Design, Engineer, Construct! Level 2:
Unit 2 - Developing a sustainable construction

2.3. The candidate will support development of a project concept.

Unit	Incomplete (U)	Secure (C)	Exceptional (A)	Comments:
2.3.1				
2.3.2				
2.3.3				
2.3.4				
2.3.5				
2.3.6				

Name: Jack Littlewood

Date: 15/12/2016

Deadline for Submission:

Unit 2 - Developing a sustainable construction

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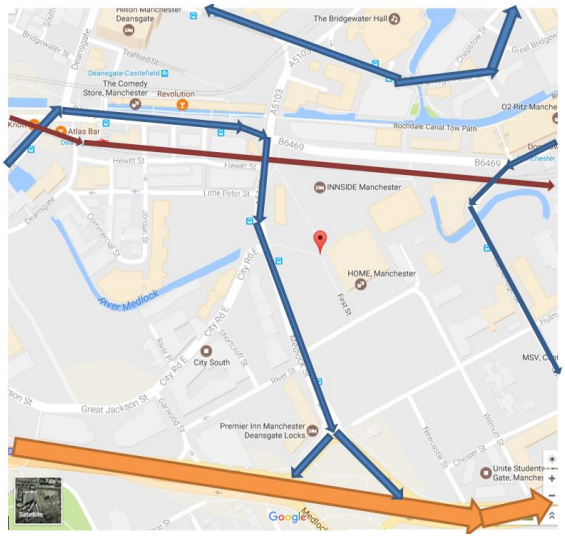
2.3.1 explain the importance of compatibility between existing infrastructure and the project proposals

1. Use diagrams and maps to identify existing roads and transport systems (buses/ trains etc) for your site:



-- My site

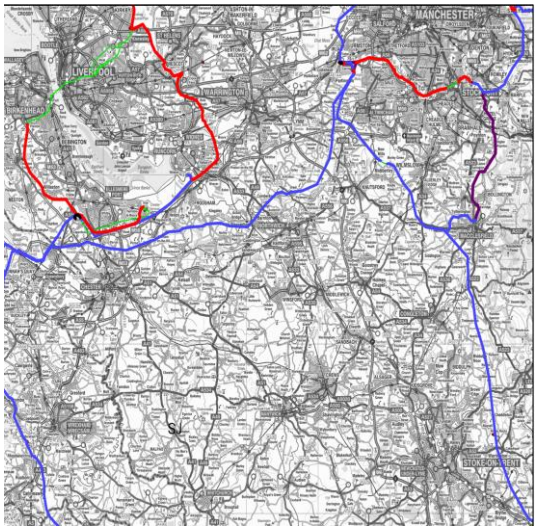
-- Motorway

-- Bus route

--Train station

2. Use diagrams and maps to identify existing power and communication networks for your site:

I can not acquire any maps for existing power and communications as they are not published online.



What is meant by the term infrastructure?

The basic physical and organizational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society or enterprise.

Unit 2 - Developing a sustainable construction

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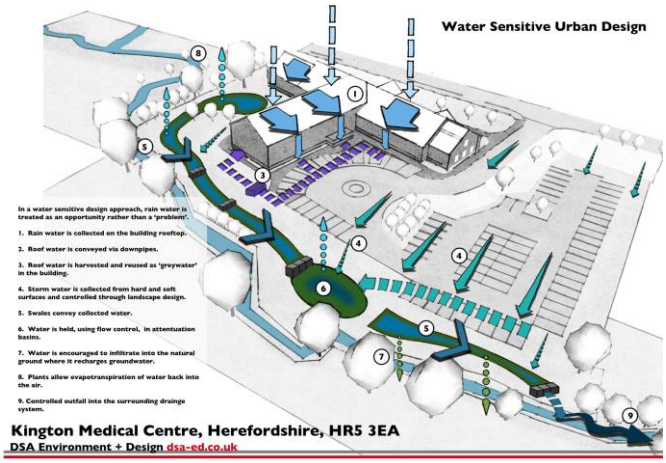
3. Explain Water harvesting using diagrams and notes:

Rainwater harvesting is a technique used for collecting, storing, and using rainwater for landscape irrigation and other uses. The rainwater is collected from various hard surfaces such as roof tops and/or other types of manmade above ground hard surfaces.

Rainwater harvesting can be as simple as attaching a water butt to the down pipe from your gutters, and using the water you collect to water the garden on wash the car. At the other end of the scale, it can be a pumped system that uses rainwater for toilet flushing and clothes washing, as well as outdoor uses.

