2.0 THE SITE

2.1 Description

The site roughly consists of two irregularly shaped parts ("Site A" and "Site B") to either side of Barnsley Road in Penistone, South Yorkshire. This is approximately 7 miles west of Barnsley town centre. The site has a total area of approximately 4.5 hectares, and is centred around Ordnance Survey national grid reference 424520 403820.

Site A

Site A is located to the north of Barnsley Road. The site can be divided into two areas, "A" and "A2".

'Area A'

Area A forms the eastern and southern parts of Site A, and is currently occupied by residential and agricultural buildings with associated yards. In the north east, Nether Mill House is present. This is a detached two storey house, probably of stone construction although it is rendered externally. The rear of the house is dug into the ground, with a stone retaining wall of around 1 m height separating the house from the rear garden which is at the higher level. The garden is most laid to lawn, with some mature trees, including chestnuts.

To the east of the house, a stone built barn is present. This is two storeys in height with a pitched roof. The western gable is buttressed, and shows signs of bowing and cracking, with a section possibly having been rebuilt previously in blockwork. A cobbled yard is located to the south of the barn, which is around 1.5 m lower than Barnsley Road. An access ramp into the yard from the road is provided. Immediately north of the barn is located a two storey farmhouse. This is also of stone construction. A number of small out-buildings are located around a concrete covered farm yard to the west of this farmhouse. At the time of the site visit, various farm machinery was being stored in the buildings.

A second two storey stone built barn is located in the east of Area A. A single storey shed is attached to this building. The barn is open fronted at ground level. The barn appears unused at present, but the attached shed appears to be used as dog kennels. Further kennels are located to the rear of this building, along with a cement bound asbestos sheet lean-to. Also located to the rear of the barn are two above ground fuel storage tanks. These are metal tanks, supported on wooden beams. The area below the tanks is not bunded, and is surfaced partly with concrete and partly with stone cobbles. Dispenser nozzles are present on both tanks for the refuelling of vehicles. It is therefore presumed that the tanks will contain diesel fuel for agricultural machinery. One tank

possibly contains red-diesel, the other white diesel, based on the colour of the tanks themselves. Some evidence of spillage on the ground was noted, with black stained patches directly below the nozzles, which were free hanging. It is likely that small amounts of fuel drip from the nozzles when they are hung after refuelling. A concrete covered yard is located east of the barn. A blockwork retaining wall runs along the northern side of the yard, forming the site boundary. A further yard is present beyond the boundary with access to a fishing pond. A water course, Scout Dike, runs southwards along the eastern boundary of the site, before passing beneath Barnsley Road and joining the River Don on the south side of the road. Drainage is provided within the farm complex, with manholes evident across the various yards. It is not known to where these drains outfall. It may be that surface water is discharged to the river, or to public sewers within Barnsley Road.

In the south west of Area A, further buildings are present. Two large barns are present. The largest of these is around three storeys in height and consists of asbestos bound cement panels fixed around a steel frame. The barn is currently used for storing hay and a number of tractors and other equipment. The rear section of the building is divided into pens for animals. The smaller barn, to the west, is also a steel framed building but with timber cladding to the walls, and an asbestos bound cement panel roof. Further hay bales and farm machinery were stored within this barn. Additional animal pens are also located between the two barns. A concrete covered yard is present to the north of the barns, with a small blockwork retaining wall along the northern side. Various building materials were stored in this yard, along with a number of vehicles. To the front of the barn, a cobbled track runs, with a gated entrance from Barnsley Road at the western end of the barns.

To the south of the barns, derelict buildings are present. These appear to be old brick built barns or garage type buildings, currently used for storing timber, bricks and other materials. A raised area, supported on stone walls is present, although no evidence of there having been a tank on this feature in the past was noted. Clay land drain sections were stockpiled on this area at the time of the walkover. A two storey stone built barn with attached cottage is present to the south of the derelict buildings, facing onto Barnsley Road. The western end of Area A comprises a gravel surface yard. The gravel included lumps of concrete as well as bricks. At the time of the visit, the yard was empty. The yard is raised around 500 mm to 1 m above the road.

