FEASIBILITY STUDY

CONSTRUCTION OF A NEW 3G SYNTHETIC PITCH

March 2025

Job No.
3316

For
West Berkshire Council

by
Sports Labs Ltd
1 Adam Square,
Brucefield Industry Park,
Livingston
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CONTENTS

APPENDICIES

1 INTRODUCTION

1.1 Sports labs Consult have been commissioned by West Berkshire Council to carry out a feasibility report for the construction of a new 3G synthetic pitch to replace the existing natural grass pitch at Faraday Road, to be used by Newbury Town FC and the local community. The site inspection was conducted by Calum Hirst, Project Engineer, on Wednesday 11th September.

1.2 Scope of the Investigation

1.2.1 The following works/inspections were carried out as part of this study –

a) Topographical Survey
b) Site Walkover
c) Photos

1.2.2 The outcomes of which will be expanded on as part of this report.

1.3 Sports Labs Ltd

1.3.1 Sports Labs are a professional services company, not a contractor. We are independent of all contractors, suppliers and manufacturers and operate a Consultancy Practice and an internationally accredited sports surface testing laboratory. We take pride in providing excellence in both sectors. The Consultancy team specialises in the design, procurement, tendering and project management of new or refurbished sports facilities such as artificial pitches and athletics tracks.

2 DESKTOP STUDY

2.1 Location

2.1.1 The Site is located at 5Q Faraday Road, Newbury, RG14 2AD.

Figure 1 - Site Location

2.2 Site Constraints & Requirements

2.2.1 The construction of a new 3G synthetic pitch within the existing natural grass playing field comes with a several site-specific constraints must be considered:

- A key item of consideration is the site's proximity to the River Kennet which is registered as a Site of Special Scientific Interest. Certain items in the design process, in particular drainage and floodlighting will need to carefully consider any perceived impact on the river and the surrounding areas.

- One further item for consideration is site security. Typically, synthetic pitches are finished with at least 3.0m high perimeter fencing, though the proposed pitch is expected to be enclosed with 1.2m high spectator fencing. The site boundary is not secure to pedestrians and may be exposed to unauthorised use or vandalism.

2.3 Dimensions- Main pitch

2.3.1 Below table indicates the existing pitch dimensions and the client's aspirations in terms of futures pitch dimensions.

Considerations	Pitch Sizes
Existing Pitch Dimensions	(95.0m x 66.0m)
Preferred Dimensions	(100.0m x 64.0m)
Reduced Dimensions	(91.0m x 55.0m)

Table 1 - Proposed Extension Dimensions

See APPENDIX 2 – LAYOUT OPTIONS for the proposed General Arrangement drawing of the proposed pitch layout considerations.

2.4 Previous Usage

2.4.1 From reviewing the available online resources and discussions with key stakeholders, it is understood that the proposed development area has always been used for football, with the hardstanding surrounds being used for spectator areas, with a seating area previously shown on the west touchline.

2.5 Current Usage

2.5.1 The current natural grass pitch is used by the club at youth and amateur football level, with local community access. The clubhouse and stand had been removed prior to Sports Labs site visit, though it is understood there are plans to construct new facilities to the west of the pitch.

2.6 Site Topography

2.6.1 A topographical survey was carried out as part of Sports Labs visit on Wednesday 11th September 2024. This found that levels across the site are relatively consistent and any future works will require minimal earthworks. Details can be found in APPENDIX 1 – TOPOGRAPHY SURVEY for the survey layout.

2.6.2 The pitch was found to be raised in the centre and sloping to the extents. The existing levels across the natural grass area were found to be very consistent, with a minimal fall around the perimeter of the pitch and a raised level of approximately 200mm in the centre to assist with shedding water from the pitch surface. Below is a table which illustrates the gradient and deviations in level over the width and length for the existing pitch.

