

go
spike!

DEVELOPMENT OF
BEACH VOLLEYBALL COURTS



 **VOLLEYBALL**
ENGLAND

DEVELOPMENT OF BEACH VOLLEYBALL COURTS

**go
spike!**

INDEX

- 1 Executive Summary
- 2 go spike!
- 3 Introduction
- 4 Basic Considerations
- 5 Conversion of hard surface courts to beach volleyball courts
- 6 Proposed construction method
- 8 Proposed construction method continued
- 10 Adapting a single hard court
- 11 Conversion of a two court enclosure
- 12 Conversion of a three court enclosure
- 14 Spectator facilities / equipment
- 14 Equipment
- 16 A purpose built multi court facility / Cost of conversion
- 16 cost of conversion
- 17 Appendix one and two
- 17 Acknowledgements
- 18 Costings: single court conversion
- 19 Costings: two to three court conversion



DEVELOPMENT OF BEACH VOLLEYBALL COURTS



EXECUTIVE SUMMARY

Beach volleyball is now an established Olympic sport with a thriving professional world tour. The Volleyball England Beach tour is played at seaside resorts in the summer and the game is growing rapidly at local league and recreational levels.

The game is no longer restricted to coastal areas as inland recreational courts are developed. There is a demand for more courts to be provided in public areas for casual play and this will form one of the key enablers of Volleyball England's "Go Spike" adult participation initiative, backed by Sport England.

Volleyball England recognises that many local authorities and facilities are facing challenges in the current economic climate and with this there is the need to find effective, economic and sustainable ways of providing beach volleyball opportunities. This publication proposes the conversion and modification of under used public outdoor spaces into sand courts to open up new opportunities for beach sports.

Not only will these conversions bring back to life underused sporting resources they will create exciting new activities for public open spaces at minimal capital and maintenance cost. With popular 3, 4 and 6-a-side recreational versions of the game, a typical double court tennis conversion could increase hourly participation by more than 300%.

The method of conversion utilises recycled materials and involves minimal construction work. Plans are provided based on standard single, double and triple tennis court areas, however other similar outdoor spaces may be considered. The recommended equipment is weather and vandal resistant enabling courts to remain open all year round and options for providing low cost spectator facilities are included.

As the first dedicated commercial outdoor sand volleyball centre YELLOWAVE enters its 5th year of operation in Brighton, there is a need for additional dedicated purpose built multi court facilities.

Volleyball England is happy to provide advisory services to local authorities and developers wishing to build sand courts both coastal and inland.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS

**go
spike!**

WHAT IS GO SPIKE?

go spike! will offer everyone the opportunity to have a go at volleyball for FREE around the country. Part of the **go spike!** message is about how easy it is to set up and play volleyball – wherever you are.

Who can take part?

One of the great things about volleyball is that anyone can play whether you're male or female, able bodied or disabled. Everyone can take part in the **go spike!** sessions, and once someone's had a go and discovered what great fun it is, we hope they will bring their friends to play and then maybe even enter a local event.

Why volleyball?

As a sport, volleyball requires skill, fitness, strategic thinking and the desire to play as part of a team, but most of all anyone can have a go and really enjoy it when playing for fun. Whatever level you play at, volleyball can enhance your life. It improves fitness and coordination and is really sociable – it's a great way to meet new people. Being a non-contact game, teams can be mixed which makes getting a team together much easier. Taking part in a **go spike!** session will give people a chance to see what playing volleyball can offer them.

Where will the Go Spike sessions be running?

Anyone who is interested in taking part in a **go spike!** session can check out where their nearest event is by going to **www.gospike.net**. Sessions will be running at a host of entertainment and sporting events over the summer months. Local clubs and councils will also be setting up sessions on courts and in a range of public spaces.

Find out where your nearest **go spike!** court is at **www.gospike.net** and sign up to have a game of volleyball!



DEVELOPMENT OF BEACH VOLLEYBALL COURTS



INTRODUCTION

Beach volleyball is one of the Summer Olympic sports and has a huge worldwide following. A highly developed professional beach volleyball circuit attracts large crowds and worldwide TV coverage.

In the UK, the annual Volleyball England Beach Tour plays at Skegness, Great Yarmouth, Poole, Weymouth and Bournemouth. Matches are played on the beach with temporary spectator stands erected for the hundreds of people attracted to the spectacle. A second level tournament series 'On the Beach' is also played with up to twenty courts set out along the beach for hundreds of players, both young and old!

Originally, for practical reasons, competitions were based at beach locations but increasingly temporary courts have been set in inland locations attracting a wider audience. For several years there has been a UK circuit playing on temporary courts prominently placed in London, Birmingham, Glasgow, Cardiff and other cities.

In continental Europe, sand courts are provided in many local inland parks for the casual player and local leagues. The growing interest in the UK has led to a demand for the provision of similar public inland courts.

Volleyball England is keen to support this interest and has produced this guide to assist local authorities and other developers.

