



Rosedale College – Bouygues UK



Agronomy Report – DfE School Rebuilding

Discharge of Planning Conditions.

Revision B - 11th April 2025

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Introduction

Traction Sports Ltd have been contracted by Bouygues UK to provide the necessary specialist advice and design information to discharge the four Sport related Planning Conditions for the DfE School Re-building Project at Rosedale College.

Including to carry out an agronomic investigation on the existing natural grass sports pitches. The objective of this investigation is to provide detailed information to support the restoration of the NW corner of the playing fields area currently the location of a temporary teaching block and soon to be location of another for approximately 2 academic years, as part of the broader site development project.

Additionally, Traction Sports Ltd is responsible for providing design details in collaboration with NVB (the appointed landscape architects for the scheme) for the proposed construction of three artificial polymeric multi-use games areas (MUGAs), practice cricket nets, and a relocated synthetic match cricket wicket.

Turf quality and assessment are critical components in ensuring the optimal performance and safety of sports fields. The management, design, and construction of sports facilities requires a blend of scientific knowledge, practical expertise, and technological innovations to achieve desired playing surface characteristics while minimizing environmental impact.

In this report, we delve into the realms of sports turf agronomy, examining the key factors that influence turf quality and methods for assessing its performance. The quality of sports turf directly impacts player experience, injury prevention, and overall field longevity and availability, making it a cornerstone of successful sports facility management.

Please note that the Temporary Planning Permission is for the addition of a new Temp Teaching Block “EFAF” and the subsequent removal of both EFAF and the existing Temp Accommodation Block “EFAE”, followed by the restoration of this full area to a new grass sports pitch, as it had been prior to the installation of EFAE, covered by Condition 2. The Main Permission also includes the restoration of the grass sports pitch for which there are two Planning Conditions No13 and No17. There is also Condition No14 for the MUGAs and all weather cricket practise facilities.

Brief

Part 1 – Natural Grass Pitches

- Review project documentation from an agronomy / sports turf perspective.
- Evaluation of existing client information.
- Site visit and evaluation.
- To prepare a design specification for the natural grass pitches to satisfy Sport England requirements and aid in the discharge of planning conditions.
- To provide performance quality standards testing of existing facilities to satisfy Sport England’s ‘equal to or better’ policies.
- Advise on required measures to strip, store and re-spread soils to avoid soil loss or damage.
- Provide 5-year aftercare and maintenance recommendations for natural grass pitches.
- Provide proposed seeding, feeding, weeding and cultivation measures for restoration scheme.
- Provide recommended drainage measures / proposed layouts for natural turf pitches. (site wide drainage design and calculations to be completed by others).
- Provide scheme for management and maintenance of drainage to the natural grass playing fields.

Part 2 – Synthetic Facilities

Carry out and complete all necessary works to provide all information required to allow BYUK to discharge Planning Condition 14.

Section 1 - Summary of Findings and Recommendations

All recommendations made below follow governing body guidelines for best practice where applicable.

- We believe this report discharges all associated conditions as laid out below in full and have included all relevant information to support this statement.
- PQS Data shows the pitches are passing a total of four of the tests, failing two. By ameliorating the site won material, installing drainage to the natural grass playing fields and following the maintenance practices recommended below the field has the potential to meet the advanced standard in context of the ‘pitch standard’ sections later in this report, and be a more available surface for use by the College and local community.
- It is recommended that PQS testing is carried out seasonally (4 times per annum) for a period of 5 years to monitor pitch standards over the length of time to which the restoration and maintenance scheme relates.
- We recommend that any site wide programme developed takes into consideration optimum timings for the execution of the natural grass, soils and pitch works.
- The MUGA’s will be replaced on a like for like basis.
- The cricket net practice facility and relocated synthetic strip will conform to ECB TS6 standards where applicable.
- Any sports facility fencing will match the existing provision in terms of colour and design wherever possible.
- The existing site geology justifies an improved drainage system as specified.

We believe that the improvements and recommendations made throughout this report will ensure compliance with SE “equal to or better” policy.

Section 2 – Temporary Permission Planning Condition 2

Below we have laid out in full the requirement of this condition, and for ease and clarity have confirmed which items Traction Sports Ltd have been appointed to provide:

Temporary Permission

Condition No2: Playing Field Restoration Scheme.

Prior to the commencement of works above ground level a Playing Field Restoration Scheme for the site edged in red on Drawing No.SRP1077-NVB-00-XX-D-L-1304 Rev P01 shall be submitted to and approved in writing by the Local Planning Authority after consultation with Sport England. The restoration scheme shall provide details of the following:

- (i) existing and proposed ground levels;
- (ii) existing and proposed soil profiles;
- (iii) measures to strip, store and re-spread soils to avoid soil loss or damage;
- (iv) measures to dispose of/accommodate waste materials on the site;
- (v) drainage measures including where appropriate under drainage;
- (vi) proposed seeding, feeding, weeding and cultivation measures;
- (vii) boundary treatment;
- (viii) five year aftercare and maintenance arrangements;
- (ix) installation of equipment (e.g. goal posts);
- (x) restoration and maintenance programme;
- (xi) scheme for the management and maintenance of playing field drainage for the replacement playing field area, including a management and maintenance implementation programme.

REASON: To ensure the site is restored to a condition fit for purpose and to accord with policies DMHB 11, DMCI3 of the Hillingdon Local Plan Part 2 (2020), as well as policies S3 and S5 of the London Plan (2021).

Traction Sports Scope:

To provide details relation to the following points from the above full condition:

- (ii) existing and proposed soil profiles;
- (iii) measures to strip, store and re-spread soils to avoid soil loss or damage;
- (iv) measures to dispose of/accommodate waste materials on the site;
- (v) drainage measures including where appropriate under drainage;
- (vi) proposed seeding, feeding, weeding and cultivation measures;
- (viii) five year aftercare and maintenance arrangements;
- (ix) restoration and maintenance programme.
- (xi) scheme for the management and maintenance of playing field drainage for the replacement playing field area, including a management and maintenance implementation programme.

The Contractor BYUK is required to breakdown and remove the temporary structures and infrastructure that currently occupy the proposed pitch footprint. This includes any temporary structures that are planned to be erected but are not in place on the issue date of this report.

From a pitch development perspective, the site should be left with a suitably compacted formation layer, free of contaminants and underground services to facilitate the importation of the pitch construction materials including drainage runs. Contaminants includes physical, chemical and organic materials. There are details elsewhere in this report regarding recommended materials and techniques to employ. We also recommend that the timing of such works is considered to maximise the chance of developmental success as sports pitches should be constructed during the dryer months of the year, subject the provision of a temporary irrigation supply to establish the new sward. If no irrigation supply is available, we recommend a wider construction grow in window is allowed for as soil moisture or precipitation will be required to allow the grass to germinate.

Existing and Proposed Soil Profiles

The existing soil profiles located in the area northwest of the site in the footprint of the proposed pitch development works are detailed in previous soil investigation reports namely: MILVUM MES/2411/BUK210 11/24, HSP CONSULT C3886 2/22 and 6/22.

This is particularly relevant to the chemical status of the soils, so further soil textural classification is included in 'Section 2 - The Existing Site' under the title soils map of this report.

In summary, whilst recognising that site won materials will be used to form the new expanded areas and these are described as gravelly silty loams in the main, they will be improved over and above this by:

1. Specific cultivation of the topsoil insitu using specialist sports turf equipment.
2. The installation of primary drainage to these areas.
3. Amelioration of the top 50mm of topsoil with specialist medium/coarse sand to improve drainage and surface performance.

This is the basis of our proposals for improvement along with any maintenance recommendations made.

Measures to Strip, Store and Re-spread Soils to Avoid Soil Loss or Damage

All topsoil stripping and stockpiling is to be carried out in accordance with BS 3882 2015.

The loose tip method, using dump trucks and hydraulic excavators, shall be used to strip, transport and stockpile the topsoil. The loose-tipping method involves the use of a tracked excavator, fitted with a flat edging grading bucket to strip the topsoil and load it into a dump truck. The dump truck, running along the pre-designated route, then transports the topsoil to the desired stockpile location. This operation will be closely monitored to ensure that the soil is recovered without the inclusion of other soils (subsoil) or wastes. Cross contamination with other soil could significantly degrade the quality of the topsoil.

Stripping shall only be carried out whilst the soil is dry and friable. Soil handling shall be stopped during and after rainfall and not continued until the soil has dried out sufficiently. All topsoil materials shall be removed from the construction footprint and shall not be used to form base layer or formation plateaus in any instance. Any topsoil removed shall not be overworked or compacted during the removal process as the material may/will be used elsewhere on site in the future.

Depth of Strip

The depth of the strip will initially be set at 250mm, subject to the GI report, to enable the majority of the topsoil to be recovered without the inclusion of significant quantities of subsoil. However, this will depend on actual depth of topsoil present. (please refer to previous geotechnical assessment work done).

When using an excavator to strip the topsoil, the colour differences between the topsoil and subsoil can easily be seen by the machine operator carrying out the soil strip so that some discretion can be made.

Topsoil Stockpiling

Topsoil shall be stored in an area of the site where it will not interfere with other site operations so that it can be left undisturbed during other construction activities. The area that is to be used for storing the topsoil shall be cleared of vegetation and in situ topsoil. An area for the storage of topsoil has been identified on drawing number SRP1077-NVB-00-XX-D-L-1303.

The topsoil, having been transported to the storage area in a dump truck, shall be loose tipped in a series of heaps, starting at the furthest point and working back towards the storage area access point. Once the heaps cover the storage area, a tracked dozer shall level the heaps to form a level, stable platform for dump trucks to travel across to tip a second layer of topsoil. This sequence shall be repeated until the maximum stockpile height is achieved. Assuming that the topsoil is reasonably dry and friable during the stripping and storage operation, it shall be heaped to a maximum height of 4.0m to prevent the internal soil temperature of the stockpile rising so high the biological contents of the soil dies.

