CONSULTANT'S ADVICE
Tulip Academy – Tilbury Douglas
Playing field reinstatement

STRI Ltd,St Ives Estate, Bingley,
West Yorkshire, BD16 1AU
T. +44 (0) 1274 565131

To:	**Stephen Mooncie**	**From:**	**Michael Boyes (STRI)**
Issue date:	**16/02/24**	**Page(s):**	**15**
CA No.	**001**	**Job No.**	**STRI Ref: J006881**
Subject:	**Playing field reinstatement**	**cc.**	**Nick McLaren** **Samantha Collis**

Dear Stephen

Further to our meeting at Tulip Academy on 30th January, I am writing to confirm my observations, recommendations around the current condition of the general playing fields and the proposed reinstatement of the excavated playing field following the removal of the modular units, temporary carpark and access road.

Background

It is understood that the construction project involves the demolition of a school building at Waterside Campus, Neville Avenue, Spalding for the erection of a permanent two-storey teaching block with associated parking and landscaping. A section of grassland has been stripped on the north-eastern corner of the site, adjacent to the main school building, for the formation of a temporary access road to service the section of excavated playing fields (total area approx. 4,453 m^2). The constructed hardstanding area will temporarily site modular classroom units and temporary car parking during the main construction works. The playing field area affected currently hosts a mini-soccer pitch (U9/U10 – 7v7) 55m x 37m.

An approximate 200mm depth of topsoil has been stripped, followed by excavation of the subsoil layer (also approx. 200mm deep) and both have been stockpiled separately on the south-eastern corner of the site, on an existing mini-soccer pitch (U7/U8 – 5v5) 37m x 27m.

Within one month of the modular buildings being installed on the site, a scheme for the removal of the modular units, temporary hard surfacing and fencing, and the reinstatement of the playing field, shall be submitted to and approved in writing by the Local Planning Authority in consultation with Sport England.

The restoration scheme shall be in accordance with Sport England's guidance note (Natural Turf for Sport (2011) and the approved reinstatement scheme shall then be implemented in full, in the first planting season following the removal of the modular units, hard surfacing and fencing, to ensure that the site is restored to a condition fit for purpose.

As part of the latest Site Wide Soft Landscape Plan, completed by others (Appendix 1), the impacted area will be re-instated with the redistribution of stockpiled sub-soils, topped with the stockpiled topsoil, and the turf regenerated through appropriate seeding, nutrition and irrigation, if required. The STRI Group have been engaged to assess existing playing field agronomic conditions, suitability of stockpiled materials, methodology for soil profile re-establishment and playing field restoration, and programme of grown-in and initial maintenance.

© STRI Ltd



Figure 1 – Playing Field layout at Tulip Academy, Waterside Campus with working area (red) & stockpile location (blue).

The original grassed area, prior to the construction of the temporary hard surfacing, is identified in red above in Figure 1, with the haul road section being the narrow strip at the north of the outlined section. The central and largest section of the working area represents the excavated section which previously delivered a (U9/U10 – 7v7) mini-soccer pitch with an extended grass area to the left of the pitch. The narrow section of the site, to the bottom left of the outlined area above, is a retained grassed area between the playground and southern playing field.

The area outlined in blue was the site of a U7/U8 – 5v5 mini-soccer pitch, which has been nominated as a stockpile location for the stripped subsoil and topsoil materials.

The temporary haul road construction is founded on an engineered Sub-Grade (CBR of no less than 3%), topped with 200mm of 75mm clean stone starter layer and finished with 100mm of Type 1, apart from the section most adjacent to the tree line where the Sub-Grade was topped with Treetex T300 Geoxtextile membrane, 150mm Cellweb TRP infill clean angular stone Type 4/40 and finished with another 150mm clean angular stone Type 4/40.

The typical hardstanding area construction comprises a 450mm – 600mm thick Crane Mat profile, with either a 250mm or 400mm layer of 50mm clean limestone aggregate over the natural ground, topped by 200mm thick layer of 28mm clean limestone aggregate.

The proposed methodology for stone/hardstanding removal is groundworks machine excavation, followed by carting off-site.

