and nearest external solid object (e.g. buildings, screens, walls/fences) is ≥ 10m for patient occupied spaces, e.g. wards and dayrooms. Certain areas can be excluded e.g. workstations located centrally for observational and/or security purposes or the mortuary
	Internal & External Lighting Levels, Zoning & Control	Criteria 7-11	1	1	1		0.62%	Arup	Stage 2	Lighting design in compliance with BREEAM requirements
Hea 02	No Asbestos	Criterion 1	Pre-requisite					Hassell		Materials containing asbestos are prohibited from being specified and used within the building.
	Indoor Air Quality (IAQ) Plan	Criterion 2	1	1	1		0.62%	Arup Contractor	Stage 2	An indoor air quality plan has been produced and implemented that minimise indoor air pollution during the design, construction and occupation of the building.
	Ventilation	Criteria 3-8	1	1	1		0.62%	Arup	Stage 2	Design drawings showing building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution; Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors which are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space.
	VOCs (Products)	Criteria 9-10	1	1	1		0.62%	Hassell Contractor	Stage 3	*Relevant clauses in architect specification or workmanship clauses* Products meet the testing requirements and emission levels criteria for volatile organic compound (VOC) emissions
	VOCs (Post Construction)	Criteria 11-17	1	1	1		0.62%	Gleeds Contractor	Stage 3	Commitment to carry out post construction (but pre-occupancy) testing for formaldehyde and total volatile organic compound (TVOC) concentration level.
	Potential for Natural Ventilation	Criteria 18-19	1	0	0		0.00%	Arup Hassell	Stage 3	The building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios.
Hea 03	Laboratory Containment Devices and Containment Areas	Criteria 1-3	1	1	1		0.62%	Arup	Stage 3	Where containment devices such as fume cupboards are specified their manufacture and installation meet best practice safety and performance requirements and objectives
	Buildings with Containment Level 2 and 3 Laboratory Facilities	Criteria 4-5	1	1	1		0.62%	Arup	Stage 3	Where containment level 2 and 3 laboratory facilities are specified they must meet best practice safety and performance criteria and objectives.
Hea 04	Thermal Modelling	Criteria 1-5	1	1	1		0.62%	Arup	Stage 3	Thermal Model Results and thermal modelling analysis has informed the temperature control strategy for the building and its users.
	Adaptability - Projected Climate Change Scenario	Criteria 6-9	1	1	1		0.62%		Stage 3	The thermal modelling demonstrates that building requirements are achieved for a projected climate change environment
	Thermal Zoning and Controls	Criteria 9-11	1	1	1		0.62%	Arup	Stage 3	The strategy for proposed heating/cooling system(s) demonstrates that it has addressed zoning, occupant control, interaction with other systems and manual override.
Hea 05	Mandatory Appointment of Acoustician	Criterion 1	Pre-requisite					Arup	Stage 1	Acoustician appointed
	Acoustic Performance - Noise Levels	Criterion 2	2	2	2		1.24%	Arup	Stage 2	Airborne sound insulation values are at least 5dB higher and impact sound insulation values are at least 5dB lower than the performance standards in the relevant Building Regulations or Standards.

