



Report:

ESD Assessment

Project:

Macquarie Village, North Ryde

For: Stamford Property Group

By: Inhabit Asia Ltd

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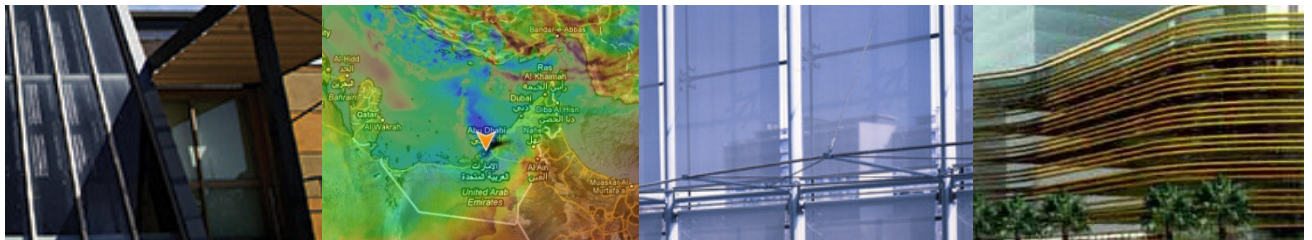


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1.0 Purpose of Report

This report details the results of the ESD assessment on Macquarie Village. It includes both the preliminary BASIX results and the Preliminary Green Star results.

BASIX requires compliance in 3 sections energy, water and thermal comfort. This report addresses each section.

Under the energy section the HVAC systems, hot water, lighting and base building appliances installed into the development are assessed for their efficiency.

The thermal comfort section requires the building to be sufficiently insulated such that the average heating load is $66\text{MJ/m}^2/\text{annum}$ and the average cooling load is $59\text{MJ/m}^2/\text{annum}$. This ensures the building envelope is of a satisfactory standard. The modelling to determine the thermal comfort results is done in the software package AccuRATE.

Under the water section the fixtures and base building appliances are assessed for water efficiency.

It is mandatory to comply with BASIX to gain building approval. BASIX aims to set a minimum standard of efficiency in new buildings.

Green star is voluntary green building rating scheme. Green Star sets more stringent requirements and the improvements that are needed beyond the BASIX commitments are outlined in section 5 Conclusions and recommendations. This section also includes the results from the preliminary Green Star assessment.

The BASIX sections are addressed in different Green Star credits shown in table 1.1.

BASIX Section	Green star Credit	
Energy	ENE-1	Looks at all energy uses that produce greenhouse gas emissions
	ENE-7	Looks at utilising BMS to minimises electricity use when spaces are unoccupied
	ENE-11	Looks at the use of energy efficient appliances
	IEQ-4	Looks at daylight levels
	IEQ-13	Looks at achieving minimum lighting levels
	IEQ-20 IEQ-21	Looks at utilising natural ventilation to minimise heating at cooling loads
Thermal Comfort	ENE-CON	ENE-Conditional calculator looks at minimum insulation standards
	IEQ-5	Award points for having an average heating and cooling load of 30MJ/m ² /annum
Water	WAT-1	Fixtures in WAT-1 calculator
	WAT-3	Landscape irrigation
	WAT-4	Heat Rejection Water
	WAT-5	Fire System Water
	WAT-7	Water Efficient Appliance
	WAT-8	Pool and Spa Water Efficiency

Table 1.1 Relationship between Green Star and BASIX

1.1 Design Specifications

The design specifications that were used in the BASIX modelling based on information received from the architects are in table 1.1.1

Site	
Site Area	22,433m ²
Roof Area	3450 m ²
Car park Area	36,207m ²
Number of Residential Car Spaces	669
Number Non-residential Car Spaces	121

Table 1.1.1 Design Specifications

2.0 Energy

2.1 Energy Input

Table 2.1.1 contains the inputs that were used in the BASIX calculations based on the current design.

Base Building Fixtures	
Heating/Cooling	Reverse cycle VRF/VRV system
Rain Water Tank Volume	261m ³
Pool Volume	200m ³
Collector Area Solar Hot Water	
<i>Hunter</i>	144m ²
<i>Woodward</i>	88m ²
<i>Cutler</i>	250m ²
<i>Young</i>	142m ²
Lifts	Gearless traction with VVVF motor
Power Factor Correction	Yes
BMS System	Yes
Clothes Line	NONE
Clothes Washer	NONE
Dwelling Fixtures	
Ventilated Fridge Space	No
Dedicated LED/Fluorescent Fitting	Yes
Bathroom Exhaust	Exhausted to Roof or Facade
Kitchen Exhaust	Exhausted to Roof or Facade
Laundry Exhaust	Exhausted to Roof or Facade
Cook top	Gas
Oven	Electric
Clothes Line	No
AC Zoning	None
Refrigerator	3 star (new rating)
Dishwasher	4 star
Clothes Washer	4 star
Clothes Dryer	3 star

Table 2.1.1 Energy Design Specifications

2.2 Results

The criteria states the building is required to achieve a 20% reduction in energy from the BASIX benchmark 3,929kg CO₂ per person per year.

Using the above design specifications a 30% reduction is achieved and as such we are above the BASIX minimum as seen in table 2.2.1.

BASIX benchmark	3,929kg CO ₂ per person per year
Estimated consumption	2,750.3kg CO ₂ per person per year
Reduction	30%

Table 2.2.1 Energy Consumption

2.3 Further Comments

The above rating is the minimum compliance required to achieve BASIX and thus gain approval for the development. This does not include commitments to achieve a 4 star Green Star Rating.

3.0 Thermal Comfort

3.1 Thermal Comfort Inputs

Table 3.1.1 contains the design specifications that were used in the thermal comfort section.

Construction Thermal /	Model 1
Walls	Brick, Reflective Foil, R1 Insulation, Plasterboard
Glass	Generic uPVC Single Glazed clear glass with U Value=5.75W/m ² K, SHGC=0.69
Floor/Ceiling	Plasterboard, Concrete Slab, Tiles or Carpet (Tiles for wet areas, carpet for living areas)

Table 3.1.1 Thermal Comfort Design Specifications

3.2 Results

BASIX requires a specified thermal comfort load based on the building's location. Macquarie Village is required to achieve an average heating load of 66MJ/m²/annum and a cooling load of 59MJ/m²/annum.

Preliminary results were carried out on the Hunter building. The first model found a total of 54/54 apartments passing. All apartments are required to pass to gain a pass for the entire building. The results can be seen in table3.2.1.

