

3G ARTIFICIAL TURF PITCH (3G ATP) AND CAR PARK
EAST BIERLEY COMMUNITY SPORTS ASSOCIATION

3G ATP DESIGN

S23-314
MAY 2024

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DOCUMENT CONTROL	
Project Title	3G Artificial Turf Pitch (3G ATP) and Car Park
Document Title	3G ATP Design
Client	East Bierley Community Sports Association
Project Number	S23-314
Note	Plans included in this statement should not be scaled - please refer to scaled plans included with application pack

REVISION HISTORY				
Revision	Description	Issued By	Date	Status
.00	Planning Issue	TB	15 05 2024	For Approval

1 REQUIREMENT

This 3G ATP Design concerns the proposed installation of a 3G Artificial Turf Pitch (3G ATP) at:

East Bierley Community Sports Association
East Bierley Playing Fields
Birkenshaw
Bradford
BD4 6PU

This Plan satisfies the requirement of condition no.21 of planning permission 2021/62/90357/E which requires:

Prior to the commencement of development, details of the construction, surfacing, line marking, and means of enclosure of the 3G/synthetic pitch hereby approved, and details of the construction and drainage of the grass hybrid pitch hereby approved, shall be submitted to and approved in writing by the Local Planning Authority in consultation with Sport England.

The 3G/synthetic pitch and the grass hybrid pitch shall not be constructed other than in accordance with the approved details.

2 DEVELOPMENT PROPOSAL

Creation of a 3G Artificial Turf Pitch (3G ATP) (8557 sq. metres) with associated features including:

- 3G rugby and football turf pitch field of play (7992 sq. metres);
- 6.50m high ball stop netting onto ball stop fencing behind goal areas around 3G ATP perimeter;
- 4.5m high ball stop fencing with entrance gates to form an enclosure around 3G ATP perimeter;
- 1.2m high pitch barriers with entrance gates internally within fenced 3G ATP enclosure;
- 2.6m high maintenance equipment storage container (15 sq. metres);
- 15.0m high LED floodlights (6no.) around 3G ATP perimeter;
- Hard-standing areas for pedestrian access and circulation, portable goals storage, as well as vehicular access (550 sq. metres).

3 DESIGN CRITERIA AND STANDARDS

With respect to design criteria and standards, this proposal is designed in accordance with the following relevant sources of technical guidance and performance quality standards which are appropriate to external artificial sports facilities, including:

ASPECT	REQUIREMENT
3G Artificial Turf Pitch (3G ATP)	Rugby Football League Performance and Construction Standards for Synthetic Turf Pitches. World Rugby 2016 Artificial Turf Performance Specification – June 2020. Federation Internationale de Football Association (FIFA) Quality Programme for Football Turf: Handbook of Requirements October 2015 Edition – FIFA Quality. The Football Association (FA) Guide to 3G football turf pitch design principles and layouts. Sport England Design Guidance Note ‘Artificial Surfaces for Outdoor Sport’ – updated guidance for 2013. The Sport and Play Construction Association (SAPCA) Quality Control Protocol for Sports Performance Infill.
Groundwork / Formation / Drainage / Base / Foundations	The SAPCA Code of Practice for the Design, Specification and Testing of Bases for Outdoor Synthetic Sport Areas. BS EN 1610:2015 Construction and testing of drains and sewers. BS 5911-3:2010+A1:2014 Concrete pipes and ancillary concrete products. Specification for unreinforced and reinforced concrete manholes and soak-aways (complementary to BS EN 1917:2002). BS EN 13285:2018 Unbound mixtures. Specifications. Manual of Contract Documents for Highway Works Volume 1 - Specification for Highway Works SERIES 600 Earthworks. Manual of Contract Documents for Highway Works Volume 1 - Specification for Highway Works SERIES 800 Road Pavements – Unbound, Cement and other Hydraulically Bound Mixtures.
Asphalt Paving / Hard Standing Areas	BS EN 1339:2003 Concrete paving flags. Requirements and test methods. BS EN 13108-1:2016 Bituminous mixtures - material specifications. Asphalt concrete. BS 594987:2015+A1:2017 Asphalt for roads and other paved areas. Specification for transport, laying, compaction and product type testing protocols.

