

HERTS & ESSEX SITE INVESTIGATIONS

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GEOTECHNICAL ASSESSMENTS - ENVIRONMENTAL ASSESSMENTS - DESKTOP STUDY - CONTAMINATED LAND

Report For :

Slick Developments Ltd

Phase II ENVIRONMENTAL REPORT

Site location :

**Site at
Hemel Stags Rugby Club
Pennine Way,
Hemel Hempstead,
Herts
HP2 5UD**

**January 2008
Report No. 8271**

Contents

EXECUTIVE SUMMARY	Page A
SECTION 1 INTRODUCTION	Page 1
SECTION 2 REPORT OBJECTIVES.	Page 1 to 2
SECTION 3 SITE LOCATION AND NATIONAL GRID REFERENCE, (EXISTING AND PROPOSED PLANS).	Pages 2 to 4
SECTION 4 REVIEW OF PREVIOUS REPORTS OR DOCUMENTATION RELATING TO THE SITE.	Page 5
SECTION 5 DESCRIPTION OF OUTLINE CONCEPTUAL MODEL.	Pages 5 to 9
SECTION 6 RESULTS OF PRELIMINARY RISK ASSESSMENT.	Page 10
SECTION 7 DETAILS OF PREPARATORY WORK.	Page 10
SECTION 8 DETAILS OF INVESTIGATION OBJECTIVES.	Pages 10 to 11
SECTION 9 SUMMARY OF THE WORK UNDERTAKEN.	Page 11
SECTION 10 INVESTIGATION METHODOLOGY.	Page 11
SECTION 11 MONITORING STRATEGY.	Page 12
SECTION 12 SAMPLING STRATEGY.	Page 12
SECTION 13 ANALYTICAL STRATEGY.	Page 12
SECTION 14 LOCATION PLANS FOR EXPLORATORY EXCAVATIONS.	Page 13
SECTION 15 GEOTECHNICAL TESTING RELEVANT TO RISK ASSESSMENT MODELS.	Page 13
SECTION 16 DESCRIPTION OF SITE WORKS AND ON SITE OBSERVATIONS.	Pages 13 to 15
SECTION 17 PREVENTION OF CROSS CONTAMINATION.	Page 15
SECTION 18 DESCRIPTION OF GROUND CONDITIONS	Page 15
SECTION 19 CHEMICAL TEST DATA.	Pages 16 to 20
SECTION 20 OUTLINE REMEDIAL MEASURES	Pages 20 to 22
SECTION 21 VALIDATION TESTING.	Page 22
SECTION 22 WASTE DISPOSAL	Page 22
SECTION 23 HEALTH AND SAFETY	Page 22
SECTION 24 EVALUATION OF SITE INVESTIGATION AGAINST OUTLINE CONCEPTUAL MODEL	Page 23 to 24
APPENDIX ONE	
APPENDIX TWO	
APPENDIX THREE	
APPENDIX FOUR	
	SITE PLANS
	BOREHOLE LOGS
	CHEMICAL TEST DATA
	STATISTICAL ANALYSIS

INDEX OF TABLES

Table 5-1 HAZARD ASSESSMENT	Page 6 to 8
Table 14-1 SITE PLANS	Page 13
Table 16-1 VISUAL OBSERVATIONS OF SUBSOIL	Page 14
Table 16-2 SITE INVESTIGATION STRATEGY	Page 14
Table 16-3 SUMMARY OF FIELDWORK ACTIVITIES	Page 15
Table 19-1 CONTAMINATED LAND RISK ASSESSMENT, (SGV's)	Page 16
Table 19-2 CONTAMINATED LAND RISK ASSESSMENT, (SGV's) Cont'd.....	Page 16
Table 19-3 CONTAMINATED LAND RISK ASSESSMENT MODEL	Page 16
Table 19-4 INTER-DEPARTMENTAL COMMITTEE ON THE RE-DEVELOPMENT OF CONTAMINATED LAND	Page 17
Table 19-5 WRAS GUIDELINES FOR PIPEWORK	Page 17
Table 19-6 SUMMARY OF ELEVATED CONTMINANTS – HUMAN HEALTH	Page 18
Table 19-7 OVERVIEW OF RISK PRESENT FROM INVESTIGATION	Page 20
Table 20-1 OULINE REMEDIAL MEASURES BASED ON SOURCE PATHWY RECEPTOR	Page 21
Table 24-1 ASSESSMENT OF RISK COMPARED TO OUTLINE CONCEPTUAL MODEL	Page 24