Ground	Heating	Cooling	Level 3	Heating	Cooling
HG01	27.5	33.8	H301	30.2	33.6
HG02	18.5	21	H302	20.5	21.4
HG03	14.7	26.1	H303	15.4	34.3
HG04	14.1	26.1	H304	7.9	33.7
HG05	14.1	26.1	H305	7.9	33.7
HG06	11.9	27.9	H306	7.9	33.7
HG07	6	23.3	H307	16.1	26.3
HG08	6	23.3	H308	14.2	25.9
HG09	13.2	11.1	H309	7.8	23.5
HG10	46.3	13.5	H310	7.8	23.5
Level 1			H311	15.2	10.7
H101	29.2	34.2	H312	49.5	18.9
H102	18.5	21	Level 5		
H103	14.7	26.1	H501	9.7	16
H104	15.2	26.2	H502	20	21.2
H105	15.2	26.2	H503	50.2	12.5
H106	11.9	27.9	Level 6		
H107	6	23.3	H601	10.1	15.5
H108	6	23.3	H602	20.4	21.2
H109	13.2	11.1	H603	50.9	12.2
H110	47.9	12.8	Level 7		
Level 2			H701	12.7	15.8
H201	30.1	33.8	H702	20.7	20.7
H202	18.5	21	H703	51.2	12.2
H203	14.7	26.1	Level 8		
H204	16.1	26.3	H801	13.3	15.9
H205	16.1	26.3	H802	21	20.5
H206	11.9	27.9	H803	51.9	12.2
H207	6	23.3	Average	19.7	22.4
H208	6	23.3			
H209	13.2	11.1			
H210	49.2	12.5			

Table 3.2.1 Results of Preliminary Accurate Assessment

The acoustic report requires 10.38mm laminated glass on the Epping Road, Herring Road and North West Bedroom facades and 6.38mm laminated glass on the

remaining facades. This is likely to result in further improvements in the building performance.

Windows layouts and screening arrangements are yet to be finalised. The thermal comfort will then be re-assessed to confirm compliance with BASIX at construction certification stage.

3.3 Further Comment

In initial results on the Hunter indicate that the building achieves compliance with BASIX. The design changes that are likely to be made will only improve the building performance. Furthermore the preliminary results suggest we may be able to achieve point under IEQ-5 Thermal Comfort for have an average heating and cooling load of 30MJ/m².

4.0 Water

4.1 Water Inputs

Table 4.1.1 contains the inputs that were used in the BASIX calculation based on the current design:-

Base Building	
Area of lawn	442m ²
Area of Garden	5129.4m ²
Area of Low Water Use Species	3214.7m ²
Roof Area	3450m ²
Impervious Area	4000 m ²
Garden/lawn Irrigated	3346.52m ²
Planter box area	0m ²
Overflow	not diverted
Area of Irrigated Garden	3346.52 m ²
Common Area shower and toilets	3 Star Showers, 4 Star Toilets, 4 Star Taps
Common area taps	Six star
Water Tank	261kL
Swimming Pool	200kL
Dwelling Fixtures	
Shower Heads	3 star 7.5-9L/min
Toilets	4 star
Kitchen Taps	4 star
Bathroom Taps	4 star
Hot Water Demand Reticulation or Diversion	No
Clothes Washer	4 star
Dishwasher	3 star

Table 4.1.1 Water Design Specifications

4.2 Results

The criteria states the building is required to achieve a 40% reduction in water from the BASIX benchmark of 90,340L per person per year.

Using the above design specification a 46% reduction is achieved and as such we are above the BASIX minimum. The expected water consumption and saving is shown in table 4.2.1.

BASIX benchmark	90,340L
Estimated consumption	48,784L
Reduction	46%

Table 4.2.1 Water Consumption

4.3 Further Comment

The above rating is the minimum compliance required to achieve BASIX and thus gain approval for the development. This does not include the requirements to achieve a 4 star Green Star Rating.

5.0 Conclusions and Recommendations

The above analysis looked at the minimum requirement to pass BASIX. Once the BASIX certificate is issued the commitments cannot be downgraded but they can be improved upon.

As the building is aiming to achieve a 4 star Green Star rating, many of the items that are required for BASIX compliance will be required to be improved upon to gain Green Star certification. The preliminary Green Star assessment suggests that potentially the following improvements listed in table 5.1 will be required to achieve a 4 star rating.

Fixture	BASIX	Green Requirement achieve 4 stars	Star to	Green star Credit
Heating/Cooling	reverse cycle VRF/VRV system	Highest MEPS available Affects ENE-1 Points		ENE-1, ENE-12
Rain Water Tank Volume	730m ³	3800kL		WAT-1
Pool Volume	200m ³	NA		WAT-8
Collector Area Solar Hot Water <i>Hunter</i> <i>Woodward</i> <i>Cutler</i> <i>Young</i>	 <i>144m²</i> <i>88m²</i> <i>250m²</i> <i>142m²</i>	 Effect ENE-1 Points		ENE-1
Lifts	Gearless traction with VVVF motor	Effects ENE-1 Points		ENE-1
Power Factor Correction	Yes	NA		NA
BMS System	Yes	Yes		ENE-7
Energy Dwelling Fixtures				
Ventilate Fridge Space	No	No		N/A
Dedicate LED/Fluorescent Fitting	Yes	Effect ENE-1 Points		ENE-1, IEQ-13
Bathroom Exhaust	Exhausted to Roof or Facade	Yes		N/A
Kitchen Exhaust	Exhausted to Roof or Facade	Yes		IEQ-21
Laundry Exhaust	Exhausted to Roof or Facade	Yes		N/A
Cook top	Gas	Effect ENE-1 Points		ENE-1, ENE-12

Oven	Electric	Effect ENE-1 Points		ENE-1, ENE-12
Clothes Line	Indoor Private	Yes		ENE-11
AC Zoning	None	No		No
Refrigerator	3 star (new rating)	3 star (Highest star available)		ENE-11
Dishwasher	4 star	4 star (Highest star available)		ENE-11
Clothes Washer	4 star	5 star (Highest star available)		ENE-11
Clothes Dryer	3 star	6 stars (Highest star available)		ENE-11
Water Dwelling Fixtures		A	B	
Shower Heads	3 star 7.5-9L/min	7.5L/min ¹	9L/min ¹	WAT-1
Toilets	4 star	4 star ¹	4 star ¹	WAT-1
Kitchen Taps	4 star	4 star ¹	6 star ¹	WAT-1
Bathroom Taps	4 star	4 star ¹	5 star ¹	WAT-1
Hot Water Demand Reticulation or Diversion	No	No		N/A
Clothes Washer	3 star	4 star (Highest star available)		WAT-7
Dishwasher	3 star	3 star (Highest star available)		WAT-7

Table 5.1 Improvements on BASIX ¹Please note option in column A or second column B will achieve compliance, Column B is the preferred option by AECOM to achieve compliance.

