PART A2 BASELINE ASSESSMENT

carried out at

ELTISLEY ROAD

GREAT GRANSDEN SG19 3AR

Prepared for

KINGSPAN TIMBER SOLUTIONS
Eltisley Road
Great Gransden
Sandy
Bedfordshire
SG19 3AR

Contract: 21398

Date: MAY 2015

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EXECUTIVE SUMMARY

Kingspan Timber Solution Ltd have instructed Ian Farmer Associates to undertake a baseline assessment of the use of particular substances in relation to their application for a Part A2 permit under the Environmental Permitting Regulations 2010. This is for the plant situated at Great Gransden, approximately 17 km to the west of the city centre of Cambridge and may be located by Grid Reference TL 27030 56275

As such, the report is only relevant in so far as it assesses the current use of chemicals at the site. These are directly used in the timber treatment process that currently exists on site.

It is considered that no further monitoring is required and the site is considered to be free of indicator species.

CONTENTS

1.0 BASELINE ASSESSMENT

1.1 General

1.1.1 Kingspan Timber Products are applying for an A2 environmental permit under the Environmental Permitting Regulations 2010 ref 4.1, for the timber treatment process that is currently on site. This process is detailed in the application to which this report is appended.

1.1.2 This process requires the use of certain herbicides, pesticides and fungicides to preserve the wood.

1.1.3 As part of the application, the applicant is required to submit a baseline report relating to the hazardous substances used for the process. These hazardous substances are listed under Article 3 of Regulation (EC) No. 1272/2008 on classification, labelling, and packaging of substances and mixtures, ref 4.2.

1.1.4 Historically, the use of chemicals in the process included tributyltin, lindane and kerosene. These substances are also included in the relevant Article as listed above, but their use has been phased out due to their toxicity.

1.1.5 More recent chemicals used were selected not only for their efficacy, but also for their limited toxicity.

1.1.6 Although it is possible that there may be historical contamination on site, this is an issue for the site owner's liability and is not considered in this report. If this historical contamination does exist, it can be dealt with under the auspices of the Contaminated Land Regulations via voluntary remediation.

1.1.7 As such, the chemicals currently in use at the site are the key concern for this report.

2.0 CURRENT CHEMICAL USE

2.1 Current Chemical Used.

2.1.1 The MSDS Data Safety Sheet provided by Kingspan Limited for VACSOL Aqua 6112 RTU, ref 4.3, shown in Appendix 2, shows that the treatment formulation is composed of the following substances; 2-(2-butoxyethoxy)ethanol, Propiconazole, Tebuconazole, and Permethrin. These substances are discussed below.

2.1.2 2-(2-butoxyethoxy)ethanol is also known as diethylene glycol mono-n-butyl ether, as identified by the CAS No. (112-34-5) on the MSDS Data Safety Sheet, which is a solvent, and is used as an inert ingredient in pesticide products, as well as latex paints, stamp pad inks, dye solvent, enamels, and in household cleaners. Undiluted contact on human skin caused a reddening in some of the volunteers, long term exposure leading to a scaliness of the skin. Subchronic exposure via drinking water in rats led to kidney lesions, and death. Inhalation in rats over five weeks led to no significant toxic effects. LC_{50} values in varying species of fish ranged from 1150 mg/L to 2700 mg/L. It is expected to have a high mobility in soils, with biodegradation an important removal mechanism. It is not expected to sorb to sediments or suspended solids in the aquatic environment. It is thought to have a low bioconcentration ability, and to be largely biodegraded over a period of a few days, ref 4.4.

2.1.3 Propiconazole is a triazole used as a fungicide. Although it is classified as a possible human carcinogen, it is not classed as irritating to skin and eyes. Large concentrations over subchronic periods led to reduced food consumption, decreased body weights, decreased haemoglobin, haematocrit, and erythrocytes, certain biochemical indicators showed increased activity. At very high exposures, weights of brain liver, testes, adrenal glands and ovaries were increased, LC_{50} concentrations in shrimp are reported as 0.51ppm over 96hrs, and in carp at 5.7ppm over 96hrs. Mobility of propiconazole in soils is reported to be dependent on the organic content of the soil. Bioconcntration in aquatic organisms is expected to be very high, and it is reported to be stable in both the aquatic and water environments, ref 4.4.

2.1.4 Tebuconazole is another triazole fungicide. It is classified as a possible human carcinogen. Acute exposure studies on rats and mice showed that manifestations included sedation, locomotion incoordination, spastic gait and emancipation. It appears to be a mild irritant to eyes, and a non-irritant to skin. It has been noted to increase the incidence of thyroid tumours in male rabbits. LC_{50} values in aquatic invertebrates range from 0.49ppm over 96hrs to 2.7ppm over 96hrs. In fish it is reported as 5.9ppm over 96hrs. It is not expected to volatilise from soils, and in water it is expected to adsorb to suspended solids and sediments. Bioconcentration is thought to be high, ref 4.4.

2.1.5 Permethrin is another organochlorine compound, used as an insecticide. It is thought to be likely carcinogenic to humans via oral exposure. Little impact is seen in human dermal test studies, excluding some mild, patchy erythema and paraesthesia on some volunteers. Via inhalation, local or systemic manifestations can occur, including sneezing, a scratchy throat, oral mucosal

oedema, coughing, wheezing, shortness of breath, and chest pain. One case of motor neuron disease was noted from three years exposure via inhalation. Ingestion studies in mice showed the formation of lung and liver tumours, although they were benign. Toxic in the ppb-ppt ranges for fish, manifestations of exposure can be death, as well as endocrine dispruption. Permethrin degrades principally in soil via biodegradation and abiotic hydrolysis. In waters, it is expected to sorb to suspended solids and sediments, ref 4.4.

2.2 Historical Surveys

2.2.1 The site has been subject to numerous assessments, the most recent of which was in 2009. These have been used to evaluate the site.

2.2.2 Voelcker Science, ref 4.5, undertook a desk based study in 2000, at the request of Potton Ltd, due to a request from the Environment Agency to assess the presence of any contamination of controlled waters and groundwaters from the process that is operated on site. Recommendations were the drilling of an exploratory hole with a hand auger to five metres to confirm the thickness of the boulder clay on site, drilling three more hand augers to a depth of one metre and sampling of any soils and waters to determine the presence of any contamination, and the taking of three water samples to determine the presence of any contamination from the site.

2.2.3 In 2003, Ground Engineering, ref 4.6, under instruction from Potton Ltd, undertook three window sample exploratory holes at the rear of the treatment plant, to a depth of one metre to recover samples for contamination analysis, as well as the recovery of two sediment samples from the stream to the south of the site. Logs from the investigation show that there is Made Ground, ranging in depth from 0.4-0.7m in the area where the site was investigated. Below this was a sandy gravelly clay, the gravel consisting of chalk and chert. All window sample holes were shown to be dry. Analysis results are presented in the table below.

Sample	WS1	WS2	WS3	SS1	SS2
Depth (m)	0.4-0.6	0.6	0.3		
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Lindane	<0.5	<0.5	<0.5	<0.5	<0.5
Propiconazole	<0.5	<0.5	<0.5	<0.5	<0.5
Permethrin	<0.5	<0.5	<0.5	64	14
Tebucanozole	<0.5	<0.5	<0.5	<0.5	<0.5
Tributyl tin	1.3	<0.1	0.3	0.6	0.1
Total Petroleum Hydrocarbons	1300	<30	150	410	57

2.2.4 In 2005, Environmental Protection Strategies Ltd, ref 4.7, were commissioned to undertake some sediment and surface water sampling. Five stream sediment and one surface water samples was taken. Analysis results of this sampling is shown in the table below.

Sample	SS1	SS2	SS3	SS4	SS5	Water
Depth (m)	0.1-0.3	0.1-0.3	0.1-0.3	0.1-0.3	0.1-0.3	
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/l
Lindane (mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	0.00
Propiconazole (mg/kg)	0.52	<0.5	1.75	<0.5	0.7	0.03
Permethrin (mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	0.00
Tebucanozole (mg/kg)	5.40	2.40	10.4	2.6	2.2	0.13
Tributyl tin (mg/kg)	2	25	71	8.7	1.8	0.00
Total Petroleum Hydrocarbons (mg/kg)	31	60	122	46	123	-

2.2.5 In 2005, Environmental Protection Strategies Ltd, ref 4.8, undertook a further round of sampling, taking three more sediment samples and one water sample. Two sediment samples were taken from upstream of the site to check for any off-site sources of contamination, and one from the onsite interceptor. Samples were also taken for leachate analysis, and waste acceptance criteria testing, although the results of these tests have not been seen. Results are shown in the table below.

Sample	Upstream 1	Upstream 2	Interceptor	Ditch Water
Sample Depth (m)	0.1-0.3	0.1-0.3		
Units	mg/kg	mg/kg	mg/kg	mg/l
Lindane	0.0170	0.0000	0.0000	0.00000
Propiconazole	0.0000	0.0000	0.0000	0.00880
Permethrin	0.0000	0.0000	0.0000	0.00030
Tebuconazole	0.0000	0.0000	0.0000	0.05370
Tributyl Tin	0.1070	0.0840	0.0000	0.00015
Total Petroleum Hydrocarbons	4.7	18	8604	0.01

2.2.6 In 2009, Environmental Protection Strategies Ltd, ref 4.9, were again commissioned to obtain a sample from the surface water ditch to the south of the site. Water quality parameters were also measured from the surface water at the time the sampling occurred. The only contaminants detected above the level of detection of the analysis was Propiconazole at 4.3 µg/l, Tebuconazole at 5.4 µg/l and Permethrin wasn't above the limit of detection.

2.2.7 Copies of the above reports are included in Appendix 3.

2.3 Assessment of Levels of Substances

2.3.1 Although there is no monitoring of this substance, the glycol ether solvents aren't expected to be of concern due to their likely rapid biodegradation over a number of days.

2.3.2 Propiconazole is reported to be stable in both the aquatic and water environments, although it is expected be bioconcentrated in aquatic organisms. In sediments, it was below the limit of detection in 2003, varied between 0.52-1.75 mg/l in 2005. In waters, it was detected in 2005 at 0.03 mg/l, which dropped to 0.00880 mg/l in the second phase of testing in December 2005. In 2009, it was detected at 4.3 µg/l, a drop of 25 µg/l, or 84%.