Credit		Ref	Credits					Design Team Member Responsible	Target Action Date	Outline Design Stage Actions
			Available	Baseline	Potential	Achieved	Weighting			
Hea 06	Safe Access	Criteria 1-11	1	0	1		0.00%	Hassell	Stage 3	Cycle lanes provide direct access from site entrances to cycle storage and (where relevant) connect to off-site cycle paths. Footpaths on site provide direct access from site entrances to building entrances. Where provided, drop-off areas are designed off, or adjoining, the access road and provide direct access to pedestrian footpaths. Pedestrian crossings, signposting and compiant lighting of access roads, paths and cycle lanes.
	Inclusive and Accessible Design	Criteria 12-14	1	1	1		0.62%	Hassell	Stage 2	An access strategy is developed in line with Checklist A3. The access strategy addresses, as a minimum, access to and throughout the development for all users, with particular emphasis on the following: Disabled users; addressing and proposing design solutions that remove obstacles that define disability People of different age groups, genders, ethnicity and fitness levels Parents with children
Hea 07	Hazards	Criteria 1-2	1	1	1		1.00%	Arup	Stage 2	A risk assessment is carried out at the outline proposal or Concept Design stage by an appropriate person, or persons, to identify any potential natural hazards in the region of the development .
Hea 09	Water Quality	Criteria 1-3	1	1	1		0.62%	Arup Hassell Client	Stage 2	All water systems in the building are designed in compliance with the measures outlined in the relevant national health and safety best practice guides or regulations to minimise the risk of microbial contamination, e.g. legionellosis. A wholesome supply of accessible potable drinking water is supplied as follows in the permanently **staffed areas** and in **patient and visitor waiting areas**.
Total			**21**	**15**	**19**	**0**	0.62%		**9.29%**	Minimum standard (criterion 1 only)
Hazards Total			**1**	**1**	**1**	**0**	0.00%		**1.00%**	
Energy										
Energy Section Weighting							**18%**			
Ene 01	Reduction of Energy Use & CO_2 Emissions	Criteria 1-4	15	8	12		4.80%	Arup	Stage 2	**Minimum Excellent standard: 6 credits** IES Model Design team co-ordination required to significantly reduce the buildings energy consumption in the most cost effective way possible
Ene 02	Monitoring of Major Energy Systems	Criteria 1-2	1	1	1		0.60%	Arup	Stage 2	Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption includes lifts.
	Monitoring of Energy Use by Area	Criterion 3	1	1	1		0.60%	Arup	Stage 2	1) Operating department 2) Mortuary and post-mortem department 3) Pharmacy department 4) Laboratories 5) MRI 6) Oncology 7) Renal dialysis
Ene 03	External Lighting	Criteria 1-4	1	1	1		0.60%	Arup	Stage 2	Lighting design in compliance with BREEAM requirements
Ene 04	Passive Design Analysis	Criteria 1-3	1	0	1		0.00%	Arup	Stage 2	The project team carries out an analysis of the proposed building design/development to influence decisions made during Concept Design stage
	Free Cooling	Criteria 4-5	1	0	0		0.00%	Arup	Stage 2	The building uses ANY of the free cooling strategies and no mechanical cooling.
	Feasibility Study	Criteria 6-7	1	1	1		0.60%	Arup	Stage 2	LZC study and specification of technology e.g. PV & Solar Thermal Hot Water
Ene 05	Energy Efficient Design, Installation and Commissioning	Criteria 1-2	1	1	1		0.60%	Arup MJM	Stage 3	Need to identify with Refrigeration Engineer whether this credit can be targeted. It Client correspondence confirmed that not all items are on Enhanced Capital Allowance (ECA) Energy Technology Product List.
	Energy Efficiency Criteria	Criterion 3	1	1	1		0.60%		Stage 3	
	Indirect Greenhouse Gas Emissions	Criteria 4-5	1	0	1		0.00%	Arup MJM	Stage 2	
Ene 06	Lift/Transportation Analysis Systems	Criterion 1	1	1	1		0.60%	Arup	Stage 2	Lift analysis to be carried out. Energy analysis completed
	Energy Efficient Transportation Systems	Criteria 2-4	1	1	1		0.60%	Arup	Stage 3	Relevant clause in the specification Manufacturer's product data