		Dimension (m)
Existing Spectator Rail Boundary	North Goal Line	66.11m
	East Touchline	95.09m
	South Goal Line	66.03m
	West Touchline	95.16m
Pitch Gradients	Length Gradient	1:366
	Width Gradient	1:108
Deviations in Levels	Deviation from Centre to Goal Lines	0.130m
	Deviation from Centre to Touchlines	0.255m

Table 2 - Existing Pitch Gradients

2.6.3 The existing pitch dimensions fall in line with FA requirements for local competitions. the length would need to be increased for national level competitions though it is believed that there is sufficient space on site to alter the line markings and accommodate this.

2.6.4 The existing levels on site are very consistent and in line with all FA requirements. This will reduce any required earthworks involved in any future pitch works.

3 GEOLOGICAL ASSESSMENT

3.1 Overview

3.1.1 As part of this feasibility report we felt it was necessary to review the geological history and background of the development and proposed pitch location to provide an indication of the expected ground conditions.

3.2 Site Geology

3.2.1 From review of the available online resources, including BGS Geology of Britain Viewer, the superficial soil deposits and bedrock makeup of the site have been analysed.

Layer	Material	Comments
Superficial	Peat	From reviewing available boreholes in vicinity of the site which describe an upper covering of topsoil and fill (consisting of clay, topsoil, brick and stone) to depths between 1.1m and 1.9m.

		The fill material is then underlain by medium dense gravel with traces of chalk to a depth of between 5.1m to 5.8m
Bedrock	Seaford Chalk Formation	The above superficial deposits are then underlain by 'remoulded' becoming rubbly' chalk to a maximum recorded depth of 15.0m.

Table 3 - Site Geology (British Geological Survey website, January 2025)

3.3 Site Investigation

3.3.1 From review of the available online resources, including BGS Geology of Britain Viewer, the superficial soil deposits and bedrock makeup of the site have been analysed.

Layer	Depth (BGL)	Comments
Topsoil	0.25m – 0.4m	Comprised of a brown, slightly gravelly, clayey, sandy Topsoil with occasional roots and gravels of sandstone and flint.
Made Ground	1.1m – 1.4m	Cohesive, comprising of a gravelly, sandy Clay. No cohesive MG was encountered in WS04.
Peat	1.8m – 2.8m	Described as very soft to soft slightly gravelly, slightly sandy silty organic Clay with occasional roots.
Beenham Grange Gravel Member	5.0m (max depth recorded)	Generally described as slightly silty, slightly sandy, fine to course sandstone and flint Gravel

Table 4 - Site Investigation Summary

3.3.2 The site investigation report notes that there is virtually no infiltration available within the existing subsoils, and the existing groundwater levels were found to be between 1.45mBGL and 1.70mBGL on completion of the boreholes.

3.3.3 The site investigation also notes that peat is present within the subsoils at depths between 1.0m – 2.8m BGL. The presence of peat is a significant concern as it compresses significantly under load which causes instability and subsidence within the pitch construction. Peat consists of organic material which decomposes over time which can result in further instability and subsidence. The presence of peat will require a specialist Geotechnical designer to be consulted in order to provide a reliable base construction design.

3.3.4 Constructing with the presence of peat presents significant risk to any project due to the potential for differential settlement. In order to sufficiently account for these risks a specialist geotechnical engineer will be required to review the proposed base construction and provide a warranty for the design should there be settlement across the site following the pitch construction.

3.3.5 A structural engineer report (SER) would also be required to sign off on the design of any new floodlighting system, and high level fencing should it be required.

4 DRAINAGE STRATEGY

4.1 Overview of System

4.1.1 It is anticipated that there is an existing primary drainage system currently installed below the natural grass pitch, with an existing connection to the manhole located in the southeast corner of the site. The existing system is to be removed and upgraded with a new system, which shall utilise the existing connection into the local drainage network.

4.1.2 Happy Drains carried out a CCTV drainage survey which confirmed that the manhole located in the southeast of the site connects to the nearby River Kennet, though the pipes have become heavily silted over time and will require proper cleaning prior to any new connection being made. The CCTV survey also appears to confirm that the inlets to this manhole would support an existing lateral drainage system serving the pitch.

