**Nicholls Colton Analytical**
7 - 11 Harding Street
Leicester
LE1 4DH

**Nicholls Colton Analytical**

**Cover Sheet**

| **Analytical Test Report:** | **E11/CAS/003/001** | | |
|---|---|---|---|
| Your Project Reference: | **Garland Farm** | Samples Received on: | 06.09.11 |
| Your Order Number: | Kevin Castledine | Testing Instruction Received: | 06.09.11 |
| Report Issue Number: | 2 | Sample Tested : | 06 to 20.09.11 |
| Samples Analysed | 4 Soils | Report issued: | 20.09.11 |

Signed

**James Gane**
Manager - Data Logistics
Nicholls Colton Analytical

**Castledine & Co**
Environmental Consultants
4 Wymeswold Road
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Note:

Please refer to Methodologies tab for details pertaining to the analytical methods undertaken.

Samples will be retained for 28 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with NCA method statement MS - CL - Sample Prep, oven dried at <30˚C.

Stone Content was determined in accordance with NCA method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

Concentrations are reported as a percentage mass of the dry soil passing the 10mm BS test sieve, where appropriate these results have been corrected for moisture content but not stone content.

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**E11/CAS/003/001**

**Project Reference - Garland Farm**

**Analytical Test Results - Suite 1 CLEA**

| NCA Reference | | | 11-12895 | 11-12897 | 11-12898 |
|---|---|---|---|---|---|
| Client Sample Location | | | TP1 | TP3 | TP4 |
| Client Sample Reference | | | TP1 | TP3 | TP4 |
| Depth (m) | | | 0.50 | 0.10 | 0.25 |
| Top of sample (m) | | | 0.50 | 0.10 | 0.25 |
| Date of Sampling | | | 06.09.11 | 06.09.11 | 06.09.11 |
| Time of Sampling | | | 10.30 | 11.00 | 11.15 |
| Sample Matrix | | | Clay | Loam | Loan |
| **Determinant** | **Units** | **Accreditation** | | | |
| Arsenic | (mg/kg) | MCERTS | 10.5 | 18.5 | 14.5 |
| Cadmium | (mg/kg) | MCERTS | < 2.5 | < 2.5 | < 2.5 |
| Chromium (Total) | (mg/kg) | MCERTS | 26.8 | 32.3 | 18.2 |
| Copper | (mg/kg) | MCERTS | 7.9 | 58.6 | 64.0 |
| Lead | (mg/kg) | MCERTS | 20.7 | 139 | 134 |
| Mercury | (mg/kg) | UKAS | < 0.7 | < 0.7 | < 0.7 |
| Nickel | (mg/kg) | MCERTS | 29.2 | 41.6 | 94.4 |
| Zinc | (mg/kg) | MCERTS | 86.7 | 357 | 216 |
| Total Phenols | (mg/kg) | MCERTS | < 1.1 | < 1.1 | < 1.2 |
| Hexavalent Chromium | (mg/kg) | None | < 1.1 | < 1.1 | < 1.2 |
| pH | pH Units | UKAS | 7.4 | 7.5 | 8.0 |
| Acenaphthene | (mg/kg) | MCERTS | < 0.1 | 0.1 | < 0.1 |
| Acenaphthylene | (mg/kg) | UKAS | < 0.1 | < 0.1 | < 0.1 |
| Anthracene | (mg/kg) | UKAS | < 0.1 | 0.3 | 0.1 |
| Benzo (a) anthracene | (mg/kg) | MCERTS | < 0.1 | 1.5 | 0.6 |
| Benzo (a) pyrene | (mg/kg) | MCERTS | < 0.1 | 2.1 | 0.8 |
| Benzo (b) fluoranthene | (mg/kg) | MCERTS | < 0.1 | 2.5 | 1.0 |
| Benzo (g, h, i) perylene | (mg/kg) | MCERTS | < 0.1 | 1.4 | 0.6 |
| Benzo (k) fluoranthene | (mg/kg) | MCERTS | < 0.1 | 0.9 | 0.4 |
| Chrysene | (mg/kg) | MCERTS | < 0.1 | 1.9 | 0.7 |
| Dibenzo (a,h) anthracene | (mg/kg) | MCERTS | < 0.1 | 0.3 | 0.1 |
| Fluoranthene | (mg/kg) | MCERTS | < 0.1 | 3.5 | 1.4 |
| Fluorene | (mg/kg) | MCERTS | < 0.1 | 0.1 | < 0.1 |
| Indeno (1, 2, 3,-cd) pyrene | (mg/kg) | MCERTS | < 0.1 | 0.4 | 0.6 |
| Naphthalene | (mg/kg) | MCERTS | < 0.1 | 0.2 | < 0.1 |
| Phenanthrene | (mg/kg) | MCERTS | < 0.1 | 1.5 | 0.7 |
| Pyrene | (mg/kg) | MCERTS | < 0.1 | 3.3 | 1.2 |
| Total PAH | (mg/kg) | UKAS | < 1.6 | 21.3 | 8.6 |