'Area A2'

Area A2 is located to the north west of Area A. Area A2 predominantly comprises a grassed paddock used for grazing. The land rises towards the north by several metres. The southern part of this area also comprises a gravel surfaced yard, used for the storage of hay bales and several trailers.

Site B

Site B is located to the south of Barnsley Road, and is disected by the river Don. Site B is also divided into two areas.

'Area B'

'Area B' is located in the west and comprises a farm yard with three barns. The first of these is located in the east and is two storeys in height. No access into this building was available at the time of the visit, but the barn appeared unused. The building is a combination of block and brick walls, with cement bound asbestos sheet roofing and gutters. Some animal pens were evident at the rear of the building, which were partially filled with rubble. The second barn, to the west of the first, is an open fronted structure. The rear and side walls are of blockwork, whilst the roof is of cement bound asbestos sheets supported on a steel frame. Various farm machinery was being stored within this barn at the time of the walkover visit. The third barn is a timber framed structure, which is in a state of some disrepair. The roof consists of corrugated panels, possibly tin rather than cement bound asbestos. Hay bales were being stored within the barn at the time of the site visit.

The south eastern corner of this area is a gravel surfaced yard. The gravel appears to comprise assorted rubble including brick and concrete fragments. Several areas of the yard are overgrown with grass. To the north of the buildings, further open space is present. This is very overgrown, with mature trees of various species along the eastern boundary and river bank. A number of small derelict animal shelters are present in this area. A number of small soil heaps are also present amongst the undergrowth. A number of manhole covers were also noted.

'Area B2'

Area B2 is located to the west of Area B, with a small triangular section being segregated by the River Don. At the time of the walkover visit, the water level within the river was around 2 m below the general ground level of Site B.

The main part of Area B2 is on the south side of the river. This comprises a relatively level field. Mature trees are present along the river bank on the northern side, with some also being present around the eastern, western and southern boundaries. At the time of the site visit, the field contained short grass. Recent aerial photographs do indicate crops to be present, however. A manhole is present in the north of the field, along with a concrete headwall on the river bank. A pipe was noted discharging from the headwall into the river. The pipe appeared to be around 250 mm in diameter, but the source of this discharge was not verified.

The small area on the northern side of the river is currently used for animal grazing. This area is around 1.5 m to 2 m below the level of Barnsley Road. A concrete slab is present in the north of this area which appears to be the remains of a small shed. Two wooden animal sheds are also located in the east. The field is covered by grass.

The area surrounding the site is predominantly residential, with Penistone Grammar school located to the north of Site A. A garage and fuel filling station is located around 50 m to the west.

The main features of the site described above are indicated on Drawing Number 35223/001, which is included in Appendix 1.

2.2 History

Historical Ordnance Survey maps have been reviewed in order to assess the previous land usage at and within the vicinity of the site. Copies of the maps used are presented in Appendix 1 within the Envirocheck report.

2.2.1 The Site

Areas A and A2

The earliest map reviewed, dated 1851, showed the north eastern section of the site to be occupied by Nether Mill House. Several other buildings are indicated around the house, which match the general footprint of the larger barns which remain to the present day. Nether Mill, a corn mill, with associated out buildings and a mill dam, is shown in the south western part. A mill race crosses the site approximately from north to south and a track runs from west to east past a mill dam. The rest of the land appears to be agricultural or open land.

By 1931, in the western section of the site, a building was developed in the centre. Nether Mill House remained in the north, with additional out-buildings added around the original buildings. The mill race and mill dam were removed between 1967 and 1968. Between 1981 and 1983, the building in the western section of the site was extended over the previous position of the mill race. Ancillary extensions and changes were also made to the buildings surrounding Nether Mill House at this time.

Little change is shown on any of the subsequent maps up to the present day.

Areas B and B2

The earliest map shows the River Don to cross from the west to the north east corner. Scout Dike joins the Don immediately east of the site after running south along the eastern boundary of both Site A and Site B. Trees are shown lining the course of the river. The rest of the land appears to be agricultural or open land.