EXECUTIVE SUMMARY

Client	Slick Development Ltd	
Site Location	Site at Hemel Stags Rugby Club, Pennine Way, Hemel Hempstead, Herts HP2 5UD	
Proposed Development	It is proposed to develop the site to form a new stand for the rugby club, incorporating facilities for the rugby ground and refurbishment of the existing changing rooms.	
Site Settings and previous Uses	<p>The site is recorded as underlain by a Major aquifer formed by the upper chalk, although the drift deposit is recorded a Non Aquifer formed by clay-with-flints. The nearest surface water feature is located 508 meters away to the southeast of the site. No abstraction wells are recorded surrounding the site area. The site does not lie within a source protection zone.</p> <p>The site has formed open land until 1982 when the site form a sports ground with pavilion and car park area. The site remained this until present day.</p> <p>Surrounding the site is a dismantled railway present to the south, to the east of the site there has been an Engineering Works and now a Depot with tank, to the north and west of the site there are sports fields in place.</p>	
Ground Conditions	Made Ground	A nominal layer of made ground likely to be encountered although not expected to be in place at any significant depth.
	Clay-with-Flints	This strata is anticipated underlying the site and forms a Clay deposit forming a non Aquifer the records across the site.
	Upper Chalk	The Upper Chalk is anticipated underlying this Clay and will form a Major Aquifer. Concentrations of groundwater maybe in place within this strata.
Groundwater	No groundwater was encountered within the scope of the works. No long term monitoring has been undertaken within the scope of his report.	
Contamination Assessment and Mitigation	<p>From DTS Sources of contamination identified</p> <ul style="list-style-type: none"> • Metals, • Metalloids, • Asbestos, • PAH's, • PCB's • Hydrocarbons, • VOC's 	<p>From actual assessment undertaken Sources of contamination identified</p> <ul style="list-style-type: none"> • B.a.P, (PAH's), • TPH, • Nickel
	<p>From the above, it can be seen that some degree of risk is in place from the historical use of the site and as such, on development of the site, a change in pathways may promote an increased risk. Whilst these risks are in place, it is likely that these risk will have originated from the presence of backfill under the car parking area within the site. This is and will remain as laid to hardstanding and as such, pathways are considered minimal.</p> <p>In order to remove the risk, we would suggest that the most viable method of remediation will form the following : -</p> <ul style="list-style-type: none"> • Further assessment around the area of window sampler three to assess risk from pollutants that may extend into areas of soft landscaping, • Change in the proposed landscaping to reduce areas of soft landscaping and therefore reduce pathways within the site, • Provide hard cover across the site with raised planters, therefore reducing muck away costs. <p>We would suggest that additional testing around the area should be undertaken to use in both Statistical Analysis and as a method of limiting the extent of contamination or defining this area within the site.</p>	
Further Considerations	Outside the further validation testing which could be undertaken to limit the contamination, no further action is required.	
Waste Disposal	With contaminated soils encountered within the site, we would suggest that some materials may be required to be removed off site an as such, land filled. With this in mind, Waste Acceptance Criteria Testing has been undertaken on samples recovered and will be forwarded when available	
Further Works	Additionally, we would suggest that these reports should be compiled to sent to the Local Council and the Environment Agency for approval of the remediation process and further works specified.	

INVESTIGATION WORKS AND RISK ASSESSMENT REPORTING

Section 1 **Introduction**

We have been asked by Slick Development Ltd, to undertake an investigation of the above site in order to assess the potential environmental impact of the historical use within the site on the proposed development.

Set procedures are in place through Local Government in order to undertake this assessment which has been followed in order to derive this report and the remedial action required in order to develop the site with all risks to the environment, human health, plant and vegetation growth and construction materials taken into account.

