



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Andy Spetch
British Sugar plc Co-Products
Oundle Road
Peterborough
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18th April 2013

Our Ref: TOHA/13/4585/JU

Your Ref: as below

Dear Mr Spetch

Topsoil Analysis Report: Wissington – SPORTS 10 – WI/S10/0413

We have completed the analysis of the SPORTS 10 sample recently submitted and have pleasure reporting our findings.

The purpose of the analysis was to assess the suitability of the SPORTS 10 sample as a topsoil for sports pitch construction and as a top dressing for grass pitch repairs.

This report presents the results of analysis for the SPORTS 10 sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing, especially after the topsoil has left the British Sugar factory.

SAMPLE EXAMINATION

The sample was described as a dark brown, slightly moist, friable LOAMY SAND with a weakly developed single grained and fine granular structure*. The sample was virtually stone-free and no deleterious materials, roots or rhizomes of pernicious weeds were observed.

*This appraisal of soil structure was made from examination of a disturbed sample. Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the absence of potential contaminants. The following parameters were determined:

- detailed particle size analysis and stone content;
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Ba, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, V, Zn);
- soluble sulphate, elemental sulphur, acid volatile sulphide;
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

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The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below. The interpretation considers the use of SPORTS 10 as a topsoil for sports pitch construction and as a top dressing for soil-based pitch maintenance and repairs. It is not the intention to use Sports 10 as a top dressing for sand rootzone pitches or pitches with sand slits.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *loamy sand* texture class. The sample is considered suitable for sports pitch construction and for the maintenance and repair of soil-based sports pitches. The particle size distribution is too broad for use as a *sand* top dressing on sand rootzone pitches or pitches with sand slits.

The sample was stone-free and, as such, stones should not affect the use of the soil on sports pitches.

pH and Electrical Conductivity Values

The sample was alkaline in reaction (pH 7.9). This pH value would be suitable for sports pitch and amenity grass cultivars, provided species with a broad pH tolerance or those that prefer alkaline soils are selected.

The electrical conductivity (salinity) value (water extract) was moderate, which indicates that soluble salts should not be present at levels that would be harmful to plants.

The electrical conductivity value by CaSO₄ extract (BS3882 requirement) fell below the maximum specified value (2800 µS/cm) given in BS3882:2007 – Table 1.

Organic Matter and Fertility Status

The sample was adequately supplied with organic matter and all major plant nutrients.

Potential Contaminants

In the absence of site-specific assessment criteria, the concentrations of selected potential contaminants that affect human health have been assessed for *residential* end-use against the Soil Guideline Values presented in the Contaminated Land Exposure Assessment (CLEA) (EA/DEFRA: 2009) and the CIEH/LQM Generic Assessment Criteria (2nd Edition, 2009).

Of the potential contaminants determined, none was found at levels that would indicate significant contamination.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that indicate significant contamination.

CONCLUSION

The purpose of the analysis was to assess the suitability of the SPORTS 10 sample as a topsoil for sports pitch construction and as a top dressing for grass pitch repairs.

From the soil examination and laboratory analysis, the sample is described as an alkaline, non-saline, stone-free loamy sand with an adequate structure. The organic matter and fertility status were adequate and no potential contamination was found with respect to the parameters determined.

To conclude, based on our findings, the SPORTS 10 sample is considered suitable for sports pitch construction and for soil-based pitch maintenance and repairs, provided it is not used as a top dressing for *sand* rootzone pitches or pitches with sand slits.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours sincerely

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For & on behalf of Tim O'Hare Associates LLP

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