By 1931, a rectangular shaped building is shown in the south western corner of Area B. This is in the location of the timber barn. By 1960, the other two barns are also shown, although the open fronted barn is indicated to be L-shaped, with a section running along the western boundary. This section of the building appears to have been removed between 1983 and 1985. No other significant changes are indicated by subsequent maps.

2.2.2 The Surrounding Area

The earliest existing Ordnance Survey map, from 1851, showed the area surrounding the site to predominantly be agricultural land, with a few quarries and farmhouses in the surrounding area. A well is shown around 40 m north east of the site and Water Hall is present adjacent to the eastern boundary of the site section B. Scout Dam is present between 250 and 500 m to the north of the site. Broad Hill Quarry, a sandstone quarry, was present approximately 250 m to the north east of the site in 1851. More sandstone quarries were present between 250 and 500 m to the south of the site. Railways were present around 250 m to the south and east. Springs were also present in the surrounding area.

By 1893, escarpments can be seen around 50 m to the east and 150 m to the north of the site. The Penistone Union Workhouse was built adjacent to the north western boundary of Site A, with a pump indicated on the boundary between the site and the workhouse. A gas works was present around 200 m south west of the site. By 1894 the sandstone quarries are no longer labelled, and the ones to the south of the site are replaced by a school and its grounds.

Another escarpment was labelled by 1907, adjacent to the southern boundary of the southern section of the site, and a sewage farm was present around 450 m to the west of the site. Residential development around the site increased between the 1900s to the 1930s, including the development of two houses adjacent to the western boundary of the northern site. The escarpment adjacent to the southern boundary became a recreation ground although the slope was still present. The Union Workhouse was changed to the Poor Law Institution.

By 1960 the Poor Law Institution had changed its use to Netherfield Home for the Aged. An electricity substation and Bridge Mill Joinery Works are shown adjacent to the western boundary of section B of the site by 1968, and a garage around 50 m to the south west of the site. During the 1970s and 1980s residential development in the area intensified, particularly around 100 m south west of the site.

The surrounding area then stays much the same to the present day. Netherfield Home for the Aged was converted into Penistone Grammar School Sixth Form Annex.

2.3 Geology

The Geological Map of the area, sheet 273 SE (1:10,560 scale) indicates the solid geology beneath the site to be undifferentiated mudstone, sandstone or siltstone of the Lower Coal Measures. The exact strata type is not indicated, as the area is covered by drift deposits. The maps indicate the drift beneath the northern section of the site (Areas A and A2) to be river terrace deposits. Alluvium is indicated beneath the southern side of the river (Areas B and B2).

No faults or other lines of weakness are indicated to cross the site, although the surrounding area is quite heavily faulted. The dip of the strata is generally indicated to be to the north east at angles of between 3° and 6°.

2.4 Hydrogeology

2.4.1 Groundwater Vulnerability

The Environment Agency groundwater vulnerability maps identify the site to overlie a Secondary A aquifer. Both the drift deposits and the bedrock are given this classification. Secondary A aquifers are defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

The site does not lie within a Groundwater Source Protection Zone.

2.5 Hydrology

The nearest surface water feature is the River Don running through the site oin the southern side of Barnsley Road. The Scout Dike also runs along the eastern boundary, joining the Don on the eastern most point of the site. Both of these watercourses are potential receptors if contaminated materials were to be found on the site.

2.6 Mining

2.6.1 Coal Mining

The geological maps indicate several seams of coal to outcrop in the area surrounding the site. The named coal seams outcropping nearest to the site are the Grenoside Sandstone Coal, which outcrops approximately 750 m to the south west, the Lower Penistone Coal, which outcrops approximately 540 m to the south, and the Penistone Green Coal, which outcrops approximately 750 m to the south. The Lower Penistone Coal and the Penistone Green Coal outcrop approximately 150 feet (45.7 m) higher than the site, on the southern side of the large valley in which Penistone sits. The area is heavily faulted, but several seams of coal are indicated to outcrop in corresponding positions in the northern side of the valley. It is therefore considered that these seams of coal are stratigraphically 'above' the site, and are therefore not expected to be present below the site.