© STRI Ltd

Agronomic Assessment – Existing Playing Field

Soil profile
A single trial pit was excavated in the retained playing field to examine the typical soil profiles within the excavated area to be reinstated. The depth of topsoil was observed to be around 160-170mm and there was a distinctive change between the topsoil and subsoil noted in the trial pit. The topsoil had a sandy, silt loam texture. There was no primary sports pitch drainage evident during the initial site inspection visit or when reviewing historical imagery. No stones were observed in the trial pit. There were no signs of seasonal waterlogging.

Uniformity of grass colour
The pitch was presented to a reasonable standard during the on-site appraisal, although believed to be subject to infrequent cutting maintenance. There was widespread ingress of various weed grasses and broad-leaved weed populations throughout the sward.

Extent of grass cover
Grass cover was noted to be acceptable across the playing field during the on-site appraisal. There was a sporadic weed ingress across the field.

Turf health & condition.
The sward was comprised primarily of the desirable grass species *Lolium perenne* (Perennial ryegrass) with elements of the less desirable grass species *Poa annua* (Annual meadow grass). It is understood that current maintenance operations comprise occasional mowing. Grass height was roughly 70 mm.

Line marking.
No defined line marking was evident.

Surface traction quality
Usage was reported to be low on this playing area. As such there were no divots, footprints or scar marks on the playing field.

Pitch infrastructure operation.
There were no permanent goals erect during the site visit. There was one set of small portable goals noted on the playing field.

Levels and Gradients
General surface levels were satisfactory with no steep or dangerous surface undulations which would cause harm to users.

Existing Playing Field - Topsoil conditions.
A sample of the upper soil profile of the existing playing field has been subject to laboratory topsoil analysis at STRI's in-house laboratory. A sandy, silt loam soil texture was established with organic matter accumulation of 5.8%. Full results are available in Appendix 3.

© STRI Ltd

Agronomic Assessment – Stockpiled Subsoil & Topsoil

Initial works

STRI have been informed that the vegetation was removed across the planned hardstanding construction area and the existing topsoil was subsequently stripped to an estimated average depth of approximately 200mm and stockpiled on site. The sub-soil layer was then stripped to a similar depth (i.e., circa. 200mm) and stockpiled adjacent to the topsoil pile, though with sufficient space to avoid cross contamination.

Both stockpiles have been "sealed" off with the digger bucket to smooth the surface to minimise erosion during prolonged rainfall events. When appropriate growing conditions prevail, the topsoil stockpile is to be seeded with the nominated reinstatement seed mix (Germinal A19 - All Purpose Landscaping) to bind the soils and generate desired vegetation and seed bed.

Temporary protective fencing is being installed to screen off and protect the stockpiles during adjacent construction works.

Stockpile Topsoil conditions.

Laboratory analysis of a sample taken from the stripped topsoil stockpile has been carried out at the STRI's accredited laboratory. The topsoil had a sandy, silt loam texture with 4.5% organic matter content. Full results are shown in Appendix 4.

An optimum "bought-in" topsoil would typically have a total sand content of between 50–70%, a maximum silt content 25% and a maximum clay content of 20% with a textural classification defined on the textural triangle (Appendix 2) as sandy loam. It would be free from physical and chemical contamination, contain no stones greater than 25mm in diameter and a maximum organic matter content of 8%. In respect of these parameters the inherent topsoil is marginally below expected sand content (i.e., 48%) with a higher than ideal silt element (i.e., 38%), but not thought to be detrimental to pitch reinstatement providing the following recommendations are adhered to. Amelioration of the indigenous topsoil with a medium-coarse sand would be advantageous to the betterment of the porosity and drainage potential of the reintroduced rootzone material.

Reinstatement Works

The Client (Tilbury Douglas) is contractually obligated by the Department for Education (DfE) to relocate the modular teaching units and fencing, remove the entire temporary road and hardstanding carpark and remediate the whole area between 27th October and 19th December 2025. This reinstatement area, including the haul road and playing field, is thought to approximate 4500m^2 in total.