	BS EN 12616:2013 Surfaces for sports areas. Determination of water infiltration rate.
Ball Stop Fencing / Pitch Barriers	The SAPCA Code of Practice for the Construction and Maintenance of Fencing Systems for Sports Facilities. BS EN 15312:2010 A1:2 Free access multi-sports equipment – requirements, including: Clause 5.5.1.2.1 Resistance to repeated impact of footballs. Clause 5.5.1.2.2 Very intense forceful impact resistance to player's kicks. BS EN 15312:2007+A1:2010 Free access multi-sports equipment. Requirements, including safety, and test methods. BS 1722-16:2009 Fences. Specification for powder coatings used as a plastics finish to components and mesh. BS EN 335:2013 Durability of wood and wood-based products. Use classes: definitions, application to solid wood and wood-based products.
Floodlights	The Football Association (FA) Guide to Floodlighting. Sport England Design Guidance Note: Artificial Sports Lighting – Updated guidance for 2012. BS EN 12193:2018 Light and lighting. Sports lighting. The Institution of Lighting Professionals (ILP): Guidance Notes for The Reduction of Obtrusive Light – Guidance Note 01/20. BCT / ILP Guidance Note 08/18 – Bats and artificial lighting in the UK.
Pedestrian Access	Sport England Design Guidance Note 'Accessible Sports Facilities 2010'. The Building Regulations 2010 Approved Document M: Volume 2 - Buildings other than dwellings.
Generally	Works will comply with current Building Regulations and British / European Standards applicable to the proposal.

4 AMOUNT

This proposal has been prepared in accordance with published Design Guidance Notes (Rugby Football League / The Football Association (FA) / Sport England) appropriate to external artificial community football facilities.

The intended amount of development is:

Item	Size	Area	Notes
3G Artificial Turf Pitch (3G ATP)	1no. 108 x 74m	7992m ²	
Portable goal storage areas	1no. 11.9 x 5.2m	63m ²	At North West corner of 3G facility
	1no. 21.5 x 5.4m	116m ²	At North Eastern corner of 3G facility
Spectator area	1no. 92 x 3m	276m ²	Along Southern side of 3G facility
Paved mowing margin	1no. 216m x 0.3m	65m ²	Around general 3G facility perimeter abutting grass
Access	1no. 15 x 3m	45m ²	Pedestrian access from spectator area to clubhouse patio
TOTAL		8557m ²	

5 SCALE

Several new above-ground structures and boundary treatments are associated with 3G Artificial Turf Pitch (3G ATP) proposal as follows:

ASPECT	REQUIREMENT
LED Floodlights	12.0m high floodlight masts (6no.) with associated LED luminaires (6no.).
Ball Stop Fencing and Pitch Barriers	6.50m high ball stop netting onto ball stop fencing behind goal areas. 4.5m high steel mesh ball stop fencing forming the 3G ATP enclosure with 2.4m high and 3.0m high steel (mesh infilled) entrance gates. 1.2m high steel mesh pitch perimeter barriers within the 3G ATP enclosure (separating the field of play from adjoining hard standing areas) with 1.2m high (mesh infilled) entrance gates.
Maintenance Equipment Storage Container	2.6m high maintenance equipment store (1no.).

6 APPEARANCE

The choice of materials within this proposal reflects the materiality and conformity of similar 3G ATP installations.

Materials have been selected for the following reasons:

- High performance.
- High quality enduring appearance.
- Suitability within the local Recreation Ground vernacular.
- Durable and robust.
- Low maintenance.
- Energy efficient and sustainable.

We believe the proposal design is complementary to the sports ground and surrounding environment and will introduce minimal visual impact, this being vital to ensure this proposal is sympathetic to its surroundings and does not create unacceptable impact to adjacent public areas or to the amenity of residential neighbours.

3G ARTIFICIAL TURF PITCH (3G ATP)

3G Artificial Turf Pitches (3G ATPs) are a high quality and indispensable part of modern football facilities; their impact cannot be underestimated. In recent years, the industry has seen major innovations and improvements to artificial surfaces, and sports lighting.

This has created playing surfaces that replicate a good standard natural turf pitch whilst significantly increasing levels of use (up to twenty-fold in comparison to a natural turf pitch).

