



## Proposed Playing Field at Pear Tree Lane



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Submitted to:  
Euxton Parish Council

Prepared by:  
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## 1. INTRODUCTION

Euxton Parish Council propose to develop agricultural land off Pear Tree Lane in Euxton as playing fields. The proposal is to construct changing rooms, and provide two adult football pitches, two junior football pitches and two mini football pitches. The site comprises two grass fields separated by a hedge and ditch line and bounded by hedges and ditches. Mature trees are present within the central hedge line on the site boundaries.

ADAS UK Limited have been instructed by Stuart Whittle of Planning and Design to undertake a site visit, examine drawings provided by Survey & Design Limited and to provide a report on the proposals together with an indicative cost of the works required to provide football pitches that will meet the standards required by the Football Foundation and Sport England.

## 2. SITE SURVEY

The site was visited on 31 March 2010 after permission to enter onto the land had been obtained from Carter Jonas on behalf of the Homes and Communities Agency who own the land.

A rubber tracked mini digger was used to excavate soil pits so that the soil structure could be examined and soil taken for laboratory analysis. A walkover survey was undertaken, using the Survey & Design Limited topographical survey as a base plan.

The two fields have their longest axis orientated east to west and are too narrow to have adult football pitches on the preferred orientation of north to south.

The two fields are bounded by fences and hedges, in varying condition, mature trees and ditches. A pond is located within the ditch and hedge line dividing the two fields. To the southern boundary of the two fields lies a public footpath linking the two roads; Pear Tree Lane on the western boundary and Whinney Lane on the eastern boundary. On the northern and eastern boundaries 11KVa electric lines, on wooden poles are present.

Four soil pits were excavated using a mini-digger, two pits in each field. The topsoil is a Sandy Clay Loam to Sandy Clay with a depth varying between 230mm to 300mm deep. The subsoil, except in Pit 2 is predominately a pink/orange Sandy Clay being a typical Salop Series soil. The subsoil in Pit 2 has a bleached sandy clay loam layer below the topsoil showing that it is a Clifton Series soil rather than a Salop.

The toposoils were all very wet on the day of the site survey with compaction encountered in the subsoils immediately at their junction with the topsoil. This compact layer was some 50mm deep and is a typical result of the soil not having been subsoiled for a number of years whilst having had heavy farm machinery used on it during wet conditions.

Soil samples were taken for nutrient analysis and the results are presented below.

Site	pH	Phosphate (mg/l)	Potassium (mg/l)	Magnesium (mg/l)
Pit 1	5.87	21	36	103
Pit 2	6.36	8	39	75
Pit 3	5.67	25	38	88
Pit 4	5.81	15	40	101

The soils are deficient in Potassium (K) and are low in Phosphate (P) with the Magnesium being Fair to Good. No analysis for Nitrogen was undertaken as this nutrient is readily removed by grass and regular applications are required dependent upon the crop (grass) being grown. The pH, a measure of the soils acidity, whilst generally lower than would be ideal for an agricultural grass crop will support an amenity ryegrass sward suitable for sports turf.

The ditches surrounding the site are generally in a poor condition which is contributing, together with subsoil compaction, to the wet conditions in the fields. This is due to the watertable being held at a higher level than would be the case if the existing underdrainage systems outfalls were able to freely discharge.

Whilst the two fields generally have an even fall from east to west and from north to south there are two areas where depressions are present. The area on the northern boundary is particularly wet and shows evidence of having standing water in it during prolonged wet periods. This is also the general location of an outfall from the septic tank from the house located on the north east corner of the site. (Anecdotal information from the homeowner)

The fields have minimal fall north to south but have a fall of around 1 in 60 east to west.

This presence of the hedge, ditch and mature trees between the two agricultural fields prevents the pitches being orientated north south and unless planning permission were given for their removal the width of each of the two fields is too narrow to allow for full size football pitches.

