

BALDERSTONE PARK SPORTS PITCHES

0522-PLI-Z1-ZZ-SP-L-0101

PERFORMANCE SPECIFICATION: GRASS PLAYING PITCHES

PLINCKE LANDSCAPE LTD

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STATUS OF ISSUE: STAGE 4

REVISIONS:

REVISION	DATE	NOTES	BY	CHK	APP
P01	20/02/19	DETAILED DESIGN-FIRST ISSUE	AA	AA	AA
P02	05/03/19	COMMENTS FROM DRAINAGE ENGINEER INCLUDED	AA	AA	AA
P03	06/08/19	REVISED DESIGN CHANGED TO SOAKAWAY SYSTEM	AA	AA	AA
P04	09/12/22	UPDATED TO RUGBY LEAGUE PITCHES	AA	AA	AA

General requirements:

2nr grass pitches, ref Plincke drawings 0130, 0400, 0410

Pipe and Excavated Slit Drained Pitch System, to soakaways, see figure below.

Usage

The final design is assumed to be a pipe and slit drain system combined with sand amelioration of the topsoil. It is expected that pitch usage of 3-6 hours per week, 4 ½ - 9 hours for younger age groups, would be sustainable based on SE's estimates.

Reference Documents

- To be read in conjunction with PSD Agronomy Summary Report ref L/001/RBC/1541/R/190131 dated Jan 31st 2019.
- SAPCA Code of Practice for the Design Construction and Improvement of Natural Sports Turf 2010.

Contractor Design Items

The following items are to be designed by the contractor:

- Soakaway details and capacity
- Drainage pipes, falls, design, inspection/silt traps and all connections
- Final levels/ cut and fill
- Flood risk mitigation
- Phasing of the works
- Establishment of pitches until first use, including protection from public access-see Agronomist report for details.

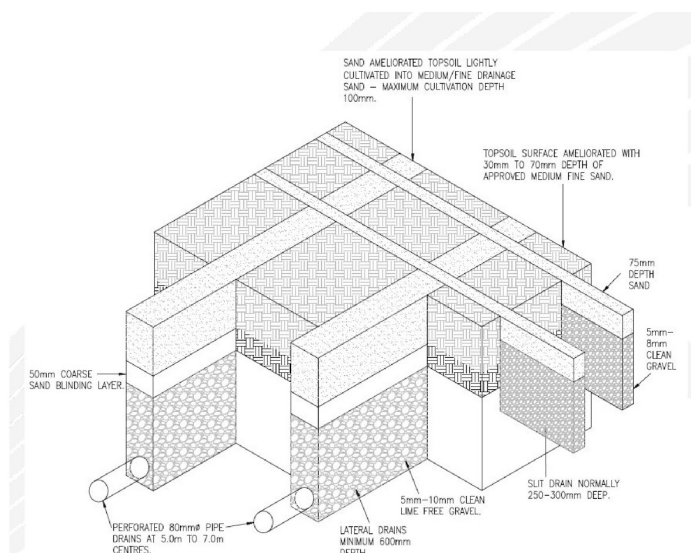


Figure 5 Recommended pitch construction where topsoil is cultivated and supplemented with slit drains

WORK STAGES

1 Site Preparation

Refer to general preliminaries for details of site access, working hours etc. The existing grass is to be weed-killed with a suitable herbicide.

2 Grading/Level Requirements

Topsoil strip/temporary stockpile-to be sown with a clover rich green manure grass mix. Strip/stockpile to take place to all the pitches, run off areas and topsoil harvesting areas/soakaway strips as indicated on the drawings.

2a Soakaway construction

Avoid existing trees-see plan for indicative tree root protection areas

- **Trees to be protected in accordance with BS5837, with chesnut pale fencing.**
- Soakaway to be constructed in accordance with BRE digest 365 using clean stone with 30% free volume. Soakways to be lined with permeable geotextile/covered to top. 25mm 6mm grit layer (or sufficiently free draining site won subsoil) to be placed over the top of the soakaway prior to backfilling.
- Stockpile temporary clean/viable sub-soil material on site and use this for grading operations.

Grading to take place using laser controlled grading equipment.