The high quality, consistent playing surface is the ideal environment to play the game and for young people to learn and with regular maintenance programmes,

3G ATPs can be heavily used all year round with no decline in quality. They almost completely negate annoying fixture cancellations during winter months, helping football to be a key part of a regular physical activity habit.

The way 3G ATPs are used is rapidly changing; current line-marking systems allow for match play across all formats of football (5v5, 7v7, 9v9 and 11v11). This enables significant levels of match-play to be transferred from grass to 3G football turf.

3G RUGBY / FOOTBALL TURF SURFACE

The appearance of the 3G rugby / football turf pitch surface (the field of play) will comprise a 3G artificial turf and partially in-filled with silica sand (for stability) and SBR (for performance), coloured grass green. This surface type is recognised as the most suitable artificial playing surface for community football and youth football development.

For football applications, this proposed pitch surface is credited as 'preferred football surface' and 'surface for competition and training' within Sport England's guidance document 'Selecting the Right Artificial Surface for Hockey, Football, Rugby League and Rugby Union' 2013.

And for rugby league applications, this proposed pitch surface is credited as 'surface for competition and training' within Sport England's guidance document 'Selecting the Right Artificial Surface for Hockey, Football, Rugby League and Rugby Union' 2013.

To support rugby league and football grassroots development plans into to generate maximum sport potential, the 3G ATP will provide a variety of match play pitches and training areas within the same enclosed playing space. The formal pitch arrangement will be:

1no. 13v13 rugby league pitch (92 x 68m with 6m deep in goal areas).

1no. 11v11 football pitch (100 x 64m).

4no. 5v5 mini Soccer pitches (37 x 27m each).

Permanent pitch lines and markings will be installed to create the rugby league pitch, plus multi-coloured markers around the field of play periphery for the football pitch and mini soccer pitches. Then painted lines and markings will be installed to create the football pitch and mini soccer pitches as required. All run off areas around the field of play comply with The Football Association standards.



3G FOOTBALL TURF

LED FLOODLIGHTS

The appearance of new floodlights will comprise steel masts finished galvanised (Z275) self-coloured, mounted with LED luminaires within Die-Cast housing finished RAL7001 Silver Grey.

The floodlights system includes six sectional octagonal base-hinge steel masts (15.0m high) each mounted with two LED luminaire (12no. LED floodlights in total). Three floodlight masts would be positioned evenly along the Northern enclosure and three floodlight masts would be positioned evenly along the Southern enclosure of the 3G facility.



LED FLOODLIGHTS

MAINTENANCE EQUIPMENT STORAGE CONTAINER

The appearance of the new storage container (2.529m high x 6.06m long x 2.44m wide) will comprise high tensile profiled steel, finished polyester powder coated RAL6005 Moss Green.



MAINTENANCE EQUIPMENT STORAGE CONTAINER

HARD STANDING AREAS

The appearance of new hard standing areas (clean pedestrian access and circulation, vehicular access, and portable goal storage areas) will comprise grey black coloured porous asphalt.



PITCH BARRIERS AND ADJOINING HARD STANDING AREAS

BALL STOP FENCING AND PITCH BARRIERS

The appearance of perimeter ball stop fencing (4.5m high) and new pitch barriers (1.2m high and 2.0m high) with associated gates will comprise polyester powder coated RAL6005 Moss Green, all supported with an intermediate post system and entrance gates of matching colour.

The fencing type will be steel open mesh fencing containing a general 200x50mm aperture.

Fencing materials are consistent with The Football Association (FA) technical requirements for 3G ATP fencing.

0.25m high and 0.5m high containment barriers would be built into ball stop fencing) to minimise SBR infill loss from the 3G ATP and to prevent the transfer of SBR to the surrounding environment. Several design details are introduced to this proposal to minimise infill loss in accordance with Rugby Football League, The Football Association, and FIFA recommendations.

Fence panels would be insulated from the posts using neoprene washers to be fitted to every fence post / mesh fixing point to aid noise reduction and acoustic attenuation by reducing rattle and vibration from ball impacts.



BALL STOP FENCING

7 SUSTAINABLE DESIGN AND CONSTRUCTION

SENSITIVE DESIGN

The proposed 3G Artificial Turf Pitch (3G ATP) will be sensitive within a sports ground setting and will avoid damage and harm to known sensitive receptors.

