NETBALL
NEW ZEALAND
POITARAWHITI AOTEAROA

Outdoor Netball Court

Specifications and Guidelines 2024

We live this game.

Information

Document Reference	Outdoor netball court: specifications and guidelines
Prepared for	Netball New Zealand
Prepared by	Visitor Solutions
Sign off	Ruth Southwood, Netball New Zealand
Date	12 April 2024
Status	Final
Cover Photo	Netball New Zealand – Michael Bradley Photography
Acknowledgements & References	Netball New Zealand Outdoor Court Specifications & Guidelines 2013 written by N-Compass Ltd International Netball Federation Rules of Netball 2020 & 2024 Netball Australia National Facilities Policy and Technical Guidelines 2016 England Netball Design Guidance for Outdoor Community Courts ITF Tennis Facilities Guide 2020 Tennis Australia Tennis Infrastructure Planning 2018 Tennis New Zealand National Facilities Guidelines for Tennis 2018 Basketball New Zealand: Outdoor Facilities Guide 2015 FIBA Official Basketball Rules 2018. AS 2560.2.4 – 1986 Australian Standard Guide to Sports Lighting: Part 2.4 Lighting for Outdoor Netball and Basketball. AS 4282-1991 Australian Standard Control of obtrusive effects of outdoor lighting Structureflex Case Study: West Lake Girls High School Sports Facility Shadesystem Case Study: Westland Sports Hub

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1.0 Introduction

1.1 Purpose

Poipoia, Netball New Zealand's strategy defines our purpose as "connecting and inspiring communities through netball". Part of our future direction is being local, affordable, and accessible; and ensuring we have fun, safe and welcoming environments. We need to have netball courts in the right place, at the right standard and affordable to use and maintain.

In 2013, Netball New Zealand produced the Outdoor Court Specifications and Guidelines to provide guidance on the development of outdoor netball courts. Since 2013 there has been evolution of netball facilities that are not reflected in the original document. Netball New Zealand completed a review of the guidelines to capture these changes and ensure the document is fit-for-purpose. The 2024 guidelines have been developed by Netball New Zealand in conjunction with Visitor Solutions, building off the original document prepared by N-Compass.

The guidelines are intended to support court owners and managers including local authorities, netball centres, clubs, and schools to successfully plan, develop and maintain quality outdoor netball courts.

The guidelines are not intended to replace professional advice or site-specific assessment by planners, engineers, architects, construction companies or suppliers, and therefore should not be used for DIY court development. The guidelines are intended to help court owners and managers to understand critical court requirements so they can engage professionals and make informed decisions in the development, upgrade, renewal, and maintenance of outdoor courts.

With this audience and document purpose in mind, the information outlined is succinct to ensure court owners and managers understand key issues and considerations. In some sections, there are references to other documents available across the sport sector. These documents can be referenced for more detailed information as required.

1.2 Reviewing the 2013 Guidelines

As part of updating the guidelines, Netball New Zealand conducted an open survey to understand the value of the original guidelines and to inform the review. 84 respondents completed the survey which included netball centres and clubs, schools, local authorities, consultants, and other organisations involved in netball. While the sample is small, the survey provided good insight on the 2013 guidelines and how they can be improved.

A third of respondents were aware of the guidelines with a majority referencing them as part of regular maintenance, upgrades or developing new netball courts. Overall, 77% of those using the guidelines rated the document as being very useful. Of the two-thirds of respondents not aware of the guidelines, close to 90% stated the guidelines would be useful to them.

The updated 2024 guidelines have retained (but reordered) the original information while including new sections guided by the feedback. The review also sourced new information from across the netball community, sport sector and facility experts to incorporate a wealth of knowledge. The guidelines provide information on:

- Court specifications on court sizes and goal posts,
- Court construction including site selection, resilience issues, sub-structure, drainage, cross-falls, and surface options,
- Court design including orientation, run-off, layouts, line-markings, lighting, fencing, shelters, control, toilets and changing rooms. This includes extra detail on multi-sport line-marking and surfaces,
- New information on covered courts,
- New information on the court lifecycle, including planning, construction, maintenance, and renewal,
- Guidance on asset management planning and maintenance,
- Funding and consent considerations, and
- Updated and expanded case studies.

1.3 Using the Guidelines

Sport New Zealand outlines six stages of a facility lifecycle, listed below. The outdoor netball court specifications and guidelines provides information that can be used through-out the lifecycle of courts. There is a particular emphasis on informing the development of new courts, upgrades, and maintenance.

Before embarking on any project, court owners and managers can familiarise themselves with the content of these guidelines to ensure they are informed about the critical requirements for quality courts.

LIFECYLE	DESCRIPTION	GUIDELINE LINKS
CONCEPT	Why is facility change being contemplated? · Undertake an audit of courts. · Prepare Asset Management Plan.	Court audit. Asset Management Plan.
PLAN	Assess the potential options to determine what is feasible and viable. For large scale/value projects, a feasibility study is needed to support funding applications.	Feasibility study. Funding. Consents.
DESIGN	Engage professionals to design the courts to meet specifications and requirements. Ensure regulatory requirements are satisfied.	Court specifications. Court construction. Court design. Consents.
CONSTRUCT	Complete and monitor construction in accordance with design.	Court construction.
OPERATE - MAINTAIN	Maintain / renew courts through asset management planning with regular maintenance and plan for renewals.	Asset Management Plan. Maintenance.
IMPROVE	Consider the need for court upgrades to support quality participation experiences.	Feasibility study. Court design. Covered courts.

Distinctions in the court lifecycle:

- **New courts:** creating new courts from scratch.
- **Maintenance:** regular work to keep courts safe, playable and achieve life expectancy e.g. court cleaning or drainage clearing.
- **Renewal:** planned replacement when an asset comes to the end of their typical life e.g. court resurfacing.
- **Upgrade:** changes to provide better experiences e.g. upgrading the surface from asphalt to rubberised or installing a cover.

MOST IMPORTANT FACTORS FOR QUALITY OUTDOOR COURTS

In reviewing these guidelines, Netball New Zealand want to stress the two most important factors to achieve quality outdoor courts are:

1. GOOD DESIGN AND CONSTRUCTION

Quality outdoor courts are designed in accordance with the specifications and recommendations outlined in these guidelines. While many older courts may not meet all the recommendations in these guidelines, when issues occur it is typically due to aspects of design or construction.

2. REGULAR MAINTENANCE AND PLANNED RENEWAL

It is critical to maintain outdoor courts through regular maintenance, which includes both weekly, seasonal and annual tasks. Eventually, outdoor courts will need to be renewed as all assets have a finite life.

A planned approach to maintenance and renewals is best achieved through an asset management plan. The asset management plan prevents surprises and ensures outdoor courts receive the necessary attention to be kept in quality condition.

These guidelines are intended to help court owners and managers to understand critical requirements for design, construction, maintenance and renewal of outdoor courts.

2.0 Specification

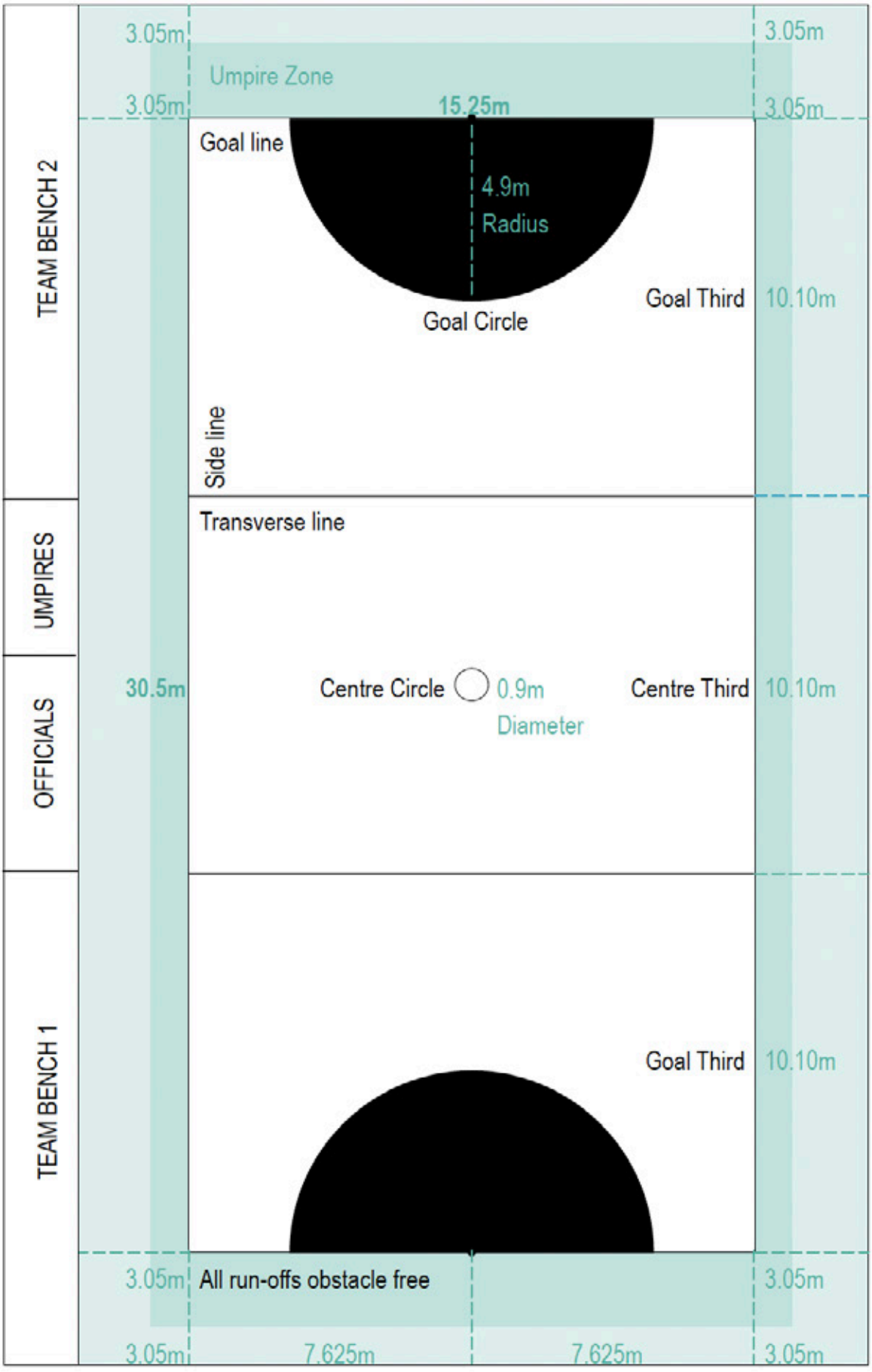
This section outlines the specifications for the netball court size and goalposts adopted from the International Rules of Netball 2024 by Netball New Zealand to ensure courts are acceptable for domestic and international competition.

2.1 Court Size

LENGTH	30.5 metres (measured from outer edge of both baselines)
WIDTH	15.25 metres (measured from outer edge of both sidelines)
LINE-MARKING	All lines are 50 millimetres wide. All lines are part of the court area they outline. A line which bounds adjacent court areas are common to both areas.
COURT THIRDS	10.10 metres (measured from the inside edge of each transverse/base line)
GOAL CIRCLE	Semi-circle with a radius of 4.9 metres. The goal circle is measured from the mid-point of the outside edge of the goal line, to the middle of the semi-circle line at the top of the circle.
CENTRE CIRCLE	0.90 metres diameter in the centre of court The centre circle is measured from the outside edge to outside edge of the circle.
RUN-OFF OR COURT SURROUND	3.05 metres on all sides No objects should encroach into the run-off area ***Refer to Section 4.2 and 4.3 for further detail on run-offs and layouts for multiple courts***
UMPIRE ZONE	1.0 metres width along the side line 2.0 metres depth along the goal line Located within the court run-off area
PLAYING AREA	The court and run-off/court surround are included in the field of play
SURFACE CONDITION	Firm consistent surface on a constant plane No trip hazards within the court and run-off area No variation in surface more than +/- 3 mm

Source: INF Rules of Netball 2024 Rule 1: Technical specifications

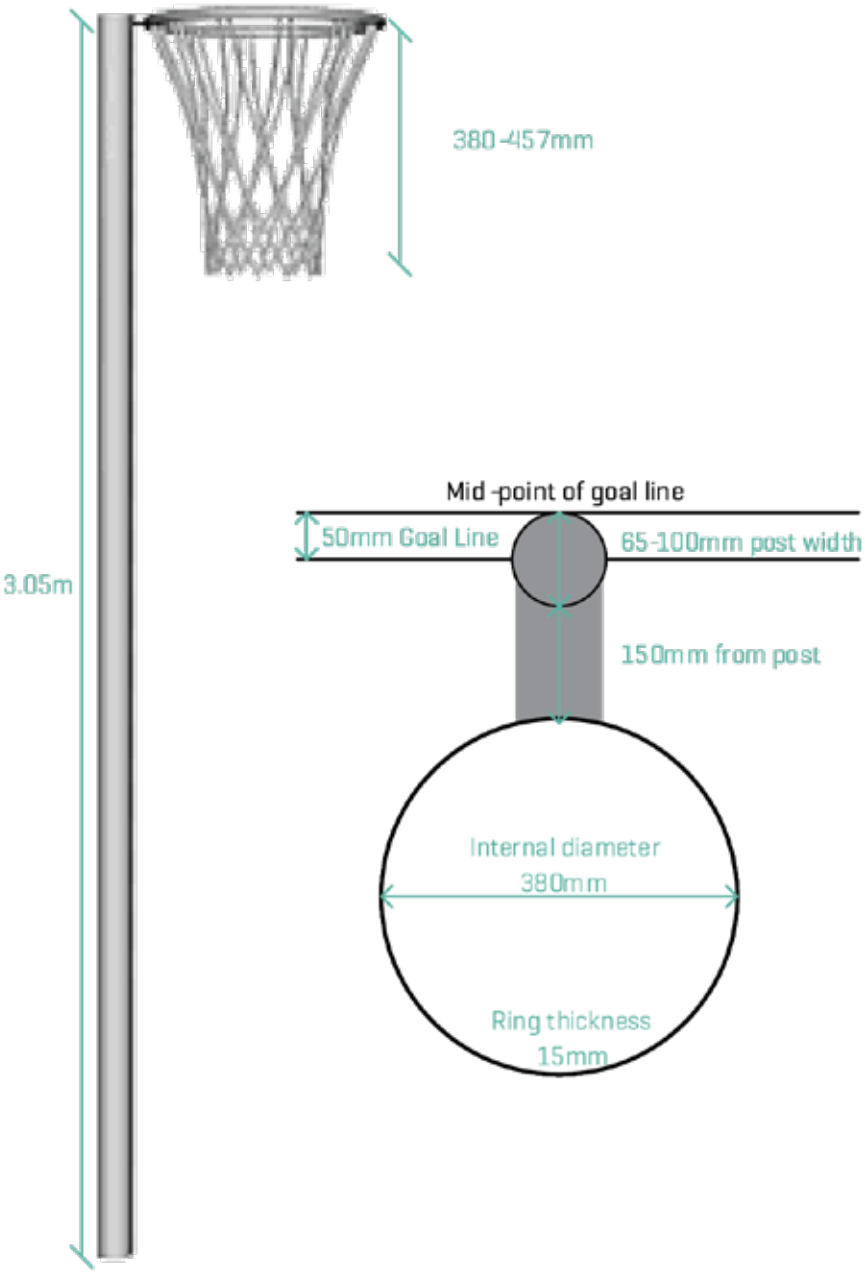
There are exceptions where courts were constructed before the standards were set. Approved safety precautions are recommended to minimise any risks to the safety of players and umpires.