Taking account of the potential ecological and landscape issues which would be compromised by the removal of the hedge and mature trees it may be considered that this is unlikely to be approved by Chorley Borough Council

### 3. SITE CONSTRAINTS

The total area available for pitches at Pear Tree Lane extends to some 5 ha. The area taken for the proposed car park and changing rooms is some 0.5ha which leaves an area of 4.5 ha for the proposed pitches. A proposed pitch layout for the site which would provide two adult pitches, two junior pitches, two mini-soccer pitches and an all- weather practice pitch has been agreed by all the stakeholders and this is shown at Appendix 4.

The northern field varies in width from between 77m and 80m. However this overall width at ground level is constrained by the overhang of mature trees, particularly on the hedgeline dividing the two fields, and it is not possible to provide an adult pitch of 80m width in this field. In addition to the constraints of the mature trees allowance needs to be made for the necessary runoff areas for pitches, generally 3m which shortens the space available for the pitches by an additional 6m.

The location of the mini-Soccer pitches in the northern field rather than the junior pitches in the earlier sketch layout allows them to be orientated north south with the pitches orientated goal to goal on a ground slope that does not require amendment to meet the necessary standards.

The southern field varies in width from between 72m and 92m. Making allowances for the mature trees in the dividing hedgeline an adult pitch of 80m width can be fitted into this southern field. The intrusion of the pond into the southern field restricts the position of the adult pitch to the eastern end of the site.

The major constraint with regard to the pitches is that of the site gradients.

Guidance from Sport England and the Football Foundation is that pitches should not be steeper than 1 in 80 goal to goal and 1 in 40 sideline to sideline.

The ruling gradient on the two fields east to west ranges between 1 in 62 to 1 in 65.

If grant aid is sought from the Football Foundation then it is probable that they will require the site levels to be adjusted to meet their minimum gradient requirements. Due to the relatively shallow topsoil and the depth of “cut and fill” required to provide a 1 in 80 fall this will require the stripping of topsoil over that part of the site where the two adult pitches are to be located and the location of the junior pitch in the southern field, a readjustment of the subsoil levels and replacement of the topsoil.

An alternative layout proposed by ADAS was to locate the two junior pitches in the northern field with the mini-soccer pitches and the car park/changing room complex located in the southern field. Whilst this would reduce the area of cut and fill the location of the access from Pear Tree Lane has been arrived at after protracted discussion with the Highways Department of Lancashire County Council and re-locating the access is not considered to be a practical option.

Other factors that will restrain the layout and possible size of the pitches are:

- Proximity of public roads and public footpaths
- 11KV<sub>a</sub> power lines on the northern and western boundaries
- Need to import fill and make good low lying areas of the site boundaries
- Proximity of properties (north-east corner)
- Possible issue regarding the position of a septic tank outfall

On the basis of the alternative layouts proposed that shown on the White Space Consultants Drawing No.09W222-001 Revision B is the preferred option.

The drainage of the site needs to be upgraded as the existing agricultural system within the site is not suitable for sports pitches.

The ditches that lie on the boundaries of the site and within the dividing hedgeline require improvement to provide a suitable outfall for any new drainage system that is installed.

Soil analysis results show that the nutrient status of the pitches is very poor with P and K indices between 0 and 1. This requires improvement and it can be done both during initial improvement works and more importantly through the adoption of a suitably funded maintenance programme

#### **4. PROPOSED WORKS TO PROVIDE FOOTBALL PITCHES TO FOOTBALL FOUNDATION STANDARDS**

Consideration has to be given to the standard of the pitches, both from a level of use and as to what the potential pitch maintenance budget might be, in order to arrive at a suitable pitch construction.

The pitches can be drained in three ways in order to provide a drainage system suitable for sports turf use:

- Pipes only narrow spaced system
- Drains are installed at 5m spacing with gravel and sand backfill over the drains
- Pipes only with sand ameliorated topsoil
- Drains installed at 5m spacing with gravel and sand backfill but with the site topsoil ameliorated with suitable sand to provide a more permeable topsoil
- Pipes with narrow spaced sand bands
- Drains spaced at between 5m to 10m with gravel and sand backfill but with the addition of 250mm deep sand bands at 1m spacing intercepting the drains at 1m intervals.

As might be expected both the capital cost and the maintenance cost of each of these options increases with the complexity of the drainage system. Experience with other similar projects shows that a lack of funding for on-going pitch maintenance is a major issue and care needs to be exercised when choosing the type of ditch drainage system to be installed.