To protect from wet weather once the final height is achieved, the tracked dozer shall regrade the sides and top of the stockpile to encourage water to runoff. It shall then compact down the stockpile surface by tracking across it to seal the dry topsoil and reduce rainfall infiltration. The stockpiled topsoil will be reused across the natural grass of the new (restored) sports pitch and reseeded using MM60 grass seed. The data sheet is in the appendices section of this report.

Re-spreading Soils

Site won sub or topsoils will need to be handled when the material is in a suitable condition so as not to de-structure the soil during re use and under any form of movement or removal from a temporary position.

As a result, the material will need to be dry and friable enough to resist compaction when handled in a sensitive appropriate manner. Soil moisture content should be monitored regularly, and no soil should be moved when there is evidence of standing water on the material.

Subsoils may need ripping or opening to assist in the drying out process, and again caution should be expressed if machinery is used to track or move across a material during any of this process. A plan should be put in place to minimise any vehicle movements during the re spreading or positioning of material and avoid running over the same area repeatedly. If any area is over trafficked then the material will need to be opened up again before final placement and final consolidation.

Topsoils are more sensitive to compaction and chemical / biological change and therefore will need specialist equipment to reposition and grade out to final levels across the site. It is critical that any topsoil is moved when the material is dry and friable, with an open structure and low organic content including any waste material. It is envisaged that there will be nothing more than 25mm in size in the topsoil material otherwise some form of stone burying will need to be allowed for as part of the final surface preparation works.

As part of the final preparation works, topsoil will need cultivating carefully in place to optimise the pore space distribution to allow maximum flow of water and gas exchange. This again is usually achieved with specialist equipment and the material graded to prepare the final bed before seeding takes place.

Earthworks / Spoil

The proposed development will seek to minimize the import and export of material, wherever possible. The re-use of materials around the site, as suitable engineering material or infill material, will be carried out whenever possible.

Measures to Dispose of / Accommodate Waste Materials on the Site

Waste Management

It is inevitable that some waste will be produced during the construction works. Throughout the construction process, all activities will seek to minimize the generation of waste, utilising the waste hierarchy where practicable, to manage waste. The waste hierarchy seeks to reduce waste through elimination, reduction, re-use, recycling through to disposal as the final option. Handling and disposal of waste must be carried out under the 'Duty of Care' regulations and current legislation.

Waste management procedures shall be developed and will include the following topics:

- Identification of the types of waste that may be generated
- Implementation of re-use and recycling strategies
- Implementation of waste minimisation strategies
- Set up of waste disposal facilities
- Control and management of the disposal of different types of waste
- Roles and responsibilities
- Monitoring, reporting and auditing of waste produced on site

Reduction of Waste

A number of potential options are available to complement construction waste reduction including maximising off-site fabrication, efficient design specification of standardised components/materials, implementing a just-in-time delivery system to minimize the volume of goods/materials stored on site and therefore exposed to inclement weather conditions and other site damage sources.

Re-Use

Certain materials may have relatively high level of re-use (e.g. Timber, aggregates, brick and blockwork) within the construction stage operations. Such wastes may arise from spoiled materials, and natural waste from construction processes. Procedures will include:

- Separate skips/receptacles will be provided to receive different types of specific waste which can be re-used on site
- Licensed waste carriers will be required to identify possibilities of local community re-use of waste materials

Recycling

Certain materials may have a feasible recycling value (e.g. timber, aggregates, plastics, glass, metals). These may arise from similar construction processes as those identified above for re-use.

Procedures will include:

- Separate marked skips/receptacles will be provided for the depositing of types of waste suitable for efficient recycling
- Discussion with licensed waste carriers in respect to the feasibility/efficiency of specific materials recycling

Disposal

All wastes which require removal from site for final disposal will be subject to an effective management control regime ensuring statutory compliance. The key components of this regime are illustrated below:

- Appointing competent and suitable registered waste carrier(s)
- Establishing an effective site waste stream strategy
- Providing an effective waste skip strategy to suit the waste stream strategy and which differentiates between hazardous, non-hazardous and inert waste
- Should asbestos be encountered all potentially asbestos containing materials will be disposed of by a suitable licensed contractor in accordance with relevant guidance and legislation
- Providing adequate information/training to site operatives in respect of the waste stream strategy
- Implementing an effective audit procedure, to audit the waste disposal regime from source to licensed disposal facility. This will include reviewing all relevant waste management license and waste transfer license of all waste contractors on the project. In addition, a record will be kept of all waste transfer notes to ensure that all waste movements from the site are properly documented. Non-conformance reports would be issued to ensure any deficiencies are corrected.

Drainage Measures Including Where Appropriate Under Drainage

Please refer to the drainage layout and section drawings in the appendix section.

Proposed Seeding, Feeding, Weeding and Cultivation Measures

Seeding

The pitch should be established using 100% perennial ryegrass of 3-4 cultivars by direct drilling/ dimple drilling in 4 directions at an overall seed rate of 30-50gm2. Some irrigation may be required to help establish the sward as referred to elsewhere.

Feeding

As part of the initial establishment phase, a granular pre seed fertiliser application should be applied. A product along the lines of 10-15-10 should be considered and applied to the surface of the seed bed and lightly cultivated in before final seeding.

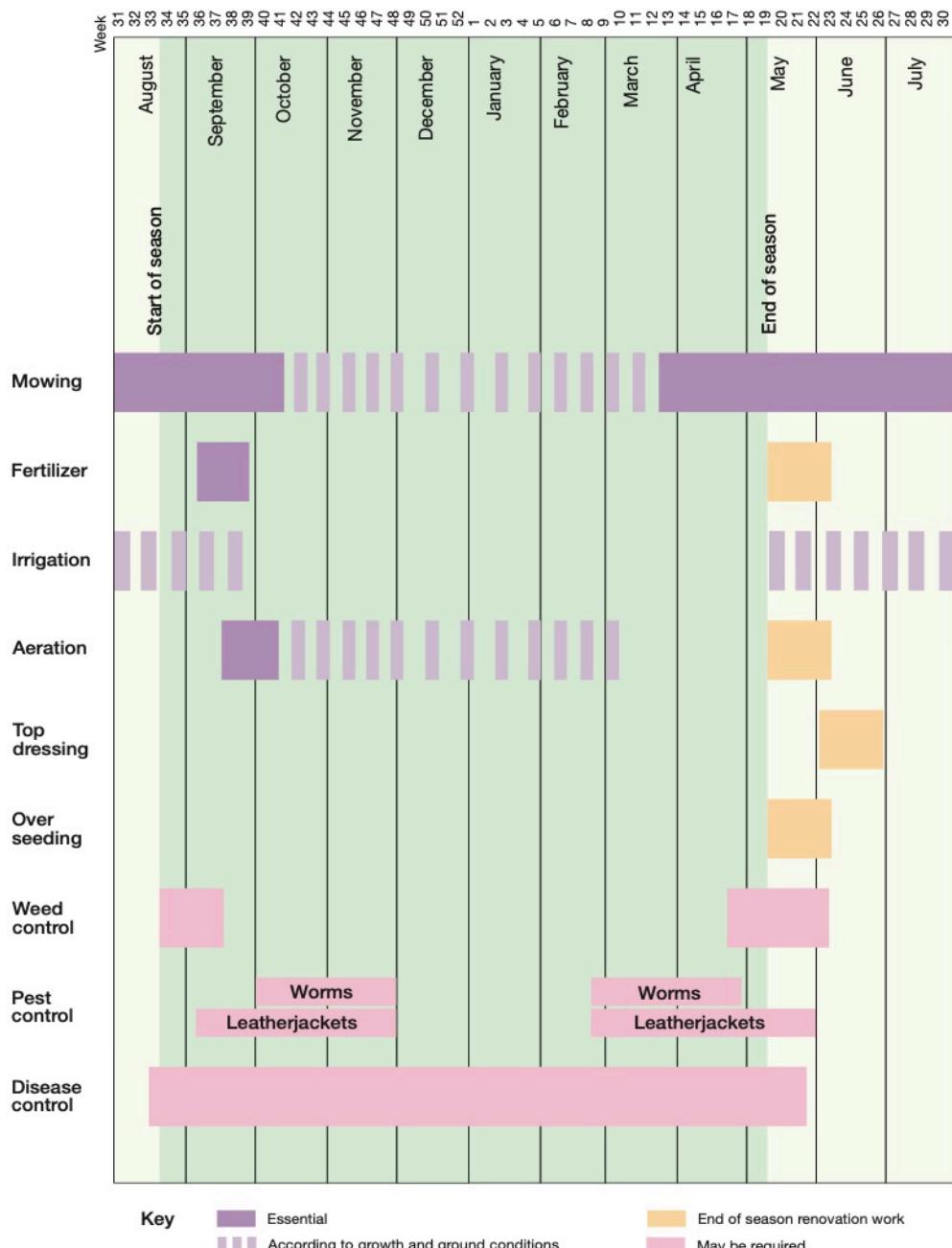
Weeding

It is likely that there will be some dormant weed seed population within the site won topsoil materials. As a result, we would recommend that a total weed kill is allowed for if a period of “fallowing” is not feasible. The entire topsoil material that has been used to establish the new area should be sprayed off, and any residual organic material removed before final seed bed preparation to avoid contamination of the seed bed reducing the chances of seed success. It should be noted that this operation should only be planned and executed by qualified personnel trained to apply such products.

Recommended Restoration and Maintenance Programme

Natural Turf for Sport

Design Guidance Note



Winter Football and Rugby League: Summary pitch maintenance programme

Annual Maintenance Requirements – 5 Year Plan

Introduction

The section below details the maintenance requirements for winter sports. The maintenance recommendations below are based on Sport England and SAPCA best practice guidelines. It is anticipated that the maintenance plan below is carried out on a rolling annual basis to maintain pitch quality. It can be executed by in house staff or more likely let as an external grounds maintenance contract.

Pitch Furniture

The client shall ensure that all pitch furniture used as part of the winter sports provision is of a suitable safe condition. The client shall check on an annual basis the position, structure, and integrity on any ground sockets used to erect sports furniture and ensure that they are installed to the correct dimension and stability. If there is any additional work required to ensure the integrity of the ground sockets then this would normally be carried out, out of season before the new season commences to ensure through season use is uninterrupted.