To achieve the 4 star rating a minimum of 45 weighted points is required. If a 4 star rating is to be achieved we would recommend that the development aims to achieve 50 weighted points to ensure that there is a buffer in case the Green Building Council does not award all the points that Stamford pursues.

The results from the preliminary Green Star assessment can be found in table 5.2 Based on the current design the developments has pursued 52 weighted points and as such the concept plans are on target to achieve a 4 star Green star rated building.

Category	Title	Credit No.	Points Available	Points Achieved	Points to be Confirmed
Management					
	Green Star Accredited Professional	Man-1	2	2	0
	Commissioning Clauses	Man-2	2	2	0
	Building Tuning	Man-3	1	1	0
	Independent Commissioning Agent	Man-4	1	1	0
	Building Users' Guide	Man-5	1	1	0
	Environmental Management	Man-6	3	3	0
	Waste Management	Man-7	2	2	0
	Metering	Man-16	6	6	0
	TOTAL		18	18	0
Indoor Environment Quality					
	Daylight	IEQ-4	2	0	0
	Thermal Comfort	IEQ-5	2	1	1
	Hazardous Materials	IEQ-6	1	NA	0
	Internal Noise Levels	IEQ-7	2	0	0
	Volatile Organic Compounds	IEQ-8	4	4	0
	Formaldehyde Minimisation	IEQ-9	1	1	0
	Electric Lighting Levels	IEQ-13	1	1	0
	Private External Space	IEQ-20	1	0	0
	Dwelling Ventilation	IEQ-21	3	1	0
	Natural Ventilation	IEQ-22	3	1	0
	TOTAL		19	10	1
Energy					
	Conditional Requirement	Ene-Con	Yes	0	Yes
	Greenhouse Gas Emissions	Ene-1	20	5	0
	Unoccupied Areas	Ene-7	2	2	0
	Energy Efficient Appliances	Ene-11	2	2	0
	Peak Electricity Demand Reduction	Ene-12	2	0	2
	TOTAL		26	9	2
Transport					
	Provision of Car Parking	Tra-1	2	0	0
	Fuel-Efficient Transport	Tra-2	2	1	0
	Cyclist Facilities	Tra-3	3	2	0
	Commuting Mass Transport	Tra-4	5	3	0
	Trip Reduction - Mixed Use	Tra-5	2	1	0
	TOTAL		14	7	0
Water					
	Occupant Amenity Water	Wat-1	5	2	0
	Landscape Irrigation	Wat-3	1	1	0
	Heat Rejection Water	Wat-4	2	2	0
	Fire System Water	Wat-5	1	1	0
	Water Efficient Appliances	Wat-7	1	1	0
	Swimming Pool/Spa Water Efficiency	Wat-8	2	2	0
	TOTAL		12	9	0

Category	Title	Credit No.	Points Available	Points Achieved	Points to be Confirmed
Materials					
	Recycling Waste Storage	Mat-1	2	1	0
	Building Re-use	Mat-2	6	0	0
	Recycled-Content & Re-used Products and Materials	Mat-3	1	0	0
	Concrete	Mat-4	3	2	0
	Steel	Mat-5	2	2	0
	PVC Minimisation	Mat-6	2	2	0
	Sustainable Timber	Mat-7	1	1	0
	Design for Disassembly	Mat-8	1	0	0
	Dematerialisation	Mat-9	2	0	0
	Flooring	Mat-11	1	0	1
	Joinery	Mat-12	1	0	1
	Internal Walls	Mat-14	2	0	2
	Universal Design	Mat-15	1	1	0
	TOTAL		25	9	4
Land Use & Ecology					
	Conditional Requirement	Eco-Con	Yes	0	No
	Topsoil	Eco-1	0	NA	0
	Re-use of Land	Eco-2	1	1	0
	Reclaimed Contaminated Land	Eco-3	0	NA	0
	Change of Ecological Value	Eco-4	4	0	0
	Outdoor Communal Facilities	Eco-5	3	2	0
	TOTAL		8	3	0
Emissions					
	Refrigerant ODP	Emi-1	1	1	0
	Refrigerant GWP	Emi-2	2	0	0
	Refrigerant Leaks	Emi-3	1	0	0
	Insulant ODP	Emi-4	1	0	1
	Watercourse Pollution	Emi-5	2	2	0
	Discharge to Sewer	Emi-6	4	0	0
	Light Pollution	Emi-7	1	1	0
	Legionella	Emi-8	1	1	0
	TOTAL		14	5	1
Innovation					
	TOTAL		5	0	0
Total weighted points:			52		5

Table 5.2 Preliminary Green Star Results

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
General Documentation		Documents necessary of general submission				- Evidence of site purchase, clearly indicating the site, purchase date and any relevant site attributes - [Evidence of site redevelopment showing the state of the site at least 2 years prior to site redevelopment. - Site documentation such as scaled site plans OR aerial photographs generated prior to site redevelopment, showing: - The proposed built area for the new development indicated and quantified; - Where the site contains any existing buildings, showing the footprint area of the existing buildings and the area of the new buildings; and - Identifying the land types present on site in accordance with Eco-4 'Change in Ecology Calculator'; - Showing, and identifying the areas in a radius no less than 100metres around the site. - Full set of tender drawings - Completed Green Star Tool	Inhabit Stamford Property Services	AJ+C	24/11/2010 Green star Matrix issued to Consultants 2/12/2010 Matrix updated with comment and reissued] 7/12/2010 Matrix uploaded to FTP site for distribution 14/01/2010- SA will begin to compile this data.
Management									
Man-1	Green Star Accredited Professional	Two points is gained here for using a Green Star accredited professional as a principal participant in the design team.	2	2	0	The following documentation is required to demonstrate compliance: - A copy of the nominated Green Star Accredited Professional's accreditation certificate; - A copy of the Green Star Accredited Professional's letter of appointment which lists his/her scope of works - Meeting schedule: A list of project meetings attended by the Green Star Accredited Professional. The relevant items must be highlighted as necessary. - Extract(s) from meeting minutes clearly indicating the attendance and participation of the Green Star Accredited professional. The relevant items must be highlighted as necessary. Green Star Accredited Professional must remain accredited throughout the project, from the schematic design stage to construction completion	Inhabit		AJ+C- all of design team should be contributing SA- Yes, but this point is specifically about compiling documentation from all consultant
Man-2	Commissioning Clauses	Two points awarded for: • Comprehensive pre-commissioning, commissioning, and quality monitoring are contractually required to be performed for all building services (BMS, Mechanical, electrical and hydraulic); and • The works outlined above are done in exact accordance with CIBSE Commissioning Codes or ASHRAE Commissioning Guideline 1-1996 (for Mechanical services only) and CIBSE Commissioning Codes for the other Services.	2	2	0	The following documentation is required to demonstrate compliance:- - Relevant section(s) of the design specification(s) or similar design documentation that describe the project's required commissioning requirements in accordance with CIBSE Commissioning Codes for all services; OR ASHRAE Commissioning Guidelines for mechanical ; - A signed statement from the building owner confirming commitment to the incorporation of the commissioning requirements in accordance with the specifications. The time related requirements of the pre-commissioning, commissioning and quality monitoring required by the credit criteria must also be stated within the statement. - Short report outlining the design intent and including the following items: • Energy & Environmental Strategy - Description of the building initiatives intended to enhance energy efficiency and conservation, and minimise greenhouse gas emissions, including an overview of the potential savings, as stated for economic and environmental impact. • Monitoring and Targeting - Details on energy, water, indoor environment quality, waste targets and benchmarks for the building, such as W/m² and on the metering and sub-metering strategy. • Building Services - Description of the basic functions and operation of the following systems: Ventilation, Heating System, Cooling System, Electrical Systems, Lighting and Domestic Hot Water (DHW). Each referenced system must be accompanied by the following documentation: • A simplified diagram of the system. A description of its intended operation and its conditions. • A list of the main components (including controls), and the value and conditions of their efficient use. Details on maintenance, including recommended frequency. • A list of likely tell-tale signs of system failure, system „do's and don'ts", and notes on inefficient operation. - Extract(s) from the specifications listing the contractor's requirements to provide the owner with the following at building handover: • As-built/as-installed drawings. • Commissioning Report. • Training to ensure that building management staff have all the information and understanding needed to efficiently operate and maintain the features and systems in the building.	Service Consultants	Stamford Property Services	