	Regenerative Drives	Criteria 5-6	1	1	1		0.60%	Arup	Stage 3	Relevant clause in the specification Manufacturer's product data
Ene 07	Laboratory Design Specification and Best Practice Efficient Measures	Criteria 1-6	1	1	1		0.60%	Arup	Stage 2	Client engagement is sought through consultation during the preparation of the initial project brief to determine occupant requirements and define laboratory performance criteria
Ene 08	Energy Efficient Equipment	Criterion 1	2	0	2		0.00%	Arup MJM	Stage 3	Identify the building's unregulated energy consuming loads and estimate their contribution to the total annual unregulated energy consumption of the building. Identify unregulated energy load from significantly contributing systems (small power or kitchen & catering facilities).
Total			**30**	**18**	**26**	**0**	0.60%		**10.80%**	
Transport										
Transport Section Weighting							**7.5%**			
Tra 01	Public Transport Accessibility Index	Criterion 1	5	2	2		1.50%	Arup	Stage 2	**Other building - Visitors.** Scale Map highlighting the transport nodes Timetables for each service
Tra 02	Proximity to Amenities	Criterion 1	1	1	1		0.75%	Arup	Stage 2	**Other building - Visitors.** Scale Map highlighting the accessible amenities
Tra 03	Alternative Modes of Transport	Criterion 1	2	2	2		1.50%	Arup	Stage 2	**Other building - Visitors.** A single credit can be awarded where spaces for staff only are provided as well as the appropriate compliant cyclist facilities. Compliant cycle facilities i.e. racks [1 cycle space per 10 staff] Compliant cycle facilities i.e. racks [1 cycle space per 10 building beds]
Tra 04	Maximum Car Parking	Criterion 1	1	1	1		0.75%	Arup	Stage 2	The maximum number of parking spaces provided must not be greater than the total of the following: One parking space for every four staff, plus; One parking space for every four beds, plus Two parking spaces for each consulting, examination, treatment, therapy room and A&E cubicle.
Tra 05	Travel Plan	Criteria 1-5	1	1	1		0.75%	Arup	Stage 1	A site specific travel assessment/statement has been undertaken A travel plan has been developed as part of the feasibility and design stages.
Total			**10**	**7**	**7**	**0**	0.75%		**5.25%**	
Water										
Water Section Weighting							**11.5%**			
Wat 01	Water Performance 12.5%	Criteria 1-7	1	1	1		1.15%	Hassell Arup	Stage 3	**Precipitation zone 1** The water consumption (L/person/day) for the assessed building is compared against a baseline performance.
	Water Performance 25%		1	1	1		1.15%		Stage 3	
	Water Performance 40%		1	1	1		1.15%		Stage 3	
	Water Performance 50%		1	0	1		0.00%		Stage 3	Level 4 Specification required
	Water Performance 55%		1	0	1		0.00%		Stage 3	Level 5 Specification required
Wat 02	Water Monitoring	Mandatory Criteria 1	Pre-requisite					Arup	Stage 3	The specification of a water meter on the mains water supply to each building
		Criteria 2-4	1	1	1		1.15%		Stage 3	Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with easily accessible sub-meters Areas that will consume 10% will need a separate water meter to be fitted specifically for that area. Laboratory: a separate water meter is fitted on the water supply to any process or cooling loop for plumbed-in laboratory process equipment
Wat 03	Leak Detection System	Criterion 1	1	1	1		1.15%	Arup	Stage 3	A leak detection system is specified
	Flow Control Devices	Criterion 2	1	0	0		0.00%		Stage 2	Unlikely that flow control devices that regulate the supply of water to each WC area or facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings).
	Leak Isolation	Criterion 3	1	1	1		1.15%		Stage 3	Isolation valves are located in an accessible place that allows hot and cold water to be isolated by hand separately (switched on or off)
Wat 04	Water Efficient Equipment	Criteria 1-3	1	1	1		0.00%	Hassell	Stage 3	Where there is no water demand from uses other than domestic-scale drinking and sanitary use components in the building this issue is not applicable and does not require assessment.
Total			**10**	**7**	**9**	**0**	1.15%		**8.05%**	