2.3.3 Tebuconazole, as stated, is expected to remain sorbed to suspended solids and sediments; this is likely to be to the clay and organic matter fraction. It is also expected to bioaccumulate in aquatic organisms. Testing for the substance in sediments in 2003 showed none above the limit of detection (0.5 mg/kg). At the subsequent retest in 2005, it occurred in a number of sediment samples ranging from 2.2-10.4 mg/kg. In water sampling in 2005, it was detected at 0.13 mg/l. At the second round of testing in December 2005, it was detected in the ditch adjacent to the site at 0.05370 mg/l. At the final test in 2009, it was detected at levels of 5.4 µg/l, a drop of 125 µg/l over four years, or 94%. It is likely that over this time, tebuconazole has been taken up by aquatic organisms, as well as being sorbed strongly to clays and organic matter. It may be wise to undertake some sediment sampling to determine the concentrations of any tebuconazole remaining.

2.3.4 Permethrin is expected to sorb to suspended solids and sediments. Testing for permethrin in sediments showed significant amounts detected in 2003 (14-64 mg/l). Subsequent testing in 2005 showed that permethrin was below the limit of detection in 2005. In the water samples that were analysed, permethrin was detected in small amounts in December 2005 in the ditch adjacent to the site. In 2009, it was below the limit of detection.

3.0 BASELINE ASSESSMENT

3.1 Substance Assessment

3.1.1 The assessment looks at the substances currently in use, although there is some commonality with substances that have been historically used, in particular tebuconazole, permethrin, propiconazole, and the glycol ethers. The graph in Appendix 3 shows the changes in concentrations of the indicator species over time. It should be noted that for some of these, the limit of detection was used as the value for the concentration of the indicator species. This graph does not include the glycol ether solvents as they were never analysed for. Propiconazole started off as below detection limits, there was a small peak in 2005 followed by a decrease to below the detection limit. Tebuconazole exhibits similar behaviour over time, although at slightly higher concentrations than Propiconazole. Permethrin shows a dramatic decrease between 2003 and 2005, from when it wasn't detected in any of the analysis.

3.1.2 There is a surface water drain that is inside the building used for the treatment process. It is thought that water contaminated with treatment formulation was entering the drainage system, and from there it entered the surface water course to the south of the site via the surface water drainage system. This drain was sealed, and it is thought that this led to the decrease in indicator species detected in the sediment. As the drain entrance has been sealed, this pathway is no longer viable, it's sealing being observed on a site visit on the 11th May 2015.

3.1.3 With regards to the baseline for this site, it is considered likely that once releases were ceased, the substances have likely been naturally attenuated via numerous pathways (as evidenced by the significant decrease of substances as detected over time), and as such the site is considered to be free from indicator species

3.2 Further Work

3.2.1 No further work is considered necessary in assessing the evaluation of baseline conditions for the site.

3.2.2 It should be noted that this screening assessment only considers the chemicals that are currently in use, and does not pertain to the release of chemicals used historically, or any liabilities that Kingspan Timber Treatment Limited may have under Part 2A of the Environmental Protection Act, 1990, ref 4.10.

4.0 REFERENCES

4.1 Environmental Permitting Regulations, 2010. 2010 SI 2010-675. London: HMSO

4.2 EU Regulation 1272/2008. *Regulation (EC) No. 1272/2008 of the Council of 16th December 2008 on classification, labelling, and packaging of substances and mixtures*

4.3 Arch Timber Protection, 2012. Safety Data Sheet for VACSOL Aqua 6112.Castleford.

4.4 Hazardous Substances Data Bank. http://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm Accessed 26th May 2015

4.5 Voelcker Science, 2000. *Assessment of the Risk of Contamination to Controlled Waters. Ref 127208*. London

4.6 Ground Engineering, 2003. *Factual Report on Ground Conditions at Potton Limited Site, Great Gransden. Ref 208.* Newmarket. .

4.7 Environmental Protection Strategies Ltd, 2005a. *Sampling.* Cambridge.

4.8 Environmental Protection Strategies Ltd, 2005b. *Sampling.* Cambridge.

4.9 Environmental Protection Strategies, Ltd. 2009. *Results of Surface Water Sampling. Potton Ltd., Eltisley Road, Great Gransden*. Cambridge.

4.10 The Environmental Protection Act 1990, Part IIA, s.78. (c.43.). London. HMSO.

For and on behalf of Ian Farmer Associates (1998) Limited

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Principal Environmental Geologist

APPENDIX 1

DRAWINGS

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Kingspan Timber Products

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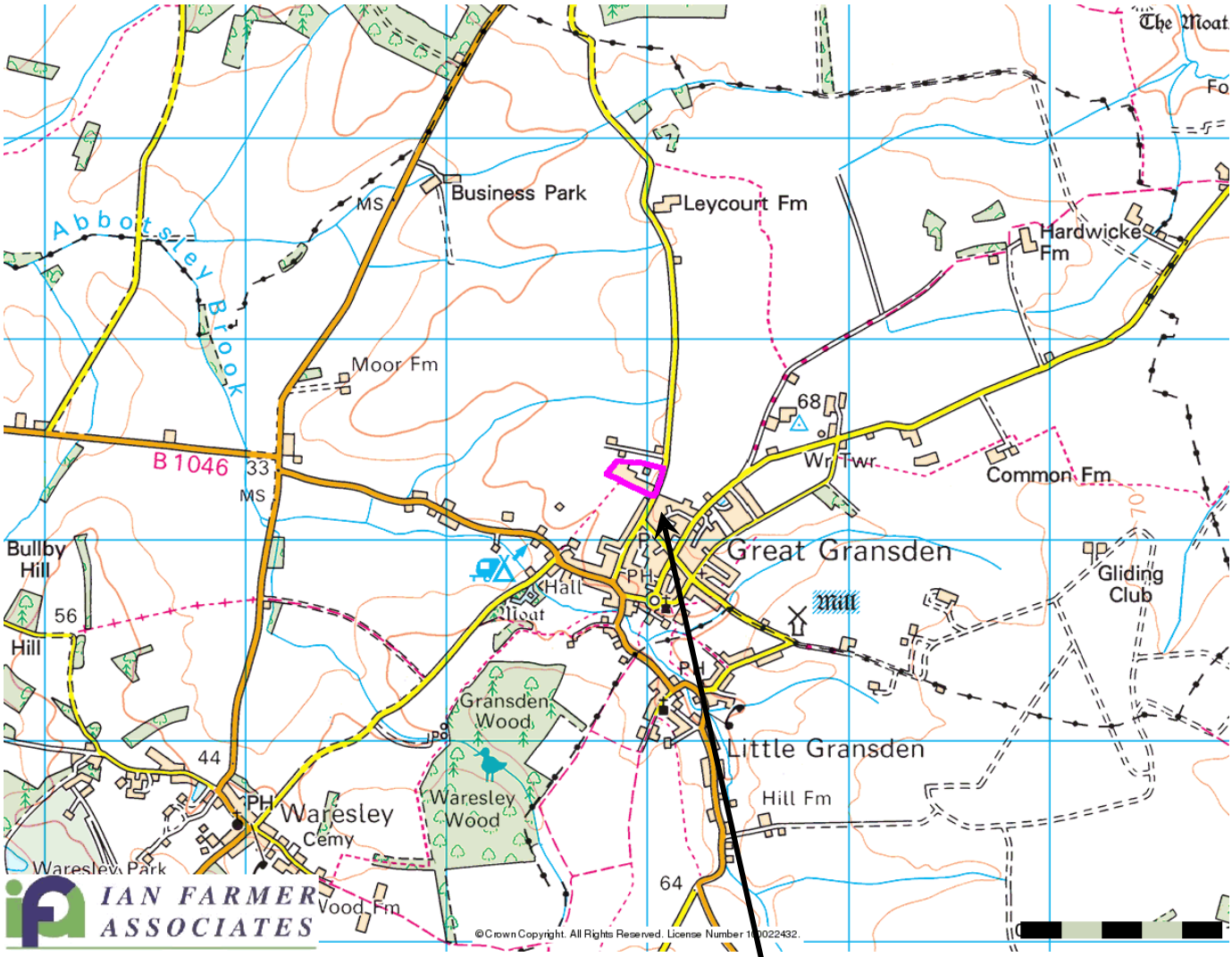