4.1.3 Due to the presence of peat and the pitch construction concerns detailed previously, the new 3G synthetic pitch shall consist of a minimum 500mm thick sub-base layer of type1 stone modified for drainage. Above this is an optional porous asphalt engineered layer of 40mm thick, and a free draining shockpad up to 20mm and synthetic turf system 50mm. With this pitch construction and the required fall on the underlying lateral drainage system, it is likely that the pitch will require to be raised by approximately 300mm. This will need to be confirmed by a specialist geotechnical design team who will detail the requirements of constructing in the presence of peat.

4.1.4 The pitch drainage system shall consist of a lateral drainage system, with 80mm diameter perforated drains cut in at 10m centres. The lateral drains shall connect into a carrier drain of 150mm in diameter laid along the east touchline of the new pitch flowing to the southeast corner of the site, where it shall then outfall to the existing surface water network via a flow control manhole, with a silt trap, set to the greenfield runoff rate of 4.6l/s.

4.2 Drainage Design Calculations

4.2.1 As part of the design of this drainage system detailed calculations were created to better inform the requirements of this site, see Appendix D. The system has been design to manage all storms to include the 1 in 100 year storm event +40% to account for climate change to allow for a robust system that will be effective and beneficial to the development and surrounding areas.

4.2.2 This drainage model confirms there will be no flooding anywhere in the new network during 1 in 30 year storms, and also that there will be no flooding during the 1 in 100 year +40% climate change storm, while restricting the discharge into the existing network to a rate of 4.6l/s.

4.2.3 For the purposes of this design the subsoils have been determined to be impermeable with zero allowance for infiltration. This is due to the presence of groundwater sitting within one metre of the pitch surface, making infiltration unviable.

5 OPTIONS APPRASIAL

5.1 The table below indicates the client's aspirations in terms of future pitch dimensions and the pros and cons for each of the options.

5.2 In addition to the original options Sports Labs have identified a further option which is to increase the footprint further albeit this will not meet the minimum requirements but has been presented within the table below.

Pitch Size	Pros	Cons
Preferred (100m x 64m)	• Better suited to level of play of Newbury Town FC. • Makes good use of the available area. • Larger area allows for greater flexibility of use.	• Does not fall in line with the Football Foundation's standardised pitch dimensions and would not likely be suitable for funding assistance. • Additional cost associate due to increased volume of materials
Minimum (91m x 55m)	• In line with the Football Foundation's standardised dimensions and would likely be suitable for funding assistance. • Allows for additional space to address BNG requirements. • Less expensive to construct than the preferred option.	• Not an effective use of the existing natural grass area. • Would not be suitable for Newbury Town FC's ambitions to progress up the league structure.

Table 5 - Options Appraisal

6 PROPOSED SCOPE OF WORKS

6.1 The following proposed scope of works is indicatively only. Due to the site challenges uncovered, in particular in the site investigation, specialist geotechnical designers will need to be consulted in order to detail the base construction requirements.

6.2 The following scope of works is expected for the construction of a new synthetic football pitch:

SITE PREPARATION – Full-Size

a) Removal of any existing goal equipment, complete with foundations (where required on site).
b) Spray existing vegetation with non-residual herbicide.
c) Topsoil strip to a depth of 400mm to the full development area, with topsoil disposed of offsite.
d) Earthworks and prepare platform area, trim and grade finals levels to acceptable tolerances.

INSTALLATION – Full-Size

e) Installation of a new lateral drainage system outfalling to the onsite surface water network. An alternative approach may be to install a horizontal drainage blanket in order to minimise excavations in the proximity of peat.
f) Installation of a 2no. triaxial geogrid to full development area, one on formation and one 200mm above.
g) Installation of 500mm modified Type 1 subbase stone, including a 25mm blinding layer.
h) Installation of a 50mm engineered layer, consisting of porous macadam.
i) Installation of new 1.2m spectator fencing to both goal lines to tie in with existing low-level fencing on site.
j) Installation of recycled plastic or treated timber kickboards to the full pitch perimeter.
k) Installation of prefabricated shockpad, thickness as per system requirements.
l) Installation of 50mm 3G synthetic turf and performance infill. Natural alternative infills are to be considered as part of this installation.
m) Installation of new LED floodlighting system.
n) Installation of new detox grids at all access points to the pitch.
o) Installation of new equipment, expected to consist of 1 set 11-a-side goals and 3 sets 7-a-side goals for crossfield use.