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
Man-3	Building Tuning	One point is awarded for the building owner undergoes tuning of all building systems, a relevant member of the design team participates in the building tuning, monthly monitoring is undertake, a full re-commissioning report is undertaken 12 months after completion and a building tuning report will be provided to the building owners and made available to the design Team.	1	1	0	The following documentation is required to demonstrate compliance: - Extracts from the specification(s) or similar design documentation where the requirement for a minimum monthly monitoring, quarterly reviews and reporting, and a full re-commissioning service carried out 12 months after practical completion in accordance with design intent documentation is described. The specifications must list or reference the roles and responsibilities which will be required during this period and state the requirement for a building tuning report to be generated for the building owner. Applies to electrical, Mechanical, hydraulic, BMS systems and Fire	Service Consultants		
Man-4	Independent Commissioning Agent	One point is awarded where the building owner appoints an independent commissioning agent to provides advice and monitor and verify commissioning of the building.	1	1	0	The following documentation is required to demonstrate compliance: - A copy of the letter of appointment of the independent commissioning agent including the responsibilities of that agent - A copy of the CV for the Independent Commissioning Agent detailing the qualifications and experience relevant to the project. The commissioning agent may be a suitably qualified or experienced person from within the contractor or sub-contractor organisation, as long as they are not involved in the general installation works.	Stamford Property Services		
Man-5	Building Users' Guide	One point is awarded where a simple building users guide is produced and made available to managers and residents.	1	1	0	The following documentation is required to demonstrate compliance: - Building Users' Guide (BUG) containing information for occupants and tenants on the environmental features of the building including: Energy and Environmental Strategy, Monitoring and Targeting, Building Services, Transport, Facilities, Materials and Waste Policy, Expansion/Re-fit Consideration, References and Further Information;	Stamford Property Services		
Man-6	Environmental Management	Three points are awarded where the contractor implements a Environmental Management Plan	3	3	0	For the Environmental Management Plan (two points), one of the following documents is required to demonstrate compliance: - Short report that correlates the provisions of the EMP with the NSW Environmental Management System guidelines 1998 or 2007. - Comprehensive, project-specific EMP, clearly demonstrating compliance with the requirements of with Section 4 of the NSW Environmental Management system Guidelines 1998 or 2007 - A copy of the current certificate of ISO14001 accreditation for the contractor to demonstrate that an appropriate EMS is operating within that organisation; - Letter of confirmation from the building owner or contractor stating that any subcontractors relevant to the project will adhere to applicable ISO14001 requirements.	Stamford Property Services		SA- revised this was a typo. AR Confirmed the contractor would have ISO 14001 certificate.
Man-7	Waste Management	Two points are awarded where the contractor has a waste management plan and 80% of the demolition and construction waste is recycled.	2	2	0	The following documentation is required to demonstrate compliance: - Extract(s) from the contract conditions between the contractor and either the developer or the building owner stipulating in the body of the contract the full criteria for reuse/recycling of the stated proportion of construction and demolition waste. The exact provisions of the Credit Criteria must be found in the body (rather than Appendices) of the document. Or, where the principal building contract has not yet been awarded: - Extract(s) from the tender documentation stipulating the full criteria for reuse/recycling of the stated proportion of construction and demolition waste. The exact provisions of the Credit Criteria must be found in the body (rather than Appendices) of the document. The Assessor(s) will not award points unless the documentation requires the contractor to recycle the benchmarked proportion of waste, collect receipts on materials recycled and report monthly to the client on progress.	Stamford Property Services		
Man-16	Metering	One Points awarded where water metres are installed for all major water uses and there is an	6	6	0	The following documentation is required to demonstrate compliance:	Shelmerdines AECOM	Inhabit	AJ+C- commented this was expensive and should expect 0