Whilst the basic pipes only system provides the minimum standard required for pitch drainage, it can, with suitable management, provide a suitable playing surface for both children and adults. The pipes only system is less sensitive to the omission of regular sand topdressing whilst on the sand band pitch annual applications of topdressing sand are essential to ensure that the drainage system continues to function.

The sand ameliorated topsoil option is being increasingly adopted as this too is less sensitive to the omission of annual sand topdressings but the particle size analysis of the soils at Pear Tree Lane shows that the soil is not suitable for this treatment at a reasonable cost given the proposed end use.

The ADAS recommendation is therefore to install the narrow spaced drainage system and the costings below are based upon this option

The programme of works would be as follows:

- Erect fencing to protect mature trees during the construction phase
- Undertake maintenance on the site ditch system
- Spray off existing agricultural grass sward
- Strip topsoil from areas of cut and fill and where imported subsoil is required to raise levels
- Re-adjust subsoil levels, import inert soil fill as required and level.
- Replace stripped topsoil
- Initial cultivations including subsoiling to relieve subsoil compaction
- Laser grade site to finished levels
- Main drainage installed including improved outfall provision
- Pitch drainage installed
- Cultivations and seeding of pitches
- Growing-in period including mowing, fertilising and weed control

A detailed specification and tender document would need to be produced and a suitably qualified and experienced sportsground contractor appointed to undertake the works. Supervision of the contractors during the works is imperative and appointed consultants can either do this alone or jointly between them and Euxton Parish Council.

The work on the pitches should be undertaken during the summer months with the pitches seeded in the late summer / early autumn. The pitches should be grown in for the following 10 – 12 months before being used for training and matches.

## 5. BUDGET COSTS NATURAL TURF PITCHES (EXCLUDING VAT)

The costs below do not account for any professional design or construction supervision fees.

Preliminaries	5000
Undertake maintenance on the site ditch system	1000
Spray off existing agricultural grass sward	500
Strip topsoil from areas of cut and fill and where imported subsoil is required to raise levels	20000
Re-adjust subsoil levels, import inert soil fill as required and level.	
Replace stripped topsoil	
Initial cultivations including subsoiling to relieve subsoil compaction	4000
Laser grade site to finished levels	9000
Stone pick site (x2)	9500
Pitch drainage installed	74000
Cultivations and seeding of pitches, sand topdressing	25000
Growing-in period including mowing, fertilising and weed control	14000
<b>Sub-total</b>	<b>162000</b>
Contingency @ 10%	16200
<b>TOTAL</b>	<b>178200</b>

## **APPENDIX 1 - MAINTENANCE OF NEW AND ESTABLISHED SPORTS PITCHES**

### **Winter Sports Pitches**

#### **General**

Within any maintenance schedule, allowance must be made for weather and ground conditions. Undertaking any operation under adverse conditions can produce damage that may last for many weeks.

#### **Mowing**

A rotary cutter is appropriate for the first few cuts on a newly established pitch and to take the height down to say 75mm. Cutting should then be undertaken using a set of trailed gangs at a frequency of once or twice a week during the growing season, dependent upon rate of growth. For establishing pitches out of the growing season cutting height shall be 35mm. Once play commences on the pitch this should be reduced to 20 – 30mm. It is important to ensure that the cylinders are correctly set and sharp to avoid tearing the grass.

In the event of prolonged wet weather such that mowing cannot be carried out and there are excess arisings, provision should be made for collection or dispersal to avoid smothering the sward.

#### **Aeration and decompaction**

Allowance should be made for solid and slit tining (as appropriate to ground conditions) to ensure adequate aeration of the rootzone and to maintain percolation. Aim to aerate all winter pitch areas at least monthly for eight months of the year (March – October). Aeration carried out when soil conditions are inappropriate is very counterproductive and timing should therefore be at the discretion of the ground staff. Allowance should also be made for one verti-draining operation each year to relieve deeper compaction undertaken prior to top dressing and renovation works in spring. The verti draining operation may be sub-contacted.