Credit		Ref	Credits					Design Team Member Responsible	Target Action Date	Outline Design Stage Actions
			Available	Baseline	Potential	Achieved	Weighting			
Materials										
Materials Section Weighting							**11.5%**			
Mat 01	Material Specification - Major Building Elements	Criteria 1-3	6	2	2		1.92%	Hassell	Stage 2	Breakdown of Material Specification inc GG Ratings (ideally A or A+) Design Drawings Output of BRE Mat 01 Calculator Tool
Mat 03	Responsible Sourcing of Timber	Criterion 1	Pre-requisite					Contractor	Stage 3	Legally harvested and traded timber
	Sustainable Procurement Plan	Criterion 2	1	1	1		0.96%	Gleeds Contractor	Stage 3	The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan
	Responsible Sourcing of Materials	Criterion 3	3	1	1		0.96%	Hassell Arup Gleeds / Contractor	Stage 3	Where the applicable building materials are responsibly sourced in accordance with the BREEAM methodology
Mat 05	Designing for Durability and Resilience	Criteria 1-1	1	1	1		0.96%	Hassell	Stage 2	**Protecting vulnerable parts of the building from damage** The building incorporates suitable durability and protection measures **Protecting exposed parts of the building from material degradation** The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors.
Mat 06	Material Efficiency	Criterion 1	1	0	1		0.00%	Gleeds Arup	Stage 1	Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life ,
Total			**12**	**5**	**6**	**0**	0.96%		**4.79%**	
Waste										
Waste Section Weighting							**7.00%**			
Wst 01	Construction Site Waste Management	Criteria 1-3	2	2	2		2.00%	Gleeds Contractor	Stage 3	Where appropriate targets for the amount of non-hazardous and hazardous waste produced on site are set in m³ of waste per 100m² or tonnes of waste per 100m² Procedures are in place to minimise non-hazardous and hazardous waste in line with the targets. The amount of site construction waste created is being monitored and targets regularly reviewed. The design or site management team has nominated an individual responsible for implementing the above. **2nd Credit** Procedures are in place for sorting, reusing and recycling construction waste into at least five defined waste groups either on site or off-site through a licensed external contractor.
	Diversion from Landfill	Criteria 4 -6	1	0	0		0.00%		Stage 3	A significant quantity of non-hazardous construction and demolition waste (where applicable) generated by the project has been diverted from landfill.
Wst 02	Recycled Aggregates	Criteria 1-3	1	0	0		0.00%	Arup Contractor	Stage 3	The percentage of high grade aggregate that is recycled or secondary aggregate
Wst 03	Operational Waste	Criteria 1-4	1	1	1		1.00%	Hassell MJM	Stage 3	Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building, its occupant(s) and activities. Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities are provided: a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space. b. adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility. A compliant waste management strategy (i.e. one which covers hazardous waste, clinical waste, sharps and domestic waste, has input from a range of stakeholders including supply chain, clinical staff and FM, plus other requirements).
Wst 05	Adaption to Climate Change	Criteria 1	1	1	1		1.00%	Arup	Stage 2	Conduct a climate change adaptation strategy appraisal for structural and fabric resilience
Wst 06	Functional Adaptability	Criteria 1-2	1	1	1		1.00%	Hassell	Stage 2	A building-specific functional adaptation strategy study has been undertaken by the developer and design team to accommodate future changes of use of the building over its lifespan.
Total			**7**	**5**	**5**	**0**	1.00%		**5.00%**	
Land Use and Ecology										
Land Use and Ecology Section Weighting							**9.5%**			
LE 01	Re-Use of Land	Criterion 1	2	2	2		1.90%	Hassell	Stage 2	Design drawings indicating area (m2) of previously developed land and location and footprint (m2) of proposed development
	Contaminated Land	Criteria 2-3	1	0	0		0.00%	Arup	Stage 2	We don't believe the site to be contaminated to the level requiring remediation
LE 02	Ecological Value of Site	Criterion 1	1	1	1		0.95%	Arup	Stage 2	Land within the construction zone is defined as 'land of low ecological value'
	Protection of Ecological Features	Criteria 2-3	1	1	1		0.95%	Arup	Stage 2	All existing features of ecological value within and surrounding the construction zone and site boundary area are adequately protected from damage
LE 04	Enhancing Site Ecology	Criteria 1-4	1	1	1		0.95%	Hassell Arup	Stage 2	The recommendations of the Ecology Report for the enhancement of site ecology have been implemented in the final design and build,
		Criteria 3-5	2	1	2		0.95%	Hassell Arup	Stage 2	
LE 05	Long Term Impact on Biodiversity	Criteria 1-4	Pre-requisite					Arup	Stage 2	5 Year Landscape and habitat management plan (where required) All relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the design and construction process.
		Criteria 5-9	2	2	2		1.90%	Gleeds Contractor	Stage 3	Where additional measures to improve the assessed site's long term biodiversity are adopted
Total			**10**	**8**	**9**	**0**	0.95%		**7.60%**	
Pollution										
Pollution Section Weighting								**10.0%**		
Pol 01	Impact of Refrigerants	Criteria 2-4	2	1	1		0.833%	Arup	Stage 3	Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of≤1000 kgCO2e/kW cooling/heating capacity.
	Refrigerant Leak Detection	Criteria 5-9	1	0	1		0.000%		Stage 3	Where systems using refrigerants have a permanent automated refrigerant leak detection system installed
Pol 02	NOx Emissions ≤ 56 mg/kWh	Criterion 1	1	1	1		0.833%	Arup	Stage 2	Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NOx emission level (measured on a dry basis at 0% excess O_2) of ≤56 mg/kWh.
	NOx Emissions ≤ 40 mg/kWh	Criterion 1	1	1	1		0.833%		Stage 2	
Pol 03	Flood Risk	Criteria 1-5	2	2	2		1.667%	Arup	Stage 2	Commission a Flood Risk Assessment to provide confirm of low probability of flooding
	Surface Water Run Off	Criterion 6	Pre-requisite						Stage 2	Consultant's report
		Criteria 7-8	1	1	1		0.833%		Stage 3	Where drainage measures are specified to ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site.
		Criteria 9-14	1	0	1		0.000%		Stage 3	Drainage design measures are specified to ensure that the post development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development for the 100-year 6-hour event, including an allowance for climate change.
	Minimising Water Course Pollution	Criteria 15-21	1	0	0		0.000%		Stage 3	Where there is a high risk of contamination or spillage of substances such as petrol and oil separators are installed in surface water drainage systems. **Site is unlikely to attenuate the first 5mm of rainwater**
Pol 04	Reduction of Night Time Light Pollution	Criteria 1-4	1	1	1		0.833%	Arup	Stage 3	Lighting design in compliance with BREEAM requirements
Pol 05	Noise Attenuation	Criteria 1-5	1	1	1		0.833%	Arup	Stage 2	Carry out a initial background noise survey. The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level.
Total			**12**	**8**	**10**	**0**	0.83%		**4.167%**	