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
		effective mechanism for measuring consumption One point is awarded where there is a domestic cold water metre installed for each dwelling and there is an effective mechanism for monitoring water consumption. One Point is where there is an electricity sub metre for all users 100kVa, sub metre for lighting and general power of common areas and an effective mechanism for monitoring consumption One point is awarded where there is a sub meter in each dwelling for electricity, gas(when used other than cooking) and centralised hot water flow. One point is awarded where there is a smart metre that has real time consumption, function to analyse data at weekly, monthly, yearly intervals and presents costs associated with usage. Potential Points Available- an additional point may be achieved here if a smart metre is installed for water (or gas if used other then in cooking) as well.	18	18	0	Deliverables/Compliance Requirement - An extract from the specification detailing the installation requirements for electrical sub-meters that meets the credit criteria - Clearly marked schematic electrical drawings with all uses and loads clearly indicated and with the location of all sub-meters clearly marked. - A Short report describing how the Credit Criteria have been met by: • Providing a summary table of all major energy uses in the building. • Describing how the energy consumption data will be effectively monitored during the building's operation - An extract from the specification detailing the installation requirements for electrical sub-meters that meets the credit criteria - Clearly marked schematic electrical drawings with all uses and loads clearly indicated and with the location of all sub-meters clearly marked. -A Short report describing how the Credit Criteria have been met by: • Providing a summary table of all major energy uses in the building. • Describing how the energy consumption data will be effectively monitored during the building's operation			AJ+C would need to find space in laundry or near intercom for this SA- is doing some pricing and further research. This will be completed by the end of the week (10/12/2010) SA- Had discussion with Bruce Kennedy re- smart meters. CONFIRMATION REQUIRED BK-13/1/2010 has arranged a meeting at the end of the month to learn more about the situation. A decision will be made after this.
Indoor Environment Quality			Total	18	0				
IEQ-4	Daylight	One point is awarded where kitchens have a daylight factor of 2% and living rooms 15% for 90% of the kitchens and 60% of the living rooms.	2	0	0	The following documentation is required for compliance: - Daylight Modelling Report -Architectural Tender Documents	Inhabit	AJ+C	AJ+C- this could be a problem and more work needs to be done on drawings SA- Agrees and modelling need to be done ASAP. If dimensions of best and worst case kitchen are sent to SA can be preliminary assessed quickly. However is there any capacity to change this? If not we will be unable to achieve points and other points should be sought after. SA- this will be modelled by 15/12/10 SA- Modelling completed. We will not achieve these points 14/01/2011
IEQ-5	Thermal Comfort	One points is awarded if ceiling fans are provided for 95% of apartments				The following documentation is required for compliance: - Provides calculation demonstrating the average thermal loads achieved, justifying all assumption made. (NatHERS second generation software) - Tender documentation showing all zones asses that shows materials used and dimensions of opening, inlets and outlets. - Extracts from the specifications that nominates all thermal properties.	Inhabit	AJ+C	SA- Modelling started preliminary assessment suggest it may be achievable AR- Ceiling fans to be in all bedrooms

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
IEQ-6	Hazardous Materials	This point is not applicable	1	N	0				
IEQ-7	Internal Noise Levels	One points are awarded if the combined building services and external noise doesn't exceed 35dbleq(1hour) in bedrooms and40dbleq(1hour) in other rooms. The other point is awarded if the bounding apartment construction results in an airborne noise level of Rw+Ctr>55 and the floor construction of adjacent dwellings is Ln,w+Ck<55.	2	0	0	The following documentation is required for compliance: -a short report detailing modelling software, properties of installed material, describing all relevant noise sources and stating the design features in the tender documentation - CV of the acoustic professional -Letter of Appointment - Manufactures Data Sheet	Acoustic Logic	Altus Page	BW- external glazing on Epping road will need to be upgraded. To achieve the second point significant upgraded would be required to walls and floors. SA- has been looking into trickle ventilators with acoustic baffles. This may help. AJ+C bedrooms next to lifts may be problematic. 14/01/2010- BW report states this will not be achieved
IEQ-8	Volatile Organic Compounds	Four points are awarded for 95% of all paints, adhesive; sealants, floor covering, wall covering and ceiling covering meet the limits for VOC emissions.	4	4	0	The following documentation is required to demonstrate compliance: - A short report summarising how the products used meet the credit criteria, listing and referencing all products within the relevant category used in the project, nominating which meet the credit criteria - Extracts from the specification nominating the VOC limits for each product within the relevant category type as per the limits stipulated in the green Star Technical Manual - Extracts from the specification stating that the contractor is required to obtain approval of the design team or client before substituting the finishes listed in the schedule - Extracts from the specification stating that the contractor is required to conduct a final audit at end of construction works to ensure correct products have been used - Where no products in a particular category are used, extracts from the specification where it stipulates that no carpet; paint; adhesive/sealant is to be used in the project Note: if actual products are specified, product data sheets must be provided to demonstrate the product is compliant	AJ+C Interior Design Service Engineers	AJ+C	AJ+C specification of finishes etc will be critical AJ+C some potential for uncommon/ obscure products may cause site issues. CONFIRMATION REQUIRED After detailed interior design
IEQ-9	Formaldehyde Minimisation	One point awarded for timber having no or low formaldehyde emissions.				The following documentation is required to demonstrate compliance: - A short report summarising how the products used meet the credit criteria, listing and referencing all relevant products used in the project, nominating which meet the credit criteria - Extracts from the specification where the formaldehyde content or emissions standard for all composite wood products is stipulated; - Extracts from the specification where it states that the contractor is required to obtain approval of the design team or client before substituting the wood products listed in the schedule.	AJ+C		AJ+C specification important AJ+C this can be expensive CONFIRMATION REQUIRED After detailed interior design
IEQ-13	Electric Lighting Levels	One point is achieved for having lighting levels of minimum 300lx kitchen sink, cook top or stove top and bathroom vanities.	1	1	0	The following documentation is required to demonstrate compliance: - A short report listing each typical lighting layout and referencing supporting documentation - Tender reflected ceiling plan (RCP) drawings - Isolux plot drawings	Shelmerdines	AJ+C Interior Design	CONFIRMATION REQUIRED After detailed interior design
IEQ-20	Private External Space	One point is awarded for 90% of the dwellings have an private external space equal to 2m X 3m or 15% of the living are, which ever is greater and 80% must be shaded from direct sunlight for a minimum of 3 hours between 9am-5pm in mid summer and receiving 3 hours of direct sunlight in mid winter.	1	0	0	The following documentation is required to demonstrate compliance: - Tender drawing showing the exact location of private external spaces. - A short report that describes the private external spaces and how they are accessed by occupants AND a solar shading and modelling report.	AJ+C	Inhabit	AJ+C Some design strategy can help with this point AJ+C solar study will be critical CONFIRMATION REQUIRED SA- to complete shading report in the new year