SITE

Site Location Plan

Scale: NTS

Figure A1.1

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Kingspan Timber Products

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Aerial Photo

Scale: NTS

Figure A1.2

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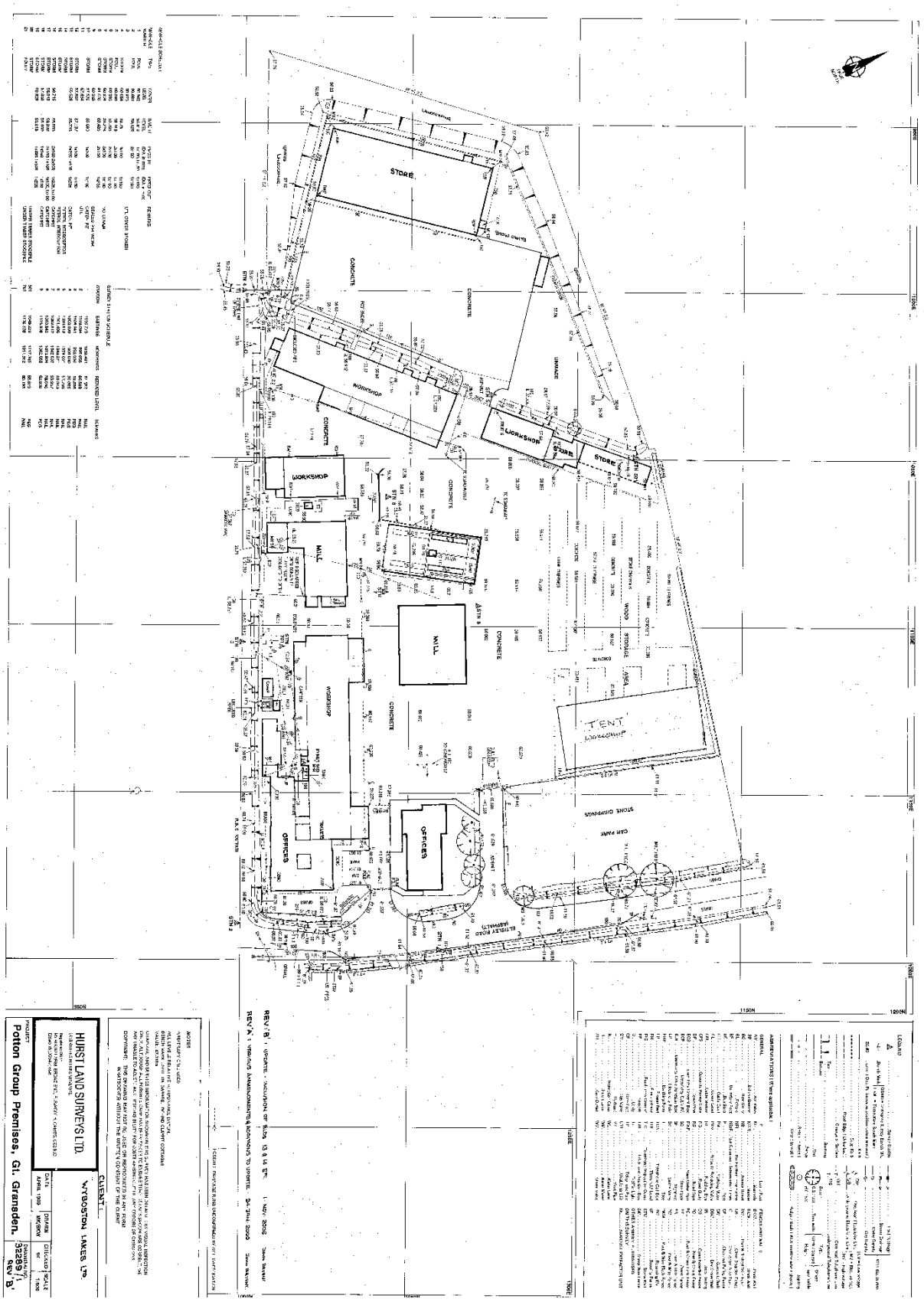
Kingspan Timber Products



Site Layout and Drainage Plan

Scale: NTS

Figure A1.2

APPENDIX 2

MSDS SAFETY DATA SHEET

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

VACSOL Aqua 6112 RTU

Version 1.1 / EN | Revision Date 12.11.2012 | Print Date 28.05.2015

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	VACSOL Aqua 6112 RTU
Product-specific registration-no.	:	8180

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	Preservative

1.3 Details of the supplier of the safety data sheet

Company	:	Arch Timber Protection Wheldon Road Castleford United Kingdom WF10 2JT
Telephone	:	+44 (0)1977 714000
Telefax	:	+44 (0)1977 714001
Responsible/issuing person E-mail address	:	advice@archchemicals.com

1.4 Emergency telephone number

Emergency telephone number	:	+44 (0)1235 239 670

2. Hazards identification

2.1 Classification of the substance or mixture

Classification (67/548/EEC, 1999/45/EC)

Dangerous for the environment	R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label elements

Labelling according to EC Directives (1999/45/EC)

Hazard pictograms :

		Dangerous for the environment	
R-phrase(s)	:	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrase(s)	:	S 7	Keep container tightly closed.
		S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
		S28	After contact with skin, wash immediately with plenty of water.
		S35	This material and its container must be disposed of in a safe way.
		S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
		S49	Keep only in the original container.
		S57	Use appropriate container to avoid environmental contamination.

2.3 Other hazards

not applicable

3. Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
2-(2-Butoxyethoxy)ethanol	112-34-5 203-961-6	Xi; R36		< 10
hydroxyalkylamine		Xn; R22 C; R34 N; R50-R53		>= 0.25 - < 2.5
permethrin (ISO)	52645-53-1 258-067-9	Xn; R20/22 R43 N; R50-R53		>= 0.025 - < 0.1
Propiconazole	60207-90-1 262-104-4	Xn; R22 R43 N; R50-R53	Acute Tox. 4; H302 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	< 0.1
Tebuconazole	107534-96-3	Repr.Cat.3; R63	Repr. 2; H361d	< 0.1

	4036402	Xn; R22 N; R51-R53	Acute Tox. 4; H302 Aquatic Chronic 2; H411	

For the full text of the R-phrases mentioned in this Section, see Section 16.
For the full text of the H-Statements mentioned in this Section, see Section 16.

4. First aid measures

4.1 Description of first aid measures

General advice : No hazards which require special first aid measures.

If inhaled : Move to fresh air.
Keep patient warm and at rest.

In case of skin contact : Wash off immediately with plenty of water.
If on clothes, remove clothes.
Wash contaminated clothing before re-use.

In case of eye contact : Rinse immediately with plenty of water for at least 15 minutes.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : See chapter
11. Toxicological information

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Carbon dioxide (CO2)
Water spray

Unsuitable extinguishing media : Do NOT use water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : The product is not flammable.
Do not allow run-off from fire fighting to enter drains or water courses.
Burning produces noxious and toxic fumes.

5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.
Further information	:	Standard procedure for chemical fires.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Ensure adequate ventilation.

6.2 Environmental precautions

Environmental precautions	:	The product should not be allowed to enter drains, water courses or the soil. If the product contaminates rivers and lakes or drains inform respective authorities. Prevent further leakage or spillage if safe to do so.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	:	Retain and dispose of contaminated wash water.
	:	Soak up with inert absorbent material. Sand Pick up and transfer to properly labelled containers. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

Additional advice	:	See chapter 8. Exposure controls/personal protection 13. Disposal considerations

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	For personal protection see section 8.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Use appropriate container to avoid environmental contamination.
Other data	:	Protect from frost.
	:	No decomposition if stored and applied as directed.

7.3 Specific end uses

Specific use(s) : Preservative

8. Exposure controls/personal protection

8.1 Control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
2-(2-Butoxyethoxy)ethanol	112-34-5	TWA	10 ppm 67.5 mg/m3	2006-02-09	2006/15/EC
Further information	: Indicative				
2-(2-Butoxyethoxy)ethanol	112-34-5	STEL	15 ppm 101.2 mg/m3	2006-02-09	2006/15/EC
Further information	: Indicative				
2-(2-Butoxyethoxy)ethanol	112-34-5	TWA	10 ppm 67.5 mg/m3	2007-08-01	GB EH40
2-(2-Butoxyethoxy)ethanol	112-34-5	STEL	15 ppm 101.2 mg/m3	2007-08-01	GB EH40

8.2 Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Hand protection : The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.
The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case.
Gloves must be inspected prior to use.
Replace when worn.
Impervious gloves
Nitrile rubber

Eye protection : Wear protective gloves/ protective clothing/ eye protection/ face protection.

Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. impervious clothing
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Environmental exposure controls

General advice	:	The product should not be allowed to enter drains, water courses or the soil. If the product contaminates rivers and lakes or drains inform respective authorities. Prevent further leakage or spillage if safe to do so.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	colourless
Flash point	:	Note: does not flash
Boiling point/boiling range	:	100 °C
Density	:	1 g/cm3
Water solubility	:	Note: completely soluble

9.2 Other information

Oxidising potential	:	Note: Not relevant

10. Stability and reactivity

10.1 Reactivity

None known.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Note: Stable under recommended storage conditions.

10.4 Conditions to avoid

Conditions to avoid	:	Protect from frost.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents

10.6 Hazardous decomposition products

Thermal decomposition : Note: None known.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity : LD50
VACSOL Aqua 6112 RTU Species: rat
Dose: estimated > 2,000 mg/kg

Acute oral toxicity

Components	Value	Species	Dose	Method
permethrin (ISO)	Acute toxicity estimate		500 mg/kg	Converted acute toxicity point estimate

Acute dermal toxicity : LD50
VACSOL Aqua 6112 RTU Species: rat
Dose: estimated > 5,000 mg/kg

Skin corrosion/irritation

Skin irritation : Remarks: Not expected to cause irritation.
VACSOL Aqua 6112 RTU

Serious eye damage/eye irritation

Eye irritation : Remarks: Not expected to cause irritation.
VACSOL Aqua 6112 RTU

Respiratory or skin sensitization

Sensitisation : Remarks: Not believed to be sensitising to skin.
VACSOL Aqua 6112 RTU

Further information : no data available
VACSOL Aqua 6112 RTU

12. Ecological information

12.1 Toxicity

permethrin (ISO) : 1,000

12.2 Persistence and degradability

Biodegradability VACSOL Aqua 6112 RTU	:	Remarks: no data available

12.3 Bioaccumulative potential

Bioaccumulation VACSOL Aqua 6112 RTU	:	Remarks: no data available

12.4 Mobility in soil

Mobility VACSOL Aqua 6112 RTU	:	Remarks: no data available

12.5 Results of PBT and vPvB assessment

VACSOL Aqua 6112 RTU	:	This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)., This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects

Additional ecological information VACSOL Aqua 6112 RTU	:	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. Disposal considerations

13.1 Waste treatment methods

Product	:	The product should not be allowed to enter drains, water courses or the soil. Dispose of as hazardous waste in compliance with local and national regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Contaminated packaging	:	Rinse empty containers with water and use the rinse-water to prepare the working solution. Refer to manufacturer/supplier for information on recovery/recycling.