Therefore the shallowest coal expected beneath the site is the Grenoside Sandstone Coal, although its outcrop thins and discontinues towards the north. Because of this, it is doubtful if this seam continues beneath the site. If it is present, it is estimated to be around 35 m beneath the south westernmost corner of the site and around 50 m beneath the north easternmost corner of the site, based on the strata dipping at 3° towards the north east.

The seam is recorded as being around 4 inches (0.1 m) thick in the local area. The geological memoir states that the coals in the area have locally been worked where thick enough, but only usually at outcrop or occasionally from shallow shafts.

A Coal Authority mining report has been obtained for the site and is enclosed in Appendix 2. This states that the site is not within the likely zone of influence from past underground workings. There are no recorded mine entries within the site or within 20 m of the site boundary.

The site is not within the likely zone of influence from any present or currently proposed future underground coal workings. However, reserves of coal exist in the locality which could be worked at some time in the future subject to feasibility, licences and planning consents. Future workings of the coal reserves below the site are considered unlikely due to the demise of the coal mining industry in this area.

There are no records of any mine gas emission which required action by The Coal Authority having taken place on the site, and no claims for mining related subsidence have been made on the site.

Given the thin nature of the shallowest seam of coal expected below the site, if it is present at all, it is not expected that the site is at risk from the effects of shallow mine workings.

2.6.2 Quarrying

Broad Hill Quarry, a sandstone quarry, was present approximately 250 m to the north east of the site in 1851. More sandstone quarries were present between 250 and 500 m to the south of the site. By 1894 these quarries are no longer labelled, and the ones to the south of the site are replaced by a school and its grounds.

Quarrying activities are not expected to have taken place on the site in the past due to the presence of alluvium and river terrace deposits associated with the River Don. The expected shallow water table will also have deterred any potential surface workings.

2.7 Ground Gas

2.7.1 Landfill Gas

A mill race, mill dam and overflow were present in the northern section of the site and were infilled between 1967 and 1968. It is possible that organic materials remain in the bed of the former race or dam. It is also possible that biodegradable materials were used to infill these features, although neither are expected to be of significant depth.

The Envirocheck Report lists one historical landfill site within 250 m of the site. This was named "T.A. Centre" and was situated 230 m to the west of the site. It operated between 1982 and 1994 and accepted commercial and inert wastes, demolition waste, excavation waste and subsoil and topsoil. Reference to historical maps suggests that the landfill may have operated to allow the redevelopment of an old TA centre into a new sports centre including sports pitches. It is therefore likely that limited amounts of waste were imported to level the site as part of the redevelopment. As such, a significant risk of ground gas generation is not anticipated, and the risk of migration to the current development site is not expected to be a significant risk.

Potentially infilled sandstone quarries have been identified around 250 m to the north east and south of the site. However, at this distance, a significant risk of gas migration towards the site, should any of these quarries have been infilled, is not anticipated.

Generally, based on the review of the available desktop information, there is considered to be a low risk of gas generation and migration which could affect the proposed development. The risk is presented from the former mill race and mill dam on the site, rather than from any former feature in

the surrounding area. The level of risk will be dependent on what materials are present within the infilled mill race. If biodegradable or putrescible wastes are included, some gas monitoring may be required, or gas resisting measures incorporated into the proposed dwellings. The contents of the former mill race and mill dam will need to be confirmed by way of intrusive investigation.

2.7.2 Radon Gas

According to information included within the Envirocheck Report, which has been provided by the BRE, no radon protective measures are required in new dwellings at this site.

2.8 Flooding

According to the Environment Agency flood maps, the area south of Barnsley Road (Areas B and B2) lies within an area at risk of flooding from river waters. The most southerly part of the northern section of the site (A and A2) is also included in this area at risk of flooding. As the development area is greater than 1 hectare, a full flood risk assessment will be required prior to development in any case.