Remove cricket square and build up. Grade existing and imported soil to create minimum depth given below of 200mm. Remove any other undulations/surface irregularities.

Care must be taken to avoid over compaction and any cultivation required should be carried out in such a way that that there is no possibility of the topsoil being contaminated with underlying subsoil.

Following grading works the topsoil should be ameliorated with an approved medium/fine lime free sand. (See 4).

Existing soil

Refer to Agronomist Report for details of any physical or other contaminants. The site is not assumed to be contaminated based on desktop surveys available from Rochdale BC.

The site requires cut/fill earthworks to create a smooth, uniform plateau marrying in to existing peripheral levels. Existing topsoil should be harvested and stockpiled on site for re-application following completion of the subsoil formation levels.

Final cultivation: No stones larger than 16mm in any one direction to be present within the first 100mm depth of topsoil. This depth to be increased to 200mm to high-wear areas such as goal-mouths and centre spots.

Imported Topsoil

As a minimum, it should meet the requirements of 'Premium Grade' topsoil as detailed in BS 3882: 2015. The texture of the topsoil should be specified by the specialist sports pitch consultant in accordance with the recommendations in the agronomist report.

Topsoil should be of high intrinsic fertility. When inspected visually the topsoil should be free of propagules of aggressive weeds, fragments of any glass, brick, concrete, wire or foreign matter that could be hazardous to health and vegetative growth. The soil should have a maximum stone size of 16 mm and should not contain more than 20 % stone by weight.

If required, the stone content of the topsoil should be reduced by placing the topsoil through a

power screen. Screening will help to remove all stones and particles greater than 16mm in any one dimension. The power-screen should be fitted with a soil shredder and grid screens to maximize the removal of material greater than 16 mm in size.

Any form of recycled topsoil is not acceptable for use in the construction of natural turf sports facilities.

Minimum finished/settled depth of topsoil will be 200mm (excluding sand amelioration layer). 250mm depth preferred to areas of high use eg goal mouths/centre circle.

4 Sand Amelioration

Sand amelioration to topsoil: 25mm depth sand ameliorated into topsoil to produce 50mm high sand soil layer. To be applied after installation of lateral and collector drains.

The sand should be spread carefully with specialist sand spreaders and delivery lorries should not be allowed on the area under any circumstances.

The sand should be lime and salt-free (less than 2000 $\mu\text{S}/\text{cm}$) and have a medium/fine particle size distribution within the central limits of the grading curve in Appendix 2. The sand should have a pH value in the range of 6.0 to 7.5. The sand should be cultivated into the near surface of the underlying topsoil using tractor mounted cultivating machinery with depth control.

5 Pipe drainage

Lateral Drains

Drainage runs will be installed at 10m centres at a minimum depth of 450mm below ground level.

Following completion of the earthworks and topsoil replacement a trenched, piped, land drainage system should be installed using 80 mm diameter, perforated, plastic, lateral drains laid to a minimum 450 mm depth invert level.

All pipe drains require permeable fill to be placed in them to provide drainage continuity.

Permeable backfill should be used to facilitate the rapid flow of water from the trench into the pipe.

No excavated material should be allowed to fall on to, or otherwise contaminate, the excavated trench. Pipe drain trenches should be as narrow as possible, but allow easy placement of the pipe without the risk of forcing the pipe into the trench. The bottom of the trench should be at least 50 mm wider than the external diameter of the pipe.

The lateral drains should be installed on the bed of the trench, which should then be backfilled to within 150 mm of the surface with 5 mm – 10 mm clean aggregate. The aggregate should be a hard material resistant to breakdown by abrasion or chemical action and should have a particle size range complying with the table given in SAPCA guidance pg76. Eg 10mm Lytag or similar single sized clean stone.

The trench should then be topped to within 100 mm of the surface of the topsoil, using an appropriate coarse lime and salt free blinding sand. The blinding sand should have a particle size distribution within the central recommended range of the Grading Curve shown in SAPCA Appendix 2.

The trench should be topped to the surface with appropriate medium/fine sand. The sand should have a particle size distribution within the central recommended range of the Grading Curve as shown in SAPCA Appendix 1.