Goal posts and additional furniture shall be rejuvenated and renovated during the out of season period and repainted if required to ensure they are in a presentable condition for use. All furniture shall be erected in a safe manner in accordance with health and safety risk assessments as required.

Line Marking

The client shall allow to initial mark and line mark all winter sports pitch provision as required for through season use. The pitches will certainly require over marking on a weekly basis through the principal playing season. Modern line marking compounds make it less important that the initial playing lines are burned in at the start of the playing season. However, if the client deems this necessary then it shall be carried out in a safe manner in accordance with safety law and following pesticide instructions for pesticide use in this context.

All play lines shall be set out and marked in accordance with governing body recommendations and set out to a true line and length following a string line if necessary, to ensure markings are straight, even and consistent across facilities through the season. A suitable line marking compound shall be used to ensure speedy and efficient setting out and marking of pitches each week certainly for each game. Additional markings may be required on an ad hoc basis for training or for non-routine sports provision and for general recreation etc. during inclement weather, markings should be carried out so as to ensure a clean crisp line on match day as required. This may mean that the pitches will require over marking more frequently than weekly on occasions particularly through the winter months.

General Maintenance Recommendations

The following sections detail specific maintenance recommendations for winter sports use as recommended by various Governing bodies including Sport England. The client will understand and allow for site specific maintenance operations that encompasses those found when practising the art of good sportsmanship.

We recommend for the senior winter sports pitch to be maintained at the ‘advanced’ level, in terms of the GMA performance quality standards (see below for guidance), and all other pitches shall be maintained to meet the ‘good’ standard. Any maintenance programme implemented must bear this in mind and must reflect the necessary operations in order to maintain these qualities which will be measured over time.

Irrigation

Whilst recognising the standard of facility to be developed in context of the specified performance requirements, it is recommended that seasonal irrigation may well be required to maintain and more importantly establish a successful grass sward.

We recommend that consideration is given to providing some manual or semi-automated irrigation provision as part of the developmental specification in the form of water bowsers, a piped mains supply,

and travelling or static sprinklers to at least establish the sward and assist with renovations etc. This can be coupled to an adjacent water supply.

Cutting: Playing Area

During the playing season the pitches should be maintained with a height of cut of between 25mm and 30mm and during the summer months between 30mm and 50mm. The sward should not be allowed to grow beyond 60mm between cuts. If growth has been excessive between cuts then the height of cut should be gradually lowered in stages of 5mm -10 mm until the desired height is obtained. Grass clippings should either be removed or dispersed.

Mowing should ideally be undertaken with cylinder mowers of either self-propelled or towed gang units. There should be at least 6 blades in each cylinder and achieve at least 100 cuts per metre. If possible, clippings should be removed. Alternatively, rotary mowers are acceptable, but the quality of cut will be reduced.

The cutting direction should be alternated through 90 degrees between each cut. Generally, the direction should follow the same line as the side or base lines of the pitches. If grass clippings are not removed, then the frequency of cut should be sufficient to prevent the accumulation of dense grass clippings on the surface, which would be detrimental to future grass growth.

Cutting: Other Areas

The off-pitch areas including banks should be maintained with a height of cut of no higher than 50 mm – 60 mm. Mowing should be undertaken using a suitable rotary or cylinder mower. The frequency of cut should be sufficient to prevent the accumulation of dense grass clippings on the surface which would be detrimental to future grass growth.

Fertiliser Applications

It is difficult to estimate the precise application requirements, but the guidelines below may be useful and additional fertiliser applications should be included if necessary. An annual programme of nutritional inputs should be formulated to meet the annual inputs suggested by testing for nitrogen, phosphorus and potassium. It is understood that other elements and micronutrients may be applied in the form of turf tonics, seaweeds or turf conditioners etc with the principal aim of stimulating biological activity and turfgrass colour.

Autumn Fertiliser Applications

- Apply an autumn fertiliser of no greater than 10% nitrogen content at a rate of 35g/m². Phosphorous should be no greater than 6%, Potassium 10% and Iron and Magnesium may be within the formulation
- The equipment for application should be accurately calibrated and suitable to apply a uniform application
- Fertiliser application should occur during later October and again in November with a low nitrogen slow-release fertiliser. Cutting should not follow within two days. Ideally, fertilisation should occur prior to a forecasted period of rainfall.

Spring and Summer Fertiliser Applications

- Apply a spring fertiliser of no greater than 20% Nitrogen content at a rate of 35g/m². Phosphorous should be no greater than 6%, Potassium 10% and Iron and Magnesium may be within the formulation
- Fertiliser application should occur during late March and provisionally every six to eight weeks depending on sward health. Cutting should not follow within two days. Ideally, fertilisation should occur prior to a forecasted period of rainfall.

Late Summer Fertiliser Applications

- Apply a late summer fertiliser of no greater than 10% Nitrogen content at a rate of 35g/m². Phosphorous should be no greater than 6%, Potassium 10% and Iron and Magnesium may be within the formulation.

- Fertiliser application should occur during September and cutting should not follow within two days. Ideally, fertilisation should occur prior to a forecasted period of rainfall.

The client shall allow to apply annual nutrient applications for each of the major elements within specific guidelines recommended after site soil analysis.

End of Season Pitch Renovations

During the end of season renovation period the following works should be undertaken sequentially.

Scarification

The playing surface should be scarified or lightly harrowed to remove any thatch accumulation. The maximum depth of scarification should be no more than 5mm into the turf surface and the depth of thatch should not be allowed to exceed 5mm.

Topdressing

The facility should be top-dressed with approved sodium free medium course fine sports turf sand ideally with a particle size distribution within the central recommended range of an approved gradation curve. The selection of top-dressing materials should however take into account compatibility with existing materials used in the construction of the facility.

The dressings should be applied in dry weather and ground conditions in a uniform layer of no more than 10.0mm deep from suitable top-dressing equipment. Any drain lines showing subsidence should be top-dressed level with a suitable approved top-dressing sand.

Aeration

Each area should be aerated on an eight weekly basis using 13 mm solid tines at a spacing of 100 x 100 mm and to a minimum depth of 200mm. The aeration equipment should not cause surface disruption or damage through wheel marking. Operations should be suspended in inclement weather conditions. Other techniques such as blades or knifes are acceptable in rotation with tines as long as they are recognised turf implements.

Verti-draining

The surface should be verti-drained twice per season (once during renovation) using 19mm solid tines set to penetrate at least 200mm. The amount of heave should be as great as possible to prevent surface disruption. The site should be in a suitable condition to accept the level of tine penetration as above but not too soft that the equipment causes surface disruption from wheel marks. The verti-drain should be used to reduce hardness of the playing surface which should be between 35g and 200g when measured by the STRI method of test using a 0.5kg Clegg Impact Hammer from a drop height of 0.55m.

Brushing and Levelling

Following the application of top-dressing sand, the sand should be thoroughly brushed into the grass surface and levelled using a lute which will help to work the top-dressing into the verti-drain tine holes.

Overseeding

The playing surface should be overseeded during renovation at a rate of 20 g/m² in three directions using suitable equipment and with a suitable species, envisaged to be Perennial Ryegrass.

Weed and Pest Control

The need for weed control should be assessed and a selective turf herbicide applied to the surface if required. Ideally the playing surface should be maintained so that broadleaved weed content does not exceed 5%. Applications should be made using suitable low drift equipment and by a certified operator. A risk assessment and spray records should be carried out. Application should be undertaken only in ideal conditions and once a threshold level of weeds has been identified. Application should only be made during active weed growth and at time to prevent exposure to the site users and general public to the herbicide. Users are required by law to take all reasonable precautions when using pesticides to protect the health of human beings, creatures and the environment. The need for pest control should

also be assessed and if required the appropriate pesticide applied. It is not anticipated that wetting agents are used in this instance.

Worm Casting

Any presence of worm casts on a seasonal basis that occupy more than 5% of the surface area shall be distributed by rotary or straight brushing to work into the surface of the pitch and break up the casts.

PQS Testing

PQS testing should be undertaken seasonally (4 times per annum) to monitor pitch standard over time. Recommendations for improvements and maintenance can then be made on an ongoing basis.

Please refer to the pitch standard tables in the appendices for the relevant governing body advice.

Scheme for the Management and Maintenance of Playing Field Drainage

Please refer to Main Permission Condition 17 below.

Those details for to the management and maintenance of playing field drainage also apply to Main Permission Condition No 13.

Section 3 – Main Permission Condition 13

Below we have laid out in full the requirement of this condition, and for ease and clarity have confirmed which items Traction Sports Ltd have been appointed to provide:

Main Permission

Condition No13: Restoration of Sports Pitch.

Prior to the commencement of works above ground level a playing field restoration scheme for the site edged in red on Drawing No. SRP1077-NVB-00-XX-D-L-1071 Rev P05 shall be submitted to and approved in writing by the Local Planning Authority after consultation with Sport England. The restoration scheme shall provide details of the following:

- (i) existing and proposed ground levels;
- (ii) existing and proposed soil profiles;
- (iii) measures to strip, store and re-spread soils to avoid soil loss or damage;
- (iv) measures to dispose of/accommodate waste materials on the site;
- (v) drainage measures including where appropriate under drainage;
- (vi) proposed seeding, feeding, weeding and cultivation measures;
- (vii) boundary treatment;
- (viii) five year aftercare and maintenance arrangements;
- (ix) installation of equipment (e.g. goal posts);
- (x) restoration and maintenance programme.
- (xi) scheme for the management and maintenance of playing field drainage for the replacement playing field area, including a management and maintenance implementation programme, Within 18 months of occupation of the new school buildings permitted under Council ref: 16034/APP/2023/2812, the temporary buildings will be removed from the site and the playing field shall be restored in accordance with the approved scheme and made available for use.

REASON: To ensure the site is restored to a condition fit for purpose and to accord with policies DMHB 11, DMCI 3 of the Hillingdon Local Plan Part 2 (2020), as well as policies S3 and S5 of the London Plan (2021).