TEAM BENCH 2
UMPIRES
OFFICIALS
TEAM BENCH 1
3.05m
3.05m
Umpire Zone
15.25m
3.05m
3.05m
Goal line
4.9m
Radius
Goal Third
10.10m
Goal Circle
Side line
Transverse line
30.5m
Centre Circle
0.9m
Diameter
Centre Third
10.10m
Goal Third
10.10m
3.05m
All run-offs obstacle free
3.05m
3.05m
7.625m
7.625m
3.05m

2.2 Goal Posts

Dimensions for goal posts, rings and sockets are as follows:

HEIGHT	3.05 metres full size
POST	Vertical pole 65 to 100 millimetre post diameter Positioned at the mid-point of each goal line Placed so the back of the goalpost is flush with the outside of the goal line
RING	Curved horizontal metal ring made of steel rod with thickness of 15 millimetres diameter Internal ring diameter of 380 millimetres The ring is attached to the post by a horizontal bar of 150 millimetres, projecting from the front edge of the vertical pole to the ring
NET	White cotton mesh or chain mesh 380 – 457 millimetres long Clearly visible and open at both ends Both ring and net are part of the goalpost
SOCKETS	Must be flush with the playing surface Not wide enough to create a trip hazard or other health and safety issue. When the goalpost is knocked there should be minimal movement.
PADDING	Not more than 50 millimetres thick Start at the base of the goalpost and extend the full length of the post. If there is a lower height bracket for a junior ring, the padding may stop at the junior height.
JUNIOR GOAL-POSTS	futureFerns guidelines: Years 1 & 2: 2.1 metres (can be portable hoop) Years 3 & 4: 2.6 metres (can be portable post) Years 5 & 6: 2.6 metres (can be portable post) Years 7 & 8: 3.05 metres


380-457mm
3.05m
Mid-point of goal line
50mm Goal Line
65-100mm post width
150mm from post
Internal diameter
380mm
Ring thickness
15mm

3.0 Construction

The construction process is a critical component for high quality and long-lasting courts. Engaging experts and focusing on construction details will provide a high performing outcome.

3.1 Site Selection

It is important to select good sites for netball courts, in an accessible location for the anticipated playing population, a suitable distance from other netball facilities to minimise duplication, and with good ground conditions and resilience. Site selection can be constrained by the availability and affordability of suitable land, but it is important to consider the following characteristics for good sites:

- Good soil conditions with a preference for compactable soil, avoiding highly reactive clays where possible. This will avoid the need for additional ground preparation work, like lime stabilisation or digging out. Refer to additional information about the court base in Section 3.3.
- No large trees within a reasonable distance of the proposed courts. This eliminates the need to consider root barriers. It also minimises organic litter on the courts.
- The ability to create a court platform that will be finished higher than the surrounding land to assist with drainage. Note: sub surface perimeter drainage may be needed for cut and fill sites.
- A site size that will allow for correct runoff, ideally a north–south orientation, space for pedestrian movement outside of the playing areas, adequate parking, ancillary building and future infrastructure requirements. As a general guide, approximately 800 square-metres of space is required per court, plus an allowance for access etc.
- Desirable to avoid overhead electrical wires or major underground services such as a mains sewer.
- Good access for machinery and reasonably level ground. Sloping sites can be considered but will cost more in construction.

SITE INVESTIGATION

- A thorough site and soil investigation should examine all relevant issues before construction is planned. Some examples of issues are;
- Water: overland flow issues, underground flow, flood risks and the height of the water table. Moisture is one the most significant factors in the failure of court construction.
- Ground condition/vegetation: soil reactivity, history of fill including buried waste, buried tree roots etc.
- Services over and under site, i.e. power, water, sewerage etc.
- Existing or future residential developments that could negatively affect the facility or be impacted by the facility such as high traffic flows, lighting spill, surface drainage or noise spill.
- Exposure of the site to prevailing winds and potential for natural wind barriers where consistent with good orientation and without excessive shadowing or litter drop.
- Awareness of any cultural or historical significance of the site that may impact development potential or scale.

MULTI-SPORT SITES

Sport and community facilities are increasingly being built collocated or as a hub. The rationale for sharing facilities include reducing costs, higher utilisation and greater exposure of activities to a wider group of users. Sport New Zealand has produced a comprehensive guide on multi-sport facilities, found on the hub guide.

Key considerations for netball as part of multi-sport facilities are:

- Ensuring soil conditions are appropriate for courts.
- Placement of courts to the building for control, toilets, officials etc.
- Minimising shadow of a larger building on the courts.
- Vehicle access to the courts for maintenance and servicing.
- Placement of storage to support courts.
- Pathways and connections for players.
- Line-markings for multiple sports (see section 4.5).
- Lighting controls, spill, and glare between adjoining outdoor sport facilities (see section 4.6).
- Sound control and management between multiple outdoor playing facilities (see section 4.11).

3.2 Resilience Considerations

There is greater need to consider the long-term resilience of sport facilities, this includes environmental and financial considerations.

Environmental considerations include:

- Avoiding locations in liquefaction, tsunami, flooding and coastal inundation zones. Sometimes it can be difficult to avoid these risks and therefore facilities need to be designed with sufficient continency to manage, minimise, or mitigate this risk.
- Ensuring buildings and structures have the required structural integrity against earthquakes.
- Ensuring there is appropriate design to manage court drainage and run-off including rain-gardens, swales or ponding areas. The design needs to prevent the sub-structure being subjected to excessive moisture build-up or drying out as this can cause settlement or movement issues.
- Sport facilities often play an important role in civil defence emergencies and provide a safe haven during these events. This can include space to store emergency equipment and emergency generators.
- Placement of facilities to reduce the dependence on transport by private vehicles. Collocation with other sports and/or social amenities can minimise travel through combined trips. Location close to public transport, provision of bike/scooter racks and pathway connections are useful to consider.

Financial considerations include:

- Asset management planning provides an important tool to understand the costs of maintaining and renewing assets. Facility owners need to plan for these costs and to avoid crisis when assets reach the end of useful life (see section 6.3).
- It is critical to understand the costs of maintaining assets before committing to new assets as these can be a significant burden.
- Considering the up-front capital costs against the expected asset life, maintenance, and renewal costs to determine what is the most financially prudent decision.

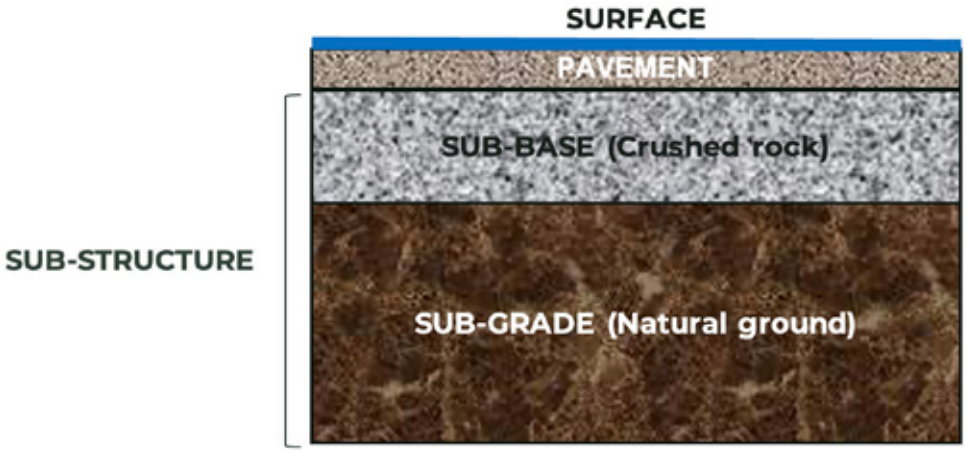
Sport New Zealand have developed Environmental Sustainability Guidelines which can provide more detailed information on resilience and environmental sustainability considerations.

3.3 Sub-Structure

The following diagram shows the composition of an outdoor court: the sub-grade (the compacted ground) and the sub-base (compacted crushed rock) make up the sub-structure, overlaid with the pavement (either asphalt or concrete) and an optional surface product on top.

The most important element of a netball court is the sub-structure. This is because the court can become unplayable if the sub-structure fails and the expense to rectify can be significant.

COMPOSITION OF A NETBALL COURT



A mandatory investigation of the subsoil and drainage conditions of any potential site is crucial as it will ascertain whether it is suitable for the construction of courts or whether additional measures need to be undertaken to improve these conditions. A geotechnical report and drainage review should be conducted by a qualified expert with experience in designing sport facilities before the site can be considered suitable for its intended use. Consideration needs to be given to whether the site has any of the following issues:

- contains uncontrolled fill,
- has a high water table or is flood prone,
- has poor drainage,
- has poor soil characteristics e.g. highly reactive clays, or susceptible to settlement.

If the geotechnical report indicates good soil with little shrink/swell characteristics and sub-grade materials that can be compacted, then an aggregate asphalt pavement will be ideal – this is the most common type of base construction in New Zealand. If the soil report indicates high reactivity, then alternatives such as reinforced concrete may need to be considered.

The preparation and compaction of the sub-structure is crucial to achieve a long-lasting court pavement. This also applies when undertaking other works such as retaining walls around courts, lighting trenches or covered court structures.

The design and methodology for the sub-structure is determined by the civil engineer but typically includes:

- Site clearing to remove all vegetation, materials, and topsoil. It is important no organic material is left in the ground as this can cause soft spots in the future.
- The platform is created for the required drainage design and falls.
- The platform is compacted prior to be proof rolled to check for any soft spots.
- Preparation and compaction of the base comprised of layers of crushed rock (of different sizes specified by the engineer). This provides structural strength for the pavement.
- A final proof roll to check for consistent solid base and no soft spots.

Further technical and detailed design information can be sourced from Netball Australia Technical Guidelines 2016.

3.4 Drainage

Drainage is another critical element for good performing courts. Surface and sub-surface drainage systems work hand-in-hand.

The ground water beneath the court can cause future problems without adequate sub-surface drainage. Excessive water under the courts will cause hydrostatic pressure causing the base to heave and lift. This can cause certain areas of the surface to delaminate,

enlarge/widen existing cracks and create new cracks allowing more moisture to enter. Ideally the sub-structure should remain at a constant moisture level without dramatic variations.

Water draining from the surrounding areas should be directed away from the court pavement area. This is particularly important when courts are situated at a lower level to the surrounding area, and natural drainage would lead to water draining underneath the courts.

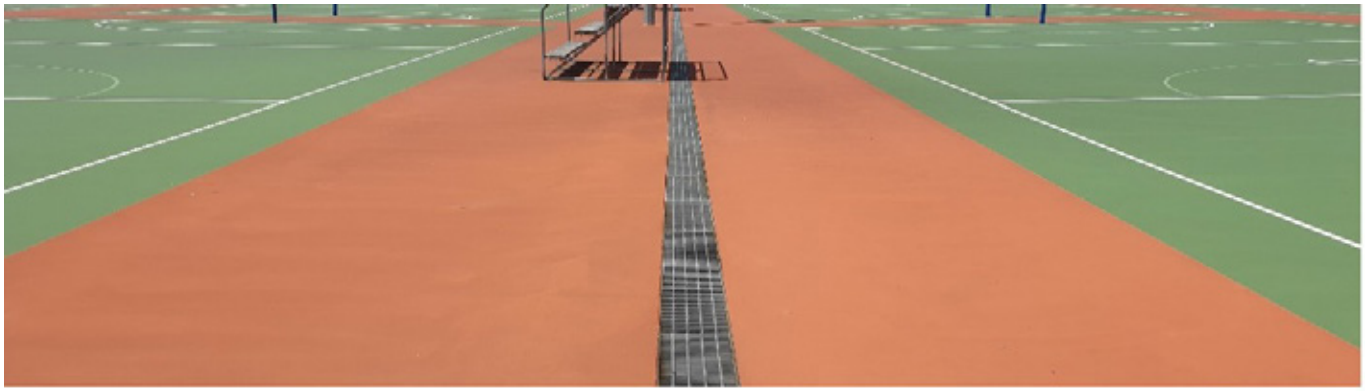
When courts are being developed on sites with a high water table or drainage from a surrounding area, then sub-structure drainage is recommended.

Surface drainage is comprised of the fall across the courts and water collection systems. It is not recommended to allow surface water to drain across two or more courts as it will delay the drying time and affect play. Drains should not be placed inside the playing area as this is likely to cause a playing hazard or trip hazard.

Good drainage systems are a combination of:

- Platform raised above the surrounding land.
- Swale/batter drains and/or sub-soil trenches around the perimeter and under the courts.
- Slot/dish or grated drains in between courts.
- Sufficient cross-falls across courts (see section 3.5).

GOOD DRAINAGE DESIGN WITH EXCELLENT CROSS FALLS ACROSS THE COURTS



INSUFFICIENT DRAINAGE DESIGN WITH LONGITUDINAL FALL

3.5 Cross Falls

If a court is relatively flat, this prevents water draining away and means the court will remain wet for longer. The cross-fall is the gradient across the court to allow water to drain away.

Across the width of courts: the recommended cross fall ranges from minimum 1:100 (1%) to a maximum of 1:80 (1.25%).

It is not recommended to have excessive longitudinal fall (down the length of the court) as this can provide perceptions of up/down the court for players. However, in many cases, it cannot be avoided as it is more important to provide adequate fall for drainage. The maximum longitudinal fall is 1:100 and the minimum is 1:500.

The final gradient design is dependent on local rainfall data and conditions and the size / layout of courts determined by the engineer.

In all cases, the surface must be a consistent plane with no variations more than +/- 3mm in the surface.

AUCKLAND NETBALL CENTRE WITH CROSS FALLS OF 1:80 AND LONGITUDINAL FALLS APPROXIMATELY 1:100.

HAWKE'S BAY NETBALL CENTRE, MITRE 10 PARK WITH CROSS FALLS OF 1:90 AND LONGITUDINAL FALL APPROXIMATELY 1:500.

3.6 Pavement: Concrete vs Asphalt

Standard asphalt is a mix of bitumen, sand and aggregate. Also known as asphaltic concrete, hot mix, tarmac.

Standard concrete is a mix of aggregate, sand, cement and water. Also known as reinforced concrete.

The key differences between asphalt and concrete for the court pavement are summarised below. However, professional advice and responding to the specific site conditions are paramount in making this decision.

KEY DIFFERENCES BETWEEN ASPHALT AND CONCRETE FOR THE PAVEMENT PRODUCT

ASPHALT	CONCRETE
· Lower construction cost. · Expected life around 20-30 years if constructed well.	· Lower construction cost. · Expected life around 50 years if constructed well.
Can be considered when: · Good soil with little shrink or swell characteristics. · Compatible sub-grade. · Site does not have high water table, problematic drainage, or flood prone area.	Can be considered when: · Poor soil and/or condition. · High soil reactivity identified. · Site has poor drainage, flood prone or high water table. Will require protection for potential water ingress.
· More adaptable for colder climates. · Can become soft in high temperatures, leading to cracks and grooves.	· More resistant to high temperatures. · Can be susceptible to frost heaving, resulting in cracks. · High compression strength and withstand heavy loads.
· Does not require additional surface acrylic layer. However, can deteriorate faster without this protection. · Likely to develop cracks and pavement damage as it ages, often along seam-lines.	· Can be a slippery surface and typically requires an acrylic layer. · Normal to experience shrinkage cracks resulting in hairline cracks.