-Geotextile: Gravel/lateral drains to be surrounded in construction grade non-woven

geotextile.

-Trench preparation to comply with AD 'H' of the Building Regs, and BS EN 1610: 2015.

Collector drains

Collector drains to make allowance for secondary drainage to be cut into topsoil over primary lateral drainage.

The lateral drains should be laid to run into the collector drain(s) which should be installed using 125 mm, 150 mm and 200 mm pipes, laid to a minimum invert depth of 750 mm, backfilled as described above. The main drains should be installed off the playing surface and should fall, as far as possible, with the maximum fall of the ground and, if appropriate, to the periphery of the field. If required, a drain should be installed to the periphery of the field, to the high sides, to act as a catch-water drain.

All main and 'catch-water' drains should be laid to true line and gradient, depth and angle using specialist laser guided equipment and laid to a minimum fall of 1:150.

Inspection chambers/catch pits should be installed at the junctions of all main and/or catch water drains. Any existing land drains cut, exposed or otherwise discovered during the progress of the works should be connected to the new system, as work proceeds, using appropriate purpose-made junctions or connectors.

Class 'S' bedding to collector drains.

5 Topsoil/final cultivation

Final cultivation of topsoil to a maximum depth of 100mm, across the lines of the slit drains.

Levelling and finishing of the surface should ideally be undertaken using an approved rotary stone rake or other equivalent equipment. The surface tolerances of the prepared seedbed should be ± 10 mm under a 3 metre straight edge. The surface should be adequately firmed but not over-compacted and should have a smooth, even surface free from ridges, ruts, hollows, humps or other undulations. The final preparation should be carried out using equipment fitted with low ground pressure tyres.

During the final seedbed preparation, a further stone picking operation should be carried out and all stones or other debris with any dimension greater than 16 mm, should be collected and removed and the area stone buried. After the seedbed has been prepared and shortly before seeding is carried out an appropriate pre-seeding fertiliser should be applied uniformly with an approved distributor.

6 Seeding

Following final grading the seedbed should be prepared and the works area sown with a high-quality sports turf seed mixture, containing a high proportion of wear tolerant Ryegrass.

Use at least three cultivars of perennial ryegrass chosen from the latest BSPB **Turfgrass Seed** booklet with live ground cover and visual merit ratings of 6.5 or more.

Make at least two passes with seeding equipment designed to place the seed approximately 5mm below the surface.

The seed should be sown at the rate of 350 kg/ha, ensuring an even and uniform cover and should be lightly raked or otherwise worked-in, taking care not to ridge or otherwise disturb the surface. The works should, preferably, be programmed to allow for a late summer/early autumn seeding. The seed mixture should comply with the minimum standards set out in the relevant Seed Regulations.

Seeding should be carried out during suitable weather conditions. The total quantity of seed should be divided in half each half being sown in transverse directions by broadcasting and on completion the seed should be firmed using an approved roller. A base fertiliser should be applied prior to seeding.

7 Slit Drain Installation

Following grass establishment, excavated slit drains to be installed.

Machine excavate narrow trenches approx. 50mm wide to a minimum depth of 250mm ensuring that the depth is sufficient to make a good connection with the stone backfill above the pipe drains.

The slits should be installed 1m centres, backfilled to within no less than 75mm of the surface with 5.0 – 8.0mm fine free, hard stone topped up to the surface with a medium coarse sand with a grading curve in the central recommended range of the diagram at Appendix 5 SAPCA guidance.

Slit drainage installed at 90 degree angle to the pipe drainage system.

7 Sand top dressing

Sand dressing amelioration to topsoil: 15mm depth sand carpet. To be applied after installation of slit drains.

The sand will be spread in with specialist top-dressing spreaders and thoroughly brushed into the sward. The sand should be dry when applied to a dry surface in good weather conditions. The sand should be lime and salt free (less than 2000 $\mu\text{S}/\text{cm}$) and have a medium/fine particle size distribution within the central recommended limits of the grading curve in Appendix 1 SAPCA. The sand should have a pH value in the range of 6.0 to 7.5.

Outline Maintenance recommendations:

Refer to **Appendix 5** of the Agronomist Report.