Credit		Ref	Credits					Design Team Member Responsible	Target Action Date	Outline Design Stage Actions
			Available	Baseline	Potential	Achieved	Weighting			
Innovation										
							10%			
Man 03	CCS Exemplary level Achieved	Criteria 2-4	1	0	1		1.00%	Gleeds Contractor		Contractor to achieve a final CCS score of 40+
Man 05	3 Year Post Occupancy Evaluation	Criteria 2-4	1	1	1		1.00%	Client		Letter of commitment from the occupier that operational infrastructure and resources will be in place to coordinate the evaluation activities at quarterly intervals for the first three years of building occupation
Hea 02	Indoor Air Quality	Criteria 20-23	2				1.00%	Hassell		**One Credit:** At least four of the five relevant product types meet emission limits, testing requirements and any additional requirements **Two Credits:** All product types meet the emission limits, testing requirements and any additional requirements
Ene 01	Reduction of Energy Use	Criteria 2-4	5				1.00%	Arup		Building has been modelled using Option 1 and this demonstrates that the building is energy positive
Tra 03	Alternative Modes of Transport	Criterion 6	1	1	1		1.00%	Client / Arup		Two of the options have been implemented.
Wat 01	Water Performance 65%	Criteria 1-3	1				1.00%	Hassell Arup		Wat 01 performance of at least 65%
Mat 01	Material Specification - Major Building Elements	Criteria 6-7	5				1.00%	Hassell		Scheme acheives at least 85% of Mat 01 calculator points A range of at least 10 products specified at DS and installed by PCS are covered by verified manufacturer specified EPD
Mat 03	Responsible Sourcing of Materials Exemplary Level of Compliance	Criterion 6	1				1.00%	Hassell Contractor		At least 52% of the available responsible sourcing points are achieved
Wst 01	Construction Site Waste Management	Criteria 12-13	1				1.00%	Arup Contractor		Criteria 1 to 11 , where applicable, are achieved ≥75% (by weight) or≥65% (by volume) of construction waste diverted from landfill ≥ 75% (by weight) or ≥ 65% (by volume) of demolition waste diverted from landfill
Wst 02	Recycled Aggregates	Criteria 3-4	1				1.00%	Arup Contractor		Total amount of recycled or secondary aggregate specified is greater than 50% plus within 30km by road
Wst 05	Adaption to Climate Change	Criterion 2	1				1.00%	Arup		Wst 05 (Criterion 1), Hea 4 Thermal Comfort, Hea 7 Hazards, Ene 1 (8 credits), Ene 4 Passive Design, Wat 1 (3 credits), Mat 5 Material Degradation, Pol 3 Flood Risk and 2 x Surface Water Run-off
Total				**2**	**3**	**0**	1.00%		**2.00%**	