3.7 Surface Options

A range of netball court surfaces are found in New Zealand:

- Asphalt: raw bitumen/sand/aggregate.
- Concrete: raw brush finish concrete (not recommended).
- Non-cushioned acrylic: acrylic layer over asphalt or concrete.
- Liquid rubber cushioned: layers of rubber and acrylic applied wet.
- Mat laid rubber cushioned: layers of rubber and acrylic rolled out.
- Astro-turf: artificial grass filled with sand (not recommended).

ASPHALT

An asphalt court can be left "raw" or used as the base for other surface products. Over time asphalt will break down with small cracks, small stones dislodging or can become glassy and smooth. Ageing asphalt often presents with linear cracks along the seamlines which become more widespread as the asphalt ages. Asphalt has a 20-30 year lifespan, but it can be shorter if not well constructed.

Applying a surface product such as an acrylic or rubber cushion can protect asphalt and extend the life of the pavement. However, if the asphalt is already showing signs of ageing or significant deterioration, applying a surface product is unlikely to address the underlying issue and, in some situations, can exacerbate the problem.

If a surface product is going to be applied, it is recommended the asphalt cures for at least 2-4 weeks prior to application. Some surface suppliers recommend waiting up to 2 years after the asphalt is laid. It is important to avoid asphalt with pyrites or ferrous aggregate as this will damage surface products and present as rust stains and blisters.

Maintenance involves regular sweeping, removing organic matter and water-blasting/chemical clean every 2 to 3 years. Significant cracks should be addressed as they appear to avoid water damage to the sub-structure. If the sub-structure is performing well then renewal involves resealing over the existing asphalt. Where the sub-structure is showing signs of settling, then total reconstruction may be required.

Asphalt courts can be constructed with a concrete edge to allow compaction right up to the edge and provides a strong edge.

CONCRETE

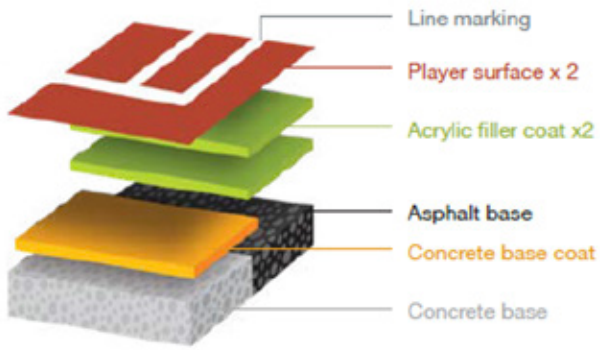
A raw concrete court is generally not recommended for netball play as it can be slippery (unless there is a good brush finish). Concrete can be used as the base for other surface systems and should cure for at least 4 weeks prior to surfacing. Concrete pavements should be constructed with an appropriate plastic membrane to prevent water drawing up from the sub-structure which can impact any acrylic surface. For raw concrete courts, regular cleaning is important to minimise build-up that can contribute to a slippery surface.

NON-CUSHIONED ACRYLIC

Comprised of 3 to 4 layers of acrylic coating (a combination of filler and top coats) applied to asphalt or concrete pavement. It is important installation is made to a clean and dry court, usually with water blasting for asphalt and acid etching for concrete. Grinding the line-marking may be required when the lines are cracked or raised.

Acrylic systems provide a good non-slip surface and can protect the asphalt/concrete pavement. However, if pavement issues are already evident, then the acrylic surface is unlikely to address the issues. It can extend the pavement for a short period but it is not a "fix". This surface does not have any cushioning properties.

Acrylic systems require maintenance including regular sweeping to remove debris and organic matter. A chemical clean (as per supplier's recommendation) is undertaken every 1-3 years. Any cracks or surface damage needs to be addressed in a timely manner. It is important to avoid anything that can pierce the acrylic surface such as umbrellas, sharp chair/table legs, or shoe sprigs. Resurfacing is typically required every 7-10 years.

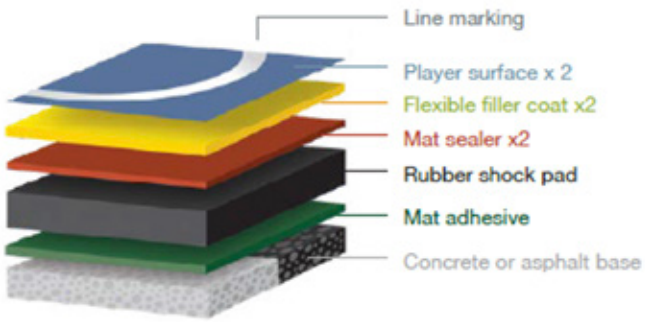


LIQUID RUBBER CUSHION (WET-LAY)

A rubber cushion system that is liquid applied to asphalt or concrete pavement. A combination of layers of rubber-filled acrylic resin coating sandwiched between base and filler coats and the top-coat. Known as a "wet-lay" system and applied with a squeegee. Can range from 8 coat system providing 1-2mm nominal thickness, to a 12 coat system with 3-5mm nominal thickness (nominal thickness due to the liquid application).

Liquid rubber systems provide both slip resistance and cushioning which can be beneficial for players. Generally, a more affordable product compared to mat-laid systems. However, due to the liquid application of rubber, the thickness can be inconsistent across courts and over time the rubber can harden, limiting the cushioning qualities. The liquid application requires good drying conditions between coats, meaning variable weather conditions can compromise the quality of the surface.

Maintenance is similar to acrylic systems, with regular sweeping and addressing cracks as they appear. The supplier should confirm the products/processes for annual or bi-annual cleaning through either water-blasting or chemical clean to remove organic matter that can build up and make courts slippery. Renewal generally involves resurfacing every 7-10 years. If the rubber cushioning has become hard then additional rubber layers may be required. Like other acrylic systems, it is critical to avoid anything sharp that can pierce the surface such as umbrellas, sharp chair/table legs, or shoe sprigs as this can lead to faster deterioration of the rubber layer.

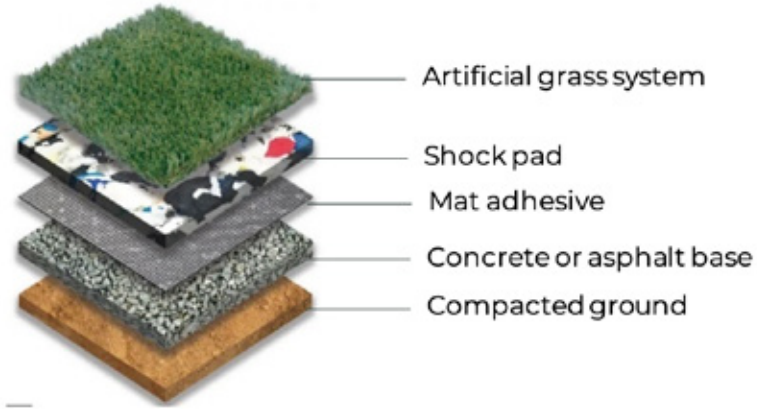


ASTRO-TURF - SAND-FILLED ARTIFICIAL GRASS

Sand Filled Artificial Grass (SFAG's) are common in outdoor tennis courts and hockey. These surfaces are generally not recommended for netball as the surface can cause sliding and ankle/knee injuries associated with the jumping and stopping involved in netball. It is recommended netball play is not undertaken when the surface is wet as this is when the surface is most slippery. There are New Zealand examples of this surface being used for junior netball, in schools and in isolated/rural areas, where a compromise is required to cater for multiple sports.

Astro-turf systems are applied to asphalt or concrete pavement and require similar installation requirements in terms of clean, dry and well-prepared pavement. Some products have shock-pads which provide some cushioning properties. The key benefit of this system is the durability and use across a range of activities and does not require the same level of protection like other acrylic surface products.

Typically, astro-grass systems have a lifespan of 10-12 years although some systems can last much longer up to 20 years if well maintained and depending on the use. Regular maintenance is required to remove organic matter from the sand otherwise this can impact the synthetic grass and increase slipperiness. Treatment of moss and mould growth may be required on an annual basis. Water blasting is not recommended but the supplier should outline the recommended cleaning regime. Periodic re-sanding may also be required.



DECIDING BETWEEN SURFACE OPTIONS

Asphalt has been the dominant outdoor netball court in New Zealand for many years. Well-constructed and maintained raw asphalt courts are affordable, robust and remain the standard outdoor netball court surface.

Acrylic systems provide protection for asphalt or concrete, have excellence slip resistance and an attractive appearance. Acrylic systems are considered a good mid-range netball court surface.

Cushioned/rubberised systems are considered the premium outdoor court surface in New Zealand. As a premium system with a higher cost, it is not required or recommended for all outdoor netball courts. If it was used network wide for all courts, it could lead to netball becoming unaffordable. However, there are some playing benefits (outlined below) with cushioned systems. These benefits are outlined to assist with decision-making on when a more premium surface product is appropriate.

The game of netball continues to evolve with the adult/senior game being faster and more physical. As a result, the number of injuries has been growing (particularly knees and ankles). There is some indication playing on a cushioned/rubberised surface prolongs engagement by players, minimises injuries and provides better playing experiences. A few studies have found adult players who play netball for prolonged periods on asphalt courts, tend to have more chronic injuries with knees and ankles due to the repetitive impact of playing on a hard surface. Because of this, some adults tend to stop playing netball at around age 40 due to their injuries.

The cushion/rubberised surface options are generally softer for younger players and the non-slip surface reduces the occurrence of falling and slipping by younger/inexperienced players. When players do fall, the cushioned surface helps to minimise injuries.

Rubber cushion systems can facilitate the use of outdoor netball courts by other sports such as tennis, basketball, futsal and turbo touch. The thicker mat-laid rubber can provide appropriate cushioning desired by other sports.

The Voice of the Participant Survey for Netball (2022) confirmed the quality of netball facilities is a key determinant of participant's satisfaction and ongoing participation. Many participants have raised concerns about the quality of netball courts and are choosing not to play when courts are slippery, in poor condition, or deemed unsafe.

Regardless of the type of surface, adequate maintenance and renewal are critical to ensure outdoor courts are kept in good condition, not slippery and don't present any hazards arising from ageing.

When deciding on the court surface, it is also important to consider the whole of life costs which includes the cost to construct/install, the maintenance costs and the likely renewal costs/timing.

The table on the following page summarises the key differences between surface types.

SLIP RESISTANCE

There are two sets of standards for testing slip resistance:

- AS/NZS 4663:2004 Slip resistance measurement of existing pedestrian surfaces.
- NZS 4586:2004 Amendment 1 Slip resistance classification of new pedestrian surface materials

Testing of slip resistance by a company accredited by the National Association of Testing Authorities can determine compliance. Contractors or suppliers should provide a warranty that stipulates their product can meet the slip resistance standards.

TECHNICAL INFORMATION ON COURT SURFACES

Additional technical information on outdoor court surfaces can be found in the Netball Australia Technical Guidelines 2016. Surface suppliers can also provide information on different surface products.

	CONCRETE	ASPHALT	ASPHALT	ASPHALT	ASPHALT	ASPHALT
ASPHALT	· Affordable pavement · Good slip resistance in raw state	· No cushioning · Deteriorates with age	· All levels	· Tennis · Social basketball · Social futsal · Multi-sport training	· Regular sweep · Remove organics · Periodic water-blast · Address cracks	20-30 years
CONCRETE	· Longer pavement life · More stable pavement suitable for some ground / soil conditions	· Raw concrete not recommended due to low slip resistance. · No cushioning	· Junior only	· Tennis · Social basketball · Social futsal · Multi-sport training	· Lower construction cost. · Expected life around 20-30 years if constructed well.	50 years
ACRYLIC	· Affordable surface system · Excellent slip resistance · Protects asphalt	· No cushioning · Limited player benefit	· All levels	· Tennis · Social basketball · Social futsal · Multi-sport training (no sprigs)	· Regular sweep · Remove organics · Clean every 1-3 years · Fix cracks & damage	7-10 years
LIQUID RUBBER CUSHION	· Budget cushion system · Excellent slip resistance · Protects asphalt	· Inconsistent cushion and rubber thickness · Requires dry and consistent installation. · Rubber hardens over time	· All levels	· Tennis · Basketball (lower levels) · Social futsal · Multi-sport training (no sprigs)	· Regular sweep · Remove organics · Clean every 1-3 years · Fix cracks & damage · Renewal may involve rubber layers	7-10 years
MAT RUBBER CUSHION	· Excellent slip resistance · Best shock absorption · Longer rubber life · Consistent surface and rubber thickness · Variety of thickness to suit multiple sports · Protects asphalt	· Higher installation cost	· All levels	· Tennis · Basketball · Futsal · Multi-sport training (no sprigs)	· Regular sweep · Remove organics · Clean every 1-3 years · Fix cracks & damage	7-10 years surface 20-30 years rubber layer
ASTRO-TURF	· Affordable · Multi-use favoured by other sports · Durable surface · Shock absorption	· Not slip resistant for netball · Limited netball use	· Junior only and only when dry	· Tennis · Hockey · Futsal · Basketball · Multi-sport training	· Regular organic removal · Annual clean · Mould removal · May require re-sanding	10-12 years but up to 20 years if well maintained

3.8 Guide for Construction

Professional experts should be contracted to assist in the process of engaging a contractor / supplier to undertake construction work on netball courts. The following recommendations are made to assist with the procurement process:

- Engage professional experts to prepare the scope of works, design, and technical specification for the project.
- Request tenders or quotes from a minimum of 2-3 contractors or suppliers in response to the scope of works, design, and specification.
- Compare "apples with apples" when choosing the contractor or supplier. When technical specification is not provided, this effectively allows the contractor/supplier to choose the scope and quality of works. This makes it difficult to effectively compare quotes as a lower value quote may deliver an inferior outcome.
- Sign appropriate contracts including the specification, price, timeframe, quality controls and variation procedures.
- Ensure appropriate construction insurance and warranties are in place.
- Ensure the construction process is monitored for the necessary quality checks throughout.

There are industry agreed specifications for asphalt and reinforced concrete pavements, these are best defined by a civil engineer recognising the particular site and soil conditions. Key elements for consideration include sufficient excavation, preparation and compaction of the sub-grade and sub-base and removal of organic material and root-barriers to prevent movement in the sub-structure.

Specific requirements for asphalt netball courts include:

- Design of sufficient cross-falls and drainage (surface and sub-surface) to ensure the courts dry quickly.
- Consistent surface with no variation in surface more than +/- 3 mm. Anything more is considered a trip hazard.
- Ensure the surface meets the required slip resistance standard.