Recognising the financial constraints facing local authorities Volleyball England proposes that an economic way of providing these would be to convert existing underused hard court facilities in public parks to sand volleyball courts.

This document sets out the basic specifications, suggested layouts and identifies suppliers of suitable products.

The design concepts in this document can be used to provide permanent sand volleyball courts in other locations such as playgrounds and industrial buildings and temporary courts at festivals etc. In indoor facilities, suspended division netting can be used to separate and surround courts and in open spaces appropriate surround netting can be installed.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS



BASIC CONSIDERATIONS WHEN PLANNING A PUBLIC SAND VOLLEYBALL COURT

1. Maintaining sand quality

As the players play barefoot it is vital that the sand is not contaminated with stones, glass, bottle tops or other debris that could cut or injure them.

For health and hygiene reasons the sand should not be contaminated by domestic or wild animal faeces.

2. Safety of participants

During play, access to the court needs to be restricted to participants only. Loose animals, “stray children” and other recreational activity equipment such as footballs intruding on the court pose a potential danger to participants.

Secure fencing around the sand area such as that provided around a tennis court is ideal.

3. Maintaining sand levels

Traditionally the area to be filled with sand is dug out to a depth of 500mm and 400mm of sand is put on top of Terram or a similar product. A wooden or other surround is used to contain the sand.

Sand levels are mainly reduced by wind and it is worthwhile in an inland park area seeking management control methods to reduce this as much as possible.

Methods include ameliorating the local wind levels by surrounding the court with natural fencing or a constructed surround fence.

4. Security of equipment

To enable as much use to be made of the court as possible it is essential that the posts and nets are permanently in position. Requiring a park attendant or the participant to set up nets will limit use of the facility.

Clearly, the equipment installed should as far as possible be both vandal and weather resistant.

Such equipment is now available.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS



CONVERSION OF HARD SURFACE COURTS TO BEACH VOLLEYBALL COURTS

Many public parks have netted tarmacadam courts that are underused and represent an investment that is not achieving the objective of increasing active participation by the public.

Volleyball England believes these courts represent a real opportunity to provide a new alternative recreational activity that is affordable and sustainable. Sand volleyball courts can become a new and exciting additional activity for public parks.

Netted hard surface courts are able, with the proposals outlined in this document, to meet all four of the key factors in providing a sand volleyball court.

- The courts are enclosed, keeping out animals and reducing the likelihood of foreign matter getting into the sand.
- During play, there should be no intrusion by other persons or recreational equipment into the playing area.
- The proposed construction method of the playing area is simpler, less expensive and will reduce sand loss.
- Security will be improved as the area could be locked at the end of the day.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS

**go
spike!**

PROPOSED CONSTRUCTION METHOD

Constructing a sand court inside an existing netted hard court is a much quicker, cheaper and effective method than excavating a ground level court and enclosing it with netting. Volleyball England proposes that the existing surface provides the base for the sand and a retaining structure inside the netting is constructed.

Various layouts are proposed in this document based on the dimensions of standard tennis courts for single, two and three court modules. Alternative sizes have been constructed and these can be adjusted to suit specific locational requirements for any hard court surface.

COURT ORIENTATION

The preferred orientation of the competition courts on a north /south axis is the same as the tennis courts.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS

**go
spike!**



Figure 1 Recycled plastic barrier used to retain sand within netted area.

DRAINAGE AND SAND SPECIFICATION

The weight of sand in the area is considerable and a structural engineer has considered the forces that would apply to any method of retaining the sand within the court. Varieties of containment methods including railway sleepers, timber fencing, or concrete walls have been examined. These are either incapable of resisting the pressures or require new foundations which would increase costs considerably.

An effective and structurally sound retaining wall can be quickly and economically created using sand filled roadside barriers manufactured by Oakland Plastics as shown in **Figure 1** above.

These are made from recycled plastic, can be sand filled and linked together with 90-degree bends. Each unit is L 1500, W 400, H 500mm. They are easy to transport and install and can be filled when in place with the sand used for the courts and then sealed. When filled with sand and linked they will be able to contain the sand within the new volleyball courts without movement.

The depth of sand in the court should be 400mm, which will finish just below the top of the barrier.

To prevent litter getting between the rear of the barrier and the netting it is recommended that a treated timber strip 250mm x 50mm is attached to the fencing posts along the top.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS



PROPOSED CONTRUCTION METHOD CONTINUED

DRAINAGE

To maintain the drainage capacity, the existing court should be covered with Terram geotextile membrane. The overlaps should be sewn or taped with Terram IDL 0485 tape. This tape is also used to stick the geo textile membrane to the side of the retaining barrier. This will prevent migration of the sand into the tarmacadam which restricts drainage.

The existing drainage of the hard court surface should be tested and in some cases land drains across and around the court will have been provided. If they have proved to be inadequate or not installed, a perforated land drain can be laid around the perimeter within the plastic barriers. The Terram should be brought across the top of the drain and taped to the side of the containment unit to limit sand loss through the gaps. This detail is shown in **Figure 2**.