This design proposal is complimentary to a outer suburban setting.

RESIDENTIAL AMENITY PROTECTION

Residential amenity would be preserved with no unacceptable impacts that could result from:

Loss of privacy and overlooking.
Overbearing and dominant impact.
Loss of sunlight.
Noise or disturbance.
Odours, fumes, or vibration.

VISUAL IMPACT

Visually, the 3G football turf pitch surface will appear like natural sports turf and the scale and appearance of vital paraphernalia to the 3G ATP (floodlights and fencing) are as modest and as visually unobtrusive as possible.

The sympathetic appearance and effect of the 3G ATP would be acceptable in its location and would create minimal impacts. This proposal would be:

- Complimentary.
- Appealing.
- In-keeping.
- Discreet.
- Appropriate.
- Proportionate.
- Attractive.
- Inviting.
- Valued.

LIGHT IMPACT

Six 15.0m high floodlight masts will surround the 3G ATP enclosure, mounted with 12no. LED luminaires (two LED floodlights per mast).

They will be new structures that would be visible from nearby residential properties and public areas, but they are not uncommon in a sports ground in which the application site is located.

Floodlight masts will offer a slim-line profile to minimise daytime appearance and are vital to providing artificial lighting for sports activities after dusk.

15.0m high floodlight masts provide an optimum design solution, to ensure that light is directed fully downwards towards the playing pitch surface; and not over-illuminating the surrounding environment.

The proposal includes modern LED technology with integral louvres to reduce spill light and back light as much as practically possible. This results in spill light and back light diminishing within a short

distance around the 3G ATP enclosure. When illuminated, the floodlights will not pollute the sky or create sky glow (wasted light projected upwards into the sky).

Neighbours will not experience unacceptable light impacts because spill light and back light would be contained within the site.

Consequently; light trespass, light intrusion into windows, and luminous intensity (glare) to neighbours properties; all comply with Environmental Zone E2 limits.

Upward waste light would also be minimised with 0% upward light ratio (ULR) projected into the atmosphere. This satisfies recommendations of The British Astronomical Association's Campaign for Dark Skies, who campaign for low light pollution systems.

The proposed 3G ATP requires sports area lighting – floodlights – to facilitate sports activities between dusk and permitted curfew time/s.

Modern sports area lighting using LED technology is very different to old-fashioned sports floodlights (using sodium and / or HID), with much advanced light control to ensure is directed fully downwards towards the playing pitch surface; and does not over-illuminate the surrounding environment.

The technical standards used to define the lighting requirement and govern design sensitivity includes:

- The Football Association (FA) Guide to Floodlighting.
- Sport England Design Guidance Note: Artificial Sports Lighting – Updated guidance for 2012.
- BS EN 12193:2018 Light and lighting. Sports lighting.
- The Institution of Lighting Professionals (ILP): Guidance Notes for The Reduction of Obtrusive Light – GN 01/21.
- BCT / ILP Guidance Note 08/23 – Bats and artificial lighting at night.

Compliance with these technical parameters is demonstrated by the submitted technical proposal which confirms that neighbours will not experience unacceptable light impacts because spill light and back light (light intrusion) and glare (luminous intensity) would be predominantly contained within the football ground and surrounding sports ground.

The technical design has been calculated using an open, unobstructed site so the actual effects to residential amenity and public areas would be improved further because of the permanent buildings, dense trees belts and woodland; all providing screening to further reduce light trespass and glare.

The floodlights proposal has been carefully and sensitively designed to ensure that once installed, light spill and back light around the 3G ATP enclosure reduces rapidly to minimise adverse impacts to any sensitive ecological receptors, biodiversity, or protected species.

This is necessary to provide dark corridors around the boundaries of the Front field for any commuting or foraging bats, which maintains the current situation.

The Institution of Lighting Professionals (ILP) has launched the latest practical guidance on considering the impact upon bats when designing lighting schemes. This advice supersedes the previous guidance and now discusses lighting levels and colour temperature impacts on different bat species. It is intended to raise awareness of the impacts of artificial lighting on bats but also the potential solutions to avoid and reduce this harm.