The re-exposed original sub-base surface will then be cultivated prior to the uniform redistribution of the stockpiled sub-soil materials to an approximate depth of 200mm. The sub-soil layer will then be covered uniformly with the stockpiled top-soil material in two separate layers of approximately 100mm (i.e., 200mm in total), appropriately fertilised and the grass cover restored via an appropriate seed mix. It should be recognised that if the reinstatement works are carried out during a wet period it is possible the structure of the soils could be compromised, affecting the natural porosity of the playing area.

It must also be noted that the agreed remediation window (27th Oct – 19th Dec 25) does not present optimal conditions for seed germination and success will depend on favourable soil temperatures but could be enhanced by the use of (germination) growth sheets. Extensive overseeding will be required in spring 2026. The Academy will have no access to the seeded area during the germination period.

There are currently no plans to install a formal pipe drainage system across the reinstated playing field area. As per Sport England's guidance note (Natural Turf for Sport (2011) the existing area can be considered a Type 1 pitch/area – undrained, and it is proposed to reinstate the area to its original situation.

© STRI Ltd

Recommendations

On removal of the construction profile and general clearance of the site, we would recommend the following schedule of works for the area to be reinstated:

1. Cultivation of the sub-base layer beneath the temporary haul road & carpark

Once the temporary haul road and carpark profile has been removed and disposed off-site, the sub-base should be cultivated to help break up any residual compaction or panning beneath the surface. This should be done using a tractor mounted sub-soiling unit working to a depth of around 200mm at intervals of 600mm, with the machine running with the main fall across the site.

The sub-base cultivated soils should be lightly graded with a tractor mounted blade grader, or similar unit, to remove any undulations or significant surface disturbance caused by the sub-base treatment, prior to redistribution of the stockpiled subsoil.

Allowance shall also be made for the removal of any large stones or other debris brought up onto the surface with a single dimension of 100mm using a stone rake attachment or other approved equipment.

2. Subsoil spreading on cultivated sub-base layer.

The stockpiled subsoil should then be evenly spread across the re-established sub-base layer, to an estimated consolidated depth of 150-200mm, and graded with the aforementioned tractor mounted bladed unit, or similar.

3. Topsoil replacement of temporary haul road & carpark area.

The stockpile of original topsoil should be spread uniformly over the redistributed subsoil layer to an estimated consolidated depth of 200mm in two separate layers of approx. 100mm. The topsoil shall be smoothly married into the adjoining section of the undisturbed original playing field area.

4. Cultivations

The entire area shall then be cultivated to a minimum depth of 150mm in order to relieve compaction and produce a good tilth. Allowance shall be made for at least three passes with the cultivator in different directions across the graded playing field platform. The surface shall be lightly graded throughout the whole of the working area to produce a surface, marrying smoothly with the adjacent ground. The finished surface shall be suitable for final seedbed preparation. This will allow the area to be tied into all site boundaries.

5. Seedbed Preparations

Once the entire area is smooth, fine and evenly consolidated, a seedbed tilth should be prepared by a combination of rolling and raking using a tractor mounted stone rake or similar unit. The intention should be to produce smooth and running finished levels over the working area, free from any undulations or low areas which may hold surface water after heavy rain showers.

If any stones with a single dimension of 25mm or more are exposed during this work, these shall be raked up and removed off site to a licensed disposal facility.

Allowance shall be made for the application of a pre-seeding fertiliser with an NPK analysis of 8:12:8 or similar, which would be applied at a rate of around 35gms/m^2.

© STRI Ltd

6. Grass establishment

Once a suitable seedbed tilth has been formed, the working area would be seeded with a hard-wearing sports field mixture ideally containing a minimum 50-60% perennial ryegrass cultivars, together with slender creeping red fescue. The Client's nominated Germinal's A19 All Purpose Landscaping Seed Mix comprises:

35.0%	AGREEMENT PERENNIAL RYEGRASS	(*Lolium perenne*)
25.0%	MIRADOR SLENDER CREEPING RED FESCUE	(*Festuca rubra litoralis*)
20.0%	CORAIL STRONG CREEPING RED FESCUE	(*Festuca rubra rubra*)
15.0%	ZURICH PERENNIAL RYEGRASS	(*Lolium perenne*)
5.0%	HIGHLAND BROWNTOP BENTGRASS	(*Agrostis castellana*)

The seed should be sown uniformly in two to three different directions using a tractor mounted seeding unit, sowing at a total rate of 50gms/m^2. Any improvements in the seeding window to allow for more favourable weather conditions for germination (i.e., September/October 2025) would be advantageous to successful seed strike but must be agreed, in advance, with the Department for Education.