Where an acrylic surface product (all types) is being applied, the following specifications should be considered:

- Curing of asphalt pavement for at least 2-4 weeks and up to 2 years prior to application. Curing of concrete pavement for at least 4 weeks before application (with a longer period being beneficial).
- The pavement must be clean prior to application either water-blasted (asphalt) or acid-etched (concrete).
- The pavement should be flooded prior to application to check for any surface undulations.
- Any variations in the pavement should be addressed prior to application through grinding or appropriate filler products.
- The asphalt should be checked for any blistering which can indicate foreign materials in the asphalt (which can effect the surface product). Asphalt containing ferrous particulates (iron) should be avoided as this is likely to damage the surface product.
- The pavement should be checked, and any cracks treated through patching and filling in accordance with the supplier's requirement to avoid any issues with surface warranties. Any cracks that are likely related to sub-structure failure must be addressed before the surface application as these will not be resolved by the surface product (see section 3.9 on common court issues).
- The application of the surface product should be in accordance with the supplier's requirements. The courts should be dry, and installation should only occur during consistently dry weather conditions (typically not below 12 degrees or above 30 degrees). No work should occur in wet conditions.
- For liquid applied applications, there should be sufficient checks to ensure there are no ridges created during the application process.
- Once installation is complete, the supplier will confirm the curing period and when play can commence on the surface. There should be a thorough inspection to approve the installation and identify any issues prior to any play on the surface.
- Hand-over should include testing of slip resistance, restating warranties, and confirmation of the required maintenance programme (to retain warranties) and recommended cleaning regime/products.

3.9 Common Court Issues

Issues with courts can arise for a range of reasons, as listed below, with many being preventable in the planning and construction phase:

- Inadequate site investigation and engineering advice leading to poor design decisions.
- Insufficient budget causing design and specification compromise.
- Deficiencies in the construction methodology.
- Insufficient compaction of the sub-structure.
- Failure to remove vegetation in sub-structure leading to soft-spots.
- Lack of surface drainage and insufficient cross-falls causing wet and slippery court surfaces.

- Excessive moisture changes under and around the pavement causing sub-structure movement and pavement cracking.
- Roots of trees and vegetation causing cracking and movement in the pavement and allowing penetration of moisture.
- Soil settlement from neighbouring works e.g. retaining walls.
- Ferrous materials in the asphalt causes blistering and rust stains.
- Flooding or earthquake events.

Common court problems are outlined below with indicative responses. *However, it is imperative to seek professional advice to determine the cause of the problem and recommended solution.*

SUBSIDENCE

Subsidence presents as an uneven court surface. It can be caused by poor sub-structure compaction, decomposing vegetation in the sub-structure and uneven settling of the sub-structure. It can be difficult to "fix" without reconstruction or a new pavement layer (and only if there is confidence the sub-structure is not going to move further).

STRUCTURAL CRACKS

Structural cracks carry through the asphalt/concrete pavement and sub-structure and can vary in size and depth. These can be caused by settling, inconsistent compaction, collapse through soft-spots, poor drainage, tree roots, and sub-structure moisture variations.

It is important that cracks do not create a trip hazard during play. Any variations in the surface +/- 3mm is considered a trip hazard. If the crack is level and flat then it may not be an issue, although the cause should be addressed before it becomes a bigger problem.

BIRD-BATHS

Low spots in the pavement can be created during construction through inadequate compaction or poor pavement grading, leading to puddles or bird-baths. These spots are clearly visible being wet when the rest of the courts are dry and the mould/silt left behind when the water evaporates. These spots are prone to debris build-up and can lead to surface delamination.

The solution depends on the cause either sub-structure or surface issues and whether ongoing sub-structure movement is likely. Solutions range from filling the depression, grinding the pavement to cutting out or complete pavement reconstruction.

Netball court with extensive cracking, undulations, birdbaths, and discolouration. The indicative cause is poor drainage under the courts causing sub-structure movement resulting in structural cracks.

SUPERFICIAL CRACKS

Superficial cracks only penetrate the outer layer and are generally caused by drying out, moisture changes or user damage to the surface. These cracks are generally small and fine. While superficial cracks don't present an immediate issue, they allow water to penetrate which can lead to bigger problems over time. The primary solution is patch filling with suitable patch material or filler for the surface product.

ASPHALT DETERIORATION

Asphalt deteriorates over time and can become gritty and crack along the construction joints. Asphalt can also become glassy and smooth. If the asphalt has not deteriorated too far, application of an acrylic surface can extend the life. Alternatively, a new asphalt surface could be an appropriate solution (provided subsidence is not an issue).

SLIPPERY COURTS

Slippery courts can be a result of a build-up of organic material which can be addressed through cleaning. If the surface has become smooth then it may require recoating or application of an acrylic surface. Inadequate drainage and court cross-falls may lead to the courts being wet most of the time. Drains may be blocked or inadequate. Trees or vegetation may need to be trimmed to minimise shading and leaf drop.

Linear cracks are more likely due to superficial cracks along the seamlines of aged asphalt. Organic build-up has resulted in dirty courts and slipperiness.

IMPORTANT CHECKLIST FOR QUALITY COURT CONSTRUCTION:

- ☑ Engage experts to provide quality advice and prepare the design, scope of works, specification and monitor the construction.
- ☑ Undertake site investigations to identify the site with the best soil conditions and to inform the base design.
- ☑ Ensure the court sub-structure is well designed, prepared and compacted with appropriate quality checks throughout the construction process.
- ☑ Design adequate sub-surface and surface drainage.
- ☑ Have sufficient cross-falls to aid drainage and court-drying.
- ☑ Ensure all courts provide a consistent playing surface with no surface variation more than +/- 3mm.
- ☑ Ensure the court surface provides sufficient slip resistance suitable for netball activity.
- ☑ Complete quality checks through-out the construction works and ensure there is a thorough hand-over process including the provision of warranties and maintenance requirements.

DETAILED TECHNICAL INFORMATION

Detailed technical information on court construction can be sourced from the Technical Court Guidelines developed by Netball Australia.

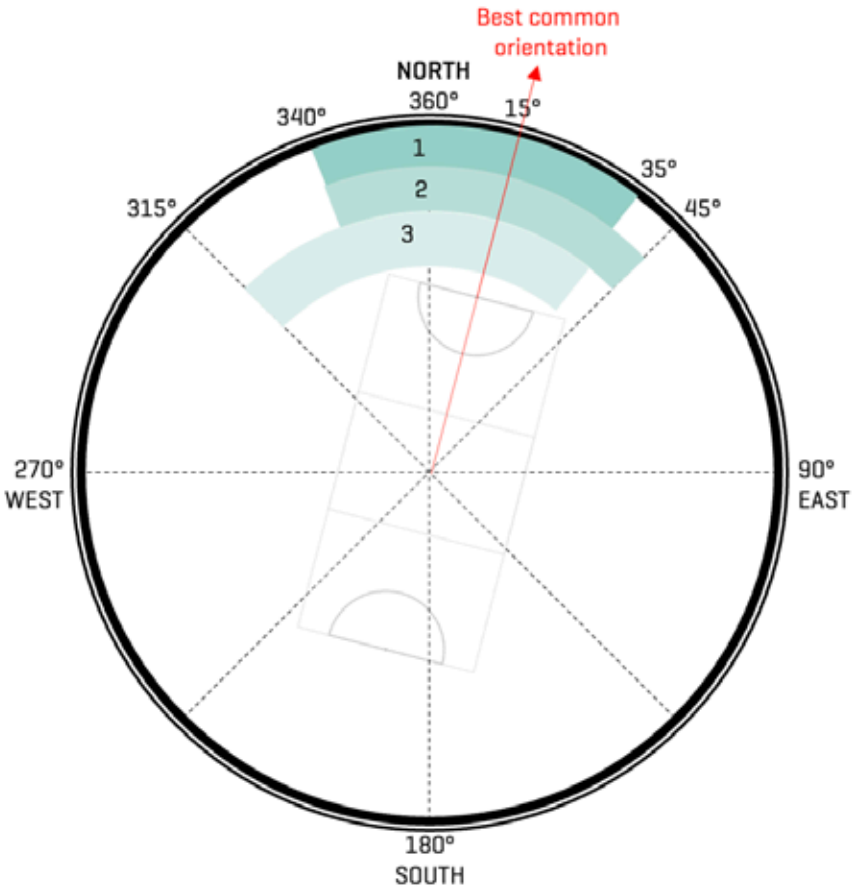
4.0 Design

This section outlines factors for good netball court design.

4.1 Orientation

A north to south orientation is preferred to minimise the effect of sun glare on playing. It is recommended courts run parallel in a north-south direction, with an allowable variance between 340° and 35°. The aim is to minimise the impact of glare on both teams. The following diagram provides optimum direction for various sports:

- 1 = netball, tennis, basketball, handball, athletics.
- 2 = football, rugby, rugby league, field sports.
- 3 = cricket, baseball, softball.
- The best common orientation is 15° east of north.



Recommended orientation for different sports

4.2 Run-offs & Dimensions

RUN-OFF FROM ONE COURT	3.05 metres on all sides. No objects encroach in the run-off area. No change in surface of more than 3mm as this is defined as a trip hazard. Court and run-off comprise the playing area.
RUN-OFF BETWEEN TWO COURTS	Recommended 4 metres between side lines. Includes 1 metre for each court umpire zone and 2 metres for players / spectators.
UMPIRE ZONE	1.0 metre wide along the side line. 2.0 metres wide along the goal line.
STRUCTURES	Shelters, lighting, and other objects should not encroach into the run-off area. Where a shelter or lighting tower is positioned between courts, then the space between courts should increase to 6.10 metres plus the width of the structure.
END TO END COURTS	If fencing is positioned between courts, the run-off is 3.05 metres from each court goal-line.
MULTIPLE COURTS	Consideration for safe movement and inclusion of pathways between 3-5 metres wide.

The surface finish around the court and within the 3.05m runoff area may vary. It is acceptable to have a change in surface materials where asphalt meets concrete or a rubberised surface, but there must be no difference in height at the interface. A variation in the surface of more than 3mm is defined as a trip hazard. Change from hard surface to grass is not suitable within the 3.05m runoff due to surface undulation and tracking mud/debris onto the playing surface. Any surface drainage e.g. dish drains should be positioned outside of the 3.05m runoff area, however, if it does not cause a trip or slip hazard it could be acceptable to have it positioned in the runoff area.

4.3 Layout Options

This section includes diagrams representing the various court layouts that may be considered. These layouts are provided as a guide. The primary rationale for the layouts includes:

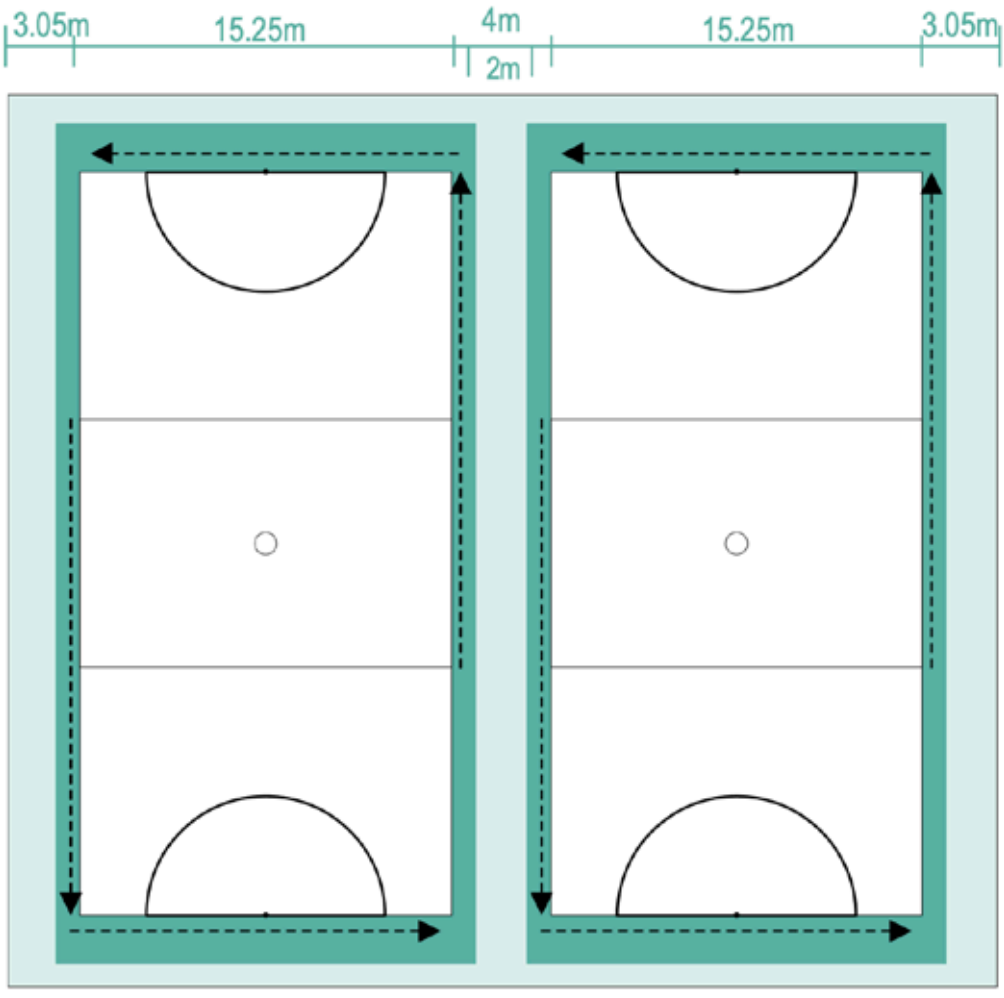
- Ensure there is sufficient space for the safety of players considering players will run/jump out of court at times.
- Ensure there is sufficient space for umpires to move safely while observing/managing the game.
- Provide sufficient space for teams, coaches, and spectators to safely congregate/view outside the playing area.
- Ensure there is appropriate separation between players and spectators to promote good behaviour and minimise the impact of poor sideline behaviour on players/umpires.
- Ensure there is appropriate storage areas/space for team bags and equipment, so these items do not become a playing hazard.
- Ensure there is appropriate safety margins between players and any hard objects such as bins, fences, light-poles, shelters etc.
- Provide sufficient space for easy movement of people during and between games.

It is acknowledged many older netball courts may not meet the recommended runs-offs and court spacings. In these situations, strategies can be implemented to manage any hazards, such as:

- Implement rules on where players, coaches, spectators, and bags can congregate around the court to minimise trip hazards.
- Introduce dedicated spectator areas to reduce the number of people directly within the court playing area.
- Use padding on any hard obstructions within the recommended run-off area to minimise the impact of any collisions.
- Monitor fencing to ensure are no loose wires/material which can cause player injury.
- Extend playing rounds to minimise the impact of people movement during game change-over periods.