## **Top dressing**

Allow for one annual top dressing with 40 tonnes of sand per pitch, which should be preferably applied in conjunction with the verti-draining operation. In the event of budgetary constraints those pitches that are pipe drained but not sand slit could be dressed in alternate years. However to maintain the integrity of the sand band drainage, sand banded pitches should be top-dressed annually.

## **Fertiliser Application**

Allow for three applications of fertiliser a year applied in spring (6:9:6 or similar), pre season (12:6:6 or similar) and autumn (3:12:12 or similar). Fertiliser should be applied evenly using a spreader or spinner and at the rate of 350 kg/ha (35 g/m<sup>2</sup>).

## **Renovation/Repairs**

As early as possible in the close season (particularly where the areas form part of the summer games outfield) the pitches should be scarified and over seeded (using a blend of appropriate ryegrasses) to repair playing damage. To ensure that the renovations are carried out promptly this operation may be best undertaken on a sub-contract basis. During the playing season time should be allowed for minor repairs and occasional divoting.

## **Line Marking**

Allow for line marking at ten-day intervals (using an approved non toxic or irritant line marking compound) from November through to the end of February and monthly for the remainder of the playing season.

## **Weed Control**

Weed control should normally be required only at the end of playing season and prior to renovation. A general purpose selective herbicide approved for use on amenity turf should be adequate but if problem weeds such as knotgrass are present a more specific herbicide may be required. The herbicide should be applied according to the label recommendations and by a qualified operative following health and safety guidelines. All required exclusions to the treated area should be implemented.

## **Disease Control**

Where other aspects of maintenance are satisfactory, it is unlikely that disease will become a problem that requires treatment. In the event of a serious outbreak of disease the causative agent should be identified and advice sought on the appropriate treatment.

## **Pest Control**

Allowance should be made for occasional pest control but this should only be applied on the recommendation of an agronomist following identification and assessment of the problem. In general for school playing fields worms will not be treated unless they become a serious problem.

## APPENDIX 2 - SOIL PARTICLE SIZE ANALYSIS

See following page.



  
 ACCREDITED  
 GEOTECHNICAL (PUTTING GREEN MATERIALS)  
 Certificate No. 903-01

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<b>PARTICLE SIZE DISTRIBUTION</b> <b>SAND / SILT / CLAY</b>			
9243/1			Test Report. Number: 9243/A page 1 of 2
100%			Euxton Parish Council : Topsoil for Pear Tree Lane
02/04/10			Sample Received Date
wet			Sample Moisture (very wet, wet, moist, dry, n/a)
plastic			Sample Consistency (hard, friable, plastic, n/a)
high			Sample Homogeneity (high, medium, low, n/a)
SR			Angularity (VA, A, SA, SR, R WR, n/a)
M			Sphericity (H, M, L, n/a)
2.7			% Coarse Gravel > 3.4 mm
0.6			% Fine Gravel 2 to 3.4 mm
0.6			% Very Coarse Sand 1 to 2 mm
2.1			% Coarse Sand 0.5 to 1 mm
8.0			% Medium Sand 0.25 to 0.5 mm
11.4			% Fine Sand 0.15 to 0.25 mm
20.3			% Very Fine Sand 0.05 to 0.15 mm
31.9			% Silt 0.002 to 0.05 mm
22.4			% Clay less than 0.002 mm
3.9			% greater than 1 mm
10.1			% Coarse + Medium Sand
74.6			% Fines less than 0.15 mm
			pH (Distilled Water)
			pH (Calcium Chloride)

Continued on page 2

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Continued from page 1

9243/1					<b>PARTICLE SIZE DISTRIBUTION</b>
					<b>SAND / SILT / CLAY</b>
					Test Report. Number: 9243/A page 2 of 2
					Coarse Gravel Criterion
					Gravel / Very Coarse Sand Criterion
					Coarse / Medium Sand Criterion
					Fine Sand Criterion
					Very Fine Sand Criterion
					Total Fines Criterion
				Silt Criterion	
				Clay Criterion	

Angularity codes: VA, very angular; A, angular; SA, sub-angular; SR, sub-rounded; R, rounded; WR, well rounded.  
 Sphericity codes: H, high; M, medium; L, low

ASTM Method : F1632-03  
 Standard Test Method for "Particle Size Analysis and Sand Shape Grading of Golf Course Putting Green and Sports Field Root Zone Mixes"

These results refer only to the samples provided. No guarantee is given that they are representative of the bulk material.  
 Full terms and conditions are set out in document 'ETL / Conditions' which is available on request.  
 This report shall not be reproduced except in full without the written approval of ETL.