14. Transport information

Dangerous for Transport

ADR

14.1 UN number	:	3082
14.2 Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (permethrin (ISO))
14.3 Transport hazard class	:	9
14.4 Packing group	:	III
Classification Code	:	M6
Hazard identification No	:	90
Labels	:	9
14.5 Environmentally hazardous	:	yes

IATA_C

14.1 UN number	:	3082
14.2 Proper shipping name	:	Environmentally hazardous substance, liquid n.o.s. (permethrin (ISO))
14.3 Transport hazard class	:	9
14.4 Packing group	:	III
Labels	:	9
14.5 Environmentally hazardous	:	yes

IMDG

14.1 UN number	:	3082
14.2 Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (permethrin (ISO))
14.3 Transport hazard class	:	9
14.4 Packing group	:	III
Labels	:	9
EmS Number 1	:	F-A
EmS Number 2	:	S-F
14.5 Marine pollutant	:	yes permethrin (ISO)

14.6 Special precautions for user

Other information	:	Refer to protective measures listed in sections 7 and 8.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Remarks : Not relevant

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Major Accident Hazard Legislation : 96/82/EC Update: 2003
Dangerous for the environment
9a
Quantity 1: 100 t
Quantity 2: 200 t

Water contaminating class (Germany) : WGK 2 water endangering

15.2 Chemical Safety Assessment

not applicable

16. Other information

Full text of R-phrases referred to under sections 2 and 3

R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

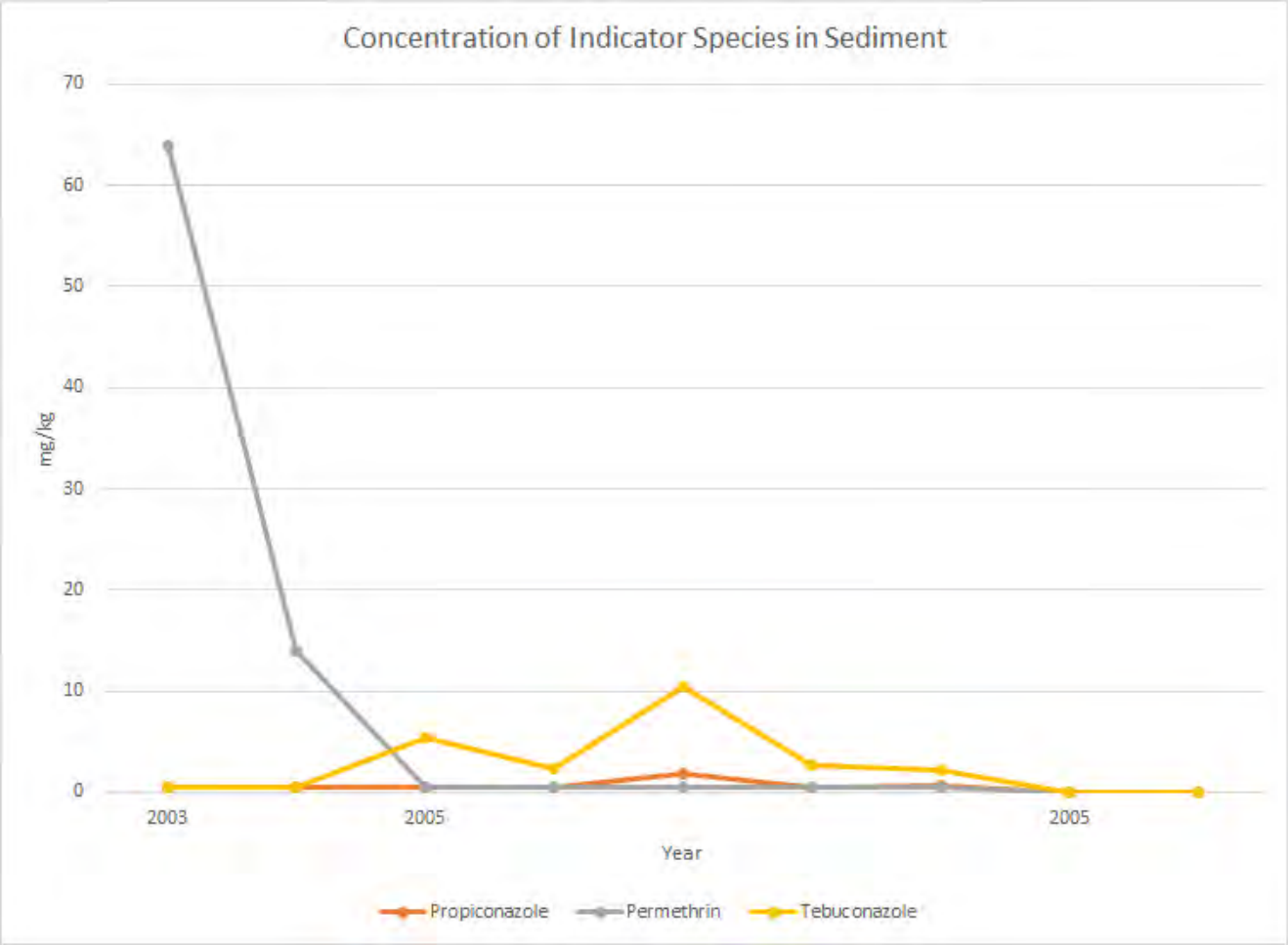
Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H361d	Suspected of damaging the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

APPENDIX 3

GRAPH OF CONCENTRATION OF INDICATOR SPECIES IN SEDIMENTS


Concentration of Indicator Species in Sediment
70
60
50
40
30
20
10
0
mg/kg
2003
2005
2005
Year
Propiconazole
Permethrin
Tebuconazole

APPENDIX 4

HISTORICAL SURVEYS

VOELCKER Science
Est.1863

380 Bollo Lane
London · W3 8QU UK
Tel: +44 (0) 20 8993 2421
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E.Mail: mail@voelckerscience.co.uk
www.voelckerscience.co.uk

ECLIPSE
SCIENTIFIC GROUP

Assessment of The Risk of Contamination to Controlled Waters

Prepared for:

Potton Ltd,
Eltisley Road,
Great Gransden,
Bedfordshire
SG19 3AR

Our Ref:127208

1 *Introduction*

1.1 The Wood Treatment Depot is situated to the northern edge of the village of Great Gransden in Bedfordshire. The treatment process involves injection of the wood with chemicals under high pressure. This process takes place upon a concrete base to prevent against contamination of the surrounding area. However some of this concrete base is broken in places which could allow the ingress of any spillage to beneath the site.

1.2 The treated wood is then stored on concrete at the western edge of the site until such time as it is removed from site.

1.3 The Environment Agency has required the operator to make an assessment of the contamination of groundwater and controlled waters with pesticides caused by the operation of the timber treatment process.

1.4 Voelcker Science has been instructed to carry out this assessment and this short report includes a review of the site location, the potential risk and makes recommendations for the site work required.

2 *The Topography and Geology of the Site*

2.1 The site is situated on Boulder Clay, a glacial deposit left after the retreat of glaciers and ice sheets. Underlying this drift deposit is the Lower Greensand aquifer. However the drift cover will act as barrier to the flow of water and will protect the underlying aquifer from contamination. Any water reaching the site will flow over land or close to surface.

2.2 The ground under the main site slopes steeply from the east to the west towards a small ditch that flows in a southerly direction in the western section of the site.

2.3 The wood storage concreted area is situated immediately to the west of the ditch on a flat piece of excavated ground. Any rain water falling into this area, is routed to the south east corner of the site before flowing into the south flowing ditch.

2.4 Thus any potential contaminants picked up by the rainwater as it flows through the site will flow into the ditch before exiting the site.

3 *Risk Assessment*

3.1 There is a risk that the broken concrete around the pressure injection plant could have enabled any spillage of chemicals to pass into the ground below the site. There is no record of any such spillages having occurred. The geology under the site would stop any potential contaminants from reaching the underlying aquifer. Surface soil contamination under the site could have occurred due to such a spillage and the ditch in the western part of the site could become a sink for any such contaminants. The overall level of risk to the soil under the

pressure injection plant can not be quantified from this desk study however, it is likely that in the circumstances this would, to date, be at worst a very localised near surface issue.

3.2 Rainwater falling into the wood storage area could pick up chemicals from the wood. This water flows directly into the aforementioned ditch. There is thus a risk of some contaminants reaching the ditch. This ditch flows over boulder clay so only surface water and possibly the soil immediately around the ditch may be affected.

4 *Recommendations*

4.1 To confirm the extent of the Boulder Clay protection a 5m deep auger hole should be drilled at a distance of at least 10m from the ditch, immediately to the south of the wood storage area. This will confirm the strata and the extent of the cover protecting the underlying aquifer.

4.2 It is recommended that a maximum of 3 water samples are taken down the length of the ditch as it exits the site. This will enable any contamination of the surface water to be identified.

4.3 To assess the extent of any near surface soil contamination, hand auger holes should be drilled on the edges of the ditch to a depth agreed with the Agency. These auger holes should be have soils samples taken for analysis at regular intervals and any water encountered should be sampled. It is recommended that a maximum of 3 such holes are drilled to a maximum of 1m depth.

5 *Determination of load*

5.1 Further to the initial preparation of this report it was agreed to sample the stream at the south west end of the site in order to estimate the total load of Lindane and TBT entering the surface water.

5.2 The flow was estimated along 2 stretches of the stream and a sample was taken for total tin and Lindane analysis on the 12th July 2000.

5.3 The flow was estimated as 1.125 l/sec

5.4 The results of analysis were 2 ug/l total tin and 0.17 ug/l Lindane

5.5 Assuming all the tin was as tributyl tin this represents an annual discharge of 200g per annum,

5.6 The Lindane annual discharge 6g per annum

6 *Additional Comments*

6.1 The previous analysis of the stream water gave a level 0.6 ug/l for tributyl tin and 0.10 ug/l for Lindane assuming both compounds enter the water in a ratio similar to that found in Protim 210C it would be expected a ratio of

approximately 2:1. Therefore measuring total tin and expressing as tributyl tin is an over estimation and therefore recommend that all subsequent determinations are for tributyl tin. If the first analysis is used in calculating the annual discharge a figure of 21g is obtained.

P Hellier
General Manager

21st August 2000

Peter Dann Ltd

Potton Ltd
Eltisley Road
GREAT GRANSDEN

FACTUAL REPORT

Date: *8th April 2003*
Report Ref.: *208*

GROUND ENGINEERING

Willie Snaith Road Newmarket CB8 7SQ
Tel. 01638 608608 Fax. 01638 608708
Email groundengineering.co.uk

Factual Report on Ground Conditions At Potton Limited Site Great Gransden

1. Introduction

An investigation was completed at Potton Limited, Eltisley Road, Great Gransden to the instructions of Peter Dann Limited, Consulting Engineers to recover samples for chemical analysis.

2. Fieldwork

The investigation requested comprised the construction of three drive-in window sample boreholes to 1.00m depth below existing ground level, and the recovery of two sediment samples from an adjacent stream. The approximate locations are indicated on the sketch in Appendix 1.

Representative disturbed samples of the soils encountered were taken for subsequent examination and laboratory testing.

Details of the conditions encountered in the boreholes, together with particulars of the samples recovered and groundwater observations are provided in Appendix 2.