The Institution of Lighting Professionals (ILP) has partnered the Bat Conservation Trust (BCT) and ecological consultants to write this document on avoiding or reducing the harmful effects which artificial lighting may have on bats and their habitats. With the advent of modern LED technology, there is also

more flexibility to control for light spill, choose wider colour temperature options and implement flexible lighting schemes unlike previous restrictions with sodium technology, for example.

All practical measures described within this guidance has been applied to the proposal with an emphasis to floodlit sports pitches as follows:

- LED floodlights with >550nm peak wavelengths avoid the component of light most disturbing to bats (Stone, 2012).
- LED floodlights do not produce UV light like traditional metal halide (HID) floodlights.
- LED floodlights provide stable optics performance; providing sharp cut-off, lower intensity, excellent colour rendition and dimming capabilities.
- LED floodlights output creates zero upward light ratio (ULR), with zero light projected into the night sky.
- LED floodlight operations will be controlled with time clocks to ensure they do not remain on any later than permitted curfew times (including a seasonal changeover facility for BST and GMT).
- LED floodlights create no direct illumination onto any potential roost entrances.
- LED floodlights include integral cowling / louvres to properly direct light where needed and to avoid unnecessary light spill.
- LED floodlights include reduced (dimmer) lighting options for training activities and for half-pitch lighting.

On completion of the installation, the floodlights system will be tested and commissioned to ensure design levels are achieved and not exceeded.

And during the operational life cycle of the system, periodic lighting maintenance tests and assessments will be undertaken to ensure the floodlights do not ever become a public nuisance.

These maintenance checks should generally be completed on an annual routine to ensure that the lighting system minimises the impacts on surrounding land and biodiversity.

Given the location of the application site within a relatively dark outer suburban location, we do not believe that this proposal would result in an unacceptable light impacts to residential amenity or the surrounding landscape.

The proposed lighting scheme at the Longdendale Playing Fields will be complementary within a sports ground setting and would avoid inappropriate impacts, avoid damage, and harm to sensitive receptors.

3G RUGBY / FOOTBALL TURF SURFACE

The 3G ATP surface is suited for football activities and to generate sports characteristics, the 3G football turf is infilled with a stabilising material (silica sand) and a performance material (SBR - Styrene-butadiene rubber). During the development of this proposal, a variety of potential performance infill materials have been considered including SBR / EPDM / TPE / encapsulated SBR as well as organic materials.

Currently, SBR is the preferred performance infill material because it offers the following beneficial qualities:

- Performance.
- Durable.
- Economy.
- No fibre content.
- Recyclable.

During installation, the SBR material used to infill the 3G football turf will accord with the SAPCA Quality Control Protocol for Sports Performance Infill. This protocol has been developed to provide a robust framework of obligations which suppliers and installers must follow to demonstrate compliance with current legislation and regulatory requirements.

The protocol applies to the use of Sports Performance Infills (SPIs) and has been prepared in conjunction with SAPCA's member companies and key stakeholders, including Sport England. An extract from the protocol position statement is as follows:

"The Sports and Play Construction Association, the UK trade body for the sports pitch industry, has developed a voluntary industry standard that will provide minimum requirements that go above and beyond what is currently required for rubber crumb under European regulation. Sport England and leading sport governing bodies all support this approach and will continue to work with the industry to provide reassurance that pitches in this country are safe."

SBR CONTAINMENT

As SBR is defined as a microplastic, it is vital to minimise infill loss from the 3G ATP and to prevent the transfer of SBR to the environment by players or by maintenance equipment. Several design details are introduced to this proposal to minimise infill loss (in accordance with Rugby Football League, The Football Association, and FIFA recommendations) including:

- 0.25m high and 0.5m high containment barriers installed around the 3G ATP enclosure (built into ball stop fencing and pitch barriers).
- Football boot cleaning stations.
- Detox units to all gated entrances (steel grates with drainage outlets and waste trays).
- Surrounding asphalt surfacing / slab paving.
- Drainage inspection chambers with waste sumps to capture any materials entering the drainage system.

BALL STOP FENCING AND PITCH BARRIERS

The 3G ATP will be enclosed with 4.5m high steel mesh ball stop fencing.

Fencing is essential to ensure the adequate long-term protection of the asset for a variety of vital reasons as follows:

To regulate access by providing a formal route onto and from the 3G ATP for players, coaches, and officials.