4. Use diagrams and maps to explain SUDS:

Sustainable drainage systems (SuDS) are drainage solutions that provide an alternative to the direct channelling of surface water through networks of pipes and sewers to nearby watercourses.



What other methods can you use to reduce water use?

You can reduce water by turning off taps earlier and also saving toilet water by not flushing when full,

2.3.2 explain the environmental and climate change reduction strategies

3. Use diagrams, notes and images to describe your environmental plan:

Set out aims/ targets for your building relating to each of the following areas (use images and diagrams where possible):

Energy use and energy source – A target for this is to reduce energy costs in the football/basketball courts as they use a lot of task lighting which uses a lot of energy.

embodied energy – To use materials that benefit the environment instead of helping destroy it such as global warming.

use of harmful materials - None to consider.

material sources – To help receive materials from less extraction zones which release a lot of carbon into the atmosphere.

Ecology and landscape – To replant any trees which have been demolished and to fertilise the soil for further use in the future.

flexibility and durability – Use materials which are durable and strong instead of weak materials which can weather down after a short period of time which will need to be replaced.

waste management - To provide more efficient toilets.

water management – Use more rainwater instead of water from nearby water plants as they use a lot of energy and also costs more.

travel plan – None to consider.

contamination and pollution – To narrow down the pollution rate of my building by using more natural resources.

resilience to climate change – None to consider.

What is an environmental impact assessment (EIA)?

The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 set out a requirement to carry out an environmental impact assessment as part of the planning application process for certain projects (generally large or environmentally complex projects).

Unit 2 - Developing a sustainable construction

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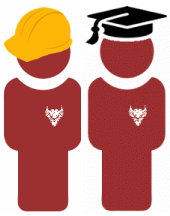
2.3.3 monitor the execution of the plan to ensure compliance with client requirements taking appropriate action where necessary



Add in your compliance Matrix from earlier in the project.

Criteria No	Criteria	Rating	Criteria Type
1	Design should be sustainable		Design
2	Should have a suitbale amount of rooms		Design
3	Waste Management		Efficency
4	Should be long lasting		Durability
5	Suitable amount of parking		Design
6	Warm colouring on buidling		Design
7	Dark colouring on building		Design
8	Football/Basketball court		User/Design
9	Accessible for the disabled		Design
10	Suits other benfectors		Design/User
11	Sustainable waste management		Effiecncy
12	Sustainable materials		Efficency/Design
13	Solar panels/turbines		Efficency/Design
14	Building maintain itself		Durability
15	Gym		Design/User
16	Restaurant/Café		Design/User
17	Space should be appropriate		Design

Can you make any improvements/ alterations to your compliance matrix now you are further along the design process. Add the updated version here:

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17	Space should be appropriate		Design

How often should you meet with the client and discuss the progress?

You should meet on a weekly basis or three times a week so they can have daily/weekly progress reports and to discuss if any changed should be made or any issues that should be discussed.

How will this help the progress of the project?

This will help as the architect or design manager will have knowledge on how to proceed next.

Unit 2 - Developing a sustainable construction

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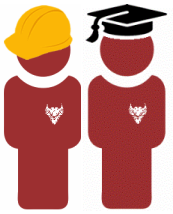
2.3.4 establish strategies for the proposed construction that support health and safety, occupancy, management and operation



When constructing the building what hazards must you be aware of and what can you do to reduce the risk?

Potential Hazard	**Eliminate/Reduce/ Isolate/ Control (including an explanation)**
Falling objects	To reduce the hazard we can keep track of all the objects located above your head, we can eliminate this hazard by wearing hardhats to prevent injuries.
Tripping hazard	To reduce this hazard we can paint wires and anything that has a tripping hazard bright yellow to indicate to the workers that that object is a hazard, to prevent this workers can take extra care when walking through the site.
Falling hazard	To reduce and isolate the incident of falling from a height you could place safety barriers to stop workers falling.
Transport	Transport can be a major issue if not controlled correctly, to help control the rate of transportation vehicles we can introduce a traffic corresponder to help guide the flow
Unauthorised personal	This can be an issue as an unregistered person on site can cause potential risks to them and the workers, to control this problem we should place a gate on site and monitor who comes through.