We would suggest that for the purposes of completion of the reporting process, the report format should form the desk top study, already undertaken, this environmental report, a remedial strategy report and validation report.

Section 2 **Report Objectives**

This report has been commissioned by Slick Development Ltd, in order to assess the above site for the purposes of development of the site as commercial units. Within this report, an assessment of the likely sources, pathways and targets of contamination have been gleaned from a desk top study, which has revealed certain factors that may influence either the environment, end user, construction materials or plant growth.

The information gained from the desk top study involved the following :-

- A site walk over survey reconnaissance survey;
- Liaison, where possible, with the current occupiers of the site;
- A search of the Statutory Registers for potentially contaminative land uses and licenses in the vicinity of the site, in the form of an environmental report supplied by 'Groundsure Limited' and 'Envirocheck';
- A study of the history of the site and current land use/industry, including reference to archival Ordnance Survey mapping and other sources, where available, of historical information.
- The identification of local water abstraction points from the Environment Agency records;
- A study of the local geology and hydrogeology and geological hazards;
- An overall assessment of the likely sources, pathways and targets in place, in and around the site. This will include an assessment of proposed excavation points within the site to best identify the above.

Limitations

The opinions expressed within this document and the comments and recommendations given, are based on the information gained, to date within a desktop study previously undertaken on the site. The interpretation of the data has been made by Herts & Essex Site Investigations.

Contaminated Land is defined under Part IIA of the Environmental Protection Act 1990, (EPA). Within this report, the term, 'contaminant' is taken to mean " a substance that is in, on or under the land and which has the potential to cause harm or to cause pollution of controlled water systems. The presence of contaminants may therefore result in contamination of the ground, but the land will only be designated 'Contaminated Land', when the requirements of the strict definition of Part IIA of the EPA are met.

Within any site investigation, materials sampled represent only a small proportion of the materials present on site. It is therefore possible that other conditions prevailing at the site which have not been revealed within the scope of this report, have not been taken into account. Where suspect materials are encountered during any further or future works within the site, additional specialist advice should be sought to assess whether any new information will materially affect the recommendations given within any physical ground investigation.