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**E11/CAS/003/001**

**Project Reference - Garland Farm**

**Analytical Test Results - Suite 2 Banded TPH**

| NCA Reference | | | 11-12895 | 11-12896 | 11-12897 | 11-12898 |
|---|---|---|---|---|---|---|
| Client Sample Location | | | TP1 | TP2 | TP3 | TP4 |
| Client Sample Reference | | | TP1 | TP2 | TP3 | TP4 |
| Depth (m) | | | 0.50 | 0.20 | 0.10 | 0.25 |
| Top of sample (m) | | | 0.50 | 0.20 | 0.10 | 0.25 |
| Date of Sampling | | | 06.09.11 | 06.09.11 | 06.09.11 | 06.09.11 |
| Time of Sampling | | | 10.30 | 10.45 | 11.00 | 11.15 |
| Sample Matrix | | | Clay | Clay | Loam | Loam |
| **Determinant** | **Units** | **Accreditation** | | | | |
| TPH Band 1 (>$C_6$-$C_{10}$) | (mg/kg) | UKAS | < 5.6 | < 5.8 | 8.0 | < 6.2 |
| TPH Band 2 (>$C_{10}$-$C_{12}$) | (mg/kg) | MCERTS | < 5.6 | < 5.8 | < 56.5 | < 6.2 |
| TPH Band 3 (>$C_{12}$-$C_{16}$) | (mg/kg) | MCERTS | < 5.6 | < 5.8 | 7.4 | < 6.2 |
| TPH Band 4 (>$C_{16}$-$C_{21}$) | (mg/kg) | MCERTS | < 5.6 | 27.0 | 38.4 | 20.0 |
| TPH Band 5 (>$C_{21}$-$C_{35}$) | (mg/kg) | MCERTS | 20.9 | 83.0 | 387 | 293 |
| TPH Band 6 (>$C_{35}$-$C_{40}$) | (mg/kg) | UKAS | 15.0 | 7.6 | 156 | 64.5 |
| Gasoline Range Organics (>$C_8$ to $C_{10}$) | (mg/kg) | UKAS | < 5.6 | < 5.8 | 8.0 | < 6.2 |
| Diesel Range Organics (>$C_{10}$ to $C_{21}$) | (mg/kg) | MCERTS | < 11 | 30.0 | 49.2 | 26.5 |
| Mineral Range Organics (>$C_{21}$ to $C_{40}$) | (mg/kg) | MCERTS | 35.9 | 90.2 | 542 | 357 |
| TPH Content (>$C_8$ to $C_{40}$) | (mg/kg) | UKAS | 41.8 | 120 | 600 | 386 |

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**E11/CAS/003/001**

**Project Reference - Garland Farm**

**Soil Descriptions**

| NCA Reference | Client Sample Reference | Sample Location | Description | Moisture Content (%) | Stone Content (%) |
|---|---|---|---|---|---|
| 11-12895 | TP1 | TP1 | Brown grey gravelly sandy clay | 12 | 29 |
| 11-12896 | TP2 | TP2 | Brown gravelly sandy clay with crushed brick and organic matter (Fill) | 16 | 39 |
| 11-12897 | TP3 | TP3 | Brown clayey gravelly sandy silt with crushed brick and organic matter (Fill) | 13 | 20 |
| 11-12898 | TP4 | TP4 | Brown clayey gravelly sandy silt with organic matter | 24 | 7.1 |

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**Project Reference - Garland Farm**

**Analysis Methodologies**

| Matrix | Determinant | Sample condition for analysis | Test Method used |
|---|---|---|---|
| Soil | Metals | Air Dried | In house method statement - MS - CL - ICP metals |
| Soil | PAH | Air Dried | In house method statement - MS - CL - PAH |
| Soil | TPH | Air Dried | In house method statement - MS - CL - TPH |
| Soil | Phenols | As Received | In house method statement - MS - CL - Phenols |
| Soil | pH | Air Dried | BS 1377, Part 124, 1990 |
| Soil | Hexavalent Chromium | As Received | In house method statement - MS - CL - Hexavalent Chromium |

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