7. Maintenance works

It is suggested a specialist sports turf contractor be engaged to maintain the reinstated area until handover back to Tulip Academy.

Therefore, the following treatments are provided as general guidance points to assist with the development of the new grass cover during this period, prior to handover.

(i) Mowing

The grass should receive its first cut when it has reached a height of 65mm using a ride-on rotary mower with a well-sharpened blade, correctly adjusted to the required mowing height and removing no more than 25mm of the leaf blade on the first cut. Grass clippings shall be allowed to fly providing they are well dispersed. Accumulated piles of clippings shall be removed immediately following mowing to prevent smothering of the grass.

For subsequent cuts the grass shall be maintained at a height of 35mm during the remainder of grow-in period, during which the grasses should not be allowed to grow taller than 50mm between cuts. For the final stages of the maintenance period, the reinstated area shall be cut with a ride-on mower fitted with cylinder cutting units. Accumulated clippings shall be removed immediately following mowing to prevent smothering of the grass.

(ii) Fertiliser

In order to assist with the development of new grass cover, allowance should be made for an application of a high nitrogen fertilizer with an NPK analysis of 16:6:6, or similar, applied at a rate of 35gms/m^2. This initial application should be delivered on the resumption of stronger growing conditions

Fertiliser should be applied uniformly during a period when rainfall can be expected in the following 24-hour period.

Use higher nitrogen products in the summer months and lower nitrogen in the autumn as the temperatures drop. A minimum of 1 - 2 fertiliser applications is desirable during the spring and summer months. A single winter feed should also be applied.

© STRI Ltd

Fertilisers should be applied according to the manufacturers recommended rates, although this can be adjusted according to the nutrient status of the soil, preferably confirmed by soil analysis as well as the prevailing condition of the turf.

(iii) Overseeding

Provision has been made for overseeding of the entire area once initial grass establishment has been successful. The nominated seed mixture (i.e., Germinal A19) should be sown at a total rate of 20gms/m^2. The seed shall be sown evenly using an approved seeding unit, via two passes in different directions.

Any subsequent overseeding should not be attempted until normal grass growth resumes each season.

(iv) Verti-Draining (provisional item)

If there has been any significant compaction of the upper soil profile caused during final preparations and re-establishment of the entire area, and only once the new turf and associated rooting structure is successfully established, allowance may need to be made for Verti-Draining the affected area to provide relief.

This work shall be undertaken using a machine with a minimum working width of 2m fitted with 25mm diameter tines at 125mm centres and to a depth of approximately 200-250mm and shall be carried out during suitable ground and weather conditions to ensure a minimum disturbance of surface levels.

(v) Selective herbicide (provisional item)

During the establishment period, there may be some broad-leaved weed development alongside the new grasses and if this becomes excessive, allowance should be made for selective weed control measures using an appropriate selective herbicide applied in accordance with the manufacturer's instructions and all current legislation.

Yours sincerely



Michael Boyes
Senior Consultant Agronomist – Sustainability & Environmental Management
t. +44(0)1274 565131
e. michael.boyes@strigroup.com
www.strigroup.com

