Appendix 6:

Options assessment against sustainability criteria

Summary

1. The following table summarises the comparative ratings of options 1-3 against the three elements of sustainability (economic, cultural/social and environmental). The explanation for each rating follows the table in paragraphs 2-16.

	Option 1- asphalt (score)	**Option 2 – asphalt / granite (score)**	**Option 3 – granite (score)**
Economic sustainability	High(3)	High(3)*	High(3)*
Cultural / social sustainability (aesthetics)	Low(1)	Medium(2)	High(3)
Environmental sustainability	High(3)	High(3)**	High(3)**
Total score	7	8	9

* the rating is subject to maintenance costs also being funded by the developer. Without it: Option 2 = medium(2), Option 3 = low(1). See paragraph 2-4 below.

**the rating is dependent on locally sourced granite which has a higher cost. Without it: Option 2 = medium(2), Option 3 = low(1). See paragraph 11-16 below.

Economic Sustainability

2. The economic sustainability of the materials options are rated as:
    - Option 1 - asphalt: high
    - Option 2 – asphalt/granite: high (medium if maintenance not funded)
    - Option 3 - granite: high (low if maintenance not funded)

3. The Review of Material (December 2010) stated that the cost to maintain granite reduces the economic sustainability. However, in the context of this project being fully funded by the developer, including the maintenance costs, the economic sustainability of the three options is considered equal. The funding of the project by the developer includes:
    - implementation costs
    - maintenance costs for the trees for a period of 20 years
    - maintenance costs for granite used on the pedestrian cross-over of the vehicle access (option 2 and option 3) and the carriageway (option 3)

4. The cost of maintaining any granite used has been calculated as being equivalent in value to it being replaced once during the life of the development. This is considered less frequent than might otherwise be the case for granite because the street is rated as having the lowest possible rating for risk of excavation for two reasons:
    - Houndsditch, in this location, and the vehicle access will be used by only a small number of vehicles.
    - There is a utilities piped subway underneath Houndsditch in this location which means that there is little likelihood of the carriageway being dug up by utility companies.

Social / cultural sustainability

5. The social / cultural sustainability of the materials options are rated as:
    - Option 1: low
    - Option 2: medium
    - Option 3: high

6. The use of granite on the carriageway (option 3) on Houndsditch is considered an aesthetic improvement and will positively impact on the social / cultural sustainability of the area which falls in the Liverpool Street conservation area.

7. The use of asphalt surfacing on the pedestrian cross over (option 1) is not rated as highly as the granite (option 2) because of the small benefit to safety that the contrasting coloured granite provides.

8. The use of granite in this location is quite possibly the most appropriate location for its use on the carriageway in the City for the following reasons:
    - It is part of a conservation area and therefore adds to the historic and culture of the area.
    - It is located on a street that is considered the lowest risk of excavation, which would otherwise be costly and be disruptive when maintenance is required.
    - Carriageway works will have a negligible impact on vehicle movements. This is due to the one way nature and compulsory turns of the streets in the immediate area. Houndsditch is a street that effectively serves only the immediate two buildings (Heron Tower and Heron Plaza) on each side.
9. The developer has stated their preference for Option 3 (granite) because of the high aesthetic appearance.

10. It is also worth noting that the scheme approved under the Heron Tower project included the use of granite setts on the carriageway in this location.

Environmental Sustainability

11. The environmental sustainability of the materials options are rated as:
    - Option 1: high
    - Option 2: high (medium if not sourcing granite locally)
    - Option 3: high (low if not sourcing granite locally)

12. The review of materials (December 2010) stated that the use of granite on the carriageway had a high environmental impact due to the the transportation of the material from China.

13. The ratings for environmental impact are effectively based on the amount of granite that is used if that material would need to travel significant distances.

14. Option 3 uses the most, while Option 1 uses the least and is rated highest if the granite is to be sourced from the City's historically usual location of China. The significant distance the granite travels from China contributes to the potential lower environmental rating of options 2 and 3.

15. By using granite from places such as Portugal (or Cornwall), the environmental impact from the transportation of it is reduced by about 90% and the rating is considered equal across the three options. There are cost implications of locally sourcing granite.

16. The developer has agreed to provide the extra funds in order for the granite to be sourced locally and therefore significantly reduce the environmental impact of the use of the granite. This has been factored into the costs of the options stated in this report.