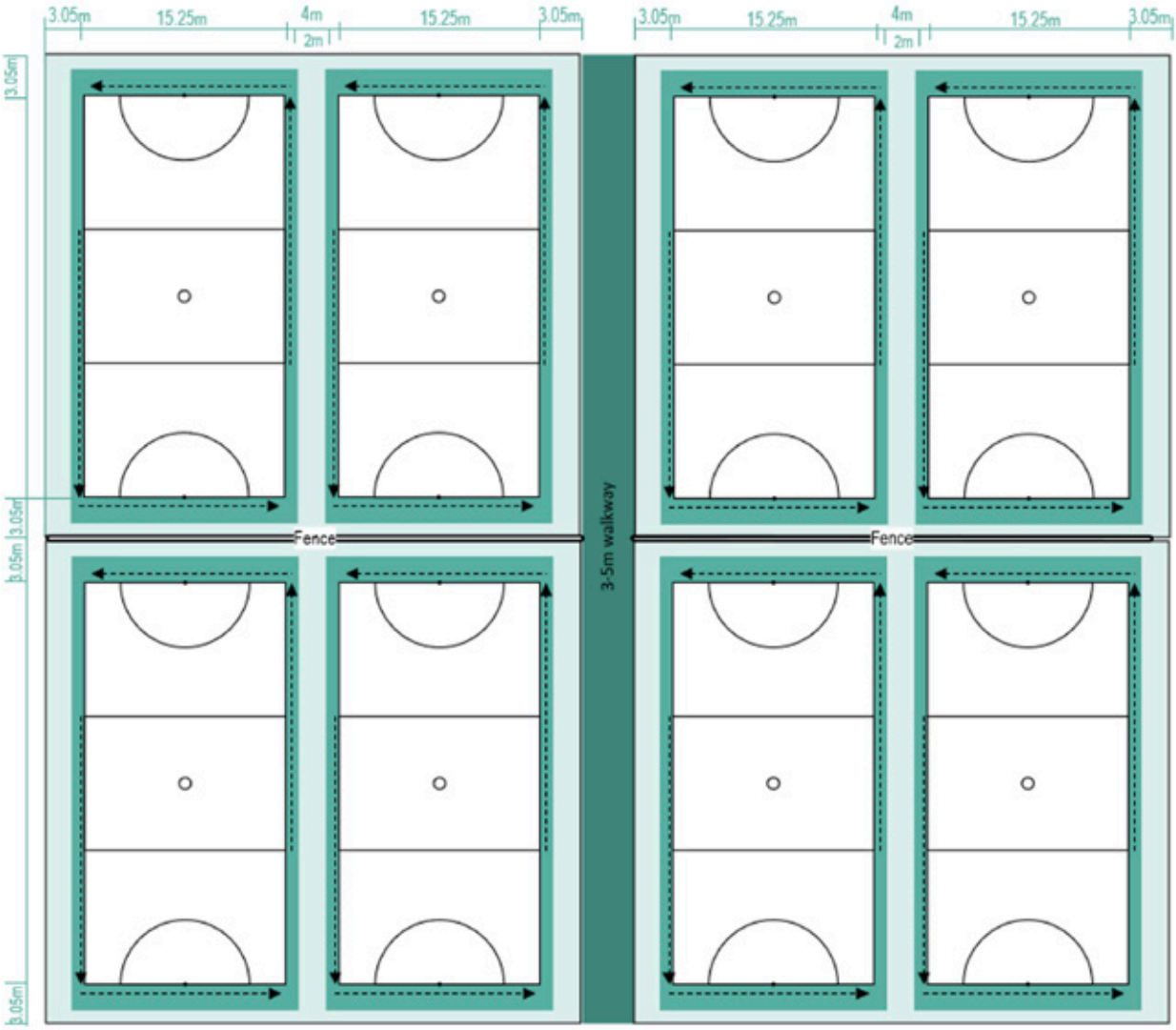
TWO COURTS

It is recommended the distance between two courts is extended to 4m between court side-lines.



MULTIPLE COURTS

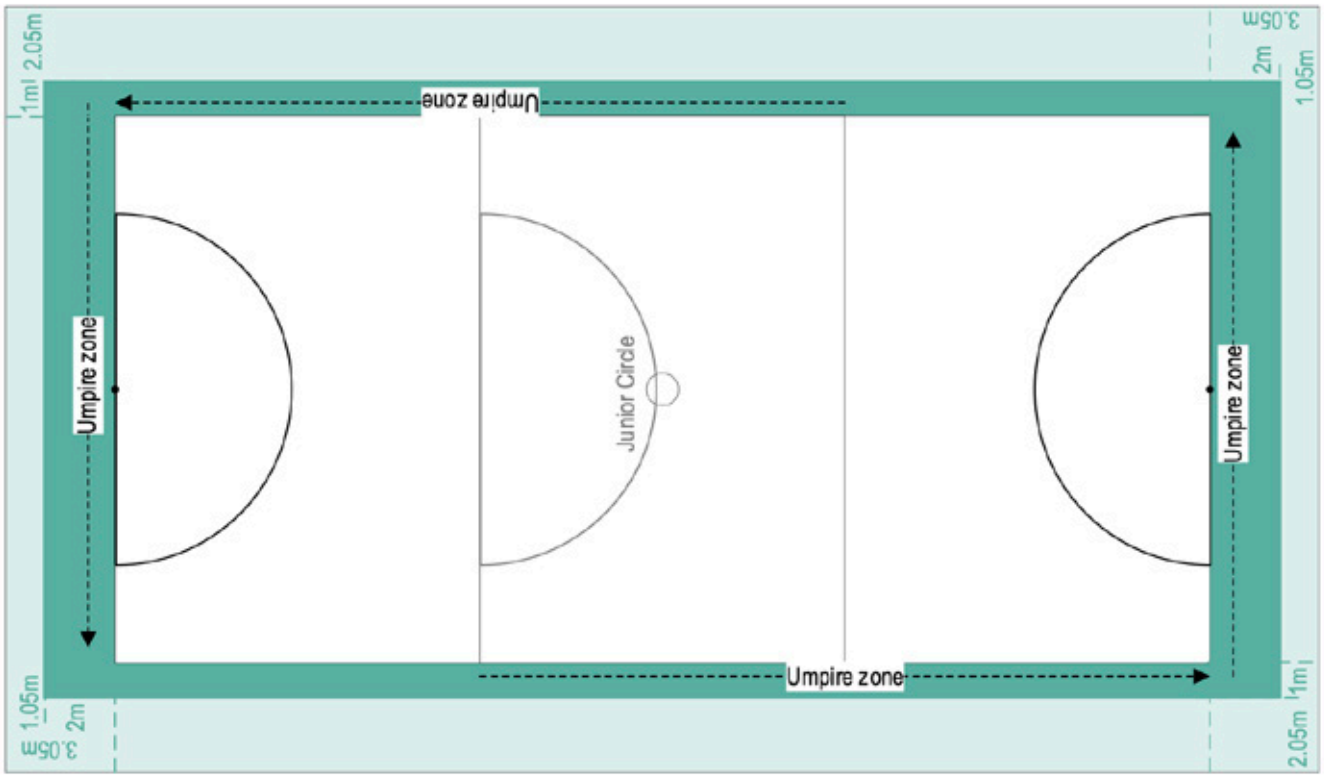
Where there are large number of courts, it is recommended a dedicated walkway between 3-5 metres wide is developed to allow for efficient and safe people movement.



4.4 Line-Marking

General standards for line-marking are as follows:

- All lines are part of the court and shall be 50mm wide, preferably white and clearly visible.
- Allow new asphalt pavements to cure for 7-10 days prior to line marking.
- Use water based outdoor acrylic line paint (good quality).
- Do not use oil based paint to mark new or re-line the existing court pavements as they can become slippery when wet and the paint will crack with age.
- Apply the paint in thin layers as heavy coats lead to build up over the surface that can crack and curl along the sides.
- Do not carry out line-marking in extreme weather conditions as the conditions can affect the accuracy of the markings (e.g. hot weather and the resulting expansion of the surface can result in dimensional discrepancies).
- For new court markings, it is recommended to include junior goal-circle in the centre-third.
- It is recommended a dedicated umpire zone is created either through a variation in the surface colour or with line markings .
-



4.5 Multi-sport line-marking

Most sports would indicate a preference for single-marked playing areas as it is easier to navigate when playing. However, with land and funding constraints, many sport facilities are being multi-marked. The key advantage is to expand the use and therefore maximise the investment and social returns.

- Increasingly, outdoor courts are multi-marked to accommodate netball and other sports. The following considerations can make multi-marked courts easier to navigate:
- Mark two sports in one court to minimise line confusion.
- Keep playing areas consistent within one court i.e. one tennis court to one netball court.
- Use different coloured lines or coloured surfaces to distinguish the respective playing areas.
- Align court sizes to a consistent size when higher level competition is unlikely.
- If there is likely to be overlaps in court use, consider a mix of single-and multi-marked courts to enable some simultaneous play.
- Consult with the relevant sports group to make sure multi-sport line marking will work for each sport.

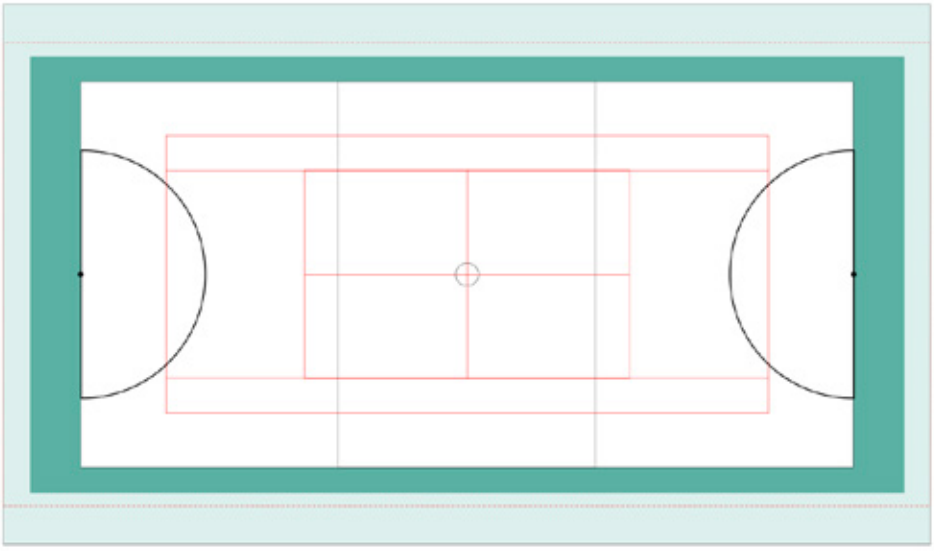
The following layouts outline the New Zealand regulation line-markings for different sports with a netball court and some examples of different multi-markings. It is important to refer to the most recent guidelines of the relevant sports to confirm the court specifications.

CURRENT COURT SIZE REGULATIONS FOR KEY OUTDOOR COURT SPORTS

SPORT	COURT SIZE	RUN-OFF	REQUIREMENTS
NETBALL	30.5 x 15.25 m	3.05m	3 thirds, centre & goal circle
TENNIS	23.77 x 10.97 m	3.66m sides 5.5m ends	Recreational playing area: 34.75 x 17.07m
BASKETBALL	28m x 15 m	2 m	Centre line/circle, free-throw semi-circle, 3 point circle
FUTSAL	25-40m Length 16-25m width	2-3m	Halfway line, centre circle, penalty area, corner arcs

NETBALL AND TENNIS

Netball and tennis are a good combination with netball traditionally played in winter and tennis in summer. There is good compatibility in court surfaces. Moveable tennis nets are preferable over fixed sockets as this minimises the slip risk from the tennis socket inside the netball playing area. It is recommended one netball court aligns to one tennis court. This will minimise line confusion and also complies with the court run-offs for tennis.

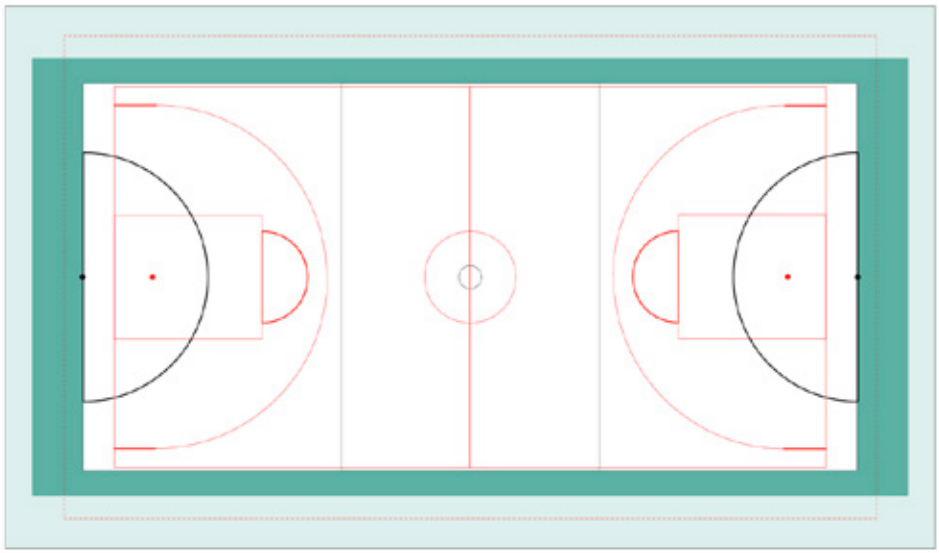


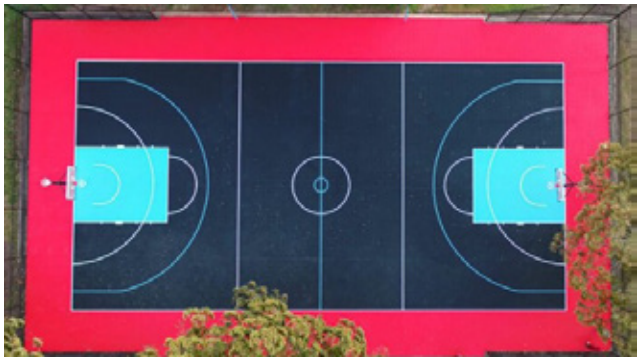
Recommended netball / tennis line-marking

Auckland Netball Centre moveable tennis nets minimise slip risks of sockets.

NETBALL AND BASKETBALL

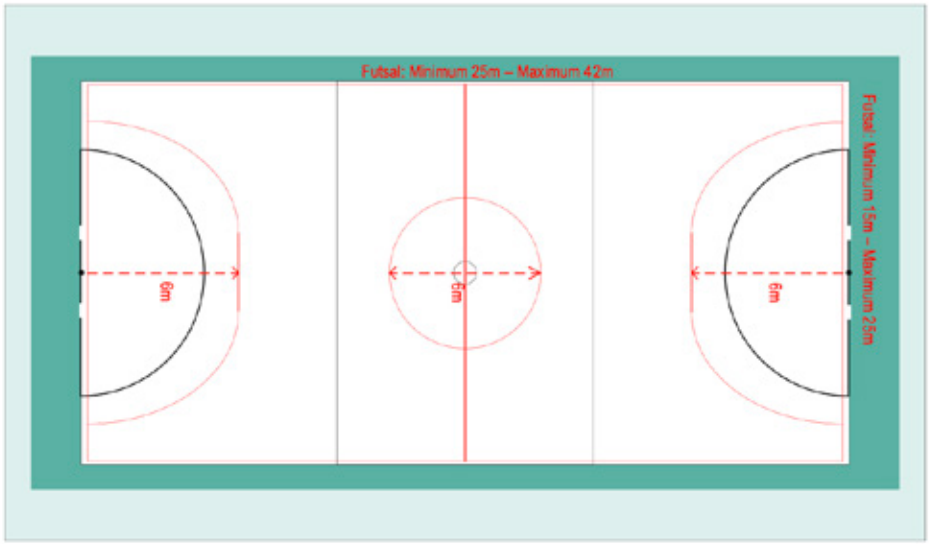
The following diagram shows a compliant basketball court with a netball court. If this line-marking is used, it is not possible to have one goal-post for both sports and a moveable basketball hoop is needed. The basketball court length can be extended to align with a netball court (or reduce the netball court). If either court size is changed, then only community-level competitions can be held on these courts. This can be appropriate depending on the setting.





NETBALL AND FUTSAL

A futsal court has variable size (width 15m-25m and length 25m-42m) depending on the level of play. Typically, social futsal is played on a netball court dimension, with the addition of the larger centre-circle and wider goal-circles.