To contain footballs within the pitch during training and competition activities – the variety of football pitch markings will result in goals being placed around the field of play during different types of football matches and training. As such, high level fencing is required around the entire 3G ATP enclosure to provide a reasonable ball stop to catch stray football when mishit / mis-shot during play.

To protect the 3G football turf pitch surface from contamination that would severely compromise longevity. A substantial capital investment is necessary to install the 3G ATP and the inclusion of an

adequate fenced enclosure does provide an effective method to limit the risk of surface contamination and therefore help the valuable pitch surface to fulfil its life expectancy.

To help prevent unauthorised use and vandalism – high level fencing does afford protection and would dissuade unauthorised access.

Similarly, new pitch barriers will segregate the 3G football turf pitch surface from adjoining hard standing areas to prevent contamination.

In terms of the visual impact, fence elevations will consist of a weld mesh design comprising see-through steel mesh (polyester powder coated RAL6005 Moss Green) and type is commonly installed around artificial sports pitches. It is discreet against a suburban background and permits light and views throughout, reducing the visual impact of the fencing.

CONSTRUCTION PROFILE AND GRADIENTS

The 3G ATP would be constructed with shallow profiles, gradients, and falls (reflecting current topography across the development site) and this decision has been influenced by the following factors:

- To preserve unbiased and safe ball and player interaction.
- To ensure the surface profile falls towards a gravity drainage outlet.
- To ensure adequate surface water attenuation is contained within the FTP base.

A construction plateau will be created with minor, balanced cut-fill groundwork to inert underlying soils exposed once topsoil is stripped from the development site to establish necessary symmetry and to connect to surrounding land.

BASE AND FOUNDATIONS

The 3G ATP substrate (the base and foundations) will comprise stabilised soils (the formation level) covered with imported granular sub-base using Type 3 unbound aggregate (SHW Series 800 / Clause 805) and finished with porous asphalt.

This base will be constructed onto the construction plateau, prepared to resist any potential differential or total instability of underlying soils (in accordance with SHW Series 600 / Earthworks). The plateau will provide competency and load bearing capacity to support the overlying construction / make up upon it and free from risk, preventing differential or total settlement occurs over time.

This is critical to ensure surface regularity is retained over the entire 3G ATP life cycle and to prevent any difficult rectification work.

CLEAN ACCESS AND APPROACH

Generous new hard standing pathways would provide a direct connection between the 3G ATP entrance to the adjacent tennis pavilion, onsite parking facilities, and site access.

Once people arrive at the site, pedestrian access to the 3G ATP will be provided by level and even pavements and hard standing areas, in accordance with:

Sport England Design Guidance Note 'Accessible Sports Facilities 2010'.

The Building Regulations 2010 Approved Document M: Volume 2 - Buildings other than dwellings.

MANAGED FLOOD RISK / SURFACE WATER DRAINAGE

A surface water drainage strategy associated with the 3G ATP would resist a variety of storm events catering for the 1 in 30-year flood event as well as management of a 1 in 100-year flood event with an allowance for climate change; thereby preventing the risk of any onsite or offsite flooding in these conditions.

This sustainable surface water drainage scheme will adhere to Local Lead Flood Authority (LLFA) and National Planning Policy Framework (NPPF) requirements, as well as relevant technical standards.

Once this strategy is implemented, this proposal will not increase flood risk within the site or surrounding land, to ensure there is no increased flood risk to third party land or development.

National, Regional and Local planning policy requires that:

- Development is directed to sites at the lowest probability of flooding;
- Development accommodates the potential impacts of climate change;
- Development should not be permitted if it would be at an unacceptable risk of flooding or create an unacceptable risk elsewhere; and
- New development should facilitate safe access and exit during flood conditions.

The surface water drainage strategy for the proposed 3G ATP is therefore fully compliant with policy in respect of development and flood risk.

END-OF-LIFE PROCESSING

Most materials used to construct the proposed 3G ATP can now be re-used, recycled, repurposed, and recovered, including:

- 3G football turf pitch surface – Cradle-to-Cradle innovations are now possible; meaning an aged football turf can be fully recycled back into raw material for the same industry to create new turf or secondary plastic products, thus removing the label of a single use plastic.
- Stabilising and performance infills.
- Steel (floodlights and fencing).
- Base and foundation aggregates.

End of document.