Traction Sports Scope:

To provide details relation to the following points from the above full condition:

- (ii) existing and proposed soil profiles;
- (iii) measures to strip, store and re-spread soils to avoid soil loss or damage.
- (iv) measures to dispose of/accommodate waste materials on the site;
- (v) drainage measures including where appropriate under drainage;
- (vi) proposed seeding, feeding, weeding and cultivation measures;
- (viii) five year aftercare and maintenance arrangements;
- (x) restoration and maintenance programme.
- (xi) scheme for the management and maintenance of playing field drainage for the replacement playing field area, including a management and maintenance implementation programme, Within 18 months of occupation of the new school buildings permitted under Council ref: 16034/APP/2023/2812, the temporary buildings will be removed from the site and the playing field shall be restored in accordance with the approved scheme and made available for use.

The Contractor BYUK will breakdown and remove the temporary structures and infrastructure that currently occupy the proposed pitch footprint. This includes any temporary structures that are planned to be erected but are not in place on the issue date of this report.

From a pitch development perspective, the site should be left with a suitably compacted formation layer, free of contaminants and underground services to facilitate the importation of the pitch construction materials including drainage runs. Contaminants includes physical, chemical and organic materials.

There are details elsewhere in this report regarding recommended materials and techniques to employ. We also recommend that the timing of such works is considered to maximise the chance of developmental success as sports pitches should be constructed during the dryer months of the year, subject the provision of a temporary irrigation supply to establish the new sward. If no irrigation supply is available, we recommend a wider construction grow in window is allowed for as soil moisture or precipitation will be required to allow the grass to germinate.

Existing and Proposed Soil Profiles

The existing soil profiles located in the area northwest of the site in the footprint of the proposed pitch development works are detailed in previous soil investigation reports namely: MILVUM MES/2411/BUK210 11/24, HSP CONSULT C3886 2/22 and 6/22.

This is particularly relevant to the chemical status of the soils, so further soil textural classification is included in 'Section 2 - The Existing Site' under the title soils map of this report.

In summary, whilst recognising that site won materials will be used to form the new expanded areas and these are described as gravelly silty loams in the main, they will be improved over and above this by:

1. Specific cultivation of the topsoil insitu using specialist sports turf equipment.
2. The installation of primary drainage to these areas.
3. Amelioration of the top 50mm of topsoil with specialist medium/coarse sand to improve drainage and surface performance.

This is the basis of our proposals for improvement along with any maintenance recommendations made.

Measures to Strip, Store and Re-spread Soils to Avoid Soil Loss or Damage

All topsoil stripping and stockpiling is to be carried out in accordance with BS 3882 2015. The loose tip method, using dump trucks and hydraulic excavators, shall be used to strip, transport and stockpile the topsoil. The loose-tipping method involves the use of a tracked excavator, fitted with a flat edging grading bucket to strip the topsoil and load it into a dump truck. The dump truck, running along the pre-designated route, then transports the topsoil to the desired stockpile location. This operation will be closely monitored to ensure that the soil is recovered without the inclusion of other soils (subsoil) or wastes. Cross contamination with other soil could significantly degrade the quality of the topsoil.

Stripping shall only be carried out whilst the soil is dry and friable. Soil handling shall be stopped during and after rainfall and not continued until the soil has dried out sufficiently. All topsoil materials shall be removed from the construction footprint and shall not be used to form base layer or formation plateaus in any instance. Any topsoil removed shall not be overworked or compacted during the removal process as the material may/will be used elsewhere on site in the future.

Depth of Strip

The depth of the strip will initially be set at 250mm, subject to the GI report, to enable the majority of the topsoil to be recovered without the inclusion of significant quantities of subsoil. However, this will depend on actual depth of topsoil present. (please refer to previous geotechnical assessment work done).

When using an excavator to strip the topsoil, the colour differences between the topsoil and subsoil can easily be seen by the machine operator carrying out the soil strip so that some discretion can be made.

Topsoil Stockpiling

Topsoil shall be stored in an area of the site where it will not interfere with other site operations so that it can be left undisturbed during other construction activities. The area that is to be used for storing the

topsoil shall be cleared of vegetation and in situ topsoil. An area for the storage of topsoil has been identified on drawing number SRP1077-NVB-00-XX-D-L-1303. We have identified an alternative location which could be the extension to the existing bund to the south of the synthetic pitch.

The topsoil, having been transported to the storage area in a dump truck, shall be loose tipped in a series of heaps, starting at the furthest point and working back towards the storage area access point. Once the heaps cover the storage area, a tracked dozer shall level the heaps to form a level, stable platform for dump trucks to travel across to tip a second layer of topsoil. This sequence shall be repeated until the maximum stockpile height is achieved. Assuming that the topsoil is reasonably dry and friable during the stripping and storage operation, it shall be heaped to a maximum height of 4.0m to prevent the internal soil temperature of the stockpile rising so high the biological contents of the soil dies.

To protect from wet weather once the final height is achieved, the tracked dozer shall regrade the sides and top of the stockpile to encourage water to runoff. It shall then compact down the stockpile surface by tracking across it to seal the dry topsoil and reduce rainfall infiltration. The stockpiled topsoil will be reused across the natural grass playing fields and reseeded using MM60 grass seed. The data sheet is in the appendices section of this report.

Re-spreading Soils

Site won sub or topsoils will need to be handled when the material is in a suitable condition so as not to de-structure the soil during re use and under any form of movement or removal from a temporary position.

As a result, the material will need to be dry and friable enough to resist compaction when handled in a sensitive appropriate manner. Soil moisture content should be monitored regularly, and no soil should be moved when there is evidence of standing water on the material.

Subsoils may need ripping or opening to assist in the drying out process, and again caution should be expressed if machinery is used to track or move across a material during any of this process. A plan should be put in place to minimise any vehicle movements during the re spreading or positioning of material and avoid running over the same area repeatedly. If any area is over trafficked then the material will need to be opened up again before final placement and final consolidation.

Topsoils are more sensitive to compaction and chemical / biological change and therefore will need specialist equipment to reposition and grade out to final levels across the site. It is critical that any topsoil is moved when the material is dry and friable, with an open structure and low organic content including any waste material. It is envisaged that there will be nothing more than 25mm in size in the topsoil material otherwise some form of stone burying will need to be allowed for as part of the final surface preparation works.

As part of the final preparation works, topsoil will need cultivating carefully in place to optimise the pore space distribution to allow maximum flow of water and gas exchange. This again is usually achieved with specialist equipment and the material graded to prepare the final bed before seeding takes place.

Earthworks / Spoil

The proposed development will seek to minimize the import and export of material, wherever possible. The re-use of materials around the site, as suitable engineering material or infill material, will be carried out whenever possible.

Measures to Dispose of / Accommodate Waste Materials on the Site

Waste Management

It is inevitable that some waste will be produced during the construction works. Throughout the construction process, all activities will seek to minimize the generation of waste, utilising the waste hierarchy where practicable, to manage waste. The waste hierarchy seeks to reduce waste through elimination, reduction, re-use, recycling through to disposal as the final option. Handling and disposal of waste must be carried out under the 'Duty of Care' regulations and current legislation.

Waste management procedures shall be developed and will include the following topics:

- Identification of the types of waste that may be generated
- Implementation of re-use and recycling strategies
- Implementation of waste minimisation strategies
- Set up of waste disposal facilities
- Control and management of the disposal of different types of waste
- Roles and responsibilities
- Monitoring, reporting and auditing of waste produced on site

Reduction of Waste

A number of potential options are available to complement construction waste reduction including maximising off-site fabrication, efficient design specification of standardised components/materials, implementing a just-in-time delivery system to minimize the volume of goods/materials stored on site and therefore exposed to inclement weather conditions and other site damage sources.

Re-Use

Certain materials may have relatively high level of re-use (e.g. Timber, aggregates, brick and blockwork) within the construction stage operations. Such wastes may arise from spoiled materials, and natural waste from construction processes. Procedures will include:

- Separate skips/receptacles will be provided to receive different types of specific waste which can be re-used on site
- Licensed waste carriers will be required to identify possibilities of local community re-use of waste materials

Recycling

Certain materials may have a feasible recycling value (e.g. timber, aggregates, plastics, glass, metals). These may arise from similar construction processes as those identified above for re-use.

Procedures will include:

- Separate marked skips/receptacles will be provided for the depositing of types of waste suitable for efficient recycling
- Discussion with licensed waste carriers in respect to the feasibility/efficiency of specific materials recycling

Disposal

All wastes which require removal from site for final disposal will be subject to an effective management control regime ensuring statutory compliance. The key components of this regime are illustrated below:

- Appointing competent and suitable registered waste carrier(s)
- Establishing an effective site waste stream strategy
- Providing an effective waste skip strategy to suit the waste stream strategy and which differentiates between hazardous, non-hazardous and inert waste
- Should asbestos be encountered all potentially asbestos containing materials will be disposed of by a suitable licensed contractor in accordance with relevant guidance and legislation
- Providing adequate information/training to site operatives in respect of the waste stream strategy
- Implementing an effective audit procedure, to audit the waste disposal regime from source to licensed disposal facility. This will include reviewing all relevant waste management license and waste transfer license of all waste contractors on the project. In addition, a record will be kept of all waste transfer notes to ensure that all waste movements from the site are properly documented. Non-conformance reports would be issued to ensure any deficiencies are corrected.

Drainage Measures Including Where Appropriate Under Drainage

Please refer to the drainage layout and section drawings in the appendix section.

Proposed Seeding, Feeding, Weeding and Cultivation Measures

Seeding

The pitch should be established using 100% perennial ryegrass of 3-4 cultivars by direct drilling/ dimple drilling in 4 directions at an overall seed rate of 30-50gm2. Some irrigation may be required to help establish the sward as referred to elsewhere.

Feeding

As part of the initial establishment phase, a granular pre seed fertiliser application should be applied. A product along the lines of 10-15-10 should be considered and applied to the surface of the seed bed and lightly cultivated in before final seeding.