**ADAS**

16 Eastway Business Village, Olivers Place, Fulwood, Preston, PR2 9WT

Approved by: *Sharon Bruce*

Date: 7<sup>th</sup> April 2010

Laboratory Manager, for European Turfgrass Laboratories Ltd

## APPENDIX 3 - SOIL NUTRIENT ANALYSIS

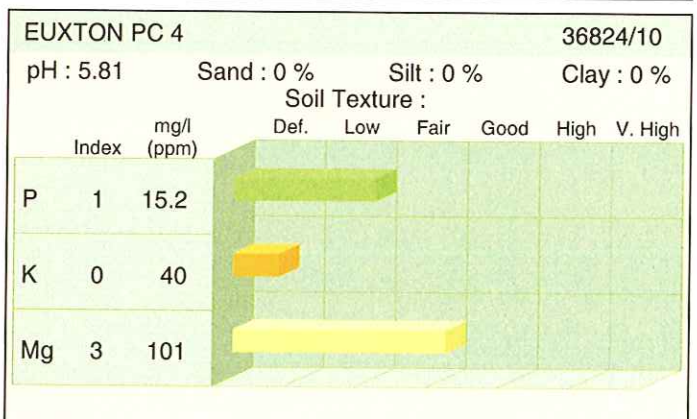
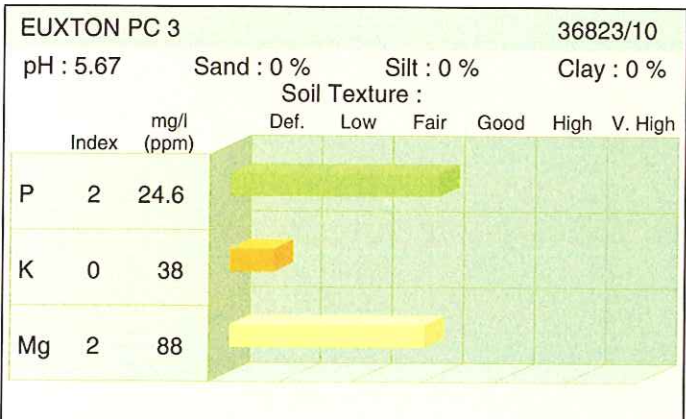
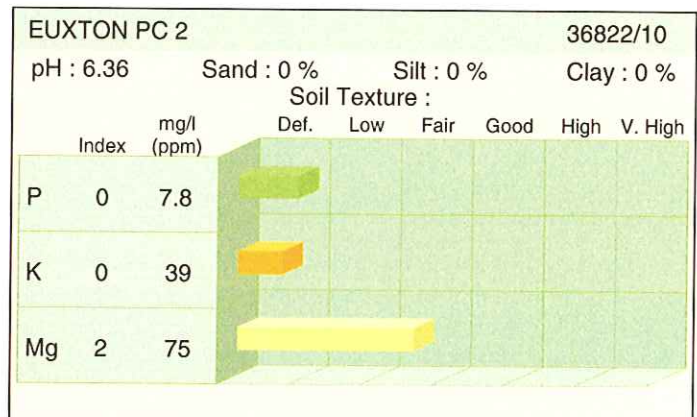
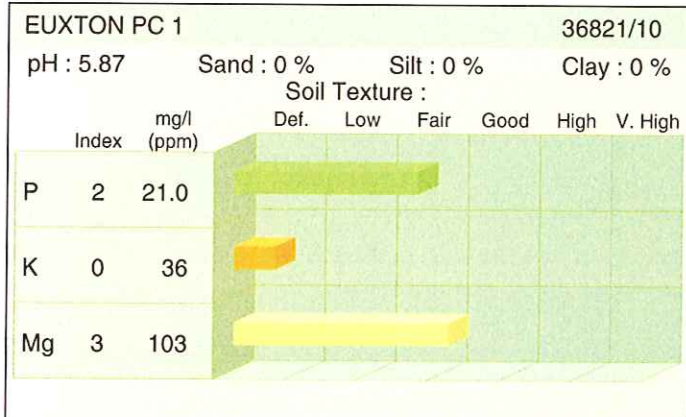
See following page.