If land drains are used, they should be taken to an existing soakaway or a new one can be constructed outside the perimeter of the facility.

SAND SPECIFICATION

The sand must be levelled and as flat as possible. Artificially crushed material is not acceptable. The sand variety is of high importance to the overall quality of the facility: too fine and it will stick together and dry hard as it compacts, builders sand is too coarse and could cause injuries.

These sands have successfully been used in the UK for sand volleyball courts. Other locally produced sands may be available.

Buckland W60 Silica Sand or Hanson Aggregate, Product reference: Reigate / RB4 Blend.

Grain Shape: Mostly sub-angular with some sub-rounded and occasional rounded

Silica Sand: 97% Minimum.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS

go spike!

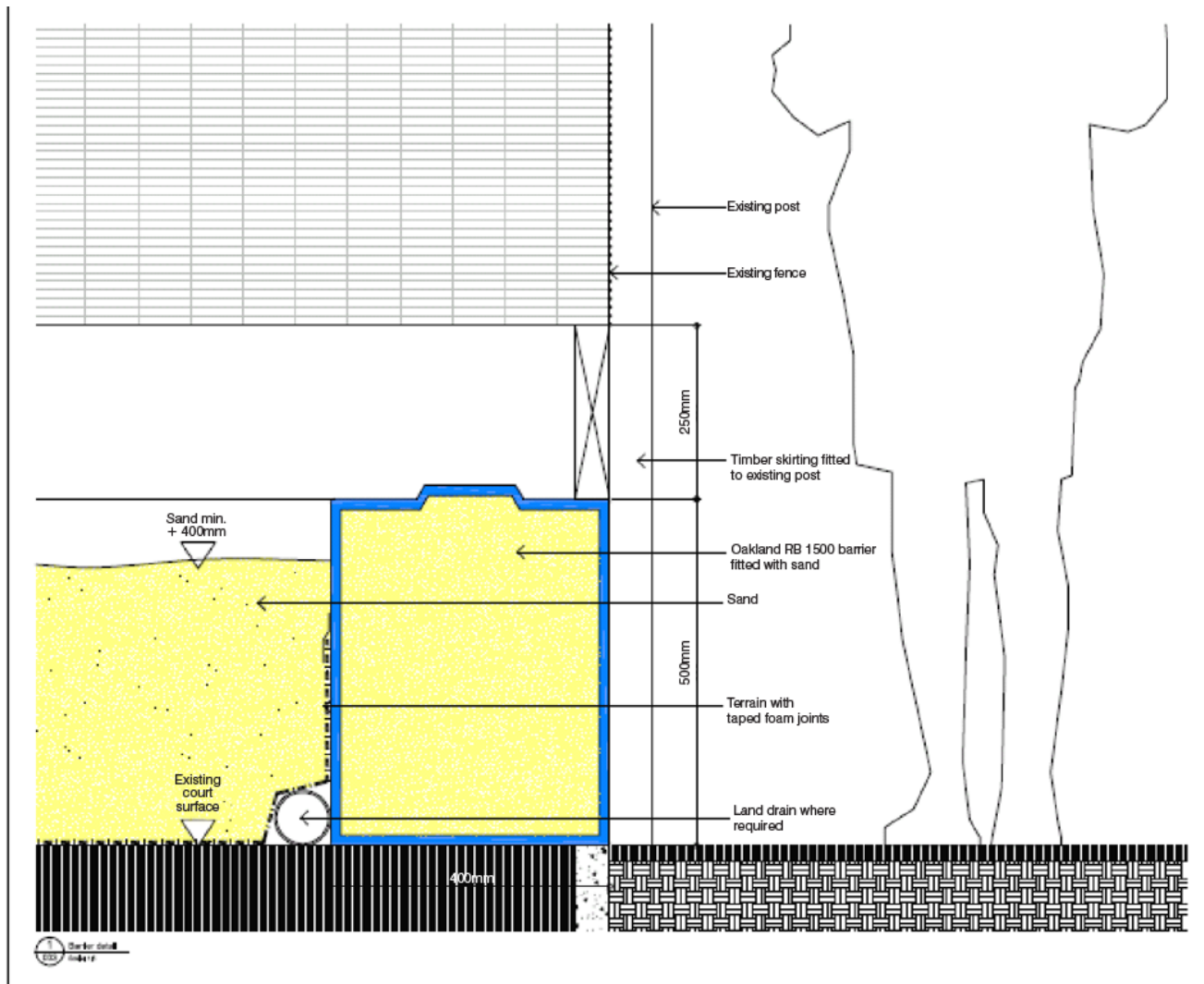


Figure 2 Section of court showing make up of sand, barrier and wooden surround



DEVELOPMENT OF BEACH VOLLEYBALL COURTS



ADAPTING A SINGLE HARD COURT

The standard tennis court is 36.85 m long whereas a sand volleyball court needs a length of 22m. Some earlier tennis facilities were built to shorter overall lengths. This does not preclude their use for beach volleyball subject to them providing the required minimum overall space of 14m width and 22m length.