Weeding

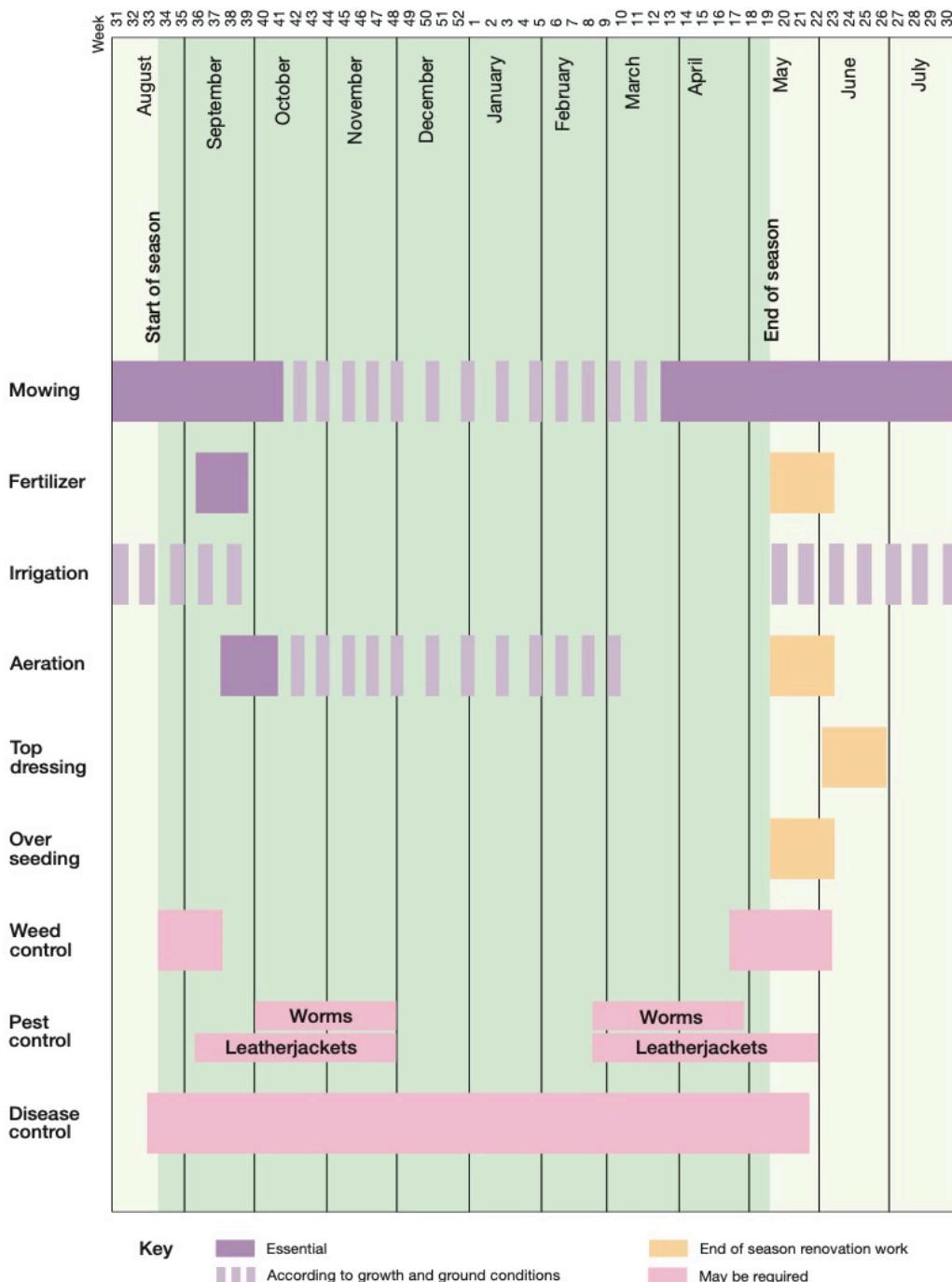
It is likely that there will be some dormant weed seed population within the site won topsoil materials. As a result, we would recommend that a total weed kill is allowed for if a period of “fallowing “ is not feasible. The entire topsoil material that has been used to establish the new area should be sprayed off, and any residual organic material removed before final seed bed preparation to avoid contamination of the seed bed reducing the chances of seed success. It should be noted that this operation should only be planned and executed by qualified personnel trained to apply such products.

Recommended Restoration and Maintenance Programme

Provided by Sport England in Natural Turf for Sport 2011.

Natural Turf for Sport

Design
Guidance Note



Winter Football and Rugby League: Summary pitch maintenance programme

Annual Maintenance Requirements – 5 Year Plan

Introduction

The section below details the maintenance requirements for winter sports. The maintenance recommendations below are based on Sport England and SAPCA best practice guidelines. It is anticipated that the maintenance plan below is carried out on a rolling annual basis to maintain pitch quality. It can be executed by in house staff or more likely let as an external grounds maintenance contract.

Pitch Furniture

The client shall ensure that all pitch furniture used as part of the winter sports provision is of a suitable safe condition. The client shall check on an annual basis the position, structure, and integrity on any ground sockets used to erect sports furniture and ensure that they are installed to the correct dimension and stability. If there is any additional work required to ensure the integrity of the ground sockets then this would normally be carried out, out of season before the new season commences to ensure through season use is uninterrupted.

Goal posts and additional furniture shall be rejuvenated and renovated during the out of season period and repainted if required to ensure they are in a presentable condition for use. All furniture shall be erected in a safe manner in accordance with health and safety risk assessments as required.

Line Marking

The client shall allow to initial mark and line mark all winter sports pitch provision as required for through season use. The pitches will certainly require over marking on a weekly basis through the principal playing season. Modern line marking compounds make it less important that the initial playing lines are burned in at the start of the playing season. However, if the client deems this necessary then it shall be carried out in a safe manner in accordance with safety law and following pesticide instructions for pesticide use in this context.

All play lines shall be set out and marked in accordance with governing body recommendations and set out to a true line and length following a string line if necessary, to ensure markings are straight, even and consistent across facilities through the season. A suitable line marking compound shall be used to ensure speedy and efficient setting out and marking of pitches each week certainly for each game. Additional markings may be required on an ad hoc basis for training or for non-routine sports provision and for general recreation etc. during inclement weather, markings should be carried out so as to ensure a clean crisp line on match day as required. This may mean that the pitches will require over marking more frequently than weekly on occasions particularly through the winter months.

General Maintenance Recommendations

The following sections detail specific maintenance recommendations for winter sports use as recommended by various Governing bodies including Sport England. The client will understand and allow for site specific maintenance operations that encompasses those found when practising the art of good sportsmanship.

We recommend for the senior winter sports pitch to be maintained at the ‘advanced’ level, in terms of the GMA performance quality standards (see below for guidance), and all other pitches shall be maintained to meet the ‘good’ standard. Any maintenance programme implemented must bear this in mind and must reflect the necessary operations in order to maintain these qualities which will be measured over time.

Irrigation

Whilst recognising the standard of facility to be developed in context of the specified performance requirements, it is recommended that seasonal irrigation may well be required to maintain and more importantly establish a successful grass sward.

We recommend that consideration is given to providing some manual or semi-automated irrigation provision as part of the developmental specification in the form of water bowsers, a piped mains supply,

and travelling or static sprinklers to at least establish the sward and assist with renovations etc. This can be coupled to an adjacent water supply.

Cutting: Playing Area

During the playing season the pitches should be maintained with a height of cut of between 25mm and 30mm and during the summer months between 30mm and 50mm. The sward should not be allowed to grow beyond 60mm between cuts. If growth has been excessive between cuts then the height of cut should be gradually lowered in stages of 5mm -10 mm until the desired height is obtained. Grass clippings should either be removed or dispersed.

Mowing should ideally be undertaken with cylinder mowers of either self-propelled or towed gang units. There should be at least 6 blades in each cylinder and achieve at least 100 cuts per metre. If possible, clippings should be removed. Alternatively, rotary mowers are acceptable, but the quality of cut will be reduced.

The cutting direction should be alternated through 90 degrees between each cut. Generally, the direction should follow the same line as the side or base lines of the pitches. If grass clippings are not removed, then the frequency of cut should be sufficient to prevent the accumulation of dense grass clippings on the surface, which would be detrimental to future grass growth.

Cutting: Other Areas

The off-pitch areas including banks should be maintained with a height of cut of no higher than 50 mm – 60 mm. Mowing should be undertaken using a suitable rotary or cylinder mower. The frequency of cut should be sufficient to prevent the accumulation of dense grass clippings on the surface which would be detrimental to future grass growth.

Fertiliser Applications

It is difficult to estimate the precise application requirements, but the guidelines below may be useful and additional fertiliser applications should be included if necessary. An annual programme of nutritional inputs should be formulated to meet the annual inputs suggested by testing for nitrogen, phosphorus and potassium. It is understood that other elements and micronutrients may be applied in the form of turf tonics, seaweeds or turf conditioners etc with the principal aim of stimulating biological activity and turfgrass colour.

Autumn Fertiliser Applications

- Apply an autumn fertiliser of no greater than 10% nitrogen content at a rate of 35g/m². Phosphorous should be no greater than 6%, Potassium 10% and Iron and Magnesium may be within the formulation
- The equipment for application should be accurately calibrated and suitable to apply a uniform application
- Fertiliser application should occur during later October and again in November with a low nitrogen slow-release fertiliser. Cutting should not follow within two days. Ideally, fertilisation should occur prior to a forecasted period of rainfall.

Spring and Summer Fertiliser Applications

- Apply a spring fertiliser of no greater than 20% Nitrogen content at a rate of 35g/m². Phosphorous should be no greater than 6%, Potassium 10% and Iron and Magnesium may be within the formulation
- Fertiliser application should occur during late March and provisionally every six to eight weeks depending on sward health. Cutting should not follow within two days. Ideally, fertilisation should occur prior to a forecasted period of rainfall.

Late Summer Fertiliser Applications

- Apply a late summer fertiliser of no greater than 10% Nitrogen content at a rate of 35g/m². Phosphorous should be no greater than 6%, Potassium 10% and Iron and Magnesium may be within the formulation.

- Fertiliser application should occur during September and cutting should not follow within two days. Ideally, fertilisation should occur prior to a forecasted period of rainfall.