3. Laboratory Testing

Five soil samples were submitted for a suite of chemical tests to determine the presence of Lindane, Propiconazole, Permethrin, Tebuconazole and TBTO. The results of these are presented on the appropriate summary sheets in Appendix 3.

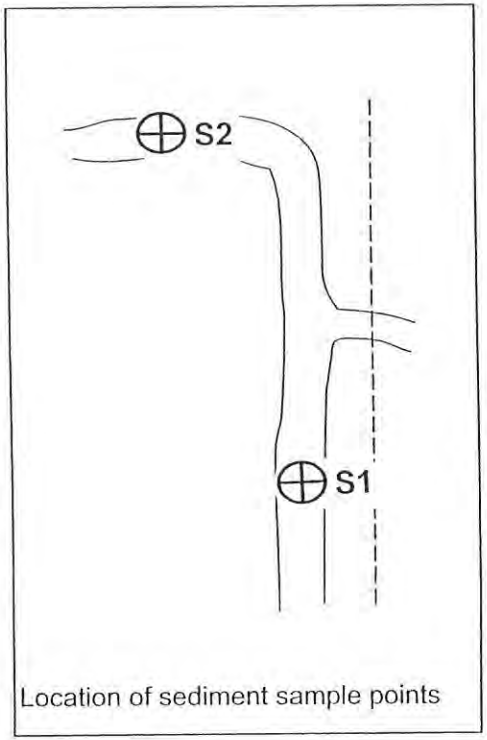
IMPORTANT NOTICE

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority being obtained. No responsibility or liability can be accepted for the consequences of this document being used in part or in whole for any other purpose than for which it was commissioned. Any persons so using or relying upon this document for such other purpose do so at their own risk. Our responsibility or liability for this document is solely to the person by whom it was commissioned.

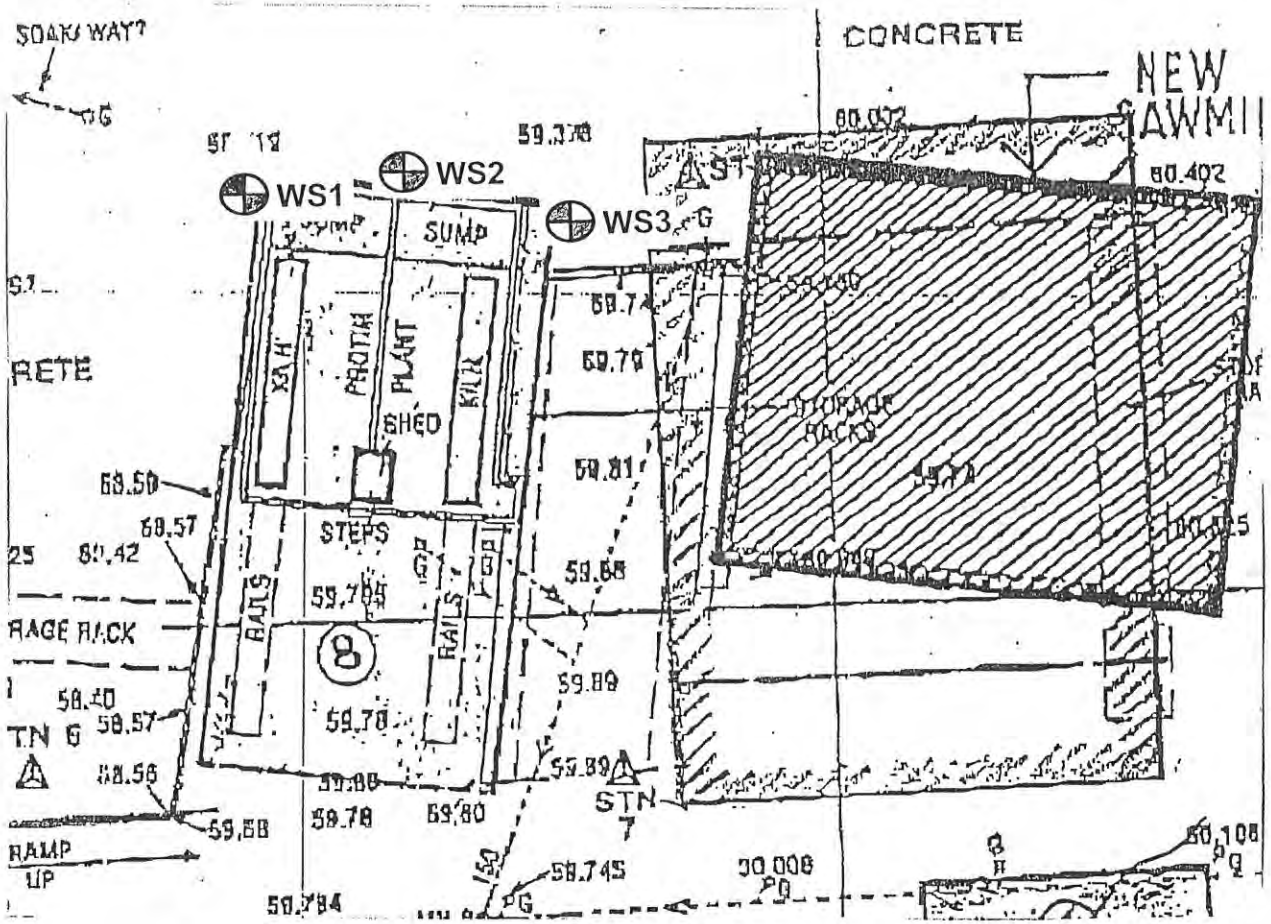
The findings and opinions given in this document are subject to the limitations imposed by employing normal ground investigation methods and techniques. They are relevant to the dates when the investigation was undertaken, but should not necessarily be relied upon to represent conditions at a substantially later date. Factual information has largely been obtained from exploratory holes, which by their nature, provide specific information about a relatively small volume of the subsoil. The opinions, where included herein, are based primarily upon information obtained during the investigation and from our experience. If additional information becomes available which might impact upon our stated opinions we request the opportunity to review such information and modify our opinions if necessary.

Unless otherwise stated in this document, the work has been completed to current accepted national and international standards and guidelines.

Appendix 1



Location of sediment sample points



* Denotes approximate positions

DRILLCO	Project: Great Gransden			Drawn By: IBC
	Title: Exploratory Hole Location Plan*			Scale: NTS
	Date: April-03	Report No:	208	Fig No: 1

Appendix 2

Site: **Great Gransden**

Client: Potton Limited

Date: 28/03/03 to 28/03/03

Hole Size: 101mm dia to 1.00m

WINDOW SAMPLE WS1

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
				MADE GROUND: Concrete.		0.15	
				MADE GROUND: Dark grey and grey sandy GRAVEL. Gravel consists of fine to coarse fragments of concrete.		0.30	
0.40	D1			MADE GROUND: Dark grey and black medium and coarse SAND with occasional fragments of concrete.		0.50	
0.60	D2			MADE GROUND: Firm dark grey, black and brown sandy gravelly CLAY. Gravel consists of fine to coarse fragments of brick, concrete and flint.		0.70	
0.90	D3			Firm dark brown and brown mottled slightly sandy gravelly CLAY. Gravel consists of fine to medium sub-angular to sub-rounded chalk and occasional flint.		1.00	

REMARKS 1. Groundwater was not encountered during boring.

Project No 208

Scale 1:25 | Page 1/1

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed Sample
W - Water Sample
▽ Water Strike
▼ Depth to Water on completion
Mx - Mexe Probe
Mc - Mackintosh Probe
V - Vane Shear Test Cohesion ( ) kPa
P( ) - Hand Penetrometer Cohesion ( ) kPa
▼s Standpipe Level

Groundwater Strikes						Groundwater Observations			
	Depth m						Depth m		
No	Struck	Rose to	Rate	Cased	Sealed	Date	Hole	Casing	Water

Site: **Great Gransden**

Client: Potton Limited

Date: 28/03/03 to 28/03/03

Hole Size: 101mm dia to 1.00m

WINDOW SAMPLE WS2

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
				MADE GROUND: Concrete.		0.15	
				MADE GROUND: Grey slightly sandy GRAVEL. Gravel consists of fine to coarse fragments of concrete.		0.30	
				MADE GROUND: Grey and dark grey sandy gravelly CLAY. Gravel consists of fine to coarse fragments of concrete, flint and brick.		0.50	
0.60	D1			Firm brown and dark brown slightly sandy gravelly CLAY. Gravel consists of fine to coarse sub-angular to sub-rounded chalk.			
0.80	D2						
						1.00	

REMARKS 1. Groundwater was not encountered during boring.

Project No 208

Scale 1:25 | Page 1/1

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed Sample
W - Water Sample
▽ Water Strike
▼ Depth to Water on completion
Mx - Mexe Probe
Mc - Mackintosh Probe
V - Vane Shear Test Cohesion ( ) kPa
P( ) - Hand Penetrometer Cohesion ( ) kPa
▼s Standpipe Level

Groundwater Strikes						Groundwater Observations			
	Depth m						Depth m		
No	Struck	Rose to	Rate	Cased	Sealed	Date	Hole	Casing	Water

Site: **Great Gransden**

Client: Potton Limited

Date: 28/03/03 to 28/03/03

Hole Size: 101mm dia to 1.00m

WINDOW SAMPLE WS3

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
				MADE GROUND: Concrete.		0.15	
0.30	D1			MADE GROUND: Grey and brown sandy GRAVEL. Gravel consists of fine to coarse fragments of concrete and brick.		0.40	
0.50	D2			Firm brown, grey and orange brown slightly sandy gravelly CLAY. Gravel consists of fine to medium sub-angular to sub-rounded chalk and flint.		1.00	
0.70	D3						

REMARKS 1. Groundwater was not encountered during boring.