3 Design Team RIBA Stage 2 Actions

Noted in the table below are the actions that need to be undertaken during Stage 2 of the design process to allow the targeted BREEAM Excellent to be achieved.

The BREEAM process has fundamentally shifted in the last two years to focus on an integrated approach at concept stage, this brings BREEAM in line with Arup's own Designing Sustainable Buildings strategy.

During the early stages of the design process, a number of the credits that require action by the project team need to be addressed to maximise the number of credits that can be achieved at the correct project milestones.

Credit	Basic Stage 2 Requirement
Man 01 Stakeholder Consultation	The project delivery stakeholders have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery. Third party stakeholders have been consulted by the design team. Consultation feedback has been given to, and received by, all relevant parties. **Arup** to liaise with **Gleeds and design team** to collate the information to evidence the early stage consultation. Confirmation of soft landings, need to document this and undertake the appropriate project engagement events at specific gateways, for example as defined by RIBA Work Stages, will help to re-establish and re-energise Soft Landings activities.
Man 01 Sustainability Champion	**Credit will be achieved** **Arup** have been involved since RIBA Stage 1 to encourage and maximise potential for BREEAM scoring across the site.
Man 02 Elemental Life Cycle Cost (LCC)	**Gleeds** to carry out an elemental LCC analysis.
Hea 06 Accessibility	**Hassell Studio** to develop and access strategy in line with BREEAM checklist A3. Under the BREEAM International scheme, there are no specific requirements regarding building security. Arup Sustainability would recommend however that **Hassell Studio** meeting with a local ALO to identify any potential security issues.
Hea 07 Hazards	**Arup** will carry out a risk assessment to identify potential natural hazards in the region of the development.
Ene 04 Low Carbon Design	**Arup** will carry out a passive design analysis to identify opportunities for passive design solutions. A workshop identifying opportunities for the implementation of passive design solutions to reduce demands for energy consuming building services needs to be undertaken. *Action: Can we collate the design team notes from this workshop to form the basis of the passive report please* **Arup** is currently undertaking a feasibility study into the use of Low and Zero Carbon energy sources on site.

Credit	Basic Stage 2 Requirement
Tra 05 Travel Plan	**Arup** to provide the site specific travel assessment and the developed masterplan / project Travel Plan.
Mat 06 Material Efficiency	Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life. The following provide frameworks for the consideration and review of resource efficiency in design and construction: BS8895 Designing for material efficiency in buildings projects - Part 1 and WRAP Designing out Waste: A design team guide for Buildings. **Hassell Studio and Arup** to investigate the areas identified within the Material Briefing Note when this is available.
Wst 05 Adaption to Climate Change	**Arup** will detail within their **RIBA Stage 2** report how the climate change adaptation strategy has influenced the structural and fabric resilience.
Wst 06 Functional Adaptability	A building-specific functional adaptation strategy study will be undertaken by **Hassell Studio**, which should include recommendations for measures to be incorporated to facilitate future adaptation. This should consider potential for major refurbishment, design aspects that facilitate the replacement of all major plant within the life of the building, degree of adaptability of the internal environment to accommodate changes in working practices and the extent of accessibility to local services, such as local power, data infrastructure, etc. **Hassell Studio** to lead this strategy document with input from **Arup**. Review the Material Briefing Note once available.
LE 02-05 Ecological Impact	**Arup** have been appointed to offer specialist advice at the earliest stages to assist in reducing the ecological impact of the development and long term impact on biodiversity. Based on the current site and scope of the BREEAM International, means that we feel we should be able to score positively within this section. Additional development planting plans to be made available to the ecologist (when available).
Pol 03 Flood Risk	**Arup** will undertake a Flood Risk Assessment to confirm low probability of flooding.
Pol 05 Noise Attenuation	**Arup** to carry out an initial noise survey.

4 Identified Key Issues, Early Warnings and Risks

During the early stages of the design process, a number of the credits need to be considered by the project team to maximise the number of credits that can be achieved at the BRE QA.

Man 02 Life Cycle Cost & Service Life Planning

At the pre-assessment it was confirmed that life cycle costing will be targeted and undertaken by Gleeds.