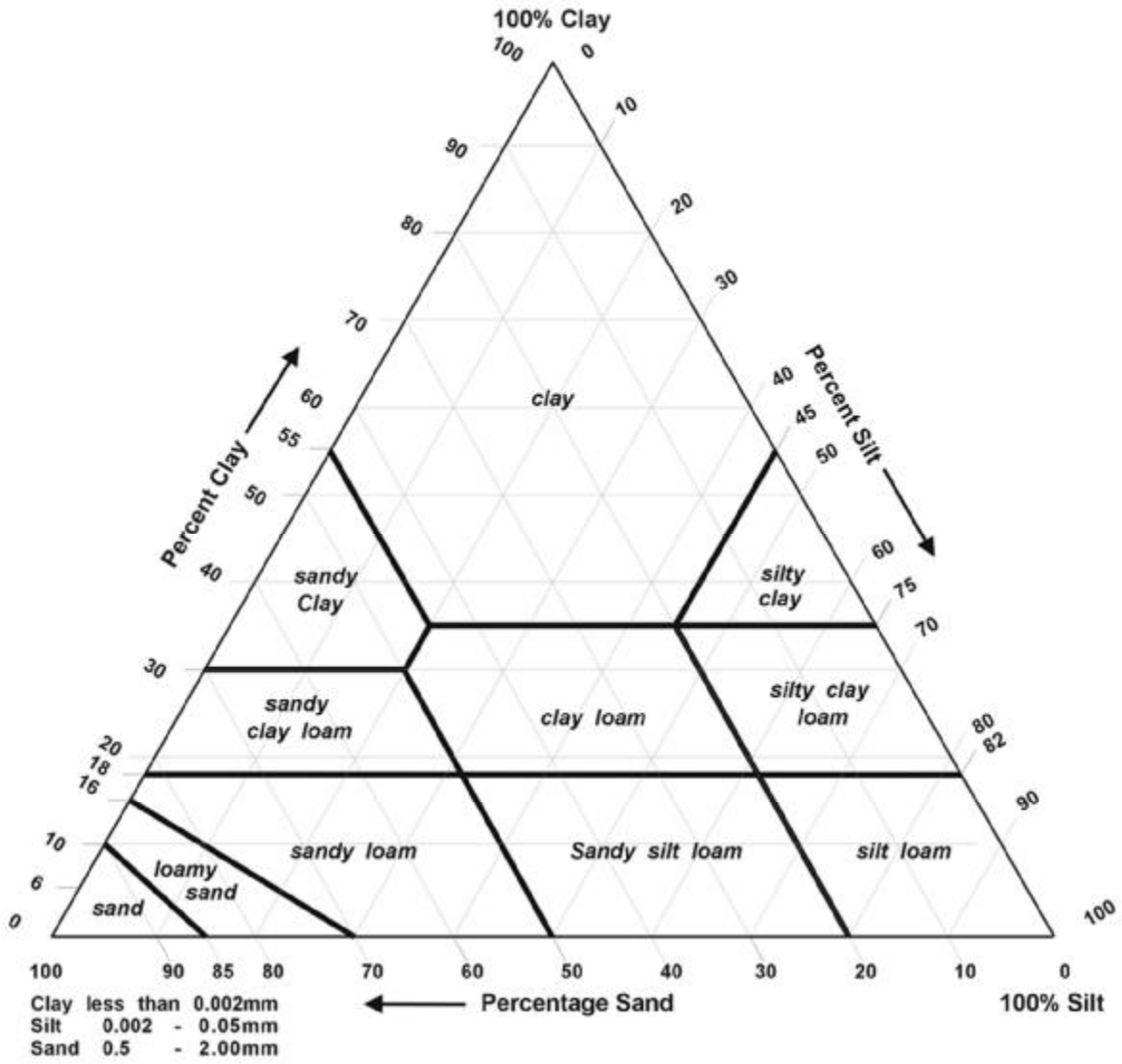
© STRI Ltd

Appendix 1 – Sitewide Soft Landscape Plan (By others)



© STRI Ltd

Appendix 2 – Basic soil texture triangle



© STRI Ltd

Appendix 3 – Soil laboratory analysis – Existing Playing Field topsoil

STRI Ltd, St Ives Estate, Bingley, West Yorkshire, BD16 1AU
t. +44(0) 1274 565131 f. +44 (0) 1274 561891
e. enquiries@strigroup.com
www.strigroup.com

SOIL PARTICLE SIZE ANALYSIS

CLIENT:	TILBURY DOUGLAS -	DATE :	09/02/24
	TULIP ACADEMY	RESULTS TO :	MEB
DESCRIPTION:	EXISTING PLAYING FIELD	SAMPLE NO :	A20554/1