Windmill Park, Auckland showing netball and futsal markings

4.6 Lighting

Lighting allows for extended hours of court use and increased court capacity beyond typical weekend hours. Lighting should be considered as a pre-requisite for all new or upgraded courts. More netball activity is being played on weekdays. As most places get dark in winter at around 5pm, lighting is essential to unlock weekday capacity.

Netball New Zealand has adopted the Australian Standard **AS 2560.2.4-1986 Guide to Sports Lighting – Part 2.4: Lighting for outdoor netball and basketball** pending any further review (noting the standard has not been updated for over 30 years). These standards address training and competition levels of play. The standards contain information about maintained horizontal luminance (lux), minimum horizontal uniformities (U1 and U2) and maximum glare rating levels required for 'training' and 'competition' play for netball.

The lighting designs and lighting levels should be determined by the activity on the courts and the potential for light spill. It is important an electrical engineer determines the lighting levels, pole layouts and recognise the relevant planning requirements. Local councils have standards (normally defined in district/unitary plans) for light spill at the boundary, particularly where the sports facility borders a residential area. An accepted level of light spill will be determined on a site by site basis. Lighting towers or spill may require resource consent.

Lighting design should also consider the current court numbers and the potential for future expansion. If lighting is not being installed as part of the development of new courts (or within an upgrade), it is highly recommended that appropriate trenches/conduits are included underneath the court pavement to enable future lighting installation. This will minimise the risk of disturbing the pavement sub-structure at a later stage which can cause court issues.

An electrical engineer can also advise on the use of halogen versus Light Emitting Diode (LED) lamps that consume less energy.

LEVEL OF PLAY	MAINTAINED HORIZONTAL ILLUMINANCE (LUX)[1]
TRAINING: LOW LEVEL COMPETITION	100
CENTRES: MID-LEVEL COMPETITION	200
NATIONAL / REGIONAL TOURNAMENTS: TOP-LEVEL COMPETITION	500

1 All illuminance measurement apply at the court surface level and principal playing area including run-offs

POLE TOWERS

Light towers are generally placed along the sides of netball courts. Corner lighting configurations are not ideal for glare and uniformity reasons but can be used when site constraints inhibit side towers.

ILLUMINANCE

Illuminance (brightness of lighting) can be improved through using higher light output lamps or increasing the number of lamps. This may translate into additional loading. Increased illuminance is likely to result in increased operational costs. Balance is required to ensure the level of illuminance is appropriate for the site and level of play.

UNIFORMITY

Uniformity relates to the consistency of the light across the playing area. Where uniformity is poor will result in darker patches and makes it hard for players to judge the flight of the ball. Uniformity can be improved through more luminaries or through the lighting design.

GLARE

Glare can occur when placement of the lamp is in the line of sight of the ball in the main direction of play. Glare can be reduced through design, positioning and height of towers.

MAINTENANCE

Lamp life differs according to the type of lamp used. Suppliers should provide an indicative life for products and the likely level of use. A proactive lamp replacement schedule is recommended. Generally, bulk replacement will provide savings particularly reducing the access costs (cranes, cherry pickers etc.).

Luminaires (lighting component) also require periodic servicing as the lens and reflectors can become dirty. Suppliers should provide a recommended cleaning regime. This is generally undertaken by a registered electrician. Light towers should also be inspected periodically to ensure there are no concerns.

With all lighting maintenance, access is an important consideration. Heavy vehicles on the court pavement should be avoided as this can damage the court.

4.7 Sound and Digital Systems

Many outdoor netball courts also include sound and digital systems. These include:

- Amplified sound systems to communicate across multiple courts.
- Clock display and associated noise systems (e.g. a "hooter") to communicate the running timing of netball games and breaks.
- Digital scoreboards to communicate the game statistics.
- Closed circuit digital systems (CCTV) for security or behaviour monitoring.

In most cases, cables are required to connect these systems across courts. It is important to consider these requirements early in the design process to ensure cable trenches/conduits are incorporated in the appropriate positions and have sufficient room to accommodate the required number of cables. Undertaking this work later can result in either costly excavation works which brings with it the risk of disturbing the pavement sub-structure or the use of surface-mounted conduits which can be unsightly or limit the ideal positioning of equipment.

It is important to check with the local council regarding the requirements and controls for noise and digital displays. This is particularly relevant when netball courts are located close to residential areas. A common source of neighbour complaint about sport facilities is the sound system, particularly in relation the game "hooter".

When netball courts are co-located with other sport facilities, it is useful to consider how different lighting, sound and digital systems are controlled either collectively or independently. This needs to be considered early in the design process to ensure the trenches, conduits and controls systems are all located in the appropriate places. It is important to engage both lighting/infrastructure engineers and lighting/sound/digital suppliers during the design process.

4.8 Fencing

While fencing around a court is not mandatory, it is recommended for a number of reasons:

- Prevent the ball from leaving the court playing area.
- Minimise accidents from stray balls or being chased.
- Defines the court area.
- Secure courts from inappropriate use.
- A barrier to prevent vehicles onto the pavement.
- Complies with other sport requirements.

Considerations for fencing design:

- Heights are 1.2 metres (low), 3m (high) and 3.6m (typical tennis).
- Using higher fence heights in high risk areas next to carparks.
- Using lower fence height inside the court area to open the area and encourage interaction.
- Inclusion of gates at appropriate positions in the fence-line recognising people movement and minimising chokepoints.
- Inclusion of double gates for emergency access, 3 metres wide.

It is also important to ensure fencing does not present a safety risk at the end or sides of courts. This can be an issue for older courts when the run-offs are less than recommended.

4.9 Shelters

Shelters can be used to provide protection from rain, wind and sun for players, coaches and spectators. It is critical to ensure shelters are placed outside the court run-off to minimise the safety risks.

Considerations for court shelters include:

- The design needs to effectively block the rain particularly in windy conditions as otherwise the shelter is ineffective in its purpose.
- Number of shelters and whether all courts have a shelter or just selected courts.
- Placement of shelters relative to the primary movement areas, ensuring the structures don't impact the flow of people.
- Size and capacity of the shelter. If the shelter is too small, then it can cause issues if too many people try to congregate underneath.
- Provision of shelter for bags / equipment, which does not have to be adjacent to the courts.
- Having one large shelter along the one side of courts rather than individual shelters for each court. This can be effective in providing a dedicated spectator area away from the court sidelines.

Auckland Netball Centre shelters

Hawke's Bay Netball Centre report the design of these shelters are ineffective in most weather conditions

Hawke's Bay Netball Centre report the design of these shelters are ineffective in most weather conditions

Pukekohe Netball Centre has a grandstand rather than individual shelters and find this an effective shelter approach

4.10 Control Rooms

Traditionally netball control rooms are the centre-point for the management of netball play and deal with a hive of activity. However, as more netball centres move to digital or app-based game management, the control room is seeing less activity and is more about game observation rather than game management.

There are different views about the ideal placement of control rooms with pros and cons listed in the table below.

	UPPER LEVEL	GROUND LEVEL
PROS	· Expansive viewing across multiple courts	· Connected to the courts enables officials to access courts quickly. · Proximity to courts provides easier access for participants. · Generally ground level construction is cheaper.
CONS	· Disconnected from courts requiring officials to move up/down to manage issues. · Stairwells can be choke points particularly if there is high movement · Building consent may require lift access	· Viewing across a large number of courts can be obstructed if not well designed.

Other considerations for good design of the control room:

- Sufficient glass to enable easy viewing of courts.
- Appropriate insulation and ventilation to prevent it being a hot-house in summer and cool-box in winter.
- Sized appropriately to accommodate officials on game day.
- Official/participant interface located to prevent choke-points.
- Use for other purposes such as an office, storage, first-aid or by other sports.
- Security particularly when the courts are not in use.

Auckland Netball Centre initially designed a lower and upper control room, but only use the lower control room on game day as it is more connected and accessible. The all glass design is challenging to keep warm in winter and cool in summer.

Marlborough Netball Centre has a large ground floor control room as part of the Lansdowne Sports Hub with good windows and participation interface.

4.11 Toilets & Changing Facilities

Toilets and changing facilities are important support amenities and can be a major source of participant satisfaction/dissatisfaction with sporting facilities. Therefore, it is important to consider the design and placement of toilets and changing facilities.

TOILET FACILITIES

There are no hard rules on the number of toilets required relative to the number of netball courts (or other sport facilities). It is recommended to assess the level of demand driven by the times and volume of play relative to the number of courts and/or other sport facilities located together. The Building Act 2004 provides guidance on calculating the number of sanitary facilities to serve a building. This calculator can be used by architects as the starting point to calculate the number of amenities.

Design considerations for toilet facilities include:

- Placement of the toilets relative to other buildings and courts along with access to water/wastewater infrastructure.
- Visibility of toilets and inclusion of sufficient signage.
- Access to the toilets after-hours to serve as public toilets, particularly to assist with training and multi-code use.
- Provision of gender specific or all-gender toilets to enable flexibility in use depending on the activities.
- Inclusion of accessible toilets as required under the Building Act.
- Application of CPTED principles (crime prevention through environmental design) to maximise user safety. Where possible, avoid the use of corridors which are potential entrapment zones.
- Robustness of toilet design and fixtures along with the ease of maintenance to minimise vandalism and maintenance costs.
- Appearance and ease of cleaning as cleanliness and smell are two significant factors contributing to user satisfaction.
- Need for dedicated toilets facilities for staff and/or umpires separate from users.

CHANGING FACILITIES

Compared to other sports, there is often less demand/need expressed by netball for changing rooms. This is because many netball players arrive and leave in their netball attire. However, the provision of some changing spaces either adjoining toilet facilities or as dedicated spaces can be required particularly for umpires and higher grades. The need for changing facilities should be considered early in the planning process through a need assessment.

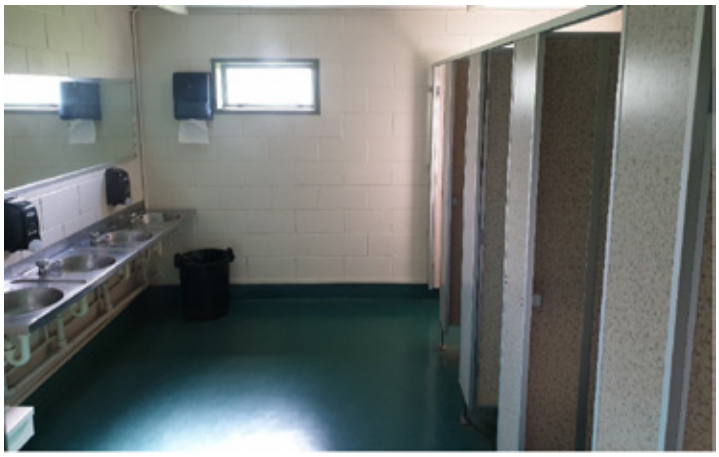
Sport New Zealand have developed guidelines for developing welcoming, successful, and functional changing facilities that support use and participation by all users (and especially females). Factors identified include:

- Fit for purpose design suitable for the intended users.
- Multi and shared use facilities to promote equitable and flexible use by a mixture of users.
- Inclusive design to accommodate users of all ages, gender, ability, and cultural backgrounds.
- Application of crime prevention through environmental design principles (CPTED) recognises the relationship between users and the physical environment. This should also incorporate child safe principles into the design.
- Design and layout to promote safe and optimal functionality for formal, competitive, social, and recreational forms of participation.

Specific considerations include:

- Individual toilet cubicles rather than urinals for unisex use complete with sanitary dispensers.
- Compact, lockable shower cubicles with change seats inside cubicle.
- Partitioning between changing space and foyers outside to minimise views into the changing spaces.
- Adequate lighting in and around the changing room.
- Family friendly attributes (breastfeeding and baby change table).
- Direct access between wet and dry areas in changing spaces.
- Dedicated space for umpires with gender neutral change, toilet, and shower.
- Shelving above basin for personal items and inclusion of mirrors.

Marlborough Netball Centre's changing and toilet facilities are located in Lansdowne Sport Hub with a wide corridor to multiple changing spaces/ toilets. This area can be locked when the courts/facilities are not in use.



Pukekohe Netball has multiple unisex toilet facilities which can be allocated for different user groups depending on the activities.

5.0 Covered Courts

Covered courts are becoming a more common feature of netball courts. This section outlines factors for good design and considerations for covered courts.

5.1 Rationale

More netball centres in New Zealand are opting to develop covered courts for a range of reasons including:

- A more affordable strategy to provide rain and sun protection compared to indoor courts. Depending on the specifications a covered court could cost around $500,000 compared to an indoor court at around $5 million (indicative amounts in 2024 dollars, but costs can range significantly depending on the site and design).
- Netball is played in a range of weather conditions. A cover can provide protection (if designed well) from both rain and sun.
- Can provide a better learning and development environment for very young players by protecting from the rain and sun and providing more consistent playing conditions.
- Provide stable playing conditions for older players and/or social games where the environment is important for safety or player experience.
- Support play by other sports such as futsal and basketball which generally prefer consistent playing conditions.
- Can support use of courts for other activities such as yoga, children's programmes and community events.
- Higher levels of netball require a consistent playing environment suited for the speed and dynamics of the game. This is most typically delivered through indoor courts, but when cost is an issue, covered courts (and the appropriate surface treatment) can provide courts that meet higher level competition requirements.
- Provide a better player experience to support participation growth.

5.2 Height

There is no official netball rule for the ceiling height over a netball court. **Deciding the height is dependent on what will be played on the courts.** The height needs to be sufficient to not impinge on play but also recognise the higher the structure the more side exposure to weather conditions (allowing rain into the court area).

Netball Australia specifies a minimum height for both indoor and outdoor courts at 8.3 metres (over the entire playing area). At this height, there is likely to be some side exposure to weather conditions.

Covered courts common in New Zealand schools are typically curved canopy structures with the pole height at 4.5 metres and the peak height at 6.5 metres. This can be appropriate for training, junior and social competition.

If netball courts are multi-marked with tennis, the International Tennis Federation provides minimum heights for different levels of play summarised in the following table.

TENNIS LEVEL	AT NET	AT BASELINE	AT BACKSTOP
Recreational	9 Metres	6.10 Metres	4.88 Metres
Competition	9 Metres	9 Metres	9 Metres

If netball courts are multi-marked with basketball, the recommended minimum height is 7 metres across the entire court area.

Deciding the height of covered courts is dependent on what is planned to be undertaken and recognising the site characteristics including the prevailing weather conditions, exposure of the site and the planning regulations for the site. Examples of different covered courts are provided in the following images to illustrate different height decisions.

Pukekohe Netball Centre: height was determined by control room windows on the upper floor of the building - 5 metre sides and 9 metres peak.

Manurewa Netball Centre has 5.5 metre pole height and 11 metre centre.

Masterton Netball Centre has a constructed cover with 5.5 metre sides and 7 metre peak. The centre report issues with the rain coming in the sides.

5.3 Design Considerations

In developing any covered courts, the following aspects should be considered:

- The building structure must be designed and built to meet building regulations. Ensure there is appropriate engineering involvement in the design, construction supervision and provision of warranties.
- It is recommended the poles supporting the roof structure are located outside the court run-off areas. It may also be necessary to install padding around the poles to minimise safety risks.
- Lighting should be installed as a pre-requisite within canopy/roof structure. Care is required on where the luminaries are fixed, to ensure lighting uniformity across the courts combined with accessibility for maintenance and minimisation of glare onto neighbouring buildings or activities.