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
IEQ-21	Dwelling Ventilation	One point is awarded for 90% of kitchen have a dedicated exhaust fan. Potential Points Available-an additional two points can be gained for the installation of trickle ventilator.	3	3	0	The following documentation is required to demonstrate compliance: - A short Report describing how the criteria has been met and demonstrating that the operable trickle ventilation inlets meet the criteria - Tender drawing showing the location of trickle ventilators - A short Report describing how kitchen met the criteria - Tender drawing showing the location of kitchen ductwork and range hoods.	Shelmerdines	AJ+C	AJ+C will need to source a good looking system AJ+C will need to consider acoustics 13/1/2011- Trickle ventilator to be installed according to 5462M_Mrhcancial Services DA report received 23/12/2010
IEQ-22	Natural Ventilation	One point is awarded where 95% of the common lobbies are provided with natural ventilation.	3	0	0	The following documentation is required to demonstrate compliance: A- short Report showing calculations and demonstrating the % of common lobbies that meets the natural ventilation requirement.	AJ+C	Shelmerdines	AJ+C if this means cross ventilation then there will be problem SA- will attach the guidelines. SA- as windows on Epping road can't be opened due to noise. This point will not be achieved
Total			19	10	1				
Energy									
Ene-Con	Conditional Requirement		Yes	0	Yes	The following documentation is required to demonstrate compliance: -A report containing a summary sheet how the project meets the energy conditional requirement, supporting information to demonstrate the local performance standard and a copy of the energy-con calculator and details of all inputs into the models referencing tender drawing and schedules - NatHERS rating certificate for each building - Tender Drawing showing materials - Details how the design meets the BCA ventilation requirements.	Inhabit	AJ+C	
Ene-1	Greenhouse Gas Emissions					The following documentation is required to demonstrate compliance: - Energy modelling report in accordance with and following the structure of either the NABERS Validation Protocol for Computer Simulations or the final version of the Green Star Energy Calculator Guide. Default values, design driven inputs and referencing drawings must be included and clearly identified and assumptions must be justified and conservative and correspond to the design. - Copy of the completed NABERS Calculator OR Energy Green Star Calculator- (AJ+C/Facade/All Services Consultants) Extracts from the specifications demonstrating that all the inputs used in the energy simulation reflect current design - Tender drawings and extracts from specifications demonstrating that all the inputs used in the energy simulation reflect current design	Inhabit	AJ+C All Service Consultants	CONFIRMATION REQUIRED After detailed interior design
Ene-7	Unoccupied Areas	One point is awarded for each apartment having a shutdown switch near door for lighting, and HVAC One Point is awarded for common areas having automated controls to minimised AC and lighting.	20	5	0	The following documentation is required to demonstrate compliance: - A short report describing how energy is save in unoccupied areas through the design - Tender drawing showing dwelling shutdown switches and motion and daylight sensors for common areas -Extracts from the specifications showing motion and daylight sensors.	Shelmerdines		CONFIRMATION REQUIRED
Ene-11	Energy Efficient Appliances	2 points are available for 7.5m of clothes per apartment is to be installed and dryer, clothes washers and dishwashers are to be the highest star rating.	2	2	0	The following documentation is required to demonstrate compliance: - A short report on how the appliances meet the criteria, appliance schedule and extracts from the energy rating database - Tender drawing marking the installation of appliances.	Inhabit	AJ+C Interior Design	AJ+C where do these go AJ+C looking into putting on balconies behind facade looking for pictures AJ+C is the client providing washing machines

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
Ene-12	Peak Electricity Demand Reduction	Potential Points Available -no electric cooking devices - the AC is with one star of the best possible rating -non electric heating system is installed - 2 point are awarded at IEQ-5	2	0	2	The following documentation is required to demonstrate compliance: - A short report describing how the criteria are met, a non electric cooking appliance, schedule, and extracts from the energy rating database and the specifications.	Inhabit		SA- yes to washing machines i think AR- Washing machines, dryers, dishwashers, fridges CONFIRMATION REQUIRED AR- 6 star dryer expensive 22/12/2010. SA- 6 star dryers are required to be installed or this point will not be achieved.
Transport			Total	26	9				
Tra-1	Provision of Car Parking	0 Points Awarded	2	0	0	This point is not being pursued			
Tra-2	Fuel-Efficient Transport	To achieve 1 point here 10% of the parking space must be labelled for small vehicles and 5% are designed for moped and/or motorbikes	2	1	0	The following documentation is required to demonstrate compliance - Short report: That describes how the Credit Criteria have been met by indicating the number of motorbike, small car, and total parking spaces being provided, and referencing the site plans when necessary. Where alternative compliance is claimed, providing calculations that relate the number of parking spaces provided to the project nominated area. Report must also state that the spaces are designed in accordance with the dimensional requirements for small spaces set out in AS/NZS 2890.1:2004 - Tender drawings indicating the total number of car pool, motorbike, alternative fuel vehicles, small car parking spaces and total number of parking spaces being provided, clearly marking and dimensioning parking spaces	AJ+C		AJ+C 5% loss of cars SA- no 5% of total spaces so if you have extra space you do not need to reduce car parks PB- confirmed this will be achieved
Tra-3	Cyclist Facilities	2 points for one enclosed bicycle locker or cage per dwelling.	3	2	0	The following documentation is required to demonstrate compliance: - A short report describing - The location and provision of the cyclist facilities and referencing drawings showing the number and location of bicycle racks/trails/storage facilities - The location of the bicycle facilities demonstrating that the spaces with good natural surveillance (or in a secured area) and weather protection - Tender drawings showing - The number and location of bicycle racks/trails/storage facilities,.	AJ+C		AJ+C should this be designed as part of landscape? AJ+C Is access from car a problem AJ+C are storage units at ends of car parks ok/ need hook on wall or stand SA yes the storage at end of car is ok is has stand or hook. SA- visitor parking is required at 0.25 per apartment on grade entrance and must be covered. This would be a more plausible option is designed as part of landscape in my opinion. PB confirmed insufficient visitor parking. FINAL RESULT- 2 points
Tra-4	Commuting Mass Transport	Calculated from mass transport calculator.	5	3	0	The following documentation is required to demonstrate compliance: - A copy of the completed Mass Transport Calculator; - Confirmation that the project is in the relevant postcode, and within 500 metered walking distance of a transportation hub - Site plan or location map, extending to the surrounding areas showing the walking distance from the major public entrance of the building to the entrance of the transportation hub.	Inhabit	AJ+C	AJ+C Traffic ??? SA- I only need site plans from AJ+C to finish this section
Tra-5	Trip	1 point is awarded where there are at least 5	2	1	0	The following documentation is required to demonstrate compliance:	Inhabit		