Project No 208

Scale 1:25 | Page 1/1

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed Sample
W - Water Sample
▽ Water Strike
▼ Depth to Water on completion
Mx - Mexe Probe
Mc - Mackintosh Probe
V - Vane Shear Test Cohesion ( ) kPa
P( ) - Hand Penetrometer Cohesion ( ) kPa
▼s Standpipe Level

Groundwater Strikes						Groundwater Observations			
	Depth m						Depth m		
No	Struck	Rose to	Rate	Cased	Sealed	Date	Hole	Casing	Water

Appendix 3

Drillco
Willie Snaith Road
Newmarket
Suffolk CB8 7SQ

LABORATORY TEST REPORT

Chemtest

Results of analysis of five soil samples
received 31 March 2003

QA Number	606901	606902	606903	606904	606905		Units
Sample ID	Great Gransden						
	WS1 D1/D2	WS2 D1	WS3 D1	S1	S2		-
	0.4/0.6	0.6	0.3	-	-		m
Lindane – (γBHC)* *[2810]*	<0.5	<0.5	<0.5	<0.5	<0.5		mg kg^{-1}
Propiconazole* *[2810]*	<0.5	<0.5	<0.5	<0.5	<0.5		mg kg^{-1}
Permethrin* *[2810]*	<0.5	<0.5	<0.5	64	14		mg kg^{-1}
Tebuconazole* *[2810]*	<0.5	<0.5	<0.5	<0.5	<0.5		mg kg^{-1}
TBTO* *[2730]*	1.3	<0.1	0.3	0.6	0.1		mg kg^{-1}
Total petroleum hydrocarbons *[2670]*	1300	<30	150	410	57		mg kg^{-1}

Report date
07 April 2003

[Test Procedure Number]

The sign < means 'less than'

All tests undertaken
03-04.04.03

Environmental Protection Strategies Ltd

New Barn
36 Apley Way
Lower Cambourne
Cambridge
CB3 6DE

Tel +44 (0) 1954 710666
Fax +44 (0) 1954 710677

Mr D Broomfield
Potton Ltd
Eltisley Road
Great Gransden
Nr Sandy
Bedfordshire SG19 3AR

7th October 2005

Subject: Sampling

Dear Mr Broomfield,

Thank you for your purchase order, dated 5th September 2005, for collection and analysis of five sediment samples from the ditch adjacent to the Potton facility in Great Gransden.

After a fairly lengthy laboratory analysis period, Environmental Protection Strategies Ltd (EPS) can now provide details of the results obtained.

Firstly, in order to summarise the work that has been done, I direct your attention to the attached schematic plan, which shows the location of each sediment sampling point in the adjacent ditch relative to the Potton facility. The samples were collected on 6th September 2005 and transferred to Chemex Environmental International Ltd (Chemex) on the same day.

The results collected from the lab are presented in the following table:

Analyte	SS1	SS2	SS3	SS4	SS5	WS1
Depth of sample (mbgl)	**0.1-0.3**	**0.1-0.3**	**0.1-0.3**	**0.1-0.3**	**0.1-0.3**	**n/a**
Lindane	<0.5	<0.5	<0.5	<0.5	<0.5	0.00
Propiconazole	0.52	<0.5	1.75	<0.5	0.70	0.03
Permethrin	<0.5	<0.5	<0.5	<0.5	<0.5	0.00
Tebuconazole	5.40	2.40	10.40	2.60	2.20	0.13
Tributyl Tin	2.00	25.00	71.00	8.70	1.80	0.00
Total Petroleum Hydrocarbons	31	60	122	46	123	-

Notes:
All results are presented in mg/kg for soil samples and mg/L for water samples
SS = Sediment Sample
WS = Water Sample
mbgl = meters below ground level

From examination of the sampling points in relation to the drainage utilities and ditch courses marked on the attached plan, EPS considers that the highest concentrations of contaminants have been found toward sampling location SS3, which lies downstream of the ditch intersection in the southwestern corner of the Potton facility.

It also appears that concentrations of contaminants in sediments collected from the base of the ditch are now higher than measured during previous sampling investigations carried out in 2003. In addition, the laboratory reported high concentrations of Dieldrin, a common pesticide, in the samples.

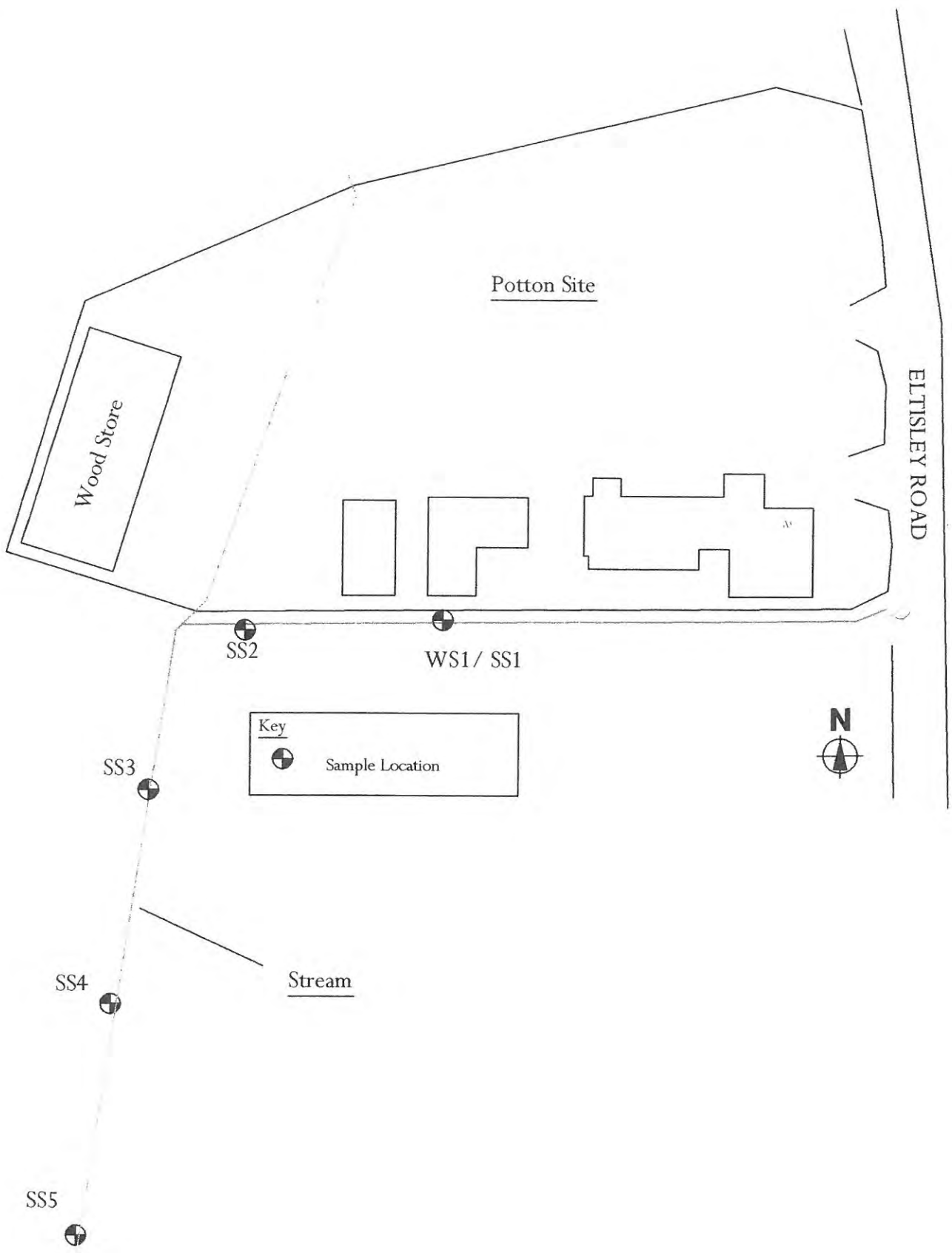
There may be several reasons for this however the most likely reasons are either that the previous samples were collected from deeper sediments or sediments that were at the edge of the ditch, or that there has been a release / continued seepage of chemical from the site since the previous sampling work.

If a continuing source of Tributyl Tin and Tebuconazole is present, EPS considers that the remedial work may only temporarily solve the problem and may need to be repeated. We therefore recommend collection of three additional samples from potential source locations including other drainage utilities and the open ditch at the western end of the yard. The purpose of this will be to determine if the concentrations of contaminants are derived from a continuing source or from an incident between the previous sampling investigation in 2003, and the most recent conducted in September 2005. I have marked three locations (two water and one sediment sample) for potential sampling on a photocopy of the site drainage map for your information.

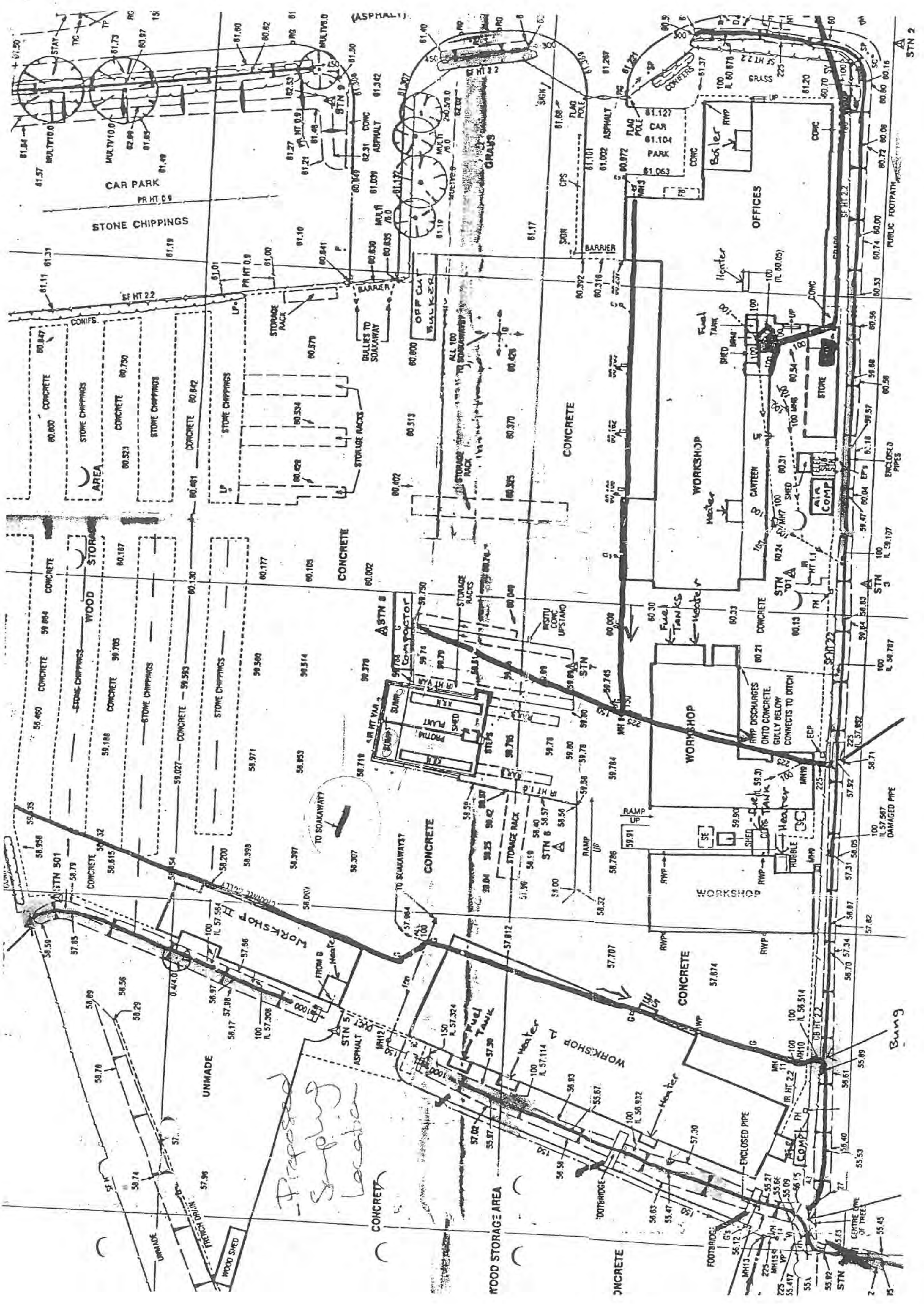
After you have had a chance to examine the information contained in this letter, I suggest that we meet and discuss these proposals in more detail before planning any more work or presenting results to the local authority.