The credit for reporting the capital cost for the building in pounds per square metre (£k/m^2) will be targeted.

Hea 05 Acoustic Performance and **Pol 05 Reduction of Noise Pollution**

Arup have been appointed to provide design input and this will ensure that the maximum number of credits will be achieved.

Arup to develop appropriate acoustic performance standards and testing requirements.

Ene 01 Reduction of Energy Use and Carbon Emissions

Throughout the whole process it is important to monitor the energy performance of the proposed building through dynamic modelling. Arup to confirm how the EPC will be modelled against the Jersey requirements.

The minimum requirement for BREEAM Excellent is six credits.

Mat 01 Life Cycle Impacts

Early design information about areas and environmental life cycle impact about the building elements from Hassell Studio will enable us to make the most accurate reflection within the assessment.

Based on the proposed use of the Green Guide within the International assessment, the maximum the design can achieve is two credits out of six.

Wst 03 Operational Waste

In addition to the dedicated space provided for the segregation and storage of operational recyclable waste, to achieve this credit the following is required for healthcare buildings.

A waste management strategy which includes:

a) hazardous waste , clinical waste, sharps and domestic waste

b) identification of the waste streams and managing them in and from each area and department

c) input from a range of stake holders including the supply chain, clinical staff and FM

d) environment and waste, controlled drugs, infection control, health and safety and transport

e) commitment to work with the supply chain to minimise the impact of operation waste on the environment and the cost of disposal

f) commitment to report annually on the waste arisings and their environmental impact and to show continuous improvement.

That the strategy has/will:

a) optimise the provision of storage /collection of waste in each room

b) optimise separate storage provision on each floor and on site bulk storage prior for collection and treatment / disposal of each waste stream.

Note: HTM 07-01: Safe management of healthcare waste, Department of Health, 2016 available from UK Government provides further guidance on developing a waste strategy for hospitals.

Pol 03 Surface Water Run-Off

Arup are required to confirm Flood Risk on site but there are other considerations within the credits and further information is required about available SuDS / attenuation credits that can be targeted.

Based on the site location and experience, we will wait on developed design to see if the requirements for BREEAM are met to provide additional buffer above the threshold for BREEAM Excellent.

5 Overall BREEAM International 2016 Target

This report has been undertaken by Tom Slater, the appointed BREEAM AP, prior to the Stage 2 Concept Design in order to facilitate the setting of highest BREEAM related performance targets for the proposed Main Building development as part of Jersey Future Hospital. These scores are in line with the target rating of BREEAM Excellent set by the client within the project brief.

Building	Scheme	Baseline Score	Baseline Rating	Potential Score	Potential Rating
Jersey Future Hospital (Main Building)	2016: Bespoke (Healthcare)	71.94	Excellent	85.15	Outstanding

To achieve this target, the BREEAM process will need to be incorporated into the design development so that the cost-neutral and time constrained credits are targeted and actioned during the correct design stage. The design team will need to be aware of the key milestones and make sure that compliant evidence is provided to meet the requirements of each credit criteria.

The current baseline score is over the threshold of >70% required to achieve BREEAM Excellent.

The overall potential score of circa 85% indicates that there are additional credits available based on further investigation, developed design and design team commitments, but would be based on further discussion with the design team and client.

A score of ⩾75% should be targeted at the design stage submission in order to protect the final score at completion against the potential loss of credits during developed design, construction and auditing. We feel that we should be able to secure a baseline score of circa 74% within Stage 2 and at this point we would develop a list of credits and their benefits, and allow Gleeds to cost them so the client can confirm which will be targeted to increase the scoring and robustness of the assessment.

The BRE are still finalising the International 2016 weightings for Jersey, once these are confirmed, we will update the design team but we feel that it is appropriate to continue with 2013 weightings and target areas which will increase the overall sustainability of the development.

Tracker Plus

We will be using the Tracker+ website as an online portal to upload and collate all the information for the design and post construction phases.

The project will be set up online and the design team will be able to access the site and see the targeted credits under the Design Stage tab once the BRE have fully finalised the Bespoke criteria for the Healthcare assessment within their own BREEAM Projects tool.

Information and evidence can then be uploaded against specific credits and particular requirements.