Credit	Title		Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
	Reduction - Mixed Use	amenities within 400m walk.					- A short report describes which amenities fall within 400m, and site plan with these mapped on it. It must also include evidence of these amenities such as telephone directory or equivalent that shows street address.			
Water			Total	14	7	0				
	Wat-1	Occupant Amenity Water	2 Points achieved by collecting washing machine water for re- use and having 5 star toilets, 5 stars taps and 3 star showerheads. Potential Point Available-if rainwater is collected this is an additional 2 points.				The following documentation is required to demonstrate compliance: - A copy of the completed Potable Water Calculator; - A short report describing all the water efficient features of the building, justification of the predicted water savings, wherever not solely achieved by the fittings/fixtures, calculations undertaken for the Potable Water Calculator including the capacity of all the water reuse, collection and storage systems. - Where grey/black/rain water systems are to be installed, and the contribution determined by the design team rather than using the simple calculators, then calculations demonstrating the reduction in potable water consumption must be submitted by a qualified and experienced consultant who has been involved in the design of such systems - Extract from the specification listing all hydraulic fittings and fixtures in the project, all water reuse systems and all collections systems with a specific mention of the capacity of the system; - Tender schematic drawings showing the location of the all water reuse or collection systems including the location of water storage systems; - Evidence of approval from the relevant authority approval confirming approval or no objection of the documented design; the authority's approval of as-installed system may be conditional on the project's ability to clearly demonstrate compliance with relevant regulation or standards, which may be cited.	AECOM	Inhabit	AJ+C- is there a big range? Taps easy shower not – shower easy AS AJ+C Grey water collection and treatment may be cost effective given scale AJ+C black water treatment? SA- phone conversation with TL- not keen on grey water due to maintenance requirements and high investor properties. Toilets a problem SA- found information regarding maintenance schedule and believes needs to be written in contract. Also found 5 star toilets by TWA without basin. SA- AR confirmed no to be adopted on this project. SA/TL- Fitting to be 4 star toilets, 6 star bathroom, 5 star kitchen and 3 star 7.5l/min shower heats Rainwater Tank TBC PB- Rain water tank 730kL or 1500kL 22/12/2010
Wat-3	Landscape Irrigation	1 point achieved where potable water for irrigation has been reduced by 90%.		1	1	0	The following documentation is required to demonstrate compliance: - A short report regrading how water use is reduced and extract from specifications - tender drawing showing landscaping	Oculus	AECOM	
Wat-4	Heat Rejection Water	2 points awarded as no water based heat rejection is used					The following documentation is required to demonstrate compliance: For mechanically air-conditioned spaces:- - A short report detailing the air-conditioning system and the absence of water based heat rejection	Shelmerdines	Inhabit	
Wat-5	Fire System Water	1 point awarded as fire protection system doesn't use water for testing		2	2	0	The following documentation is required to demonstrate compliance: - A short report describing how the Credit Criteria has been met, including the proposed fire protection system, its operation and testing requirements, and justifying how the system design meets the Credit Criteria and how the collected water will be re-used on site. - (Tender schematic fire suppression drawings for each typical floor, and drawings of the water storage and re-use system(s).	AECOM	AECOM	SATL ongoing communication to ensure this is achieved
Wat-7	Water Efficient Appliances	1 point awarded for having highest rated dishwashers and clothes washers.		1	1	0	The following documentation is required to demonstrate compliance: - A short report including how the criteria is met, appliance schedule, extract from WELLS database. - Tender document showing the plumbing connections.	AJ+C Interior Design	AECOM	AJ+C As to consider this AJ+C please confirm providing washer and dryers not just dryers AJ+C mentioned in ENE-11 SA- yes as appliance need to be both water and energy efficient CONFIRMATION REQUIRED

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
Wat-8	Swimming Pool/Spa Water Efficiency	2 point awarded for swimming pool having a blanket				The following documentation is required to demonstrate compliance: - A short report detailing how the potable water consumption has been reduced by 70% - Tender documents showing how potable water consumption is reduced. - Extracts from the specification showing the provision of a pool blanket and a complaint filtration/non potable water system.	AECOM	Oculus AJ+C	AJ+C finding good looking system and easy storage needs to be considered CONFIRMATION REQUIRED
Total			2	2	0				
			12	8	0				
Materials									
						The following documentation is required to demonstrate compliance: - A Short report that describes how the credit have been meet including adequately sized storage and streams, accessibility, provision for on-site waste, description of how recycling is convenient and describing facilities for re-use of over sized household items. - Tender drawing showing location of recycling storage. - extract for specification			
Mat-1	Recycling Waste Storage	2 points awarded for having all 4 of the following included(1 point for 3):- -Dedicated Storage area for recyclables -Waste Chutes for general waste and recyclables. -Compost Facilities -Designated areas for re-use of household goods.	2	1	0		Waste Auditor	AJ+C	AJ+C allow/need sufficient room at main garbage collection room AJ+C what is Ryde's recycling collection? AJ+C compost+ storeroom easy point AJ+C who looks after smells and compost AJ+C will this be reflected in kitchens. SA- "designated area for household good" means a storage area somewhere for old good to be left for reuse and recycling. PB- confirmed FINAL RESULT 1 point achieved
Mat-2	Building Re-use	This point not achieved	6	0	0				
Mat-3	Recycled-Content & Re-used Products and Materials	This point not achieved	1	0	0				AJ+C existing building will be demolished, can't we re-use any of them?
Mat-4	Concrete	Potential Point Available-up to 3 points are available for substituting aggregate with industrial waste product.	3	1	1	The following documentation is required to demonstrate compliance: - A Short report that describes how the credit has been meet including concrete technologist repost and extracts from specifications.	Meinhardt	Altus Page	TL Confirmed 17/1/2011
Mat-5	Steel	2 points for 90% of steel having a post consumer content	2	2	0	The following documentation is required to demonstrate compliance: - A Short report that describes how the credit have been meet including confirmation from the supplies if recycled content			TL confirmed this point will be achieved.
Mat-6	PVC Minimisation	Points are available for minimising the use of PVC and using recycled PVC.	2	1	1		Altus Page		AJ+C HDPE for all down pipes. What percentage is this? SA- Has anyone looked into whether this credit will be achieved CONFIRMATION REQUIRED 13/1/2011- SA- Please be aware we will be using the revised PVC credit for our submission.
Mat-7	Sustainable Timber	1 points is available for using sustainable timber.	1	2	0	The following documentation is required to demonstrate compliance: - A Short report that describes how the credit have been meet including calculation and extract from contract and calculations - extract for specification	Meinhardt	Altus Page	AJ+C formwork costs AJ+C re-used timber or bamboo flooring AJ+C is it possible to re-use form work in a interiors situation.