The client shall allow to apply annual nutrient applications for each of the major elements within specific guidelines recommended after site soil analysis.

End of Season Pitch Renovations

During the end of season renovation period the following works should be undertaken sequentially.

Scarification

The playing surface should be scarified or lightly harrowed to remove any thatch accumulation. The maximum depth of scarification should be no more than 5mm into the turf surface and the depth of thatch should not be allowed to exceed 5mm.

Topdressing

The facility should be top-dressed with approved sodium free medium course fine sports turf sand ideally with a particle size distribution within the central recommended range of an approved gradation curve. The selection of top-dressing materials should however take into account compatibility with existing materials used in the construction of the facility.

The dressings should be applied in dry weather and ground conditions in a uniform layer of no more than 10.0mm deep from suitable top-dressing equipment. Any drain lines showing subsidence should be top-dressed level with a suitable approved top-dressing sand.

Aeration

Each area should be aerated on an eight weekly basis using 13 mm solid tines at a spacing of 100 x 100 mm and to a minimum depth of 200mm. The aeration equipment should not cause surface disruption or damage through wheel marking. Operations should be suspended in inclement weather conditions. Other techniques such as blades or knifes are acceptable in rotation with tines as long as they are recognised turf implements.

Verti-draining

The surface should be verti-drained twice per season (once during renovation) using 19mm solid tines set to penetrate at least 200mm. The amount of heave should be as great as possible to prevent surface disruption. The site should be in a suitable condition to accept the level of tine penetration as above but not too soft that the equipment causes surface disruption from wheel marks. The verti-drain should be used to reduce hardness of the playing surface which should be between 35g and 200g when measured by the STRI method of test using a 0.5kg Clegg Impact Hammer from a drop height of 0.55m.

Brushing and Levelling

Following the application of top-dressing sand, the sand should be thoroughly brushed into the grass surface and levelled using a lute which will help to work the top-dressing into the verti-drain tine holes.

Overseeding

The playing surface should be overseeded during renovation at a rate of 20 g/m² in three directions using suitable equipment and with a suitable species, envisaged to be Perennial Ryegrass.

Weed and Pest Control

The need for weed control should be assessed and a selective turf herbicide applied to the surface if required. Ideally the playing surface should be maintained so that broadleaved weed content does not exceed 5%. Applications should be made using suitable low drift equipment and by a certified operator. A risk assessment and spray records should be carried out. Application should be undertaken only in ideal conditions and once a threshold level of weeds has been identified. Application should only be made during active weed growth and at time to prevent exposure to the site users and general public to the herbicide. Users are required by law to take all reasonable precautions when using pesticides to protect the health of human beings, creatures and the environment. The need for pest control should

also be assessed and if required the appropriate pesticide applied. It is not anticipated that wetting agents are used in this instance.

Worm Casting

Any presence of worm casts on a seasonal basis that occupy more than 5% of the surface area shall be distributed by rotary or straight brushing to work into the surface of the pitch and break up the casts.

PQS Testing

PQS testing should be undertaken seasonally (4 times per annum) to monitor pitch standard over time. Recommendations for improvements and maintenance can then be made on an ongoing basis.

Please refer to the pitch standard section in the appendices for the relevant governing body advice.

Scheme for the Management and Maintenance of Playing Field Drainage

Please refer to main condition 17 below.

Those details for the management and maintenance of playing field drainage also apply to Temp Permission Condition No 2.

Section 4 – Main Permission Planning Condition 14

Below we have laid out in full the requirement of this condition.

Main Permission Planning Condition 14.

‘Prior to the commencement of works above ground level, details of the design and layout of the replacement MUGAs and cricket practice net facility shall be submitted to and approved in writing by the Local Planning Authority after consultation with Sport England.

The MUGAs and cricket practice net facility shall not be constructed other than in accordance with the approved details and they shall be completed before occupation of the development hereby permitted.

REASON: To ensure the development is fit for purpose and sustainable in accordance with policies DMCI 1, DMCI 1A of the Hillingdon Local Plan Part 2 (2020), as well as policies S3 and S5 of the London Plan (2021).’

Please see below the design details in written form, supported by the drawings found in the appendices section.

Cricket Practice Net Facility Design and Layout

Design Outcomes

It is anticipated that the selected design will meet the required ECB standards and will be approved as an ECB NTP system. The College will, after construction, require the necessary warranties and insurances to ensure that the installed design solution meets the requirement of ECB approval in all instances. The installation may be subject to post-installation testing by the client to confirm this.

The contractor must ensure that all materials and processes employed comply with the ECB requirements pertinent to the design solutions that they have approved. If there is any potential conflict in operations to the ECB standards, then this must be raised at tender stage in writing and included within the tender return. These points will then be considered accordingly.

Formation Preparation / Pinned Corners

It is envisaged at this stage that the specialist cricket contractor will take over responsibility for this part of the site and start the formation preparation including the topsoil strip / cut and fill works. Once the formation has been prepared to agreed and defined gradients, the overall site footprint will be identified in readiness for installation of additional features as described below.

Drainage

It is not envisaged that additional drainage will be required at this stage, but natural percolation will be allowed for through the soil profile. The drainage layout plan in the appendices section including site wide drainage plan, shows proposed drainage runs that will be sufficient in catching water to ensure appropriate drainage to the cricket facility.

Initial site and soil investigations have classified the soil as seasonally wet, slowly permeable loamy and clayey soils. As such it is possible that some localised slow drainage can be found in this corner of the site, however it is recognised that as the net systems are principally used in the drier summer months, below ground drainage is not normally required.

Footprint Dimensions

Please refer to the appendices for recommended footprint dimensions in terms of the immediate cricket practice net surface area requirements. This drawing is for guidance only and may be modified by the

contractor to consider the varying ECB-approved design systems. The contractor should issue a supplementary drawing pack that clearly shows the overall and immediate cricket dimensions required. The dimensions have been adopted to sit with the ECB recommended dimensions for cricket practice net facilities.

Edge Retention

The contractor shall allow to retain the perimeter kerb edging to the synthetic practice net facility, especially where the edges abut natural grass surrounds. This will be the case on all four sides. It is recommended that a 150mm x 50mm PCC kerb edging with concrete haunch is used to support the infrastructure of the facility.

Stone Sub-Base

At this stage, we envisage an engineered surface solution for the ECB-approved cricket wickets. A minimum 150mm type 3 stone sub-base will lie in-between the formation and bitmac layer. The stone sub-base shall be installed in layers, graded and compacted in accordance with best practice – taking into consideration the wider cricket works required and the longevity that will be necessary as part of the warranties offered for the system.

As part of this component of works, suitable geotextile liners should be used to segregate layers where necessary.

Engineered Layer

A suitable engineered layer consisting of an open textured porous macadam shall be installed by the contractor. This should comprise a 50mm – 60mm layer of 10mm open textured bitmac wearing course.

The engineered layer shall be laid following suitable gradients and consolidated accordingly within the confines of the footprint and the retention system installed. It is anticipated that this will be installed by hand owing to the small surface area and will be prepared accordingly by specialist macadam installers.

The porosity of the macadam layer shall remain intact after installation to ensure the future performance of the surface layers described below.

Performance Surface

An ECB-approved NTP cricket performance surface should be allowed for, including the sub-layer and surface itself. It is understood that surface performance underlays and shockpads can be installed as part of the wider performance surface system, taking into account the requirements for an engineered sub-surface as described above. The surface must conform to full ECB approved and tested standards and be robust enough for use in a school environment.

The configuration, colour and practice lines are shown in the diagram enclosed in the appendix section. For the record, it is anticipated that it will be a two-tone green system with a light green principal playing area and dark green surrounds. Practice lines are optional.

Net System

A fully enclosed net system to all wickets is recommended to prevent contamination and increase security. Suitable access will be required into the net system and each individual lane will be separated with an intermediate net (s) of a sufficient length to avoid any health and safety use to users moving through the system as part of the wider facility use. It is expected that the system will consist of a robust green RAL 6005 steel framework and net. The net tie system to the steelwork must not be cable tied but resist movement of the ball outside of each lane system.

The contractor must allow to install the support footings required for the cage as part of the formation preparation with a suitable below ground concrete pad to eliminate any potential for future movements and damage owing to environmental conditions or general use.

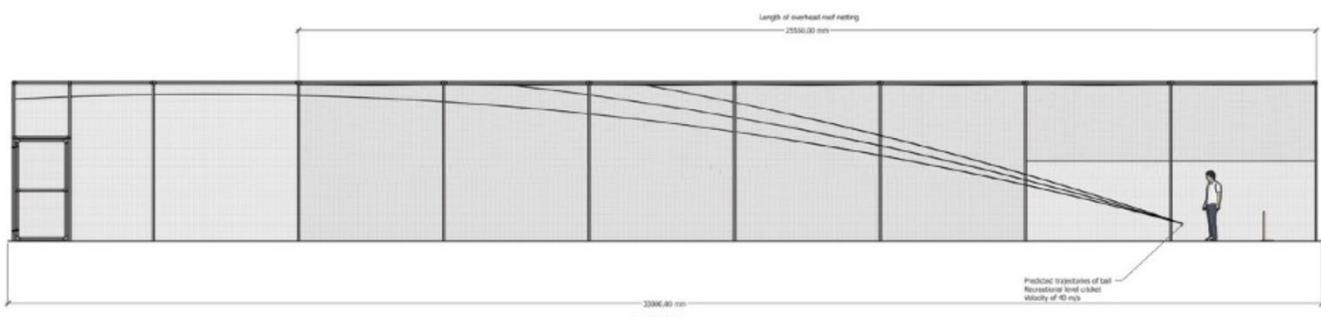
Steelwork Dimensions – per lane

33 m enclosed facility:

1. Height 3.66 m (13FT)
2. Length 25.55 m (84FT)
3. Width 3.65 m (12FT)

Run up / bowling area:

4. Side walls - 7.45 m long x 3.66 m high
5. Back net - 14.6 m wide x 3.66m high
6. Access - an opening in one of the side walls to allow for pedestrian access.
7. It is expected that under normal usage, the ball would not leave the netted facility confines. Therefore, drop netting is not deemed necessary on an enclosed system, at 33m in length. Roof netting is total 25.55m and netted facility length is 33m. Please find predicted trajectory model below, for cricket balls struck within the facility at velocity of 40 m/s.