7 PLANNING AND CONSTRUCTION REPORTS

7.1 Planning Reports

7.1.1 As part of the feasibility stage specialist reports will be required throughout the planning and design process, allowances should be made to ensure the following is considered and costed –

- **Ecology** – Given the location of the pitch in relation to the River Kennet (SSSI) and a number of mature trees it is likely that the adjacent areas would provide habitat for local wildlife. An ecology survey has been carried out and this will inform aspects of the design, with particular consideration required for the floodlighting design. It has also been noted that the site is within a GCN protection area, though the report notes that the presence of GCN is unlikely and further mitigation is not likely to be required, though this will be determined by the LPA.

- **Biodiversity Net Gain** – As part of the ecology report, the metric has been prepared and details that 1.82 units will be required to achieve the 10% net gain requirement. With very limited available space on site, works will either need to be undertaken on other council owned land in the nearby area, or purchase third party units which can come at a significant cost.

- **Drainage Design Strategy** – In order to support the drainage design and ensure the local lead flood authority (LLFA) are fully appraised of the pitch storage capabilities. This also details any SuDS measures to be included as part of the pitch strategy and includes drainage design calculations. This role can be carried out by Sports Labs as part of the detailed design stage. A CCTV survey has been carried out by Happy Drains to confirm that a manhole found in the southwest corner of the site outfalls towards the River Kennet. The survey shows that extensive cleaning works are required should this be used as an outfall for the new pitch.

- **Noise Impact Assessment** – the noise impact assessment is not expected to be required within the planning stage as there are no sensitive receptors within the immediate vicinity, however it might be requested by the local authorities to ensure compliance to noise pollution levels to neighbouring developments.

- **Ground Investigation** – A ground investigation report has been prepared by JPP following their visit to site. This provides details of the subsoil conditions on the existing site, which notes the presence of large volumes of peat and made ground, both of which are known to provide settlement and stability concerns.

7.2 Construction Reports

7.2.1 To support the design proposals and reduce the risk at construction phase the following suite of construction reports –

- **Traffic and Construction Management** – Review of the access location in relation to construction traffic to ensure safe access and reduce any traffic risks, this type of report will likely be required as part of the planning conditions placed on the development and may be produced alongside the works contractor in most instances.
- **Structural Design** – Given the encountered ground conditions additional assurances will be required with regard to the base construction. All proposals will be required to be underwritten by a qualified structural engineer.
- **Ground Investigation** – The appointed Contractor will be responsible for undertaking a full review of the available ground investigations and ensuring all base works and foundations are designed to the required standards.

8 PLANNING

8.1 Planning Process Overview

8.1.1 The full application would be expected to be accompanied as a minimum by the following documents:

- Planning Application
- Design & Access Statement
- Detailed Designs
- Sports Development Justification of Need

These would be accompanied, justified, and supported by the instructed suite of specialist reports.

9 ESTIMATED COSTS/FUNDING CONSIDERATIONS

9.1 Within APPENDIX 3 Sports Labs have considered the options outlined. Please note these are **estimated** budget costs based on the information available, industry data and relevant comparable build, they are subject to change following a full scheme design and the availability of further information. APPENDIX 3 provides a break down of the anticipated costs of each option, which are summarised below.

9.1.1 **Option 1** - £1,147,188.18 ex VAT

Option 2 - £913,231.29 ex VAT

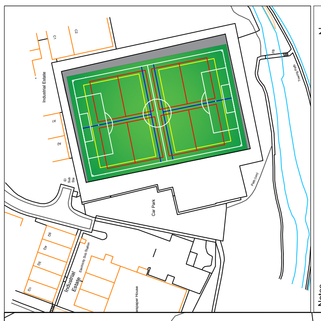
10 CONCLUSIONS AND RECOMMENDATIONS

10.1 In reviewing the proposed location for development at Faraday Road, Sports Labs recommends that Option 1 (100m x 64m) would provide the best solution, should budgets allow, as it would be compliant with the national leagues and competitions that the club are aiming to compete and progress in. This would also allow for increased numbers to participate in sport and create a high-quality football facility. A further benefit of Option 1 is that it makes the best use of the available space and would not leave unnecessary small areas of undeveloped land which would require ongoing maintenance.