**Customer Details**  
 EUXTON PC

**ADAS Limited**  
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 ADAS ENVIRONMENT GROUP  
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 OLIVERS PLACE  
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Report : 08000/10  
 Order :  
 Date Received : 06-Apr-2010  
 Date Reported : 09-Apr-2010



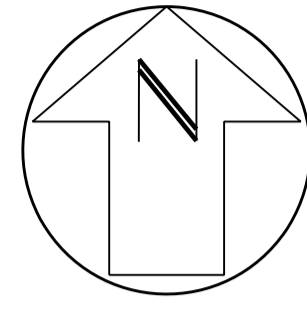
Element	Deficient	Low	Fair	Good	High	Very High
Index	0	1	2	3	4	5
P mg/l	0 - 9	10 - 15	16 - 25	26 - 45	46 - 70	71 - 100
K mg/l	0 - 60	61 - 120	121 - 240	241 - 400	401 - 600	601 - 900
Mg mg/l	0 - 25	26 - 50	51 - 100	101 - 175	176 - 250	251 - 350

NRM Ltd. Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS

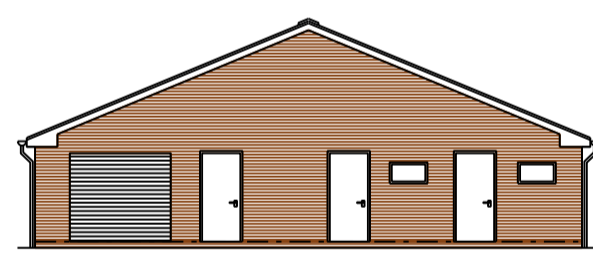
Tel: 01344 886 338 Fax: 01344 890 972 www.nrm.uk.com

## APPENDIX 4 - PROPOSED PITCH LAYOUT

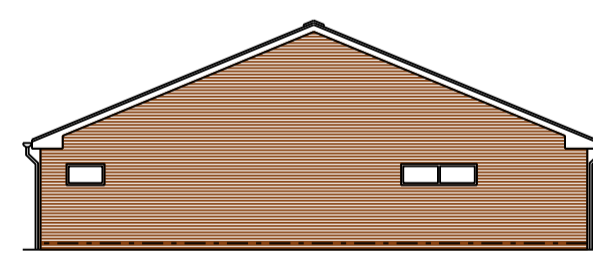
See following page.