Steelwork Tubular Frame Components:

1. 48 mm RAL 6005 green steel tubes connected with Fast-Clamps
2. Upright poles are placed into a 52 mm RAL 6005 green steel tube sockets 500 mm in length
3. Sockets are installed to a depth of 500 mm and secured using concrete
4. A 5 mm steel tension wire and metal Fast-Clamp hooks are used to secure netting components

Netting System:

1. Created using one seamless piece of netting.
2. 3mm diameter, heavy duty (HD) braided polyethylene (PE) netting.
3. Finished in a 50 mm mesh knotted configuration.
4. Net colour – black.
5. 500mm high white PVC vermin skirt / protection skirt.

Landscaping (Banks & Batters)

The contractor shall allow to carry out all final landscaping works to the footprint, including any banks and batters created as part of the wider cut and fill operation. Site-won topsoil will be used to prepare a suitable seed bed for final seeding as part of these landscape works, and the topsoil itself shall not contain any stones larger than 25 mm. It will be hand-raked and prepared before being fertilised and overseeded with a grass seed mix agreed with the school's head groundsman. It is understood that the footprint, including banks and batters, will extend beyond the cricket footprint owing to the site levels and will merge with surrounding features such as the pitches, trees, and planting.

Post-Installation Testing

The facility should be tested to ECB TS6 standards in full post installation by an independent approved testing institute.

MUGA – Type 4 Design and Layout

Drainage System and Infrastructure - General

The drainage system should be constructed in a manner that allows future maintenance to take place and all trench works shall be even and consistent with no amount of subsoil debris within the trench line itself. All drainage works should take place in suitable weather conditions to minimise any damage. This includes pitch drainage and associated works in both stabilised and virgin sub-soil ground. Any

damage to the construction profile or drainage installation due to operations being carried out in adverse weather shall be rectified at the expense of the contractor to the satisfaction of the client's agent.

All excavated trenches must be clean, smooth, and free of debris and laid to a true line with no back falls along the installed drain. All excavated spoil from the trenches shall be removed from site to a licenced tip as there is no on site storage capacity for sub-soils, and sub-soils should not be used for final landscaping works.

If the drainage installation is carried out in soft ground the formation layer must be made good before the stone sub-based layer is placed on top of it. Any rutting must be levelled with approved medium sand or selected sub-soil that can be levelled.

The installed lateral and main drain system must be laid complete with stone top trenches with no soil or other contamination overlying the drain lines. The drain lines must be inspected and approved by the client's agent before overfilling with gravel sub-base material.

The sports facility footprint shall have a primary drainage system consisting of lateral drains with a perimeter main drain system connecting to the stone base. All drainpipes, connections, junctions, and endcaps shall be made to conform to BS 4962 or the equivalent European standard.

Main Drainage

It is anticipated that a new perimeter 150mm main drain is installed around two sides of the MUGA and is connected via a series of catch pits installed where there is an appreciable change in angle or water flow. Normally these catch pits are located in the corners of the MUGA and the main drain itself runs around the sides of the MUGA interconnecting with the lateral drainage system installed across the MUGA at 10 metre centres.

Lateral Drainage

Typically, the lateral drains shall be 100mm perforated plastic lateral drains installed at 10 metre centres to interconnect with the perimeter main drain. It will be important in all instances that the pipes are placed in well-constructed trenches that are evenly graded and backfilled in accordance with the further instructions below. Typically, lateral drains will be set into 600mm deep trenches 150mm wide.

Stone Backfill

Any stone backfill used to fill the trenches after installation of the drainage pipe shall be compatible with the stone used to create the stone sub-base. It is very important that there is no impingement on water movement through the stone sub-base and into the drainage trenches. Checks must take place to ensure that the typically graded stone is clean and bridges between all materials used in the construction layers. It is recommended a 2mm – 6mm clean gravel material is utilised.

Drainage Chambers

Corner drainage chambers will be required to complete the connection of the perimeter main drain system which itself interconnects with the lateral system. The chambers will facilitate an even satisfactory change in direction of flow of mains water through the drain and into the chambers themselves and eventually into the site wide system. The chambers shall be installed using pre-formed concrete rings or sections and be secured with a medium duty chamber lid. Direct access to the chambers for maintenance will be required and the rings and lid shall be fixed into position so as to resist movement over time. Chambers should be sat outside of the principal MUGA footprint if and when possible.

Drainage Outlet

The contractor shall allow to connect the pitch drainage system to the underground attenuation tank and site wide drainage, as shown on the existing drawings.

Profile Percolation

There is significant capacity for attenuation within the system profile overall. This will be facilitated by using highly porous materials for construction, including the engineered layers and stone sub-base.

As already stated, there should be no impingements on the free passage of water through the profile due to gravitational forces and into the drainage system even if soil stabilisation is used on the formation layer.

The system is engineered to quickly remove copious volumes of water in context of governing body requirements without long term on-site storage and via gravity. This must not be compromised in any way by inappropriate materials or inappropriate site preparation, such as over compaction. The contractor must ensure that drainage rates are optimised and percolation through the system is carried out at the design rates.

Geotextile Liner

The contractor should allow to fully line the MUGA formation with a suitably texturized minimum 1000-gauge porous geotextile liner. The geotextile liner will be used for separation, filtration, and load bearing of the new facility and will be secured in place with the overlying stone layer. The geotextile fabric itself shall not be damaged or pierced in any way by an unsuitable formation preparation or significant physical or human damage. It is anticipated that the same geotextile liner will overlap into the new drainage runs to help stabilise the drainage trenches.

The geotextile liner must not impinge on overall profile porosity by the utilisation of an unsuitable product or installation methodology.

Formation Layer

The contractor must ensure that the formation layer created is suitably graded to meet governing body requirements whilst merging with the surrounding landscape at large. Also, the contractor should be mindful of any drainage requirements when shaping the formation layer.

The formation itself shall be graded, consolidated, and finished with a suitable mechanised blade to achieve the tolerances of +/- 25mm when measured over a 5-metre grid. The formation itself should then be consolidated to achieve a minimum CBR requirement of 5% whilst recognising that ordinarily greater CBRs are achieved. This will be dependent upon the existing subsoil material.

A suitable compaction roller which will be mechanised should be used to solidify the formation to provide a sustainable base on which to build the pitch. The contractor will also note that the formation layer will be drained in accordance with the drainage installation instructions.

No subsoil material should be used for any landscape works or the creation of wider features and all excess subsoil should be removed off site to a licenced facility. This includes subsoils from additional excavations such as the access pathway, drain lines and recess areas, etc.

Perimeter Pitch Kerb Edging

Perimeter pitch kerb edges shall be included to identify the MUGA footprint, as described elsewhere. All external lines of these areas shall be kerbed with 150mm x 50mm pre-cast concrete kerbs including all recesses, skills areas, and storage areas as well. Any internal kerb lines shall be kerbed using pin kerbs 150 x 50mm. All kerbs shall be suitably haunched in a minimum 200 x 100mm concrete bed, to support the kerb edge in place along its true line and length, thus avoiding any deviation from installation or future use.

All kerb edges shall be flat topped to match across the full facility and shall be installed to resist damage from the installation of the tarmacadam layers. Any excessive damage or staining to kerbs during the installation of tarmacadam layers will mean the kerb edges are replaced and removed from site at the contractor's expense. It is suggested therefore that kerb edges are protected during macadam installation and consolidation.

All kerb edges should be installed to a true even line as required, facilitating a sound construction of the pitch and associated areas including all the stone sub-base layers. The kerb lines will follow the pitch gradients both longitudinally and cross pitch as designed.

No significant variation in the colour of the kerb edges will be accepted and all kerb edges will be subject to inspection by the client's agent for damage and approval during the installation period or before handover.

Stone Sub-Base Layer

A 250mm consolidated stone sub-base layer placed over the drainage and formation to support the engineered layer and sports surfacing layers as described. The stone sub-base layer typically will consist of a recycled MOT type 1 and 3 material that meets MOT specifications and is clean and free from organic debris. It will be imported to site, graded, and consolidated in layers. Test certificates may be requested to confirm the compatibility of the stone layer to the drainage system and the supporting engineered layers, and the contractor must allow for further testing and certification of materials if requested by the client's agent.

Once the stone layer has been consolidated, a minimum CBR rating of 5% must be achieved to ensure the successful installation of the surface layers and resist future movement of the entire profile. Any stone utilised must optimise surface porosity and drainage attenuation so that the overall profile works both from drainage and stability perspective. The stone layer when installed, must not be subject to rutting or movement by vehicles. Any ruts or significant movements that are apparent they must be re-graded by hand and re-consolidated accordingly.

The new pitch will merge with the surrounding landscape and with due consideration to the overall site gradients, site landscape, and wider planted landscape whilst maintaining compliance with the relevant governing body standards in place.

Key Stage Testing of Stone Sub-base Layer

Upon the request of the client's agent, key stage testing of the imported stone base layers may be requested. The contractor in conjunction with the client's agent will agree a protocol for this work if required.

Delivery certificates should be held in the main site office for inspection by the client's agent if requested to verify the materials delivered to site.

Engineered Layer

install a tarmacadam engineered layer to the MUGA footprint and associated areas. A double layer system consisting of a 40mm base course of 20mm open textured bitmac and 25mm wearing course of 10mm open textured bitmac should be utilised.

The engineered layers installed should be subject to careful installation and regulation, so they do not exceed +/- 6mm when measured under a 3-metre straight edge. These exacting tolerances are achieved by careful installation and careful rolling whilst the macadam is still pliable. Particular attention should be paid to any day joints or junctions and abutting kerb edging. Typically, the macadam is laid in bays using specialist laser-controlled equipment to the surface tolerances stipulated above. It is important the macadam is regularly checked to ensure that it meets the specified surface tolerances when cold.