10.2 Although there are planning constraints that need to be considered during the design and construction stages. Should the council look to proceed with Option 1 and seek support from the Football Foundation, coordination must be sought with the local Football Foundation officer to ensure compliance and to meet funding requirements.

10.3 Sports Labs would be happy to continue to support West Berkshire Council during this journey to provide a new top quality playing surface and can provide support to assist with product specification, design work, tendering works, contracts and project management of the delivery alongside our specialist testing and performances assessment.

APPENDIX 1 – TOPOGRAPHY SURVEY



Notes

1) It is the contractors responsibility to check design levels and sizes for construction. Any discrepancies or errors to be identified to the design team.

Key

Existing Spectator Fencing

Existing Ballstop Netting

Revision	Date	Description	By

Status

Sports Labs
1 Adam Square
Brucefield Industrial Estate
Livingston
info@sportslabs.co.uk

sportslabsconsult

Client
West Berkshire Council

Site
Faraday Road, Newbury

Drawing Title
Topographical Survey

Drawing No.
3316-SL-DR-050-TS-R00

Scale @ A1	Date	Drawn By	Checked By
1:200	02/2025	CH	DD

Scale Bar (metres)

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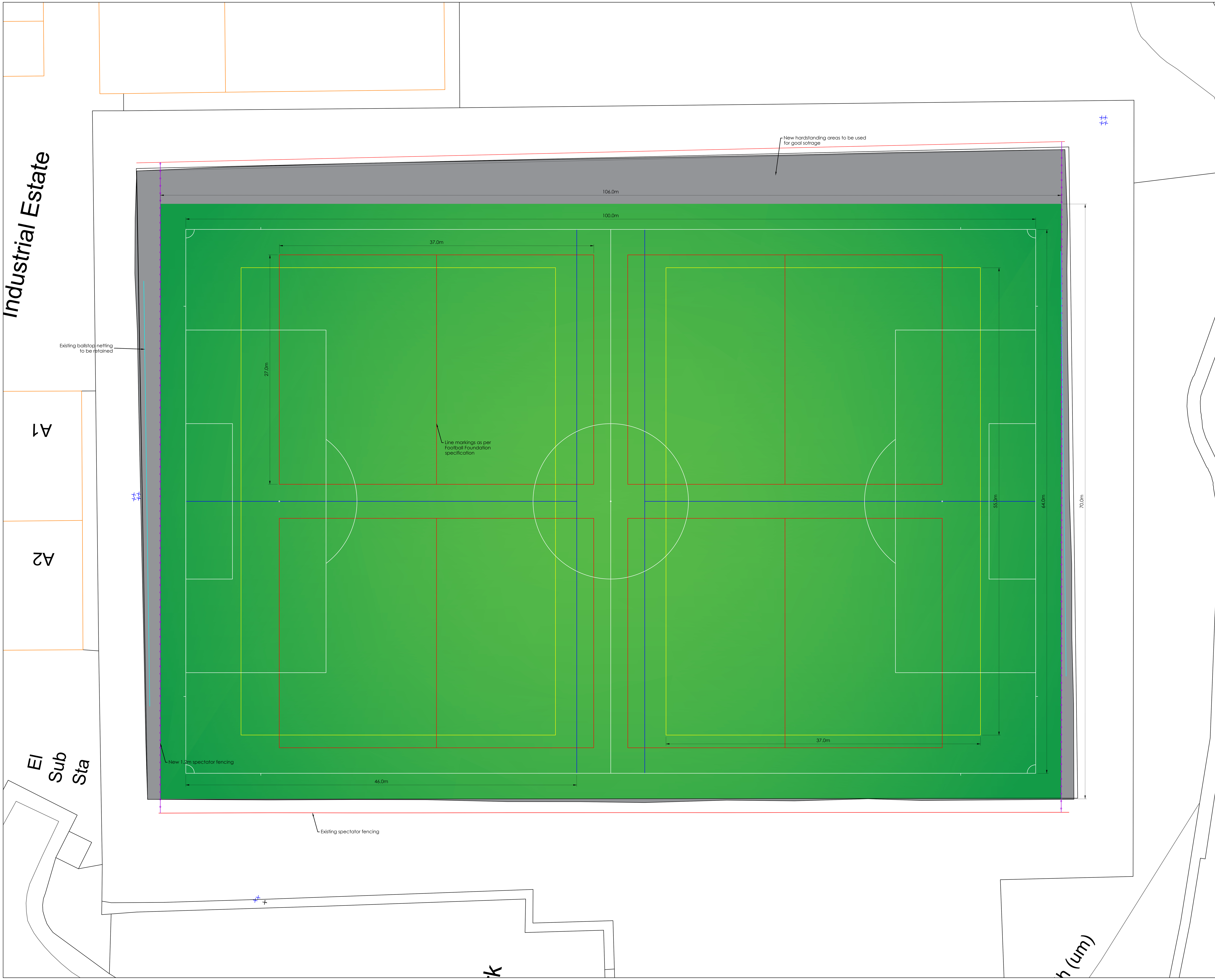
Industrial Estate