I trust this letter is clear and to your satisfaction, however if you have any queries please do not hesitate to contact me.
Yours sincerely,

Giles Lock
Environmental Protection Strategies Ltd



Client:	POTTON LTD		
Project:	Potton facility, Eltisley Road, Great Gransden	Scale:	NTS - schematic plan
		Drawn By:	GL
Title:	Sediment Sampling Location Plan	Job No:	-
Fig No: 1	(Dwg No: Potton/Gt Gransden/1005/001)	Date:	October 2005


CAR PARK
STONE CHIPPINGS
CONCRETE
WOOD STORAGE AREA
OFFICES
WORKSHOP
CANTEEN
STORE
UNMADE
WOOD SHED
FRENCH DRAIN
GRASS
PUBLIC FOOTPATH
ENCLOSED PIPES
ENCLOSED PIPE
DAMAGED PIPE
FOOTBRIDGE
CENTRE LINE OF TREES
TO SOAKAWAY
GULLIES TO SOAKAWAY
STORAGE RACKS
STORAGE RACK
BARRIER
FLAG POLE
ASPHALT
CONIFERS
RWP DISCHARGES ONTO CONCRETE. GULLY BELOW CONNECTS TO DITCH
RAMP UP
Fuel Tank
Heater
Compactor
Boiler
Bung
STN 2
STN 3
STN 5
STN 6
STN 7
STN 8
STN 9
STN 501

Environmental Protection Strategies Ltd

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Fax +44 (0) 1954 710677

Mr D Broomfield
Potton Ltd
Eltisley Road
Great Gransden
Nr Sandy
Bedfordshire SG19 3AR

13th December 2005

Subject: Sampling

Dear Mr Broomfield,

Further to our meeting on 10th November 2005, and the additional sampling work conducted on 17th November 2005, Environmental Protection Strategies Ltd (EPS) is pleased to present a summary of the results.

To briefly summarise the situation:

- EPS originally collected five sediment samples from the ditch located at the southern boundary of the Potton Ltd facility in order to re-assess the nature and extent of impacts to soil quality from a potential historic release of pesticides prior to proposed remedial works in the ditch.
- Results showed that sediment samples contained pesticide compounds at considerably higher concentrations than measured during previous sampling visits.
- EPS considered the higher concentrations could have been the result of either, a continuing / new source of pesticides affecting the stream, or a function of sampling and/or laboratory protocol.
- EPS made recommendations to Potton Ltd to collect additional samples to ensure that any possible source of contamination is eliminated prior to remedial works to prevent re-contamination of ditch sediments after its completion.

As per your verbal instruction on 10th November, EPS has now collected and analysed three sediment samples and one water sample for the selected pesticide and hydrocarbon compounds. Two sediment samples were collected from up-stream locations of ditch beds at the Potton Ltd premises and one was collected from the site interceptor. A plan showing the sampling points is attached (Figure 1).

The purpose of this investigation was to determine if impacts to the quality of sediment samples, which were identified in previous investigations, could be derived from any continuing pollutant source such as the site interceptor or an off-site third party. Also, the water sample was collected to determine if previously identified impacts in sediments could have affected the quality of water in the ditch.

The results of these investigations are presented in the following table:

Analyte	Upstream 1	Upstream 2	Interceptor	Ditch Water	Environmental Quality Standard (UK)
Sample Depth	**0.1-0.3m**	**0.1-0.3m**	**n/a**	**n/a**	**n/a**
Lindane	0.0170	0.0000	0.0000	0.00000	0.0001
Propiconazole	0.0000	0.0000	0.0000	0.00880	Not yet determined
Permethrin	0.0000	0.0000	0.0000	**0.00030**	0.00001
Tebuconazole	0.0000	0.0000	0.0000	0.05370	Not yet determined
Tributyl Tin	0.1070	0.0840	0.0000	**0.00015**	0.00002
Total Petroleum Hydrocarbons	4.70	18.00	8,604.00	0.01	0.01

Notes:
All results are presented in mg/kg for soil samples and mg/L for water samples
Bold - Result exceeds the UK Environmental Quality Standard (EQS) for freshwater

These results show that sediments collected from the ditch bed at up-stream locations in the Potton facility contain very low concentrations of the pesticides Tributyl Tin and Lindane only. Also, laboratory analysis of the sample collected from the site interceptor revealed that pesticide compounds were not detected at concentrations above the minimum laboratory detection limits. A reasonably high concentration of total petroleum hydrocarbons was identified in the interceptor sample however this level of impact is not uncommon for interceptor sludge and palpable evidence collected during sampling work did not indicate that this impact was related to mobile or volatile hydrocarbons.

After examination of the ditch sediment data EPS concludes that, although low concentrations of Tributyl Tin and Lindane have been detected at up-stream locations, these concentrations are in the order of between 100,000 and 1 million times lower than the measured concentrations for these compounds in the downstream samples. Whilst it is possible that a contaminant mass has migrated from an off-site source, through the site, to end up at the current downstream location, EPS considers it extremely unlikely given the streams size and the marked difference in concentration. It is possible that the low up-stream impacts to sediment quality may simply be the result of natural re-working of sediments during high flow events where mildly contaminated water cannot flow away quickly and 'ponds' throughout the ditch.

Analysis of the water within the down-stream section of the ditch has also shown that published UK Freshwater Quality Standards (EQS) for Tributyl Tin and Permethrin are currently exceeded.

In consideration of the data collected, and your comments relating to the very unlikely possibility of any continuing source from the active treatment facility at Potton, EPS concludes that the high concentrations found in ditch sediments during the first round of sampling are most likely to derive from variation in sampling location / depth from in previous work.

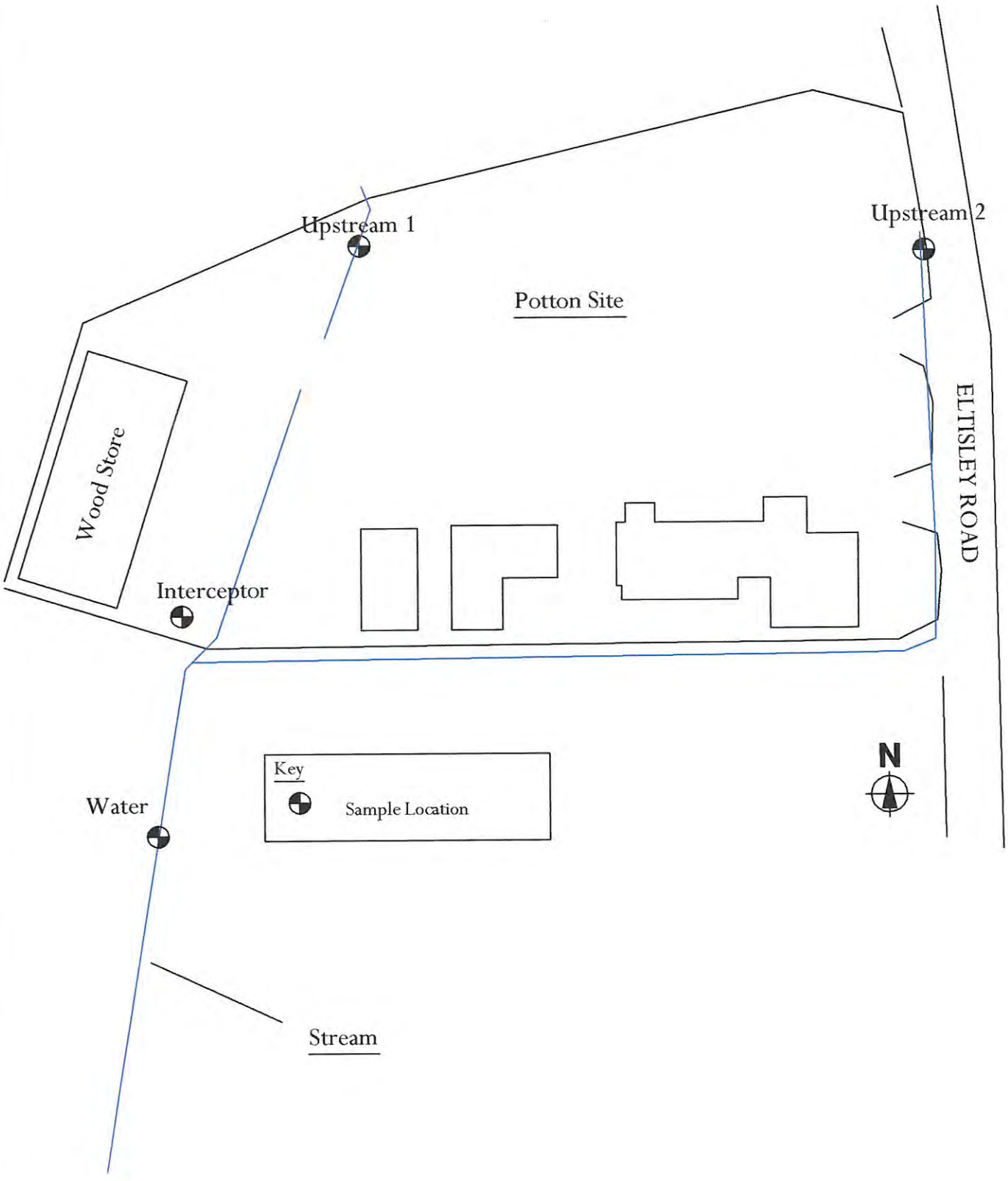
EPS therefore recommends that remediation is carried out to reduce dissolved pesticide concentrations in ditchwater to below published UK Freshwater EQS as previously discussed. EPS also recommends that the sludge from this interceptor is removed during this phase of work.