To enable access for the sand and other materials to be delivered during construction part of the base line netting will have to be removed. We would recommend minimising the costs of the facility by reinstalling the base line netting at the 22m point. This reduces the area to be refurbished by 221m. The two remaining side nettings can be removed. The tarmac area can be retained as a clean entry point to the sand courts and the base for spectator facilities.

Figure 3 shows a netted area containing one sand volleyball court plus an optional decked area for spectators. Externally provision is made for ramped access for wheelchair spectators. The steps up into the courts have hand rails to assist other users.

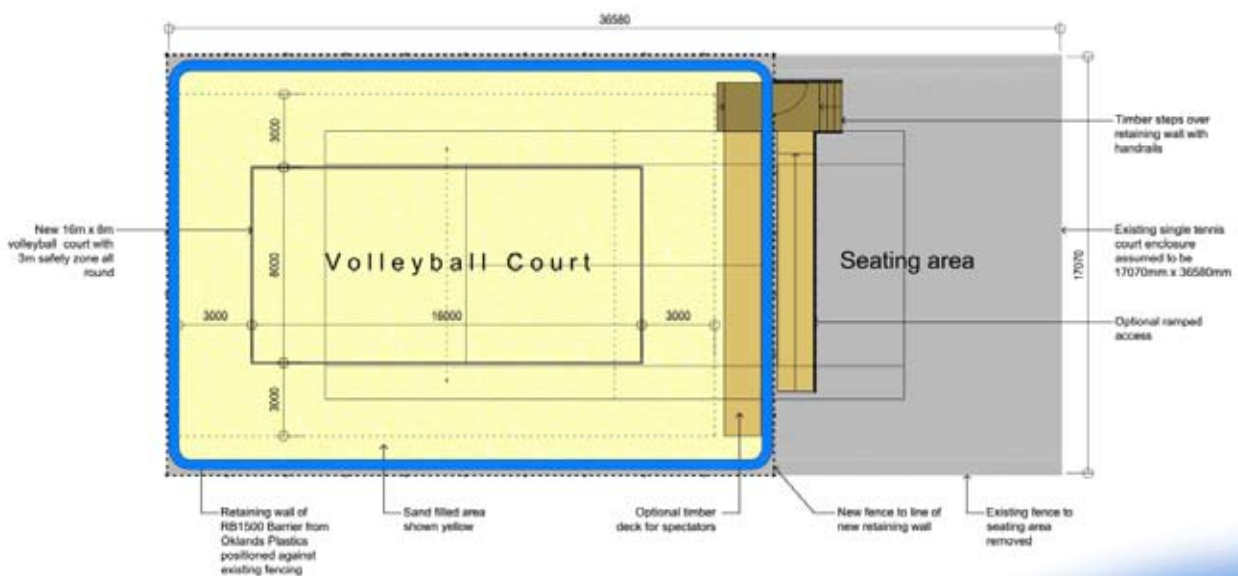


Figure 3 Single Court Conversion.
Maximum number of participants -12



DEVELOPMENT OF BEACH VOLLEYBALL COURTS



CONVERSION OF A TWO COURT ENCLOSURE

Where there are two tennis courts in a single enclosure, two standard beach courts can be accommodated and a third training court running at ninety degrees to the first two. Figure 4 shows a small part of the tarmac area retained as an entry point. Depending on the site location, the entrance area could be changed to any of the other three corners with an appropriate relocation of the courts.

As with the single court proposal, optional spectator facilities on wooden decking are shown within the courts with an external ramp for wheel chair users to gain access to the decking.