Section 3 **Site Location and National Grid Reference**

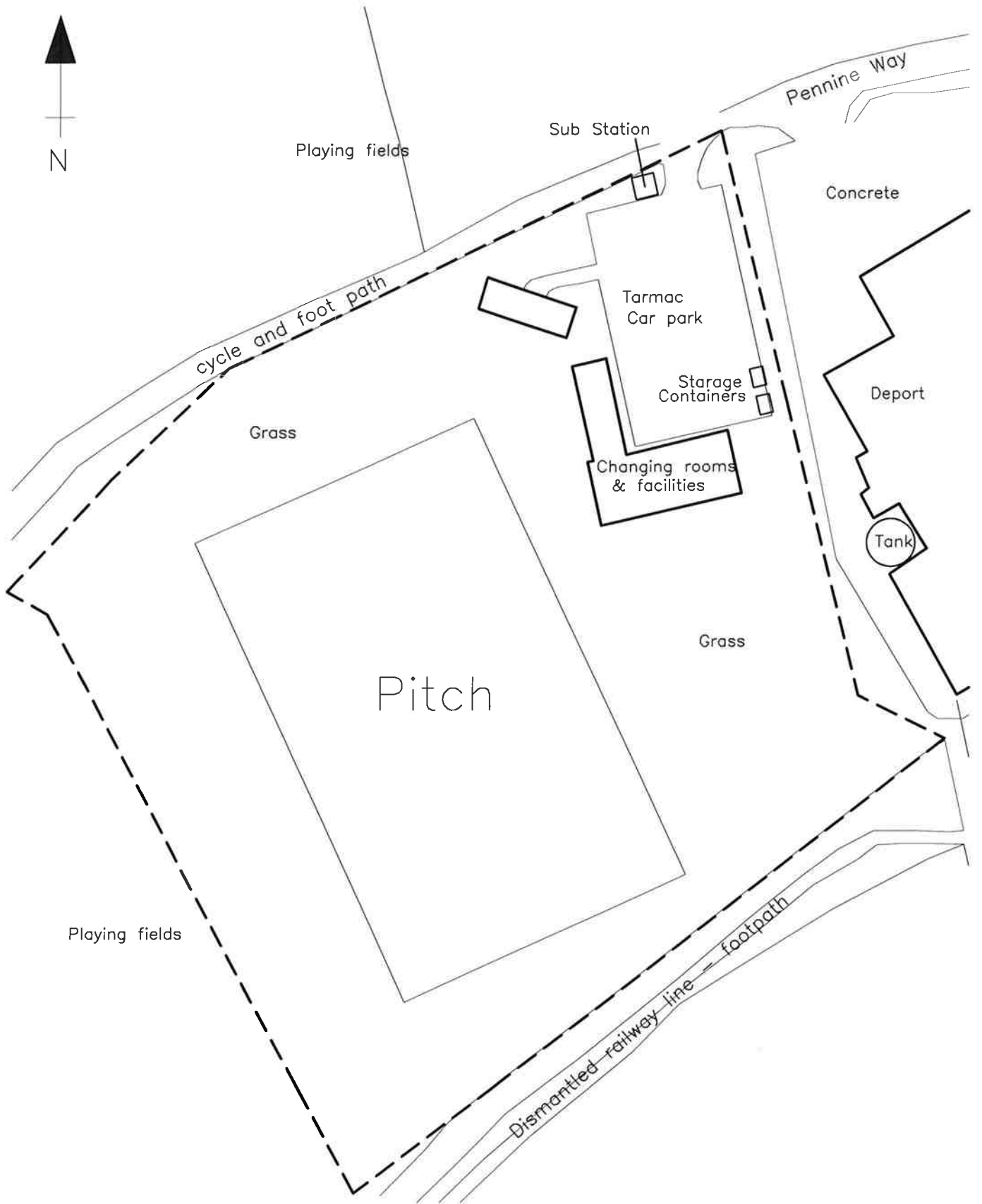
The site is located at National Grid Reference 506840E 208860N, and is located Hemel Hempstead to the west of Hertfordshire. The site is within the Hertfordshire County Council and Dacorum Borough Council and occupies an area of approximately 2.01 Hectares.

The site is located within an area of recreational land, with an industrial area to the east of the site.