Any recesses and spectator areas, etc. will consist of a double layer system and all tarmacadam including the supply and installation shall meet the requirements of BS 4987. The double layer shall be made up of a 40mm base course using a 20mm open textured bitmac and a 25mm layer wearing course using a 6mm open textured bitmac. It is feasible that some specialist hand laying will be required particularly in difficult to access areas etc.

Shockpad

An in-situ type sports shockpad will be used to support the synthetic surface layer. The in-situ type pad shall be installed using specialised installation equipment and will ordinarily consist of a 2 – 6 mm granule, 10% binder and be installed to 10mm consolidated depth. There shall be no variation across the entire pitch footprint in shock pad consistency, depth, or integral strength. Any joints or margins shall be immediately rolled or screeded to ensure an even consistent pad installation. There should be no deviation of the pad adjacent to the perimeter kerb edge or goal sockets if installed as part of the overall pitch facility.

The contractor shall ensure that the installed shock pad has enough tensile strength to meet minimum sporting requirements if tested post installation. The contractor must also ensure that the pad meets these minimum requirements for the same guarantee period as the synthetic surface itself.

There should be no significant deviation as already stated when measured under a straight edge if required, on any joints, junctions, or specific points across the entire surface footprint.

The shock pad should not be laid when the air temperature or the surface temperature of the sub strata is outside of the range 10°C - 40°C.

Polymeric Surface

A 3mm layer EDPM granule wearing course will provide the upper surface layer to the facility. this surface layer, as well as shockpad layer are what provide the performance characteristics of the surface.

In addition, a polyurethane binder coat should be applied to bind the rubber particles together to create a durable and resilient surface.

Sports Fencing System

A sports twin-bar system with super rebound in RAL 6005 green around the new facility footprint is recommended due to the mixed use of the facility. This will replicate the existing provision on site.

Principal Fence System

The sports fencing system shall be installed to follow full SAPCA recommendations for fence design and installation in all instances. Twin-bar sports fence systems have been used in the multi-use arena for many years now and are robust and sustainable enough to optimise the protective qualities for multi-use whilst blending into sports landscapes and can be achieved on a sustainable cost basis.

It is imperative that any fence uprights that are installed are suitably positioned in a deep concrete haunch as per the manufacturers guidelines to give the fence uprights integrity and strength over its entire lifespan. Typically, a fencing system can last 2 MUGA lifecycles. It is not anticipated at this stage that windbreaks will be added to the fence system post installation.

It is anticipated that the twin-bar system will encompass the main facility footprint with suitable access gates, fence extensions behind goals, and include goal recesses.

Fence Extensions

The twin-bar type ball stop fence shall be extended to 5 metres in the recessed goal areas. The intention is to provide ball retention capacity immediately behind the goals partly for safety and partly for site utilisation and logistics. The fence extensions should be constructed of additional uprights and cross members that support the additional twin-bar panels. It should be designed exactly the same as the principal system to 3 metres and must not deviate in colour or specification in any way.

Fence Colour

In this instance the principal fence system including uprights, rolls, panels and gates shall be powder coated in a polyethylene coat RAL 6005 green. It is understood that some bolts, nuts and clips, etc. may have a galvanised finish but all the structures should be powder coated before erection. The intention is not only to protect the fence system in general but to ensure the overall site aesthetics are not compromised.

Fence Uprights

In all instances it is anticipated that the fencing uprights will be rectangular box section uprights that are galvanised and powder coated, being constructed of an appropriate thickness of steel. The steel thickness itself will vary depending upon the height of the fence that the post is supporting but would generally be 3 or 4 mm in thickness uncoated. Intermediate posts and straining bars should also be constructed (where needed) from rectangular box section steel and all should be powder coated in RAL 6005 green.

Super Rebound Panelling

Super rebound panels should be utilised to strengthen the lower portion of the fence system where most ball impacts take place. This will consist of a 50mm x 65mm gauge to a height of 1.2m. The upper fencing from a height of 1.2m to 3m or 5m shall be of a 200mm x 50mm gauge.

Gates Including Locks and Drop Bolts

The fencing system surrounding the pitch facility spectator areas, and storage/recesses shall be accessed and egressed via a series of dedicated prefabricated sports gates. These gates shall be manufactured in the same manner as the wider fencing system using rectangular box section uprights and panels, etc. They shall be coated in the same RAL 6005 green powder coat and should be hung to a true line and length avoiding any hazards such as finger traps, etc. when opened and closed.

As appropriate, drop bolt sleeves shall be installed to secure the gate when open whilst avoiding any risks of people being locked into site. In this instance slide bolts should be used to secure the gates in place with lockeyes to secure a padlock if required.

It will be important where banks and batters are created to allow to construct a small recess so the gate can be opened properly if required in these areas. The exact final gradients in these areas will determine the dimensions of the recess but the gate must be able to open fully and fixed in place when in use. As always, a sensible hardstanding must be installed to allow suitable access and egress from the pitch, ordinarily involving a small footwell and foot-cleaning mat, which can be used before re-entry on to the pitch itself.

Section 5 – Main Permission Planning Condition 17

Below we have laid out in full the requirement of this condition.

Main Permission Planning Condition 17.

‘Prior to the commencement of works above ground level a scheme for the management and maintenance of playing field drainage for the replacement playing field area, including a management and maintenance implementation programme, shall be submitted to and approved in writing by the Local Planning Authority after consultation with Sport England. The playing fields shall thereafter be managed and maintained in accordance with the approved scheme.

REASON: To ensure the quality of pitches is satisfactory and that they are available for use in accordance with Policies DMCI 1, DMCI 1A of the Hillingdon Local Plan Part 2 (2020), as well as Policies S3 and S5 of the London Plan (2021).’

Maintenance and Management of the New Scheme

Attenuation System Crates

The “crate system” attenuation storage is part of the site wide surface water drainage system designed by Terrell for BYUK. The Maintenance for this is covered by documentation submitted to discharge the Main Permission Condition No 4.

Surfacing (If applicable)

The synthetic surface is designed to allow infiltration of surface water through the system and into the sub-base below. As described in detail above, this water is then either attenuated in the pitch sub-base and allowed to percolate vertically or discharged horizontally into the drainage infrastructure.

The permeable surface should be maintained effectively to ensure functionality as designed, and failure to do this could increase the risk of flooding. The operations to be carried out and their frequency are outlined in the table below. Any future alterations to the permeable synthetic surface should be carried out by a specialist.

Pipework and Chambers

The pipework and drainage chambers need to be kept clear of debris in order to reduce the risk of blockages occurring, which again can increase the risk of flooding. These should be cleared as required using powerful jets of water.

Remedial / Repair Actions

Significant storm events may cause damage to the drainage infrastructure and associated components. As such it may be necessary to inspect and carry out essential recovery works to return the system to full working order.

Maintenance Table:

All of the maintenance operations described in this section should be carried out by suitably trained personnel and should be picked up as part of routine maintenance. It is our understanding that these items will be carried out by the school groundstaff.

Feature	Proposed Maintenance	Frequency of Operation
Permeable Surfacing (IA)	Surface sweeping to reduce silt and debris accumulation.	Weekly.
	Deep clean and brushing of surface.	As required by manufacturer.
Pipework and Chambers	Jetting to clear blockages.	As required.
Outfall and Ditch	Clear blockages and organic material.	As required.
	Maintain vermin grids.	As required.

Section 6 – Drawings

The drawings produced by Traction Sports Ltd as well as existing drawings provided to us are listed below and contained in the appendix section of this report ‘Appendix 2 - Drawings’.

Drawing List – Existing Client Drawings

1. SRP1077-BYG-XX-XX-G-X-0001-S5-C18
2. SRP1077-HSP-00-XX-T-Y-0009-Topographical Utility Survey-A2-C01
3. SRP1077-NVB-00-XX-D-L-1040-Existing General Arrangement Site Plan-S5-C04
4. SRP1077-NVB-00-XX-D-L-1041-Existing Site Plan 1 of 4-S5-C04
5. SRP1077-NVB-00-XX-D-L-1071-Cricket Diagrams-S3-P05
6. SRP1077-NVB-00-XX-D-L-1100-Proposed Site Plan-S3-P10
7. SRP1077-NVB-00-XX-D-L-1303-Temporary Proposed Site Plan-S5-C04
8. SRP1077-NVB-00-XX-D-L-1304-Temporary Proposed Site-Wide Plan-S3-P01
9. SRP1077-NVB-00-XX-D-L-3103-Detailed Proposed Site Plan 3 of 5-S5-C05
10. SRP1077-NVB-00-XX-D-L-3122-Fencing Plan-S5-C08

Drawing List – Traction Sports Drawings

Drawings relevant to condition 14:

1. SRP1077 Rosedale College Proposed Cricket Wickets TS/25/002/03 rev B
2. SRP1077 Rosedale College Double Court MUGA Plan TS/25/002/06 rev B
3. SRP 1077 Rosedale College MUGA Typical Cross section TS/25/002/04 rev A
4. SRP1077 Rosedale College Single Court MUGA Plan TS/25/002/05 rev B

Drawings relevant to conditions 2 and 13:

5. SRP1077 Rosedale College Proposed Sections TS/25/002/01 rev A

Drawings relevant to all conditions:

6. SRP1077 Rosedale College Sports Pitch and MUGA Drainage TS/25/002/02 rev B

Section 7 – Appendix List

- Appendix 1 - Cricket Nets Spec 1
- Appendix 2 - Drawings
 - Appendix 2a - Existing Client Drawings
 - Appendix 2b - Traction Sports Drawings
- Appendix 3 - MES_2501_BUK210-Rev03 Rosedale College Soil Sampling Report
- Appendix 4 - MM 60 grass seed specification
- Appendix 5a - Polymeric Surfacing Spec 1
- Appendix 5b - Polymeric Surfacing Spec 2
- Appendix 6 – The Existing Site
- Appendix 7 - SRP1077-HSP-00-XX-T-Y-0004-Phase2GeoenvironmentalAssessmentReport-A2-C01
- Appendix 8 – Pitch Standards
- Appendix 9 – About Us