

SUPPLEMENTARY SOIL ANALYSIS

ST NEOTS MOBILE HOME PARK, EYNESBURY

BACKGROUND TO SUPPLEMENTARY SOIL ANALYSIS

Further to the designation of plots at St Neots Mobile Home Park, Eynesbury (the Site) where concentrations of benzo(a)pyrene in shallow soils have been identified above Site Specific Assessment Criteria (SSAC) and therefore represent an unacceptable risk to site users, as described in the following documents:

- Additional Sampling, St Neots Mobile Home Park, Eynesbury – EPS, April 2006
- Remedial options Appraisal, St Neots Mobile Home Park, Eynesbury – EPS, May 2006

A need for supplementary laboratory analysis of soils was recognised for Plot 39, where concentrations of benzo(a)pyrene were not found to exceed the SSAC, however concentrations of metals in shallow soils were found to exceed the relevant published Soil Guideline Value (SGV).

RESULTS OF SUPPLEMENTARY SOIL ANALYSIS

The results of supplementary soil analysis undertaken for Plot 39 are presented in Table 1. Sample locations are shown on the attached plan, which has been extracted from the Additional Sampling report, referenced above.

95th Percentile Mean Value Tests were calculated for each set of analysis in accordance with CLR7: *Assessment of risks to human health from land contamination. An overview of the development of guideline values and related research*, the results of which determined concentrations of arsenic, lead and nickel in excess of the respective Soil Guideline Values for 'Residential with Plant Uptake' landuse, with arsenic at over twice the SGV and lead at over three times the SGV.

DISCUSSION OF RISK POSED

The supplementary soil analysis undertaken at Plot 39 has identified levels of some metals at greater concentrations than respective Soil Guideline Values (SGV). An SGV is a generic assessment criteria, the exceedance of which indicates that further, site specific consideration should be given to the potential risks posed by the reported concentrations to future site users, and where necessary, the potential implementation of appropriate control measures to reduce risks to acceptable levels.

The greatest exceedance of an SGV was reported for lead, therefore it has been considered appropriate that further assessment of this compound be undertaken in order to determine if

these levels represent an unacceptable risk to the health of site users, and therefore if remedial action is required.

Given the nature of the Site, all of the pathways considered in the derivation of the lead SGV for residential with plant uptake landuse must be assumed to be active, therefore further recalculation of Site Specific Assessment Criteria (SSAC) by considering the level of activity of the individual pathways is not thought reasonable in this case.

However, further assessment of the various assumptions which have been taken in order to derive of the SGV for lead has been made. One of the main uncertainties in the model used to derive the SGV is the choice of the 'delta factor', which is the response of blood lead in children to increasing soil or dust lead concentration. The reasonable range of delta values was taken as 2-5ug/dL per 1000ug/g, with low values tending to relate to such things as older children, cleaner homes and more frequent hand washing or heavier textured soils and higher values tending to relate to children between 18 and 24 months, dusty conditions and poor cleanliness.

The SGV for lead for residential landuse with plant uptake of 450mg/kg uses a delta value of 5ug/dL per 1000ug/g, which represents the highest value in the reasonable range. If an SSAC is calculated for lead using the lowest value in the reasonable range (i.e. 2ug/dL per 1000ug/g) a value of 1,150mg/kg is produced.

The result of the 95th Percentile Mean Value Test for lead samples at Plot 39 is well in exceedance of this SSAC.

On this basis, the levels of lead identified in shallow soils at Plot 39 are considered to represent a significant chance of significant harm to the health of site users and it is therefore recommended that Plot 39 should be included in the proposed remedial works at the Site.