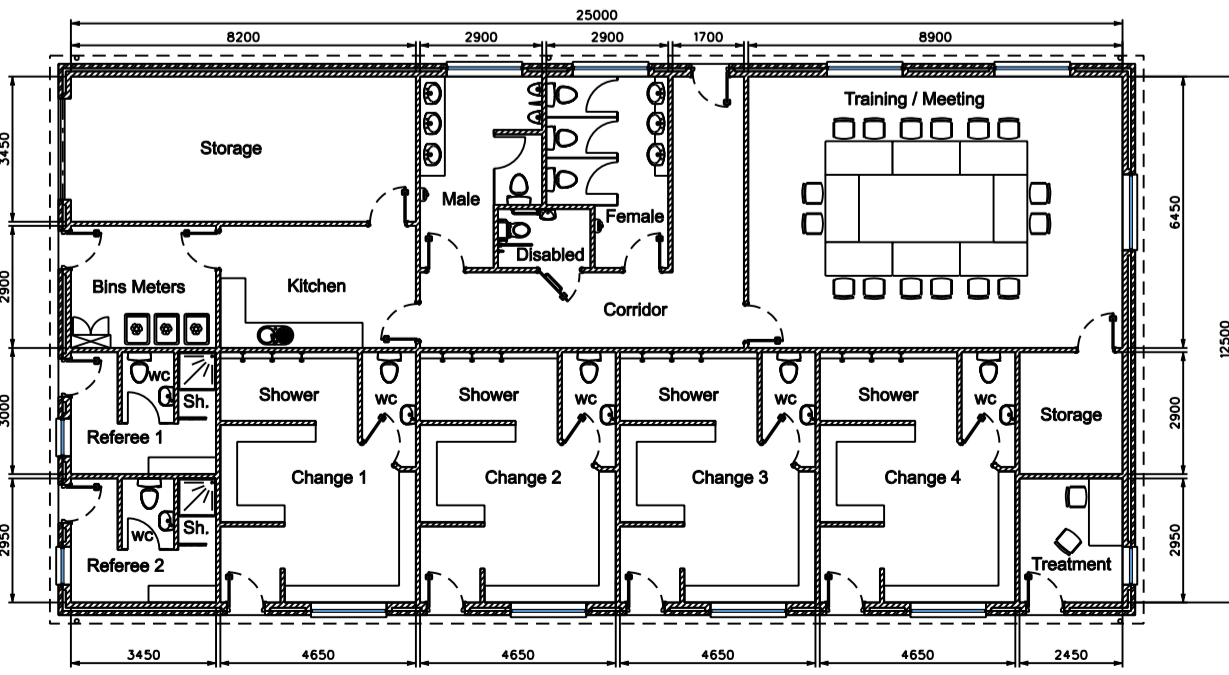
Changing Pavilion  
Enlarged Details



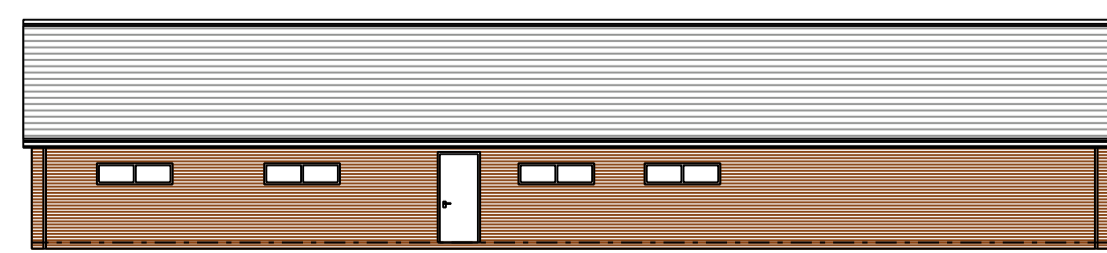
South Elevation



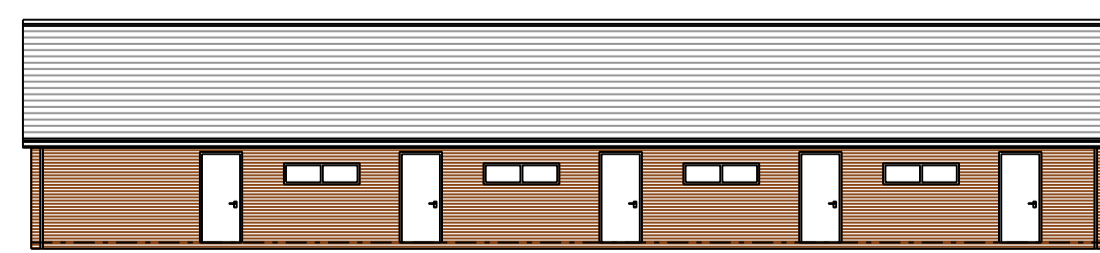
North Elevation



Proposed Plan



West Elevation



East Elevation

Client EUXTON PARISH COUNCIL		
The PROPOSED LEISURE FIELD, PEAR TREE LANE		
Drawing No. 09W222-001	Revision/Issue no. B	Date 14/05/10
Scale & Sheet Size 1:500 @ A1	Drawn by AWJ	Approved by NY
Whitespace Consultants Ltd. Nortex Business Centre, 105 Cherley Old Road, Bolton, BL1 5AS T. 01204 699800 F. 0870 7621631 E. sales@whitespace.org.uk Web www.whitespace.org.uk		



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