In this regard, EPS has contacted two specialist remediation contractors to provide quotations to remove and dispose of contaminated sediment. At present, I am awaiting laboratory analysis of leachate samples and Waste Acceptance Criteria tests in order to determine the classification and appropriate destination of waste materials so that a price can be obtained for its disposal.

I will forward the quotations to you in due course as soon as I receive them.

In the meantime, I trust this letter is clear and to your satisfaction, however if you have any queries please do not hesitate to contact me.
Yours sincerely,

Giles Lock
Environmental Protection Strategies Ltd



Environmental Protection Strategies Ltd

Client:	POTTON LTD		
Project:	Potton facility, Eltisley Road, Great Gransden	Scale:	NTS - schematic plan
		Drawn By:	GL
Title:	Sediment Sampling Location Plan	Job No:	-
Fig No: 1	(Dwg No: Potton/Gt Gransden/1005/001)	Date:	November 2005

Environmental Protection Strategies Ltd

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Tina Nash ACIEH
Potton Ltd
Eltisley Road
Great Gransden
Bedfordshire
SG19 3AR

6th May 2009

Subject: Results of Surface Water Sampling
Potton Ltd, Eltisley Road, Great Gransden

Dear Tina,

Environmental Protection Strategies Ltd (EPS) is pleased to issue this letter report in order to present the findings of the recent groundwater sampling at the Potton Ltd. premises on Eltisley Road, Great Gransden, Bedfordshire (the site).

Through previous investigations undertaken by EPS for Potton Ltd in 2005, it is understood that an historic spillage of wood treatment products occurred at the site, which resulted in impact to the water and sediments within a surface water drain that flows nearby to the site.

EPS were commissioned in April 2009 to obtain a sample from the neighbouring surface water drain for selected laboratory analyses and subsequently to provide a written report to summarise the work and present the results.

EPS attended the site on the 7th April 2009 and obtained a sample of water from the adjacent drain at a location immediately downstream of the point of discharge from the two site interceptors. All samples were obtained in accordance with EPS standard operating procedures (a copy of which will be made available on request). Samples were submitted to Chemtest of Newmarket for analysis to detect the following compounds, which are known to have been associated with the historic release from the site:

Total Petroleum Hydrocarbons
Semi-Volatile Organic Compounds
Permethrin, Lindane (gamma-HCH)
Propiconazole, Tebuconazole
Tri-Butyl Tin

In addition, selected water quality parameters were recorded immediately prior to sampling for reference.

Results

Water Quality Parameters

The following water quality parameters were recorded immediately prior to sampling:

Location	Dissolved Oxygen	Redox (mV)	pH	Temp (oC)
Drain	7.50	18.2	7.65	11.3

Results of Laboratory Analysis

The results of laboratory analysis of water samples are included as Appendix A in laboratory report format.

With two exceptions, compounds were reported at concentrations below minimum laboratory detection limits. Tebuconazole and propiconazole were identified at concentrations of 0.0043mg/l and 0.0054mg/l respectively.

I trust this information is suitable for your purposes at this time. Please don't hesitate to contact us with any queries or if you require anything further.

Best Regards,

Tom Lamb
Environmental Protection Strategies Ltd

APPENDIX A

Laboratory Data

Environmental Protection Strategies Ltd
Unit 7B Caxton House
Broad Street
Cambourne, Cambs
CB23 6JN

FAO S Smith

LABORATORY TEST REPORT

Results of analysis of 1 sample
received 09 April 2009

UK09.0729

Chemtest
The right chemistry to deliver results

Report Date
20 April 2009

Login Batch No					**76057**
Chemtest LIMS ID					AD95598
Sample ID					Drain
Sample No					
Depth					
Matrix					*WATER*
SOP↓	Determinand↓	CAS No↓	Units↓	*	
1676	TPH >C6-C8		µg l-1	U	<0.1
	TPH >C8-C10		µg l-1	U	<0.1
	TPH >C10-C12		µg l-1	U	<0.1
	TPH >C12-C16		µg l-1	U	<0.1
	TPH >C16-C21		µg l-1	U	<0.1
	TPH >C21-C25		µg l-1	U	<0.1
	TPH >C25-C35		µg l-1	U	<0.1
	TPH >C35-C40		µg l-1	U	<0.1
	Total Petroleum Hydrocarbons		µg l-1	U	<20
1730	Tributyl tin	688733	µg l-1	N	<0.001
1790	N-Nitrosodimethylamine	62759	µg l-1	N	<0.5
	Phenol	108952	µg l-1	N	<0.5
	bis(2-Chloroethyl)ether	111444	µg l-1	N	<0.5
	2-Chlorophenol	95578	µg l-1	N	<0.5
	1,3-Dichlorobenzene	541731	µg l-1	N	<0.5
	1,4-Dichlorobenzene	106467	µg l-1	N	<0.5
	1,2-Dichlorobenzene	95501	µg l-1	N	<0.5
	2-Methylphenol	95487	µg l-1	N	<0.5
	bis(2-Chloroisopropyl)ether	108601	µg l-1	N	<0.5
	4-Methylphenol	106445	µg l-1	N	<0.5
	N-Nitrosodi-n-propylamine	621647	µg l-1	N	<0.5
	Hexachloroethane	67721	µg l-1	N	<0.5
	Nitrobenzene	98953	µg l-1	N	<0.5
	Isophorone	78591	µg l-1	N	<0.5
	2-Nitrophenol	88755	µg l-1	N	<0.5
	2,4-Dimethylphenol	105679	µg l-1	N	<0.5
	bis(2-Chloroethoxy)methane	111911	µg l-1	N	<0.5
	2,4-Dichlorophenol	120832	µg l-1	N	<0.5
	1,2,4-Trichlorobenzene	120821	µg l-1	N	<0.5
	Naphthalene	91203	µg l-1	N	<0.5
	4-Chloroaniline	106478	µg l-1	N	<0.5

All tests undertaken between 17-Apr-2009 and 20-Apr-2009

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

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					Drain
					WATER
1790	Hexachlorobutadiene	87683	µg l-1	N	<0.5
	4-Chloro-3-methylphenol	59507	µg l-1	N	<0.5
	2-Methylnaphthalene	91576	µg l-1	N	<0.5
	Hexachlorocyclopentadiene	77474	µg l-1	N	<0.5
	2,4,6-Trichlorophenol	88062	µg l-1	N	<0.5
	2,4,5-Trichlorophenol	95954	µg l-1	N	<0.5
	2-Chloronaphthalene	91587	µg l-1	N	<0.5
	2-Nitroaniline	88744	µg l-1	N	<0.5
	Dimethylphthalate	131113	µg l-1	N	<0.5
	2,6-Dinitrotoluene	606202	µg l-1	N	<0.5
	Acenaphthylene	208968	µg l-1	N	<0.5
	3-Nitroaniline	99092	µg l-1	N	<0.5
	Acenaphthene	83329	µg l-1	N	<0.5
	Dibenzofuran	132649	µg l-1	N	<0.5
	2,4-Dinitrotoluene	121142	µg l-1	N	<0.5
	Diethylphthalate	84662	µg l-1	N	<0.5
	Fluorene	86737	µg l-1	N	<0.5
	4-Chlorophenylether	7005723	µg l-1	N	<0.5
	4-Nitroaniline	100016	µg l-1	N	<0.5
	2-Methyl-4,6-dinitrophenol	534521	µg l-1	N	<0.5
	Azobenzene	103333	µg l-1	N	<0.5
	4-Bromophenylphenylether	101553	µg l-1	N	<0.5
	Hexachlorobenzene	118741	µg l-1	N	<0.5
	Pentachlorophenol	87865	µg l-1	N	<0.5
	Phenanthrene	85018	µg l-1	N	<0.5
	Anthracene	120127	µg l-1	N	<0.5
	Carbazole	86748	µg l-1	N	<0.5
	Di-n-butylphthalate	84742	µg l-1	N	<0.5
	Fluoranthene	206440	µg l-1	N	<0.5
	Pyrene	129000	µg l-1	N	<0.5
	Butylbenzylphthalate	85687	µg l-1	N	<0.5

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1790	Benzo[a]anthracene	56553	µg l-1	N	<0.5
	Chrysene	218019	µg l-1	N	<0.5
	bis(2-Ethylhexyl)phthalate	117817	µg l-1	N	<0.5
	Di-n-octylphthalate	117840	µg l-1	N	<0.5
	Benzo[b]fluoranthene	205992	µg l-1	N	<0.5
	Benzo[k]fluoranthene	207089	µg l-1	N	<0.5
	Benzo[a]pyrene	50328	µg l-1	N	<0.5
	Indeno[1,2,3-cd]pyrene	193395	µg l-1	N	<0.5
	Dibenzo[a,h]anthracene	53703	µg l-1	N	<0.5
	Benzo[g,h,i]perylene	191242	µg l-1	N	<0.5
1840	gamma-HCH	58899	µg l-1	N	<0.05
	Permethrin	52645531	µg l-1	N	<0.05
1910	Propiconazole	75881822	µg l-1	N	4.3
	Tebuconazole	10753496	µg l-1	N	5.4

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