- Some covered courts are designed with translucent sections to provide natural light. Care is required to minimise patches of sun-glare in small areas of a court which can impact netball play.
- Some covered courts are designed with in-built sides to minimise the impact of weather conditions. Depending on the extent and specification of the enclosure, this can lead to ventilation and condensation issues. It is important to maintain cross-ventilation either naturally or by adding fans.
- Some centres have found the design of structural beams has enabled bird roosting resulting in excessive bird droppings on the courts. Some bird dropping can damage court surfaces. It is best to minimise this problem in the initial design of the beams.
- Textile structures (like Pukekohe and Manurewa Netball Centres) require annual cleaning as per the supplier's requirements. This is to prevent the build-up of moss on the structure. Accessibility for maintenance is important.

There are a number of companies in New Zealand offering "off-the shelf" canopy structures. These can be an affordable approach to develop a covered court. Alternatively, a bespoke structure can be designed to suit the specific site and conditions required.

Examples of different covered courts are provided to illustrate design considerations.

Westlake Girls High School – bespoke design by GHD Design/Structureflex combines a combination of features with natural light, side protection and lighting

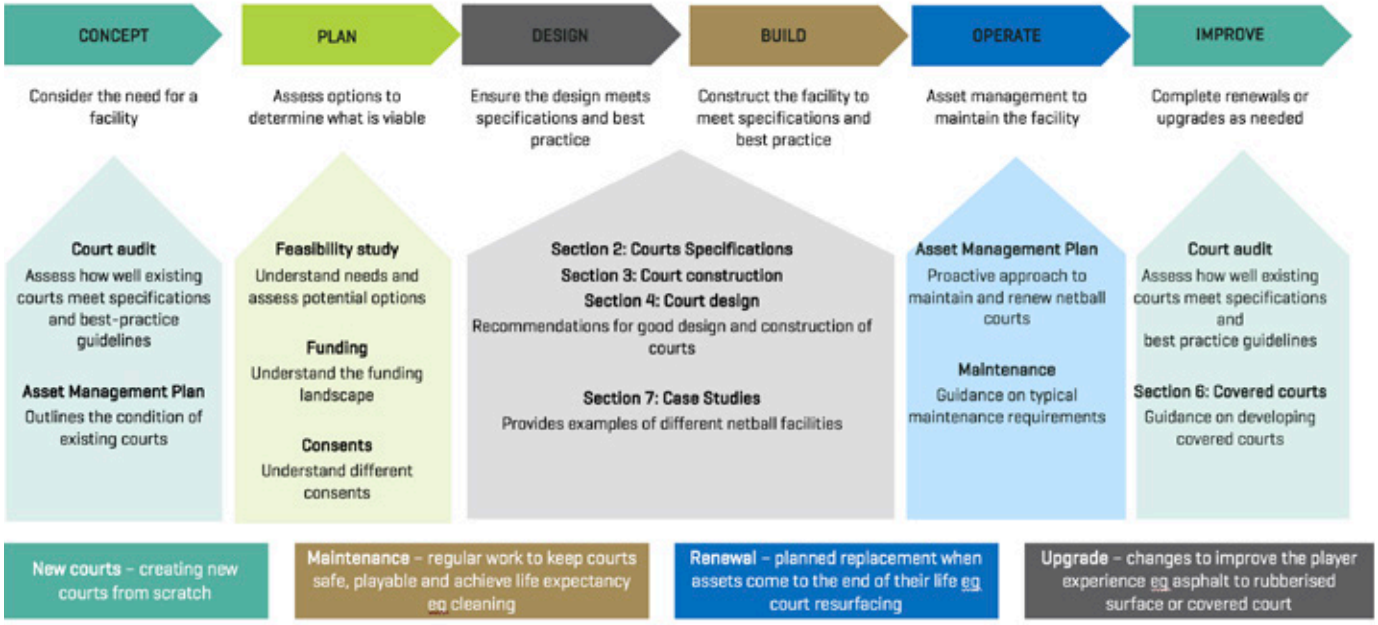
Westland Sports Hub, Hokitika – designed by Shade Systems provides cover, sides and natural light

Masterton Netball Centre has transparent panels to improve natural light

6.0 Court Life Cycle

6.1 Overview

Sport New Zealand's Sporting Facilities Framework defines six stages in the lifecycle of sport facilities. In practice, this is a cyclical process that starts with understanding why a facility is needed, undertaking planning, designing, building, operating/maintaining, and improving courts through renewal or upgrades, which leads back to planning. This section provides additional information in the following sections to support the court lifecycle alongside other sections in these guidelines highlighted in the following diagram.



6.2 Court Audit

When considering an upgrade of existing courts or when starting an asset management plan, it can be useful to complete a court audit. It is ideal to have an independent assessment or if being undertaken in-house involve outside input such as from the local authority, regional sports trust or netball zone.

An audit should consider a range of components summarised below.

COURT CONDITION	· Review the condition of courts, identifying areas of concern. · Is the condition potentially due to sub-structure issues or result from normal ageing? · Are there any health and safety risks? · Does court condition impact play? · Is specialist advice required to understand the issues and causes?
COURT DESIGN	· Are the court dimensions compliant? · Are the run-offs sufficient and free of obstacles? · Is there sufficient drainage and cross-fall? · Is lighting sufficient? · Are there design issues which impacts play?
SITE CONSTRAINTS	· Are there specific constraints to the site such as access, construction, resource consents etc.
SUPPORTING INFRASTRUCTURE	· Does supporting infrastructure such as shelters, seating, change-rooms/toilets, control room, pavilion, car-parking etc. limit play?
RECOMMENDATIONS	· Identify what works may be required – including maintenance, renewal or upgrade. · Determine if specialist investigation is required.

6.3 Asset Management Planning

Asset management *planning is an important ongoing process to help facility owners to manage their assets (courts and facilities) in an efficient and planned approach to minimise surprises and ensure assets are kept in good, safe and playable condition.*

Most asset management plans focus on the maintenance and improvements required over a 10-year window but can be a longer timeframe if appropriate. When starting from scratch, a court audit can be a useful starting point.

The asset management planning process involves:

- **Current state** – what assets does the facility comprise and what condition (state) are the assets in? It is useful to break the facility down into different asset components. This section should identify any key issues the facility/assets are facing.
- **Maintenance** – what is the regular maintenance for each asset, how is this undertaken, how much will it cost and who is responsible?
- **Renewals** – when will existing assets need to be replaced as they have reached the end of their life, how much will it cost, who is responsible and what are the priorities?
- **Upgrades** – what improvements may be needed to the facility, why are upgrades needed, what are the priorities and how will this be progressed?
- **Review** – how will the plan be implemented and when will it be reviewed?

The asset management plan is an ongoing process and it is important to regularly review the plan to reflect progress and changes.

An asset management plan would typically address the sections outlined in the following table. Alternatively, a simple spreadsheet can be used as outlined in Appendix 1.

SUMMARY OF A TYPICAL ASSET MANAGEMENT PLAN

INTRODUCTION	· Summary of the organisation · History · Objectives · Governance · Membership · Facilities
ASSET REGISTER	· List of assets · Ownership · Year constructed / acquired · Cost of purchase · Estimated replacement value · Estimated remaining life
CONDITION	Assessment of asset components rated as: · Very good: no significant visible defects. · Good: fit-for-purpose with minor wear and tear. · Fair: functions but has significant defects. · Poor: reduced functionality or failure imminent. · Critical: requires immediate attention or has health and safety risks.
MAINTENANCE / RENEWAL / UPGRADE	Types of maintenance or work categorised as: · Reactive: fixing something when it breaks. · Inspections: scheduled to ensure working safely e.g. fire extinguishers. · Programmed: scheduled works to keep assets in good working order e.g. cleaning drains. · Renewal: when assets come to the end of their life e.g. resurfacing courts or roof replacement. · Upgrade: when assets need to be improved.
PROGRAMME	· Annual maintenance tasks, inspections, responsibility and cost. · Programmed maintenance and renewals with estimated cost, priority and timing. · Any upgrade works and rationale.
IMPLEMENT	Key actions, responsibilities and timing. Review of plan and responsibility.

The primary benefits of developing and implementing an asset management plan includes:

- Helps to identify the key asset issues to focus on and determine the priorities for implementation, particularly if there are multiple issues that need to be addressed.
- Supports pro-active budgeting for regular maintenance and renewal of assets.
- Helps to supports funding applications and funders typically respond well to the proactive approach.
- Helps to transfer knowledge about the facility and asset when there are committee or staff changes.
- Helps to eliminates surprises as most netball courts do not fail overnight (except in the case of natural hazard events).

Refer to the case study on Waiuku Netball Centre as an example of proactive asset management planning enabling the Centre in maintaining, prioritising and upgrading their facilities.

6.4 Feasibility Study

When considering any significant court development like new courts or upgrade of existing courts, it is imperative to complete a robust investigation involving a needs assessment and feasibility study.

Needs assessment *– collects information to understand the need for court facilities now and into the future to support participation growth and quality netball experiences.*

Feasibility study *– examines all options to identify what is the most feasible/viable way forward to meet needs. This could include status quo, if other options are not achievable.*

Research shows early planning has the greatest impact on reducing future operating costs and improving efficiency compared to any other part of the facility lifecycle. Even projects that are relatively simple benefit from a robust assessment as there are often technical details that are overlooked. These technical details and advice from professionals in the early planning stage can have a significant impact on the success of a facility.

SUMMARY OF A TYPICAL FEASIBILITY STUDY

INTRODUCTION	· Summary of the organisation · History · Objectives · Governance · Membership · Facilities
ASSET REGISTER	· List of assets · Ownership · Year constructed / acquired · Cost of purchase · Estimated replacement value · Estimated remaining life
CONDITION	Assessment of asset components rated as: · Very good: no significant visible defects. · Good: fit-for-purpose with minor wear and tear. · Fair: functions but has significant defects. · Poor: reduced functionality or failure imminent. · Critical: requires immediate attention or has health and safety risks.
MAINTENANCE / RENEWAL / UPGRADE	Types of maintenance or work categorised as: · Reactive: fixing something when it breaks. · Inspections: scheduled to ensure working safely e.g. fire extinguishers. · Programmed: scheduled works to keep assets in good working order e.g. cleaning drains. · Renewal: when assets come to the end of their life e.g. resurfacing courts or roof replacement. · Upgrade: when assets need to be improved.
PROGRAMME	· Annual maintenance tasks, inspections, responsibility and cost. · Programmed maintenance and renewals with estimated cost, priority and timing. · Any upgrade works and rationale.
IMPLEMENT	Key actions, responsibilities and timing. Review of plan and responsibility.

While a need assessment and feasibility study can be completed in-house, most are undertaken by independent consultants or organisations (like a regional sport trust). Some funders require an independent study to ensure it is robust. Regional sports trusts, local authorities and netball zones can provide advice on undertaking a feasibility study.

6.5 Funding Considerations

Funding is one of the most challenging aspects of most court development, maintenance, renewal or upgrade project. The following table provides guidance on potential funding options, although the opportunities will vary from district to district.

In seeking any funding, it is important to be clear about the project, why it is needed and how it will be achieved (best described in a feasibility study). Many funders require a feasibility study to support applications for significant works (like new courts or court upgrades) or asset management plans for court renewal projects.

SOURCES	DESCRIPTION
FACILITY OWNER	· Fundraising by the facility owner. · Operational reserves accumulated over time. · Building fund – an annual levy or portion of funds accumulated for facility improvements.
LOCAL AUTHORITIES	· Most local authorities will consider funding for local projects that align strategically and contribute to improving local well-being. · Grants may be through contestable process, Annual Plans or Long-term Plans.
LOTTERIES COMMUNITY FACILITIES	· Bi-annual application to improve or build facilities. www.communitymatters.govt.nz/lottery-community-facilities/
DONATIONS & SPONSORSHIP	· Donations or bequests accumulated over time. · Commercial or community sponsorship in return for promotion, signage, or advertising. · Naming rights. · Check lease conditions and don't over/under value.
CLASS 4 FUNDERS - GAMING MACHINE VENUES	· Numerous societies across New Zealand distribute grants to community entities from the proceeds of gaming machines. · Important to identify if the society has venues in the local area, their strategic priorities and criteria to align with projects. · The Department of Internal Affairs provides information on funders. · www.dia.govt.nz/Services-Casino-and-Non-Casino-Gaming-Funding-For-Community-Groups
REGIONAL FUNDERS	· Several regions/areas have specific funders active in funding sport. These include philanthropic funders, bank funding trusts, licencing trusts, energy trusts etc.
GOVERNMENT DEPARTMENTS	· In specific cases, there may be funding from government departments such as Ministry of Education or Ministry of Health where partnership opportunities may exist and there is strong alignment to their outcomes.
IN-KIND CONTRIBUTION	· Often centres / facility owners have connections with providers of materials or labour who can provide in-kind contributions. · It can be difficult to quantify this contribution. It is useful to get letters of support from providers to provide an indication of the value in kind. · Where clubs / facility owners intend to use their own members to physically undertake facility work, there needs to be clarity on how this work will comply with the Building Act (in terms of licensed building practitioners).
OTHER	· Land or asset sales where these are surplus. · Partnerships with other sports or organisations that can expand the project outcomes and bring other funding sources.

6.6 Consents

There may be a variety of consents required to develop new or upgrade courts. These are summarised below.

LANDOWNER CONSENT

Landowner consent is required to give permission to occupy land and undertake the development to build or modify netball courts. Approval to occupy land is typically through a lease or licence to occupy but could be bookings to use the courts (when the courts are owned by the local council or another owner such as a charitable trust).

RESOURCE CONSENT

A resource consent may be required to give permission to build or modify netball courts under the Resource Management Act and relevant district plan. The resource consent considers the effects of the development. This is not to be confused with landowner consent which a local council may grant.

Matters that may need to be considered in a planning application could include but are not limited to:

- Permitted and non-permitted activities
- Lighting and glare
- Noise
- Works on former contaminated sites
- High volumes of earthworks, drainage and stormwater
- Site coverage
- Access and roads

BUILDING CONSENT

A building consent is typically always required to give permission to build or modify netball courts under the Building Act. The building consent ensures the court / structures comply with building regulations and are safe to use.

It is recommended the local council is consulted before any work is progressed to ensure the application covers the necessary detail.

6.7 Typical Maintenance

The responsibility to maintain and renew netball courts will vary depending on who owns the courts (and potentially what agreements have been put in place). There are a range of ownership structures across New Zealand, based on three primary (or general) models:

- **Council/School/MOE owns the courts** in most cases the court owners will be responsible for maintenance and renewal of courts. In some cases, maintenance responsibilities may be included in a lease to a netball centre / club.
- **Netball centre owns the courts on their own land or through a lease or licence to occupy.** In these cases, the centre will be responsible for maintenance and renewal of courts.
- **Another organisation (such as trust) owns the courts** potentially through a partnership or shared ownership structure. The maintenance and renewal can vary depending on the set-up and usage arrangements / legal agreements.

Regardless of the model, it is imperative to identify the responsibilities for maintenance and renewal of netball courts including other obligations like insurance and operating costs (such as lighting energy costs). Legal agreements such as a lease or trust deeds should outline these responsibilities and if they don't then it is recommended this is addressed. The development of an asset management plan can also help to cement maintenance and renewal tasks and obligations and ensure appropriate planning is undertaken.