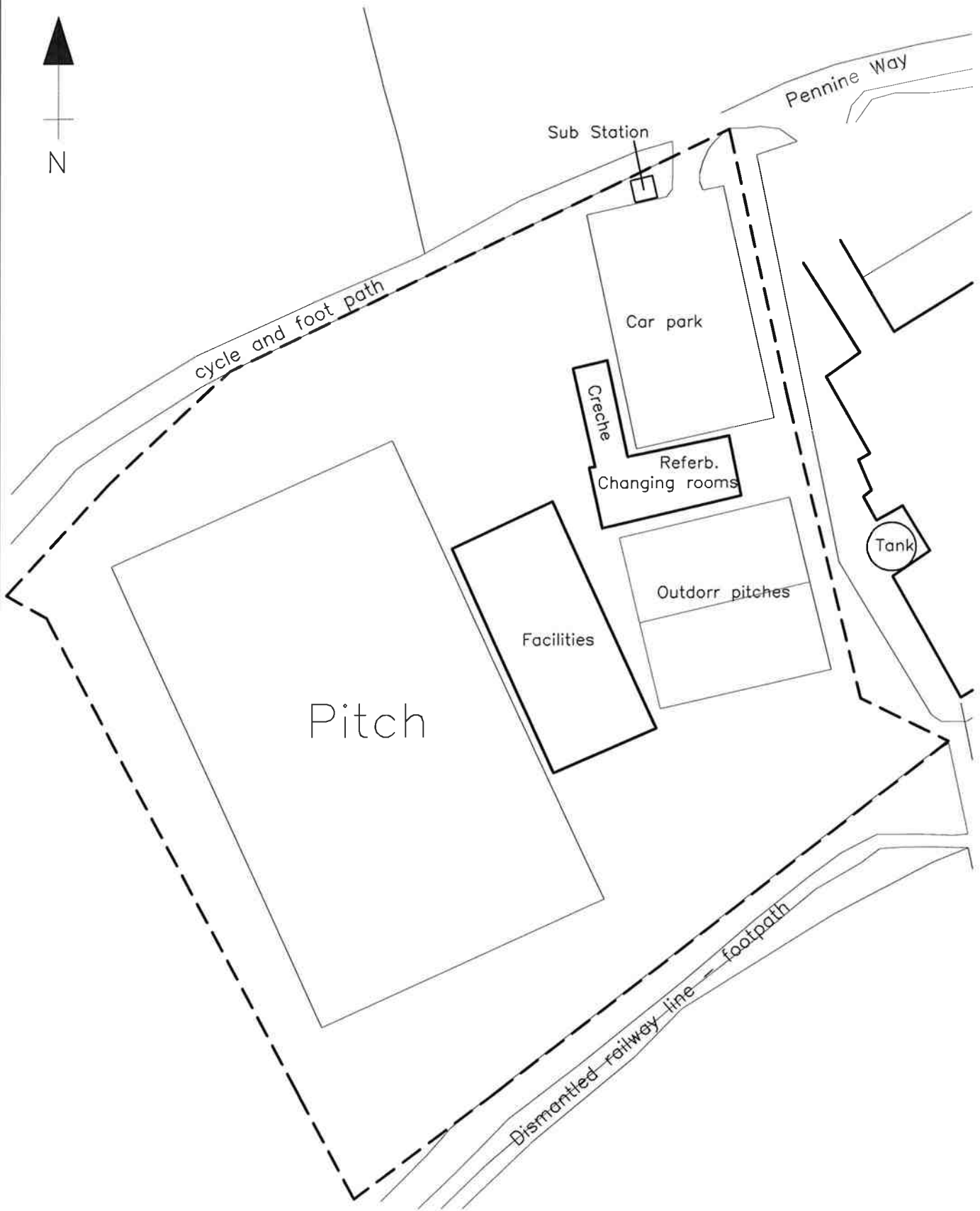
It is proposed to development the site to form a new Stand in one section of the rugby club incorporating facilities for the ground and refurbishment to the existing changing rooms. The car park area is to remain in the same place. Surrounding the area there will be the pitch in a similar location to the existing as well as the soft landscaping.

Extracts of the existing location plan are presented in figures 1 and 2.

Existing Site Plan
Figure 1



Proposed Site Plan
Figure 2



Section 4 **Review of Previous Reports or Documents Relating to the Site**

No previous reports are available for the site with the assessment of the site undertaken.

Section 5 **Description of Outline Conceptual Model**

A description of the conceptual site model developed within the desk top study has been re-created below.

The information below incorporates a hazard assessment of the features surrounding the site that could potentially impact on the proposed development. This is based on the information below :-

Table 18.1 Hazard Assessment

Source	Potential Contaminant	Pathway(see note 1)	Receptor	Distance / Direction	Pollution link in place	Hazard Assessment	Justification for Pollution Link
Historical Map References – On and Off Site							
Sports Ground	<ul style="list-style-type: none"> Asbestos, Metals & Metalloids PAH's 	<ul style="list-style-type: none"> Inhalation, Ingestion, (dust and fibres if exposed.) Direct Contact, Plant Uptake, Building Structure, Services Attack. 	<ul style="list-style-type: none"> Human (Future Users), Human (Workforce), New Buildings Services 	On Site	X	Associated Hazard (Mild) Likelihood of Occurrence Low Likelihood Risk Classification Low Risk	Due to the mild risk associated with this land uses and there being a low likelihood of it being in place the risk is not in place within the site area.
Pavilion(s) and car park	<ul style="list-style-type: none"> Asbestos, Metals & Metalloids PAH's Hydrocarbons 	<ul style="list-style-type: none"> Inhalation, Ingestion, (dust and fibres if exposed.) Direct Contact, Plant Uptake, Building Structure, Services Attack. 	<ul style="list-style-type: none"> Human (Future Users), Human (Workforce), New Buildings Services 	On Site	✓	Associated Hazard (Medium) Likelihood of Occurrence Likely Risk Classification Moderate Risk	Within the site area there is risk of surface run-off containing hydrocarbons running into the soft landscaping surrounding the area, although it was seen the ponding was in place across the surface suggesting that the area is not very permeable and therefore is unlikely to migrate far.
Sub Station	<ul style="list-style-type: none"> Asbestos, Metals & Metalloids PCBs 	<ul style="list-style-type: none"> Inhalation, Ingestion, (dust and fibres if exposed.) Direct Contact, Plant Uptake, Building Structure, Services Attack. 	<ul style="list-style-type: none"> Human (Future Users), Human (Workforce), New Buildings Services 	On Site	✓	Associated Hazard (Medium) Likelihood of Occurrence Likely Risk Classification Moderate Risk	The area of the substation was in a good state of repair although some assessment should be made.