CATEGORY	DIAMETER mm	%
Stones	>8	0
Coarse gravel	8-4	0
Fine gravel	4-2	0

Particle size distribution of mineral matter smaller than 2mm

Very coarse sand	2-1	T
Coarse sand	1.0-0.5	T
Medium sand	0.50-0.25	T
Fine sand	0.250-0.125	1
Very fine sand	0.125-0.050	45
Silt	0.050-0.002	39
Clay	<0.002	15
Loss on ignition (% of oven-dry fine earth)		5.8
Calcium carbonate	%	/
SOIL TEXTURE		SANDY SILT LOAM

T = TRACE

THESE RESULTS PERTAIN ONLY TO THE SAMPLE(S) SUBMITTED AND TESTED

© STRI Ltd

Appendix 4 – Soil laboratory analysis – Retained Topsoil stockpile

STRI Ltd, St Ives Estate, Bingley, West Yorkshire, BD16 1AU
t. +44(0) 1274 565131 f. +44 (0) 1274 561891
e. enquiries@strigroup.com
www.strigroup.com

SOIL PARTICLE SIZE ANALYSIS

CLIENT:	TILBURY DOUGLAS -	DATE :	09/02/24
	TULIP ACADEMY	RESULTS TO :	MEB
DESCRIPTION:	TOPSOIL PILE	SAMPLE NO :	A20554/2

CATEGORY	DIAMETER mm	%
Stones	>8	0
Coarse gravel	8-4	T
Fine gravel	4-2	T
Particle size distribution of mineral matter smaller than 2mm		
Very coarse sand	2-1	1
Coarse sand	1.0-0.5	1
Medium sand	0.50-0.25	2
Fine sand	0.250-0.125	2
Very fine sand	0.125-0.050	42
Silt	0.050-0.002	38
Clay	<0.002	14
Loss on ignition (% of oven-dry fine earth)		4.5
Calcium carbonate	%	/
SOIL TEXTURE		SANDY SILT LOAM

T = TRACE

THESE RESULTS PERTAIN ONLY TO THE SAMPLE(S) SUBMITTED AND TESTED

© STRI Ltd

Photo observations and comments



Figure 1: General playing field area, with basic pitch infrastructure. No pitch markings evident.



Figure 2: Low maintenance turf, subject to infrequent cutting operations.



Figure 3: Largely dominated by perennial ryegrass but with elements of weed grass.



Figure 4: Tufty grass growth circa. 80-90mm high.



Figure 5: Topsoil profile – good aggregation with roots at approximately 120mm deep.



Figure 6: Good depth of rootzone at around 160-170mm on the existing playing field.

© STRI Ltd



Figure 7: Encouraging subsoil layer excavated and successfully stockpiled and “sealed”.



Figure 8: Protective fencing (circled) is being installed to protect and screen soil stockpiles.



Figure 9: Topsoil stockpile appears clean with sound structure and suitable soil texture.



Figure 10: Sample collected from the topsoil pile for laboratory testing.



Figure 11: The depth of playing field excavation for temporary hardstanding construction is in excess of 400mm.



Figure 12: Level change apparent in construction of the temporary hardstanding stone foundation.

© STRI Ltd



Figure 13: Hardstanding foundation stone sub-layer.



Figure 14: – Sub-layer - 250mm thick 50mm clean limestone aggregate.



Figure 15: Hardstanding – upper layer - 200mm thick 28mm clean limestone aggregate.



Figure 16: Rollling consolidation of temporary hardstanding.



Figure 17: Construction of the hardstanding and foundation of temporary school buildings are well underway.



Figure 18: Stockpile location of subsoil and topsoil materials (circled), adjacent to construction site.

© STRI Ltd



Figure 19: The “foul” discharge from the main building will be accessed with pipeworks installed at least 500mm deep to service the temporary buildings.



Figure 20: Excavations for services at the location for construction of the temporary school buildings.



Figure 21: Cellweb geotextile has been employed in the construction of the temporary haul-road adjacent to the treeline.



Figure 22: The temporary haul-road has been succesfully constructed at the north-east corner of the site.

© STRI Ltd