SITE OVERVIEW FOR JUDGES

Site	Suitable Geol?	Reservoir vol large enough?	Aspects to consider if this site is chosen	Extra	Min spend per site (£)
A	Yes	No	• Ecological – damage to endangered animal population. Have the team taken measures to mitigate this? • Several people to be displaced or disrupted • Volume of reservoir not large enough – would need to pair with another	• Dip of beds would be very slightly inclined into the valley and therefore the reservoir. Students may wish to take this into account when choosing this as a site • If students build here, ensure they have considered the ecological impact on the owl species. They may choose to ignore it, but they should still have considered it!	450 690 000
B	Yes	Yes	• Very good site geologically and economically, can be delivered within budget with well over the desired reservoir capacity • Dam here would mitigate flooding issue in Anningville • Large number of residents displaced. • Potential erosion issue further downstream if dam placed here	• Students should notice that Anningville is built on a delta, and building at site B would severely disrupt sediment transport in the system, leading to erosion to the delta. Clues pointing toward this are the large catchment, the depth of sediment to be excavated, and the flat bottom to the valley. • This is the only site which would leave enough money to build the sports complex.	720 800 000
C	Yes	No	• Undisturbed valley – good in terms of displacing people, poor in terms of ecological impact • Volume of reservoir not large enough – would need to pair with another	• Students may notice that a glacier lies within the catchment area, suggesting a large amount of summer meltwater is channelled down this valley; could be the most effective of the smaller reservoir sites to help mitigate flooding	437 000 000
D	No	Yes	• Site is totally unsuitable geologically – lies on limestone, large fault and beds dip into valley		498 760 000
E	Yes, if remediation works are done	No	• Site lies on a small, inactive fault. Concrete grouting would need to be deployed to make the area watertight • Volume of reservoir not large enough – would need to pair with another	• Students must factor in the cost of grouting to make this a viable site	419 160 000
F	No	No	• Site is unsuitable geologically – beds inclined into the reservoir and slightly downstream		429 360 000

GUIDANCE FOR JUDGES

- In general, students should recognise that D and F are unsuitable places for the dam, which leaves them deciding between site A, B, C, or E
- Students may decide site B is the best option, however it is worth asking them if they have considered the sedimentation issue and how many people have to be displaced to build there; how do they justify or moderate the impact of building here?
- Students deciding on a combination of A, C and E will need to weigh up the economic, ecological and social benefits of building on each site
- If students choose to build on A, C or E alone will need to acknowledge that their reservoir doesn't meet the volume stipulated in the brief.
- Please don't penalise teams who "buy" extra info from consultancies – it's meant to be an effective use of budget.

Presentation:

- Students will present their findings to you as a 3 minute "elevator pitch" outlining where they have decided to build and why. They should be persuading you to choose their team to win the building contract! They are encouraged to highlight things that make them stand out in this time – outside the box thinking, radical solutions, unusual proposals, etc.
- You can ask the students questions after their pitch, but we will limit each group's time to five minutes.

Marking criteria:

- Scientific application – How well did they understand the information given to them? Did they apply their own knowledge too?
- Reasoning – Did the students fully consider and justify the implications of building a dam in their chosen location(s)? Were there any unexpected or surprising solutions in the students' proposal?
- Teamwork – Did the students delegate according to their strengths? Did one student take over and lead the group, or was work divided equally?
- Presentation – Did the students use this time to effectively and confidently communicate their ideas to you?