Results of Supplementary Metals Analysis for Plot 39, St Neots Mobile Home Park, Eynesbury (mg/kg)

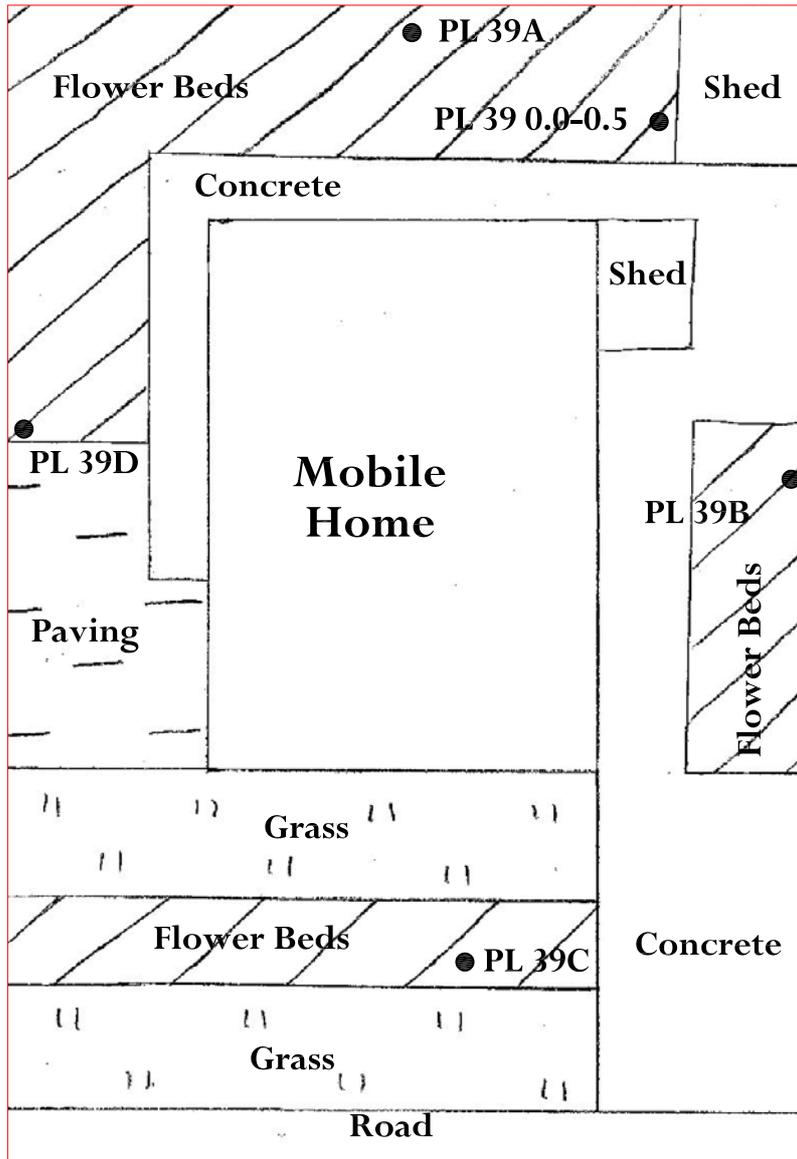
Sample ID	Arsenic	Cadmium	Chromium	Mercury	Lead	Nickel	Selenium
Plot 39 A	57.7	0.98	24.8	1.62	822	33.2	1.24
Plot 39 B	34.6	0.51	17.5	0.26	237	24.8	0.94
Plot 39 C	49.5	0.51	32.5	0.61	3,420	41.5	1.27
Plot 39 D	30.7	1.82	25.4	3.11	628	33.8	0.95
Plot 39 0.0-0.5m	59	2.00	68	1.00	800	100	2.00
Mean Value Test Result ²	55.99	1.69	48.43	2.15	1,749	69.2	1.60
Soil Guideline Value ³	20	8	130	8	450	50	35

Notes:

1. All values presented as mg/kg
2. 95th Percentile Mean Value Tests calculated in accordance with CLR7: *Assessment of risks to human health from land contamination. An overview of the development of guideline values and related research.*
3. Soil Guideline Value for Residential with Plant Uptake

Eynesbury Mobile Home Park

PLOT 39



● PL 39A - 39D = Sample Locations

Plot 39	
Sample Ref	BAP
PL 39A	1.1
PL 39B	1.5
PL 39C	0.1
PL 39D	2.6
PL39 0.0-0.5	1.20
Means Value Test Result* =	<u>2.11</u>

* = 95th Percentile Means Value Test in accordance with CLR 7

