

**Turing House Free School - Winter Sports Field Design & Construction Considerations –
Bowmer and Kirkland, (TGMS0865.37 Rev 0 – 14 04 2020).**

1. **Specification** – This is a medium specification drainage system and relies on a primary drainage system (@3 m centres) and secondary bypass scheme (sand grooves) to remove surface water. This drainage scheme is based on a 'Type 4' pitch as per Sport England's Design Guidance Notes for Natural Turf and its installation is essential if cut and fill earthworks are implemented. It is prudent to note that this drainage system incorporates high levels of sand, aggregates within the drainage to aid with water movement and to maintain good hydraulic conductivity between the surface and the drainage infrastructure below.; during periods of drought, especially during summer, grass cover may suffer along the drain lines in the absence of irrigation as sand has minimal moisture holding capacity. There are construction methodologies to minimise this.
2. **Usage** – As per Sport England's Design Guidance Notes for Natural Turf and the Feasibility Study TGMS0865.24, a 'Type 4' pitch will provide between 3 and 6 hours of usage per week depending on weather conditions before pitch conditions begin to deteriorate. Overuse of the pitches, particularly in poor weather and ground conditions will contribute to poor surface conditions manifest as mud and loss of grass cover which can irreversibly damage the efficacy of the in-situ drainage scheme. Annual sand topdressing is considered a necessity to protect the secondary drainage scheme.
3. **Soils** – The TGMS specification starts with the re-grading of Site Won topsoil returned by others following cut and fill earthworks. It is the responsibility of the Client to ensure that the initial groundworks are carried out in accordance with the proposed and finished levels as specified by Ares Landscape Architects (**Drawing ALA456L001M Coordination.dwg. received by TGMS from Warren Davies, B&K**). TGMS accept no design liability or responsibility for previous works or any works not detailed within this specification including earthworks and sub-base preparation.
4. **Stones** – Whilst the Feasibility Study identified minimal stone content, it is not possible nor feasible to identify stone content within the whole of the development area. The removal of topsoils necessary for cut and fill earthworks may result in more stones being encountered or contamination from other construction areas. Whilst there are standard methodologies in sports pitch construction to manage stone content in topsoil, should Site Won topsoil have an evidently higher stone content which cannot be managed through industry standard techniques, then the importation, placement and grading of a 50 mm depth approved rootzone carpet may be required to provide a suitable buffer between the stone content within the topsoil and the playing surface. Site Won topsoil should be assessed by the contractor/client or a competent agronomist/sports surface consultant prior to return. The chosen contractor has responsibility for ensuring the levels of stone content are permissible as per the specification.
5. **Irrigation** – The construction of natural grass outfields relies on optimal weather conditions to aid germination and grass plant establishment. In some cases, when construction is carried out in summer and during drought conditions, supplementary irrigation may be

required, the costs of which should be factored in to the budget. Normally irrigation is not included within a construction project as it is cost prohibitive which is why TGMS normally advocates construction in spring or autumn with higher rainfall and lower temperatures. Bowmer and Kirkland need to be aware that good germination is weather dependent and therefore TGMS will assume no responsibility for poor germination during drought conditions. All our specifications do contain an over-seed in the maintenance schedule as a contingency against less than ideal growing conditions in the first instance. It is the responsibility of Bowmer and Kirkland to implement or instruct any irrigation during periods of drought (if required).

6. **Outfall** – The drainage design has culminated in outfall designed by others. TGMS will accept no responsibility for outfall deemed unsuitable or inefficient to discharge drainage water for the proposed scheme. This drainage scheme does not include any attenuation solutions or restricted outfall rates as it is understood that restricted outfall rates are to be addressed further downstream of the system. Any subsequent restrictions and impact these restrictions may have on the efficiency of the pitch drainage will be the responsibility of the client. TGMS will accept no responsibility or liability from any issues arising from using outfall provided by others including the outfall's efficacy. The developer has sole responsibility for ensuring all outfalls have the necessary attenuation characteristics when using soakaways, or that all permissions are obtained from either the Environment Agency, local authority or drainage board. These permissions should be in place prior to construction starting.
7. **Settlement of drain lines** – Land drainage is prone to differential settlement, particularly in clayey soils or soils with a high groundwater table due to shrink swell characteristics. The specification includes the following; 'Contractors must be aware: allowance shall be made for topping up trench lines following settlement occurring during the 12-month period following drainage installation, including as a result of natural soil shrinkage in dry weather'. It is also worth noting that settlement can occur for 2-3 years and further topping up of drain lines may be necessary outside of the contract period and will be the responsibility of the recipient.
8. **Services** – It is recommended that the Client obtains up to date service plans of the site prior to any development works. It is important to note that the presence of services may inhibit the scope of works.
9. **Maintenance scheme** – With any development, it is imperative that a well-structured intensive maintenance programme is implemented to maintain the development area following large scale investment. Failure to implement the recommended maintenance operations will result in a deterioration of pitch conditions and subsequent availability for use.
10. **Spoil** – There will be drainage spoil arising from the drainage installation, estimated to be in the region of approx. 500 cubic metres. This is not an insignificant amount and careful consideration is required as to whether this material is banded on site or disposed of off-site. Costs for disposal would be in the region of £25/cubic metre. The specification states that all spoil will be disposed of on-site. If the Client prefers, the specification can be modified to off-site disposal.
11. **Key Stage Monitoring** – TGMS have not been engaged by Bowmer and Kirkland to undertake any Key Stage Monitoring of the works and therefore will not be able to comment on the appropriateness of materials or workmanship during the construction. This includes stone content within the Site Won topsoil earmarked for return to the sports pitches.

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