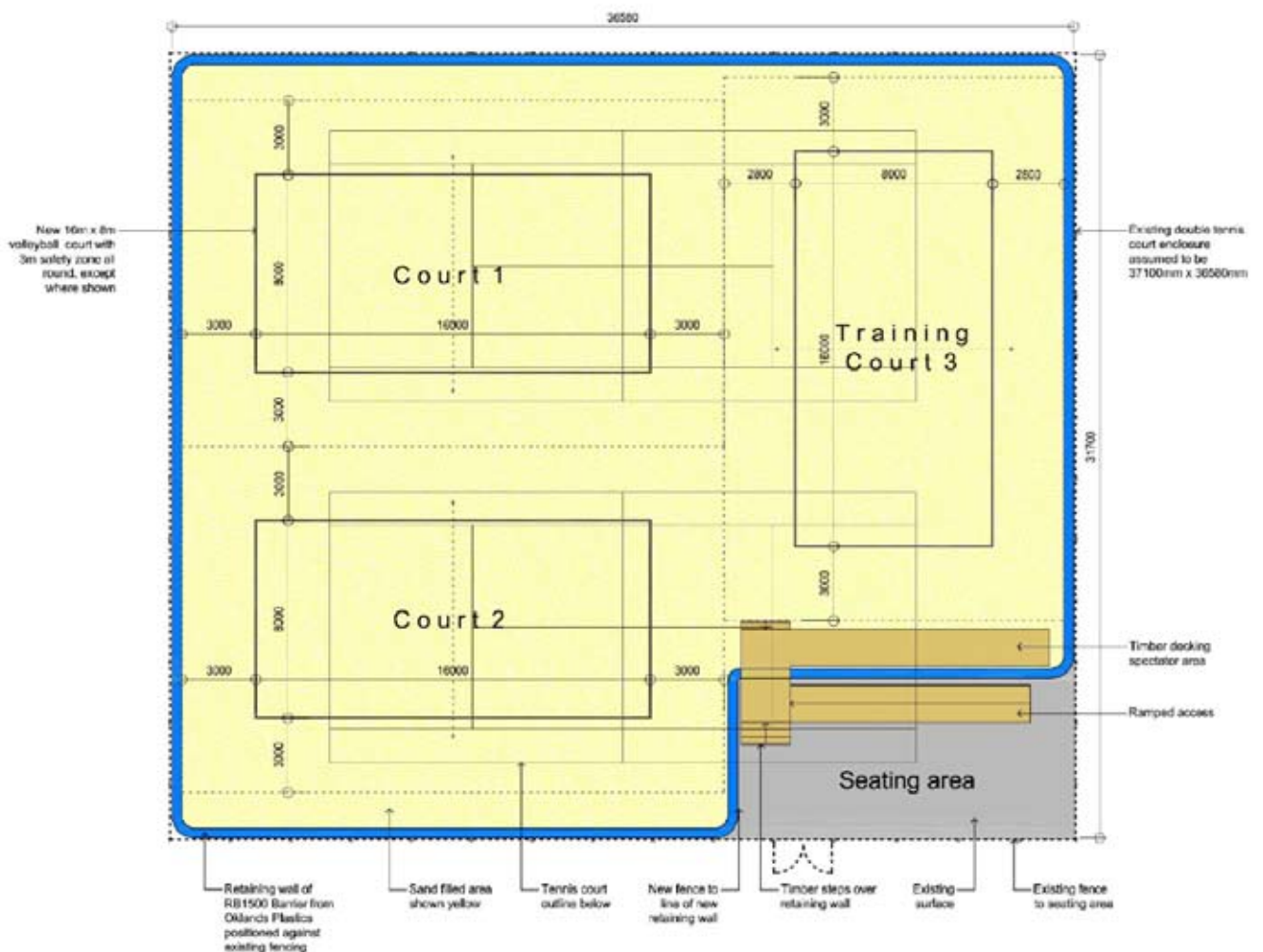


Figure 4 Conversion of a two court enclosure to provide two regulation size sand volleyball courts plus a training court with maximum number of participants -36

DEVELOPMENT OF BEACH VOLLEYBALL COURTS



CONVERSION OF A THREE COURT ENCLOSURE

With three tennis courts in a single block, the conversion can be to three standard courts plus two training courts running at ninety degrees to the others. (See Figure 5 overleaf). This model uses the full netted area. A single entrance point is shown between the training courts. Additional points should be considered depending on the individual site.

ACCESS FOR PARTICIPANTS

The courts will be 500mm above ground level so steps will need to be provided up into the court. Although the nature of the surface and the game makes it impractical to develop a wheelchair derivative of the sand game it will be attractive to many other disabled people including some people who have lower limb impairment and therefore it is important to ensure that the detailed design takes account of this. In particular ensure that any stepped approach to the court is not too steep and that the use of handrails is considered. In addition the use of colour can aid the use by people with some visual impairment.

On all proposed layouts, ramped access is shown to enable wheelchair users to reach internal wooden decking for viewing.

For safety reasons the gates should open outwards. Gates should be lockable. The preferred position of the gates is shown in each diagram. Other entrance points can be considered to suit the location.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS

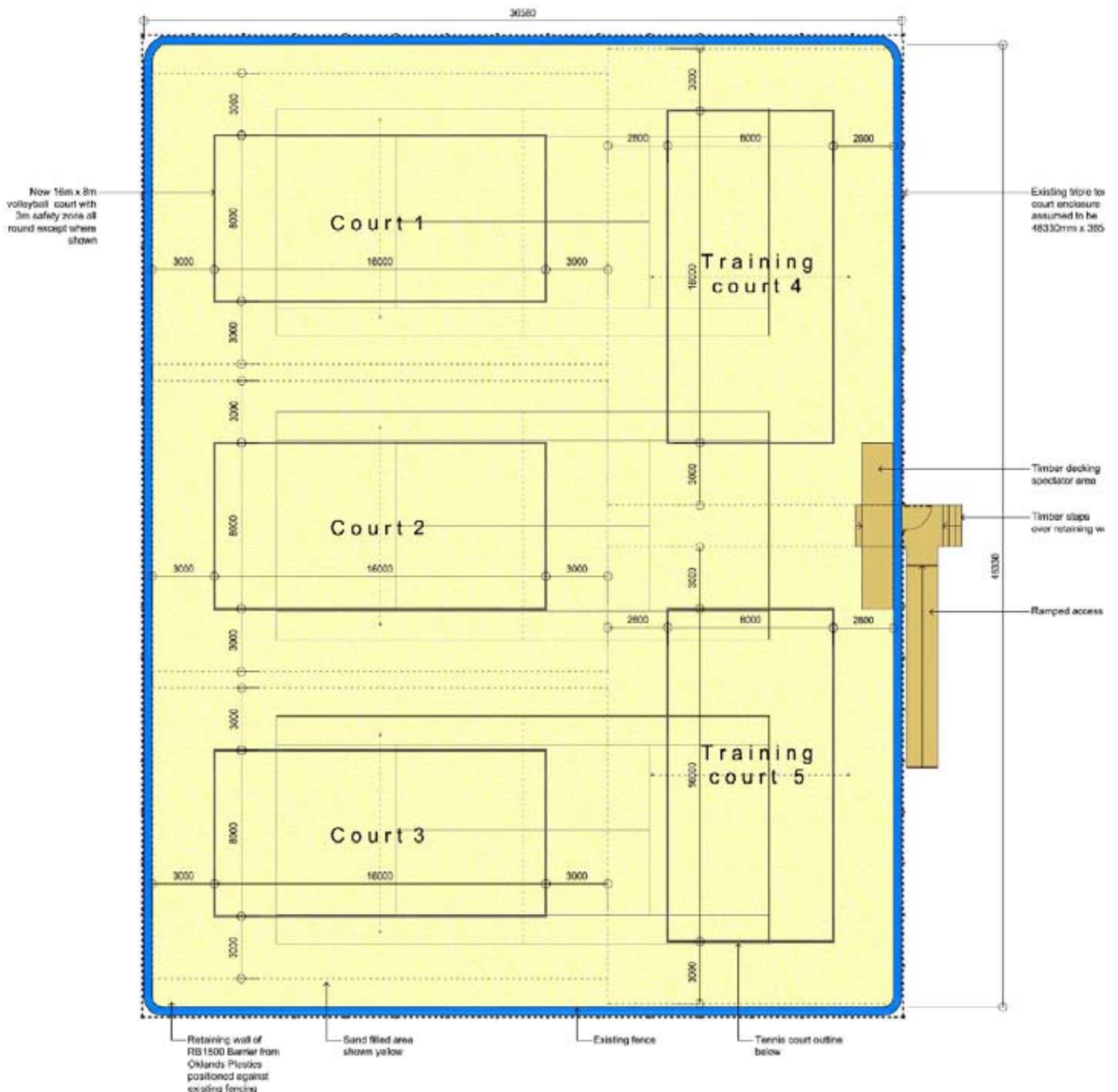


Figure 5 Conversion of a standard three court enclosure into three regulation sand volleyball courts plus two training courts. Maximum number of participants -60.

DEVELOPMENT OF BEACH VOLLEYBALL COURTS

**go
spike!**

SPECTATOR FACILITIES

As a sand area, spectators will prefer to view from a hard surface. With the conversion of all courts there is the possibility of installing a wooden decked area for spectators. Around the courts waiting players can sit upon the barriers, which will be 10mm above sand level.

It is suggested that benches be provided on the unused tarmac area and around the perimeter of the courts. The exact position will depend on the individual location of the courts within a site. Sand volleyball has proved to be visually interesting for spectators and will add to the features of an inland park.

EQUIPMENT

The volleyball posts need to be firmly anchored so that they do not pull out during play. Posts need to be removable for maintenance purposes. The post will consist of two parts. A socket base plate is anchored in a one cubic metre concrete base. The second part, the main post, drops into this socket. A locking mechanism is needed so that the posts can be replaced or removed quickly if necessary. This will be below sand level so that it is not a danger to players and can easily be excavated

The posts have attachment points for the top and bottom lines of the net. There can be multiple attachment points to provide different heights for men, women or juniors. If it is not anticipated that there will be competitive play the net should be set at men's height.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS

**go
spike!**

EQUIPMENT CONTINUED

Nets are normally made of Polypropylene but while this is strong enough under controlled conditions, it is not strong enough for an open access court. Anti vandal volleyball nets made of DRALO stainless steel wire are available and are recommended for these courts. They are strong enough to be left in situ and can be securely attached to the posts to prevent theft. The weight of these nets will cause some sag which is not critical during recreational play. For competitions however there is a need to provide nets set to either men's or women's height without sag.

Where more than one court is provided it would be possible to provide one fixed DRALO net and leave the other posts for people to attach their own nets. This arrangement meets the twin needs of providing for purely casual recreational play and a specialist facility for the enthusiast.

It is possible to use a cheaper standard net instead of the DRALO net and have it available for use through a controlled point in the park. However, this reduces the possibility of the court being used on a casual basis and the management costs will over a period exceed the additional cost of the secure net.