A1

A2

El Sub Sta

APPENDIX 2 – LAYOUT OPTIONS



Notes

N

It is the contractors responsibility to check design levels and sizes for compliance. Any discrepancies or errors to be identified to the design team.

Synthetic Pitch Area
Total - 8,256m²

Playing Lines
Football - 11-a-Side (White)
Length - 100.0m
Width - 64.0m

Football - 9-a-Side (Blue)
Length - 64.0m
Width - 46.0m

Football - 7-a-Side (Yellow)
Length - 55.0m
Width - 37.0m

Football - 5-a-Side (Red)
Length - 37.0m
Width - 27.0m

Key

- 3G Synthetic Pitch
- Existing Spectator Fencing
- Existing Ballstop Netting
- New 1.2m Spectator Fencing to Tie in with Existing

Revision	Date	Description	By

Status

sportslabsconsult
Sports Labs
1 Adam Square
Brucefield Industrial Estate
Livingston

info@sportslabs.co.uk

Client
West Berkshire Council

Site
Faraday Road, Newbury

Drawing Title
General Arrangement

Drawing No.
3316-SL-DR-100-GA-R00

Scale @ A1	Date	Drawn By	Checked By
1:200	02/2025	CH	DD

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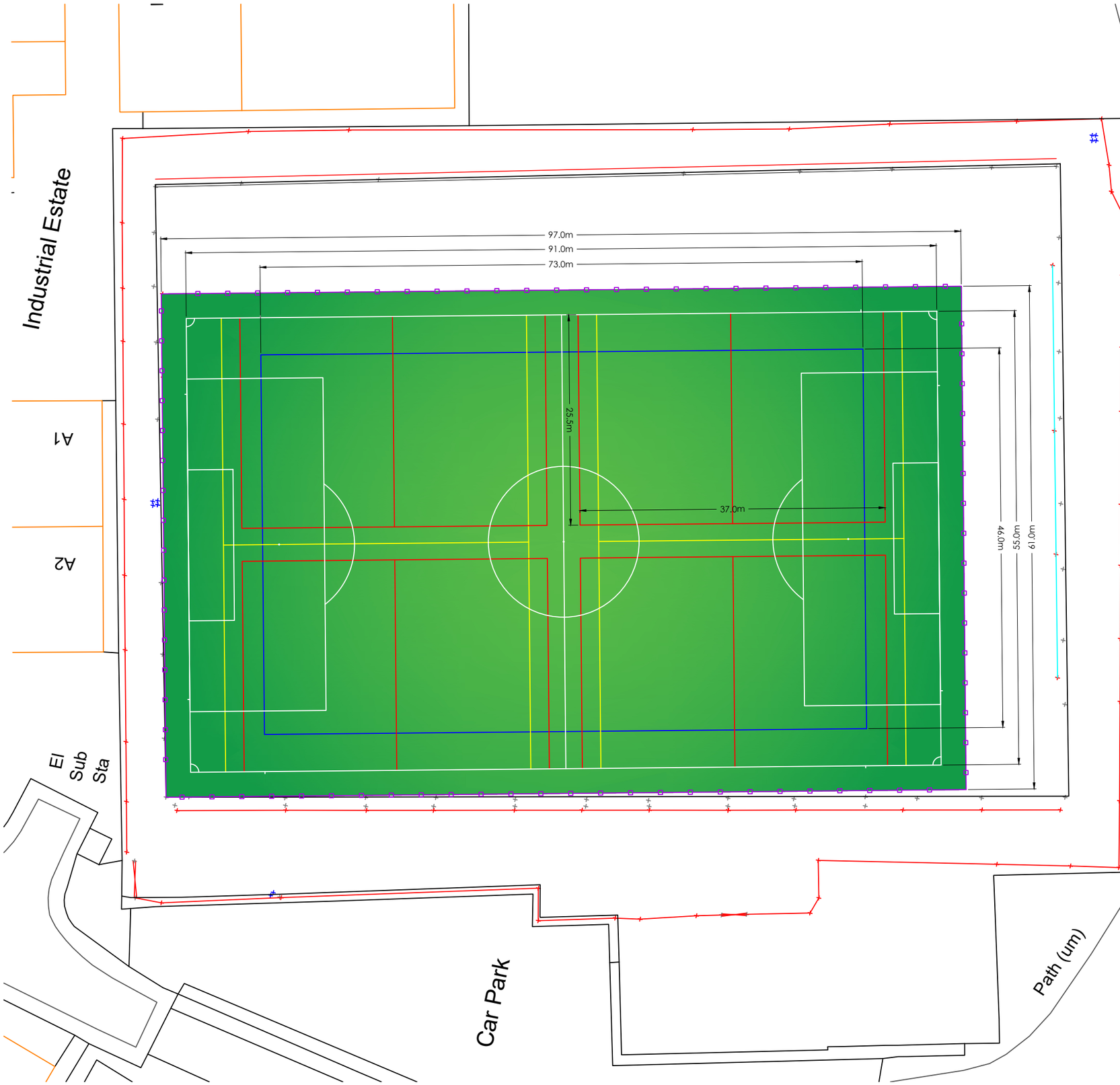