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
Mat-8	Design for Disassembly	This point not achieved	1	0	0				CONFIRMATION REQUIRED AJ+C possible in island bench for kitchen joinery and bathroom joinery
Mat-9	Dematerialisation	This point not achieved	2	0	0				
Mat-11	Flooring	This point not achieved	1	0	1				AJ+C interiors looking into this should be achievable +\$5.10m ² CONFIRMATION REQUIRED After detailed interior design
Mat-12	Joinery	This point not achieved	1	0	1				AJ+C interiors looking into this CONFIRMATION REQUIRED After detailed interior design
Mat-14	Internal Walls	This point not achieved	2	0	2		AJ+C /AJ+C Interior	Inhabit	AJ+C interiors looking into this CONFIRMATION REQUIRED After detailed interior design
Mat-15	Universal Design	1 point available if all 10% of all publically accessible areas are designed tom comply with AS 4294-1995 Adaptable Housing	1	1	0				
Total			25	6	6				
Land Use and Ecology									
Eco-Con	Conditional Requirement		Yes	0	No				
Eco-1	Topsoil	This credit NOT APPLICABLE	0	A	0				
Eco-2	Re-use of Land	1 point achieved assuming at purchase there was building on 75% of the site				The following documentation is required to demonstrate compliance: - Short report describing the built area on the site at the time of purchase, and providing calculations (with justifications of all inputs used) of the proportion of the built area on the site. Site documentation and evidence of purchase provided in the General Section must be referenced within the report	Stamford Property Services		AJ+C are driveways included SA- yes
Eco-3	Reclaimed Contaminated Land	This Credit is NOT APPLICABLE	1	1	0				
Eco-4	Change of Ecological Value	0 points awarded for this credit.	0	A	0				
Eco-5	Outdoor Communal Facilities	2 points are awarded 5-8 facilities 3points are awarded for 9+ facilities Conditional Requirement- 25% of the site as communal garden, a maintenance manual is made for outdoor communal facilities is made for the owner Facilities:- 1.Composting Facilities- NO 2.Communal or Individual Garden Plots- MAYBE 3.Worm Farm Facilities-NO 4.In- Ground Deep Soil Planting- YES 5.Playground Area- MAYBE 6.Open landscaped area for active play-NO 7.Sun shaded area-YES 8.Outdoor gym-MAYBE	4	0	0				
			3	2	0	The following documentation is required to demonstrate compliance: - A short report describing how the facilities meet the area and calculations of the site area and compliance with the 25% - A draft maintenance manual - Tender drawing showing the location of communal activities.	Oculus	AJ+C	AJ+C not sure how composting facilities and worm farms would work or be managed AJ+C some aged care facilities do this and have management plan if resident don't take up. SA- 5-8 item will get 2 points 9 items will get 3 points PB Confirmed 7 facilities FINAL RESULT 2 point

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
		9.Swimming pool-YES 10.Retained bushland-NO 11.Seating-YES 12.Outdoor Dining- YES 13. Barbeque facilities-YES							
		Total	8	3	0				
Emissions						The following documentation is required to demonstrate compliance: Where refrigerants are included within the design: - An extract from the specification or tender contract where the requirements for the HVAC system are stipulated, stating that any refrigerant must have an ODP of zero. Where the project is a refurbishment, stipulating the requirements for the conversion of the existing system. Tender drawings or an equipment schedule providing the same information can be provided in lieu of extract provided the same information is on substitute documentation. - A short report that describes how the Credit Criteria have been met by describing the HVAC system and all its components, referencing specifications and tender drawings, identifying all systems that contain refrigerant and indicating all of the type and volume of refrigerant(s) used in the system(s). Where the project is a refurbishment, describing how the existing system(s) are to be converted, confirming this can be performed and maintained viably and without any refrigerant loss to the atmosphere. - Tender schematic Mechanical drawings of the HVAC system, indicating location and type of all components containing refrigerant	Shelmerdines		
Emi-1	Refrigerant ODP	1 point awarded HVAC refrigerant having an ODP of zero or no refrigerants are used.	1	1	0				
Emi-2	Refrigerant GWP	0 points awarded for this credit	2	0	0				
Emi-3	Refrigerant Leaks	1 point is awarded where the risk of refrigerant loss to the atmosphere has been reduced.				The following documentation is required to demonstrate compliance: - A short report that describes how the Credit Criteria have been met by describing the HVAC system and all its components, referencing specifications and tender drawings, identifying all systems that contain refrigerant and indicating all of the type and volume of refrigerant(s) used in the system(s), outlining the design and intended operation of the leak detection system(s), and if the additional point is claimed, of the refrigerant recovery system(s). - A copy of the section of the specification where the refrigerant leak detection system(s) is detailed. Where the additional point is claimed, extract from the specification where the chiller and refrigerant recovery characteristics are detailed as mentioned in the credit criteria. - Extract from the O&M manual that explains correct operation of the refrigerant leak detection and recovery system - Tender drawings of the HVAC system, indicating location and type of all components containing refrigerant showing the enclosure around each of the HVAC systems containing refrigerants, with the location, size and intended operation of the sensors and openings identified, and indicating the air-tightness of the space	Shelmerdines		AJ+C unlikely with every split condenser Design and management SA- we have been looking into different AC options SA- commercial VRF system decided upon. AR to circulate supplier details. SA- How does this impact refrigerant leaks? KM- Said this will be expensive to achieve and does not recommend pursuing. Point not achieved 20/12/2010
		1 point is awarded where all thermal insulant avoid using ozone depleting substances.	1	0	0	The following documentation is required to demonstrate compliance: - A copy of the sections of the specifications which refer to insulation where the requirements for that insulation to be zero ODP in manufacture and composition Note: when no insulants are used, a letter can be provided by a suitably qualified person in place of an extract from the specification	All Consultants		KM- said this may be a problem with some materials 20/12/2010 SA changed to TBC
Emi-4	Insulant ODP		1	0	1				
Emi-5	Watercourse Pollution	2 points are awarded where the development does not increase peak stormwater flow and stormwater is filtered or treated before leaving site.	2	2	0	The following documentation is required to demonstrate compliance: - A short report referencing guidelines used Extract for specifications	Oculus AECOM	AJ+C	

Credit	Title	Criteria	Credit Avail	Credit Claim	Credit TBC	Deliverables/Compliance Requirement	Responsible Team	Assisting Team	Comments
						-Tender site plans			
Emi-6	Discharge to Sewer	0 points achieved in this section.	4	0	0				
Emi-7	Light Pollution	1 point is achieved where not external luminaire has an upward light output ratio that exceeds 5% and light complies with AS4282.				The following documentation is required to demonstrate compliance: - A copy of the section in the specification where relevant lighting and its requirements are identified e.g. atrium, internal perimeter areas and external lighting. - A report from the lighting engineer describing the external lighting on the site, areas illuminated, and calculations and diagrams to demonstrate that no light spill is impacting the night sky or neighbouring properties in accordance with AS4282-1997 and that 955 of outdoor spaces do not exceed minimum requirements of AS1158 for illuminance levels - (Site plan indicating the location, aim points and type of all external luminaires, and marked up to show the area(s) that does not exceed the minimum requirements of AS/NZS 1680 for illuminance levels. Where a glazed atrium is present, atrium drawings shall be provided indicating the location and type of internal luminaires. - Luminaire schedule for all external lighting and relevant internal lighting (where glazed atrium present), nominating the type, lighting distribution and quantity of each luminary.	Shelmerdines Oculus	AJ+C Interiors	CONFIRMATION REQUIRED After detailed interior design
Emi-8		1 point is achieved as there in no water based heat rejection system.				The following documentation is required to demonstrate compliance: Mechanically air-conditioned buildings without water based heat rejection systems: - Report that describes how the Credit Criteria have been met and indicating the type of the HVAC system and its components, and if it requires refrigerants, their type and volume - Tender drawings of the HVAC system, with all components clearly nominated	Shelmerdines		
Innovation		Total	14	6	1				
		Total	5	0	0				
		Weighted Total		55	12				