Court lines are normally marked out with tapes anchored in the sand with bungee straps attached to buried discs. There is a risk that these could be stolen when the court is not in use. Coloured Boundary markers placed in the fence opposite the various court lines will enable players to draw out the lines in the sand with their feet. For competitions, they will allow organisers to place the tapes accurately.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS

**go
spike!**

A PURPOSE BUILT MULTI COURT FACILITY

In many countries, there are permanent, commercially operated sand volleyball courts. In the UK, **Yellowwave** at Brighton has been successfully operating since 2007. This centre has a number of sand volleyball courts and as well as hosting a lot of casual play held the World U21 championships in 2009. The addition of a cafe and the introduction of other sand sports help the overall viability of the facility.



A larger facility can be multi sport and with the volleyball posts removed be used for sand football and sand rugby.

The architects for Yellowwave were RH Partnership.

COST OF CONVERSION

Appendix 1 provides a materials schedule for the conversion of existing single, double and triple courts. This includes drainage, spectator decking and new fencing and gates to one end of the courts. In some cases drainage may not be required and existing fencing can be taken down during construction and reused.

Prices given do not include carriage or labour and are issued as a guide. Prices shown are those quoted by suppliers as at November 2010.

Appendix 2 gives details of useful contacts.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS

**go
spike!**

APPENDIX 1

See attached documents for material schedules

APPENDIX 2

LIST OF SUPPLIERS

BOUNDARY CONTAINERS

Oaklands Plastics Ltd

Unit 64 Station Road Industrial Estate
Coleshill, Birmingham B46 1HT
Tel: +44 (0) 1675 466 321
Fax: +44 (0) 1675 462 395
www.oaklandsplastics.com

SAND VOLLEYBALL POSTS AND NETS

Volleyball England

SportPark, Loughborough University
3 Oakwood Drive, Loughborough LE11 3QF
Tel: 01509 227722
Fax: 01509 227733
info@volleyballengland.org

ARCHITECTS

The architects of Yellowwave in Brighton, **RH Partnership** assisted in the development of the model plans included in this document.

ACKNOWLEDGEMENTS

Volleyball England wishes to acknowledge the assistance of many members of the volleyball community and in particular Keith Nicholls, Director of Physical Education and Sport at the University of East Anglia, David Ward of RH Partnership Architects of Cambridge and Shaun Long of URS Scott Wilson Structural Engineers.

This publication is Copyright of Volleyball England. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owners, Volleyball England.



DEVELOPMENT OF BEACH VOLLEYBALL COURTS



Conversion of single court enclosure to single sand based volleyball court (see page 10): Materials schedule

1. All costs exclude haulage costs
2. VAT assumed at 20%
3. Labour costs excluded

Item	Description	Quantity	Material cost (ex VAT)	Material cost (inc VAT at 20%)	
1	Retaining wall units (straight units)	Oakland RB1500 barrier: 500mm wide by 1500mm long.	45 no. units	£1642.50 (£36.50 x 45)	£1,971
2	Retaining wall units (curved corner units)	Oakland RB1500 barrier :500mm wide, 2 units per corner.	8 no units.	£292 (£36.50 tbc x 8)	£350
3	Land Drains	Assume required around perimeter, with runs at 10 metre centres under courts.	94 linear metres (23m+16m) x2+16m	£280 (for 2no. 100m coils)	£336
4	Soakaway	Assume 5m ³ filled with aggregate and wrapped in geotextile membrane.	5m ³ plus teram.	£500	£600
5	Geotextile membrane	Eg Terram with taped/sewn joints (see below).	368m ² (court area: 23m x 16m)	£200 (4.5m x 100m roll)	£240
6	Tape for geotextile membrane jointing	IDL 0485 tape as recommended by and available from Terram.	100 linear metres (assume 4 seams, each 25m long)	£120 (£20 for a 20m roll)	£144
7	Tape for Geotextile membrane around perimeter	IDL 0485 tape as recommended by and available from Terram. Sticks Geotextile to retaining wall.	78 linear metres (23m+16m) x2	£100 (£20 for a 20m roll)	£120
8	Volleyball net assembly	Includes: • 2 external grade posts with • 2no.galvanized steel bases bolted to a cubic metre of concrete. • 2 padlocks • Dralo Stainless steel net	1no. assembly	£1,000 £30 £750	£1200 £36 £900
9	Sand for courts	Supplier: Hanson Aggregate, Product reference: Reigate / RB4 Blend.	147m ³ (23m x 16m x 400mm)	£6,000 (@£25/tonne, 1m ³ =1.6t)	£7,200
10	Sand to fill barriers	Supplier: Hanson Aggregate, Product reference: Reigate / RB4 Blend.	16m ³ (23m+16m x2 linear metres x 0.5m x 0.4m)	£640 (@£25/tonne, 1m ³ =1.6t)	£768
11	Timber skirting	250mm x 50mm, pressure impregnated, bolted to fence posts.	78 linear metres (23m+16m) x2	£195 (£2.50 per linear metre)	£234
12	Timber steps assembly	To form steps over barrier, 2000mm wide, including handrails. (fixings excluded).	1no. assembly	£600	£720
13	Timber ramp	1.5 m wide, hand rail to one side.	1 ramp	£500	£600
14	Spectator viewing deck	1.5m wide, no handrail.	18m ²	£550	£660
15	New fence and double gate fence	4.0 m high welded mesh perimeter fencing, galvanised colour coated green. Mesh and wire: 75mm x 12mm x 4mm up to 2000mm height, 50mm x 50mm x 3.5mm from 2000mm to 4000mm, Purpose made RHS posts, galvanised and colour coated green, set at 3m centres max. Set posts in concrete foundations to comply with the design loading requirements specified by BS 1722-14 for this category of fence. Incorporate gates 2000mm clear width, 2000mm high galvanised and colour coated to match. Double gates to have rebated meeting stile.	16 linear metres, including 1no double gate	£3,500 (excludes concrete for posts).	£4,200 (excludes concrete for posts).
16	Tape for court lines	Not required.	zero	zero	zero
17	Total:			£16,899	£20,278