01 GENERAL ARRANGEMENT
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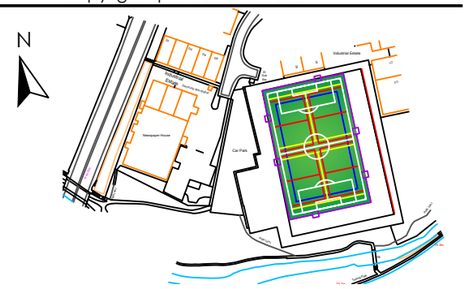

NOTES
It is the contractors responsibility to check design levels and sizes for compliance. Any discrepancies or errors to be identified to the design team.

Synthetic Pitch Area
Total - 8,256m²

Playing Lines
Synthetic Pitch Area
Length - 97.0m
Width - 61.0m
Total - 5,917m²

Playing Lines
Football - 11-a-Side (White)
Length - 91.0m
Width - 55.0m

Football - 9-a-Side (Blue)
Length - 73.0m
Width - 46.0m

Football - 7-a-Side (Yellow)
Length - 55.0m
Width - 37.0m

Football - 5-a-Side (Red)
Length - 37.0m
Width - 25.5m

Key

- 3G Synthetic Pitch
- Existing Spectator Fencing
- Existing Ballstop Netting

REVISION	DETAILS	BY	DATE	CHECKED

sportslabsconsult
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FARADAY ROAD
GENERAL ARRANGEMENT
CONSTRUCTION OF A NEW 3G PITCH

0 5 10 20
Scale bar 1:500

Date: 10/2024	Job. No. 3316	Drawn by: CH
Scale: 1:500 @ A3		Checked by: DD