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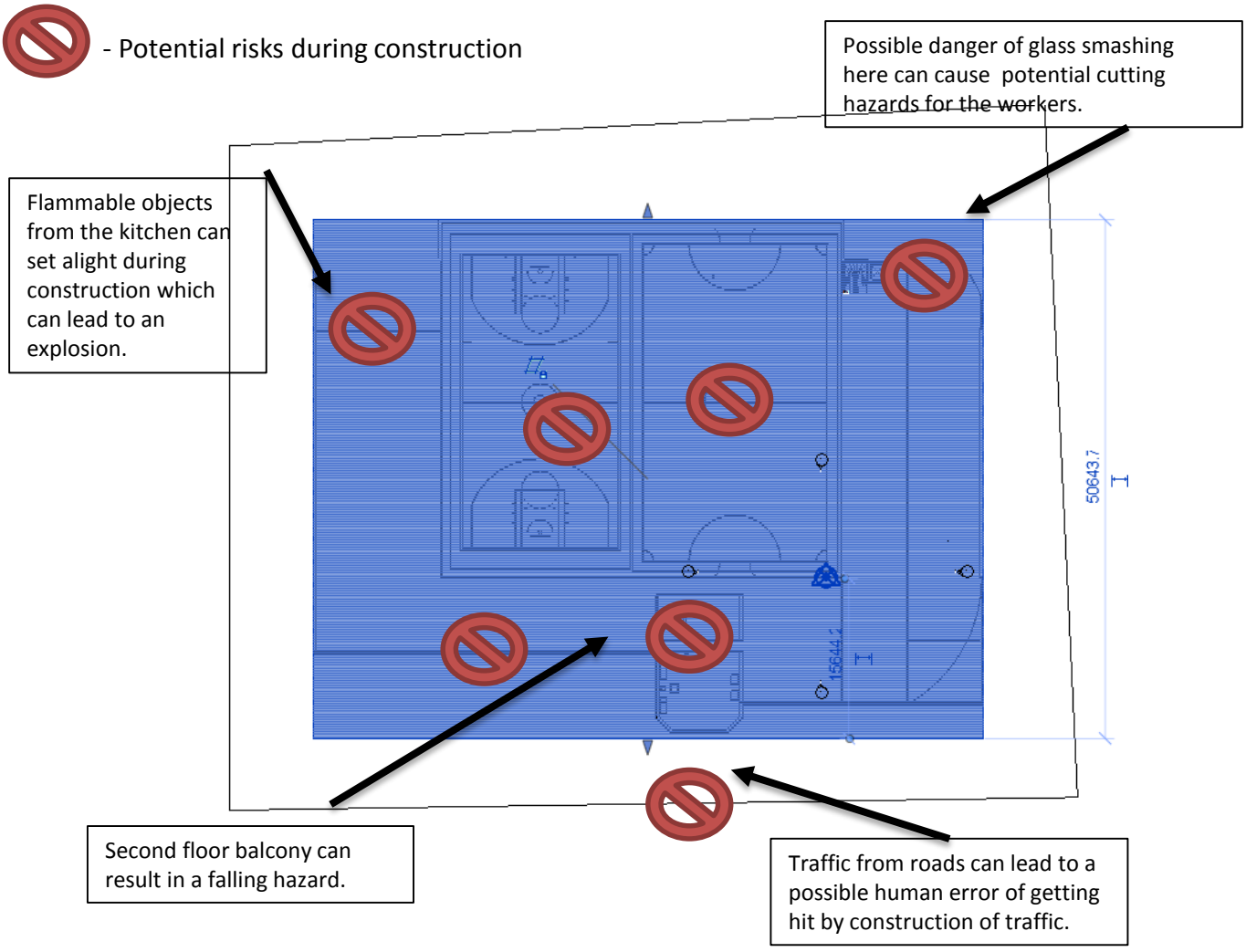
2.3.4 establish strategies for the proposed construction that support health and safety, occupancy, management and operation

Insert an image of you site plan and highlight on it any areas of risk during construction

- Potential risks during construction



Read through the below legislation and summarise the main aim of them below:

- **Construction (Design and Management) Regulations 2015 (CDM 2015)**

This legislation is for the safety of the workers and to ensure there are no major risks during the construction of the project.

- **Health and Safety at Work Act 1974**

Protecting persons other than persons at work against risks to health or safety arising out of or in connection with the activities of persons at work, also safeguarding the use of toxins and explosive substances on site.