DEVELOPMENT OF BEACH VOLLEYBALL COURTS



Conversion of two court enclosure to three sand based volleyball court (see page 11): Materials schedule

1. All costs exclude haulage costs
2. VAT assumed at 20%
3. Labour costs excluded

Item	Description	Quantity	Material cost (ex VAT)	Material cost (inc VAT at 20%)	
1	Retaining wall units (straight units)	Oakland RB1500 barrier: 500mm wide by 1500mm long.	108 no. units	£3942.00 (£36.50 x 108)	£4,730
2	Retaining wall units (curved corner units)	Oakland RB1500 barrier :500mm wide, 2 units per corner.	12 no units.	£438 (£36.50 tbc x 12)	£525.60
3	Land Drains	Assume required around perimeter, with runs at 10 metre centres under courts.	214 linear metres	£420 (for 3no. 100m coils)	£504
4	Soakaway	Assume 5m ³ filled with aggregate and wrapped in geotextile membrane.	5m ³ plus teram.	£500	£600
5	Geotextile membrane	Eg Terram with taped/sewn joints (see below).	737m ² court area:	£400 (2no. 4.5m x 100m roll)	£480
6	Tape for geotextile membrane jointing	IDL 0485 tape as recommended by and available from Terram.	216 linear metres (assume 6 seams, each 36.5m long)	£220 (£20 for a 20m roll)	£264
7	Tape for Geotextile membrane around perimeter	IDL 0485 tape as recommended by and available from Terram. Sticks Geotextile to retaining wall.	125 linear metres	£140 (£20 for a 20m roll)	£168
8	Volleyball net assembly <i>N.B consider one fixed DRALO and 2 no self supply or standard nets instead</i>	Includes: • 2 external grade posts with • 2no.galvanized steel bases bolted to a cubic metre of concrete. • 2 padlocks • Dralo Stainless steel net	3no. assembly	£3,000 £90 £2,250	£3,600 £108 £2,700
9	Sand for courts	Supplier: Hanson Aggregate, Product reference: Reigate / RB4 Blend.	295m ³	£11,800(@£25/tonne, 1m ³ =1.6t)	£14,160
10	Sand to fill barriers	Supplier: Hanson Aggregate, Product reference: Reigate / RB4 Blend.	25m ³	£1,000 (@£25/tonne, 1m ³ =1.6t)	£1,200
11	Timber skirting	250mm x 50mm, pressure impregnated, bolted to fence posts.	125 linear metres	£315 (£2.50 per linear metre)	£378
12	Timber steps assembly	To form steps over barrier, 2000mm wide, including handrails. (fixings excluded).	1no. assembly	£600	£720
13	Timber ramp	1.5 m wide, hand rail to one side.	1 ramp	£500	£600
14	Spectator viewing deck	1.5m wide, no handrail.	15m ²	£500	£600
15	New fence and double gate fence	4.0 m high welded mesh perimeter fencing, galvanised colour coated green. Mesh and wire: 75mm x 12mm x 4mm up to 2000mm height, 50mm x 50mm x 3.5mm from 2000mm to 4000mm, Purpose made RHS posts, galvanised and colour coated green, set at 3m centres max. Set posts in concrete foundations to comply with the design loading requirements specified by BS 1722-14 for this category of fence. Incorporate gates 2000mm clear width, 2000mm high galvanised and colour coated to match. Double gates to have rebated meeting stile.	1no double gate	£1,000 (excludes concrete for posts).	£1,200 (excludes concrete for posts).
16	Tape for court lines	Not required.	zero	zero	zero
17	Total:			£27,115	£32,538





SportPark, Loughborough University, No. 3 Oakwood Drive,
Loughborough, Leicestershire LE11 3QF
E-mail: info@volleyballengland.org www.volleyballengland.org
Tel: 01509 227 722 Fax: 01509 227 733