Table 18.2 Hazard Assessment

<p>Railway Land</p> <ul style="list-style-type: none"> Metals & Metalloids PAH's Asbestos, Hydrocarbons, Inorganic, Organic, VOC's Acids / Alkalis, PCB's 	<ul style="list-style-type: none"> Inhalation, Ingestion, (dust and fibres if exposed,) Direct Contact, Plant Uptake, Pollution to Waters, Building Structure, Services Attack. 	<ul style="list-style-type: none"> Human (Future Users), Human (Workforce), Groundwater, Surface Water, Vegetation, Wildlife, New Buildings Services 	<p>Health, Health,</p> <p>Off Site, S</p> <p>✓</p>	<p>Associated Hazard (Potential Severity) Medium</p> <p>Likelihood of Occurrence Low Likelihood</p> <p>Risk Classification Moderate /Low Risk</p> <p>Due to the distance form the area to be developed it is unlikely to affect the building or services.</p>
<p>Engineering & Tank</p> <ul style="list-style-type: none"> Metals & Metalloids PAH's Asbestos, Hydrocarbons. VOCs PCBs 	<ul style="list-style-type: none"> Inhalation, Ingestion, (dust and fibres if exposed) Ingestion, (soil attached to vegetables), Direct Contact, Plant Uptake, Pollution to Waters, Building Structure, Services Attack. 	<ul style="list-style-type: none"> Human (Future Users), Human (Workforce), Groundwater, Surface Water, Vegetation, Wildlife, New Buildings Services 	<p>Health, Health,</p> <p>Off Site, (5m+, E)</p> <p>X</p>	<p>Associated Hazard (Potential Severity) Medium</p> <p>Likelihood of Occurrence Low Likelihood</p> <p>Risk Classification Moderate /Low Risk</p> <p>Due to the time that has passed and the redevelopment that has taken place within this area there is a low risk to the site from this previous land use.</p>
<p>Deport & Tank, Pump and Spray Room</p> <ul style="list-style-type: none"> Metals & Metalloids PAH's Asbestos, Hydrocarbons. VOCs PCBs 	<ul style="list-style-type: none"> Inhalation, Ingestion, (dust and fibres if exposed) Ingestion, (soil attached to vegetables), Direct Contact, Plant Uptake, Pollution to Waters, Building Structure, Services Attack. 	<ul style="list-style-type: none"> Human (Future Users), Human (Workforce), Groundwater, Surface Water, Vegetation, Wildlife, New Buildings Services 	<p>Health, Health,</p> <p>Off Site, (5m+, E)</p> <p>✓</p>	<p>Associated Hazard (Potential Severity) Medium</p> <p>Likelihood of Occurrence Low Likelihood</p> <p>Risk Classification Moderate /Low Risk</p> <p>The deport to the east of the site which remains in place to date, was seen to be in a good state of repair no staining was seen to be in place on the surface or surrounding the tank area. Along the boundary of the area soft landscaping is in place which may promote the risk of any contamination migrating to the site area although if a clay strata is in place risk may be reduced.</p>

Note 1 The site is proposed to be developed to form a new stand with the redevelopment of the existing building, the remaining area is to remain grassed areas.

Note 2 Not all trades have been discussed within the above due to some have limited risk of sources of contamination or pathways to the site.

Key factors within the above that may impact the writers assessment of the risk will form the Pathways for contamination to impact on the site and distance of the particular trade from the site. This will be expanded on further below :-