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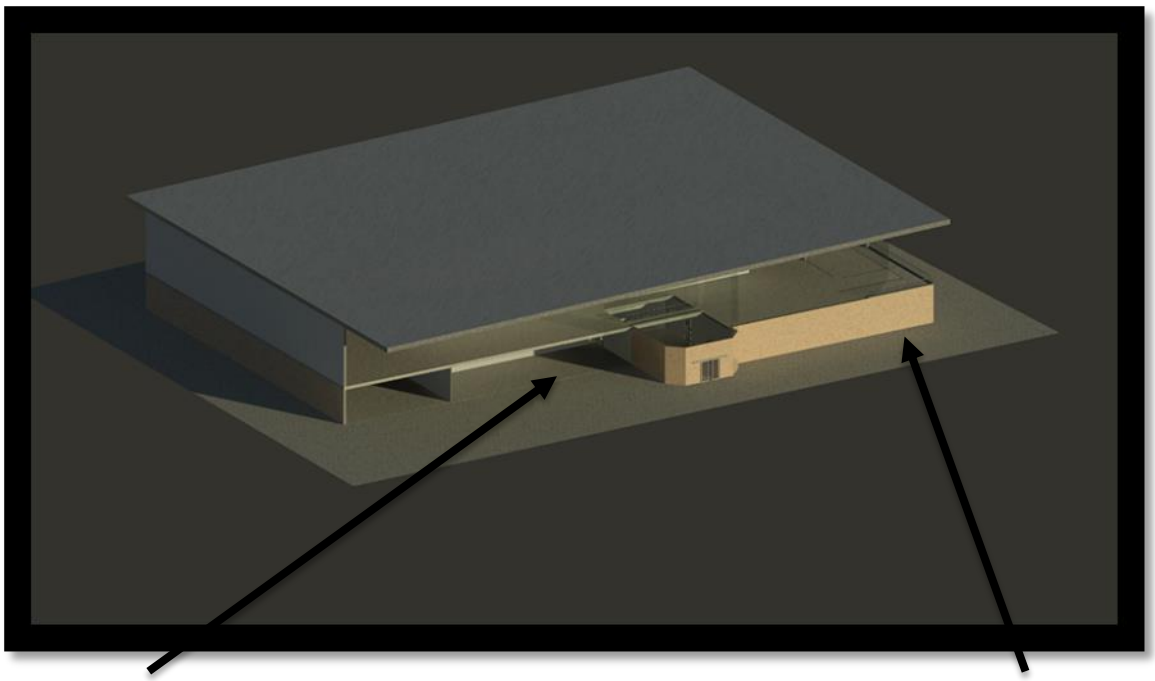
2.3.5 relate building design specification to energy efficiency

1. Insert images of your final model which show how your building is energy efficient (think energy source, materials of building, lighting, technologies and systems that reduce energy use).



My building is energy efficient as lots of glass is used resulting in more natural lighting which reduces the use of lighting used around the building, although you cannot see the solar panels on the roof they are there which means that's a more sustainable use of energy as well as it helps save hot water and electricity. The materials on the building will be sustainable which also means that less fossil fuels will be used in the development of the project resulting in less carbon emission (global warming). Finally I use a system called SUDs to help improve the amount of water saved, this will greatly save energy costs for water.

Why is it important to set energy efficient targets?

It's important because you save a lot of money if you set yourself a target and follow it as say for example you want to install solar panels, in the long run they will help save you money and energy so it is worth it. It also sets you a guideline for the project and helps in the short term as every designer wants to save money and setting a target is the best way to do so.

Unit 2 - Developing a sustainable construction

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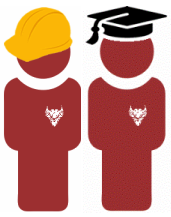
2.3.6 inform planning through collaborative working groups



Target:	Project members responsible	Success Criteria
Use less energy (lighting) in the basket ball and football courts (task lighting).	Project Manager Project Engineer Site Manager	To help reduce the energy used in the court areas.
Replant any trees or wildlife that has been destroyed by the construction of the building.	Project Manager Project Engineer	To replant all wildlife or the preserve the ones that were there.
Use materials which are durable and strong.	Project Manager Project Engineer Procurement Manager Site Manager	To use more durable materials in the construction of the project.
Use more rainwater instead of water transported around Britain.	Project Manager Project Engineer	Use SUDs to help collect rainwater for the project.
To use more natural resources and cut down pollution.	Project Manager Project Engineer Procurement Manager Site Manager	Wind turbines, water systems and solar panels will need to be included.
Materials which benefit the environment.	Project Manager Project Engineer Procurement Manager	Sustainable materials which can be refurbished and reused to help benefit the environment.

How should this information be shared between project team members?

It should be discussed in regular meetings so they can discuss the targets and how they can achieve it.

Who should oversee that these targets are implemented and achieved?

The project manager as they keep track of all the activities so they should keep updated on the targets that should be completed.