Typical maintenance requirements for netball courts are summarised in the following table. However, they may include other requirements particular to each location / situation.

ASSET	TYPICAL MAINTENANCE
COURTS	· Regularly remove dirt, debris and organic matter. · Remove food/drink, mould, bird droppings, vegetation promptly to avoid surface damage. · Chewing gum may require mechanical scrapping (but avoid damaging the surface). · Grease / oil stains from bikes or other machines is likely to require non-residual organic cleaner. · Periodic cleaning (annually or less frequent) as per the surface requirements. See Section 3.7. · Cracks in the surface should be monitored, assessed and addressed. See Section 3.9. · Renewal of the court surface will be required as per the different surface products. See Section 3.7. · Line-markings may need to be re-applied as part of resurfacing or every 5-10 years. · Fencing typically has a long-life but may require replacement every 20 to 30 years or minor repairs on a more frequent basis.
GOALPOSTS	· Generally goal-posts have a relatively long life but may require replacement every 20 to 30 years. · Pole padding will require renewal every 5 to 10 years depending on conditions and storage. · Goal nets deteriorate more quickly and need to be renewed every 3-5 years.
DRAINAGE	· Clear drains every season and after Autumn to remove all dirt and debris. · Build-up and clogging should be addressed quickly as this can lead to more serious issues if left.
FLOODLIGHTS	· Scheduled cleaning and replacement of lamps in accordance with supplier's recommendations.
COVERED COURTS	· Annual cleaning of the canopy material as per supplier's recommendation. · Annual cleaning and clearing of gutters. · Periodic structural inspections and surfacing of structural beams to address any rust or degradation.

7.0 Case Studies

This section provides case studies of netball courts to highlight key success factors and learnings.

7.1 Auckland Netball Centre

ADDRESS	7 Allison Ferguson Drive, Saint Johns, Auckland
MEMBERS	Around 10,100 players (2022)
FACILITIES	30 outdoor courts, floodlight (20 marked for tennis) 3 indoor courts and administration building Court runoffs: 4m sides, 3.6m ends, 6.8m walkways
SURFACE	Asphalt pavement with Rebound Ace HSA
CONSTRUCTION	Built in 2006
KEY DRIVERS	Centre had outgrown the existing facility and the opportunity to partner with Council to develop a larger centralised facility.
SUCCESSES	· Dish-drains between courts · Good cross-falls aid with surface drainage · Wide run-offs and pathways aids in movement of players and spectators · Control room on ground floor connected to play · Low fences aid with openness and high fences in between multi-marked courts helps manage balls · Effective design of shelters. · Outdoor courts are used by a range of other users.
LEARNINGS	· Drainage from surrounding area going underneath the courts · Car parking can be constrained at times. · All glass control room can be difficult to regulate the temperature.
FUNDING	Funded through a Facility Partnership Scheme with Auckland City Council, a range of external funders and naming rights.

Low fences provide an open feeling and combined with moveable grandstand provide good positions for spectators to view the playing area. Large court run-offs and walkways assist with moving large numbers of people around.

Dish-drains and good cross-falls help deliver dry courts.

Dedicated umpire zones, wide run-offs, shelters, fencing between courts.

Tennis courts are marked in yellow inside the court with moveable nets.

The control room is located on the ground floor connected to play. The all-glass construction can be difficult to regulate the temperature.

7.2 Netball Nelson

ADDRESS	Saxton Stadium, 142 Saxton Road East, Stoke, Nelson
MEMBERS	3,000
FACILITIES	13 outdoor courts Access to 5 indoor courts (in Saxton Stadium) Netball Pavilion alongside the outdoor courts Court runoffs: 3m ends to fence, 5.8m end on end courts, 4m between courts sidelines
SURFACE	Asphalt, with a painted goal-circle
CONSTRUCTION	Outdoor courts and pavilion originally built in 1992 Court resurfacing was completed in 2015 Multi-use stadium opened in 2009.
KEY DRIVERS	The initial courts were developed in response to participation growth and opportunity to be part of the co-located sports hub in Nelson.

SUCCESSES	· Availability of outdoor and indoor courts located next to each other. This enables provision of multiple competition/ leagues/programmes at the same time. · Restructured the governance has enabled a more fit-for-purpose organisational structure. · Good membership based and retention. · Strong community engagement. · Innovative programme delivery. · Dedicated volunteer base.
LEARNINGS	· Making sure the outdoor courts are fit-for-purpose with sufficient run-off, colour coding the umpire space and provision for walkways around courts. · Provision of viewing and spectator space in both the indoor and outdoor courts. · Fit for purpose space for umpires within building. · The painted circles can be slippery and have become patchy with age.
FUNDING	The original courts reported to cost $390,000 and the Pavilion $1,071,000 (1992).

Overview of Netball Nelson outdoor courts and Pavilion

7.3 Pukekohe Netball Centre

ADDRESS	Bledisloe Park, 124 Queen Street, Pukekohe
MEMBERS	Around 2,650 players (2022)
FACILITIES	11 outdoor courts, 4 covered courts Two level administration building Court runoffs: approximately 3m sides, 2m ends Small playground within outdoor court area
SURFACE	Asphalt pavement with Rebound Ace HAS on 12 courts, asphalt on the remaining 3 courts.
CONSTRUCTION	Built in 1946, covered courts in 2016 and 2020.
KEY DRIVERS	Improving the player experience through rubberising the court surface and developing 4 covered courts.
SUCCESSES	· Covered courts have increased participation and improved player experiences. Centre has experienced sustained member growth. · Covered courts are well used for pickleball, health programmes and by other activities. · Small blocks of changing rooms and toilets are functional and cater for wide range of needs. · Proactive maintenance and development.

LEARNINGS	· Insufficient carparking to meet playing demand.
FUNDING	The Centre has been successful in sourcing funds from a range of local and national funders for the court improvements. The Centre is proactive in engaging local business to sponsor the centre and developments. Key to their success has been developing proactive relationship with funders and businesses including reporting back on the success of each development.

Covered courts are well used for a variety of activities and increased netball participation and satisfaction.

7.4 Netball Wairarapa

ADDRESS	15 Colombo Road, Masterton
MEMBERS	Around 1,100 players (2022)
FACILITIES	12 courts: - 3 rebound ace under cover - 3 rebound ace - 6 asphalt Administration building with spaces to hire. Court runoffs: approximately 3 metres on all sides.
LINE-MARKINGS	3 covered courts: netball, basketball and tennis 3 outdoor Rebound Ace courts : netball and tennis 6 asphalt courts: netball only
SURFACE	Asphalt pavement with Rebound Ace HSA
COVERED COURTS	· Designed by an engineer with steel portals. · Estimated construction cost $650,000 in 2018/19. · Skylights and extra lighting. · Includes moveable tennis nets.
CONSTRUCTION	Covered courts completed in 2019
KEY DRIVERS	Improving the player experience through covered and rubberised courts.

SUCCESSES	· 13% increase in netball participation. · Work on associated programmes for umpires. · Well used over winter with training and competitions across the week and weekends. · Used by futsal but working on other codes. · Facility has been well received by users and assists with overall bookings and sponsorship.
LEARNINGS	· The open design is exposed to southerly winds and rain does come through in windy conditions. · More thought about the design could have addressed small issues. · Non-compliant construction led to legal issues. · Challenging to build multi-purpose use of the facilities with other codes.

Open nature of structure is exposed to weather conditions.

7.5 Waiuku Netball Centre

ADDRESS	Corner Kitchener Road and Racecourse Road, Waiuku
MEMBERS	Around 1,150 players (2022)
FACILITIES	6 outdoor courts and grandstand Administration building. Court runoffs: approximately 3m sides and ends.
SURFACE	4 courts with asphalt pavement/Rebound Ace HAS 2 courts in asphalt
CONSTRUCTION	Built in 1954, resurfacing in 2021 and 2023
KEY DRIVERS	Renew court surface and improve player experience through introduction of rubberised surface. Proactive approach to managing assets.
SUCCESSES	· Developed an Asset Management Plan in 2020. · Supported pro-active funding for surfacing of four courts in 2021 and 2023. · Asset Management Plan is well received by funders and the local council. · The Asset Management Plan helps the volunteer centre transfer knowledge when the Committee changes. · The Plan supports pro-active budgeting and planning for regular maintenance and renewal works. Limited surprises as the Centre understands what is needed in the coming years.
LEARNINGS	· Seeking advice on selecting court surfaces
FUNDING	Centre received funding for court renewal and upgrade through Auckland Council Sport and Recreation Investment Fund, along with other external funders and their own funding.

Waiuku Netball Centre's resurface 4 of the 6 courts and planning for the resurfacing of the final 2 asphalt courts.

7.6 Westland Sports Hub

ADDRESS	DWC Westland Sports Hub, 140 Hampden Street, Hokitika
MEMBERS	Around 320 netball members and growing (2023)
FACILITIES	4 netball/tennis covered courts with mesh sides to minimise impact of weather. Runoffs 2m between courts and 3.5 on goal-line. 1 indoor gymnasium (refurbished) Sports fields to be upgraded
SURFACE	Asphalt with Rebound ACE
CONSTRUCTION	Completed in March 2020
KEY DRIVERS	Netball, basketball, badminton spent 20 years working to develop better facilities to support growth and meet needs. The hub is a partnership between the codes, Westland High School, Westland District Council and Development West Coast.

SUCCESSES	· All weather space to facilitate training and games. · Nets between courts means different sports can train without impact each other. · Growth in participation and skill improvement.
LEARNINGS	· Be clear about the scope of works and keep to the agreed budget. · Ensure appropriate contingency to allow for modifications or unexpected costs · Ensure there is clarity with suppliers on what is included with quotes.
FUNDING	Total cost of the covered courts and upgraded gymnasium was $3.5 million. Each code was required to raise funds with a target of $300,000. $1.5 million from Development West Coast, $700,000 from the school, $100,000 from the Council, $700,000 from Lotteries and $200,000 from local business / private sponsorship. Work to raise $1.5 million to upgrade sport fields. Continuing to engage business / sponsor for funding to support renewals and maintenance.

8.0 Checklist

This section provides a checklist for court developments and links to specific sections for each reference.

CHECKLIST	DESCRIPTION	LINK
RATIONALE	· Understand why you need to consider changes to netball courts. · Consider the needs and priorities of the netball facility. · Assess the likelihood of funding. · For new courts or significant upgrades, assess the need and viability of options.	Court Audit Asset Management Plan Funding Feasibility study
EMPLOY PROFESSIONALS	· To undertake investigations, develop the design and provide quality advice.	
ENGAGE STAKEHOLDERS	· Engage stakeholders early, including the landowners, local council, regional sport trust, netball zone, neighbouring sports and potential new users.	Feasibility study
CONSENTS	· Obtain landowner consent to occupy land, resource consent to manage effects and building consent to ensure development is compliant and safe to use.	Consents
SITE INVESTIGATION	· Select sites with sufficient space for full-sized courts and associated infrastructure. · Undertake appropriate site investigation to understand the soil composition. · Consider resilience issues and opportunities.	Court specifications
COMPLIANT COURTS	· 30.5 metres long by 15.15 metres wide with 3.05 metres run-off on all sides.	Court Audit Asset Management Plan Funding Feasibility study
SUB-STRUCTURE & PAVEMENT DESIGN	· Design and construction of the sub-structure (the layers beneath the pavement) are critical for long-term performance of courts. · Site investigation will inform the decisions for the sub-structure and pavement.	Sub-structure Pavement: concrete vs asphalt
DRAINAGE AND CROSS-FALLS	· Courts should be designed with sufficient surface and sub-surface drainage. · Court cross-falls of 1:80 to 1:100 to ensure water can drain quickly.	Drainage Cross-falls
SURFACE SELECTION	· A range of surface options have various costs and player impact pros and cons. · Court surface should have a maximum deviation of +/- 3 millimetres. · Obtain construction warranties for slip resistance.	Surface options Advantage of a rubberised surface Slip resistance
COURT DESIGN	· Orient courts on a north-south alignment. · Include appropriate run-offs and spacings between courts to facilitate movement. · Line-markings are 50 millimetres. · For multi-sport line-marking, combine one other sport per netball court.	Orientation Run-offs & dimensions Layout options Line-markings
FLOODLIGHTS	· Meet the standards for sport lighting.	Lighting
OTHER ELEMENTS	· Netball court fencing is not mandatory but can be beneficial. · Consider whether to include shelters, drinking fountains and pathways. · Consider the placement of control rooms to most effective and efficient.	Fencing Shelters Control rooms
COVERED COURTS	· If these are being planned, carefully consider the height and placement of poles.	Covered courts
MAINTENANCE	· Prepare asset management plan and undertake proactive maintenance	Asset Management Plan Typical maintenance

8.1 Helpful Contacts

For assistance in planning, developing, maintaining or upgrading netball courts, the following contacts can be useful.

ORGANISATION TYPE	ASSISTANCE AVAILABLE
REGIONAL SPORT TRUSTS (RSTS)	· Regional sports trusts work to increase regional levels of physical activity and to strengthen regional sport and recreation infrastructure (including organisations). · Most RSTs have a Spaces and Places adviser who can provide advice about facility planning, development, asset management and funding. · Contacts for RSTs are available on Sport New Zealand's website: · www.sportnz.org.nz/find-a-sport-or-recreation-activity
NETBALL ZONE	· Each netball zone is connected with the relevant regional sport trusts in their area. · Zones can provide useful connections to experts and available resources to support netball centres. · Zones are often aware of netball developments past and present and can connect Centres to relevant examples. · Zones can provide advice about funding opportunities and strategies.
NETBALL NEW ZEALAND	· The national body sets out the strategic context for the sport of netball. It is useful to show alignment to netball's strategic direction currently defined in Poipoia: · www.netballnz.co.nz/netball-nz/about-us/poipoia-plan · Netball New Zealand manage the national resources and can provide connections to experts and case study examples.
LOCAL AUTHORITIES (ALSO CALLED COUNCILS / TERRITORIAL AUTHORITIES)	· Many local authorities own netball courts or lease land for Centres to develop courts. · Most councils have in-house maintenance and project managers who oversee the council's assets. These staff can be useful sources of information about facilities and contractors. · Many local authorities have funding opportunities either through grant schemes or through the long-term plan / annual plan process. · It is important to build relationships with local politicians as they can be strong advocates for netball projects and can provide useful connections.

9.0 Appendix 1
Simple Assest Management Template

Netball Facilities Simple Asset Management Template

Netball Centre		Date completed					Completed by					
Address							Centre opened					
Land-owner		Lease Area					Lease Term					
Court owner		Covered Courts					Indoor courts					
Building owner		Building age					Developments					

Area	Asset	Description	Age	Size/Number	Original cost	Replace cost	Condition	Remaining Life	Maintenance	Renewal	Priority
Courts	Pavement										
Courts	Surface										
Courts	Drainage										
Courts	Goal-posts										
Courts	Line-marking										
Courts	Fence										
Courts	Floodlights										
Grandstand	Roof										
Grandstand	Seats										
Grandstand	Handrails										
Building external	Roof										
Building external	Walls										
Building external	Paint system										
Building external	Windows										
Building external	Signage										
Internal Building	Walls										
Internal Building	Ceilings										
Internal Building	Flooring										
Internal Building	Electrical										
Internal Building	Change rooms										
Internal Building	Toilets										
Internal Building	Kitchen										
Carpark	Surface										
Carpark	Line-marking										
Carpark	Drainage										
Carpark	Signage										

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