CRESTWOOD ENVIRONMENTAL LTD

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Llangibby Estate

Foul Water Treatment Management Plan

Castle Farm Stables, Llangybi, Usk, Monmouthshire, NP15 1NJ

Report Reference: CE-CF-2404-RP01-Final v1

Report Date: 3 August 2023

Produced by Crestwood Environmental Ltd.

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Final v1	03/08/2023	Daniel Jones (Assistant Environmental Consultant)	Kate Brady (Principal Consultant)

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1 INTRODUCTION

1.1 BACKGROUND

1.1.1 Crestwood Environmental Ltd ('Crestwood'), were commissioned by Christopher Knock Limited **(the Agent)** who is acting on behalf of Llangibby Estate (**the Operator**) to produce a Management Plan for the operation of the foul effluent package treatment plants from residential effluent.

1.1.2 The package treatment plants will treat effluent from residences at Castle Farm, Llangibby, Usk, Monmouthshire, NP15 1NJ **('the Site')**.

1.1.3 The Management Plan is in response to a Schedule 5 Notice request for further information from Natural Resource Wales (NRW). The Schedule 5 Notice requested:

> *"A summary management plan was submitted 23/01/2023. Trustees of Llangibby Estate (the Operator) must resubmit an updated management plan/operating technique for the operation of the two proposed package treatment plants and chemical dosing systems for Castle Farm."*

1.2 Purpose

1.2.1 The purpose of this Management Plan is to outline the operation, management and maintenance requirements for the treatment plant. The Management Plan will comprise part of the Environmental Permit and will be used by the Operator or their delegate e.g. appointed maintenance company and any subcontractors used to run, clean and maintain the treatment plant.

1.2.2 Persons with responsibility for maintaining the package treatment plants must make themselves aware of the contents of this Management Plan and the supporting appendices. A copy of this Management Plan must be available to persons with responsibility for maintaining the plant.

1.3 Site

1.3.1 The Site is located c.175m northwest of the northeastern area of Usk, c.305m east of the River Usk. It is surrounded by c. 12 ha of grazing land and several patches of woodland.

1.3.2 Site location and layout plans are provided below at Figure 1 and Figure 2.

1.3.3 There are currently 4No. residential units on Site:

- Stables House - 3 bed.
  Stables Flat - 2 bed.
  Fishermans Cottage - 3 bed.
  The bungalow - 3 bed.

1.3.4 At the time of writing, the Site comprises residential and agricultural buildings surrounded by grazing and pastureland.

1.3.5 The Site will be developed to convert existing agricultural buildings (South Range) and part of the North Range into 5No. new dwellings.

- Development of the North Range building falls under planning application ref. DM/2023/00038 involving the construction of a 3-bed house within the footprint of the previously converted north range.
- Development of South Range falls under planning application ref. DM/2023/00046 and comprises the conversion of the South Range building (currently a vacant agricultural building) and the adjacent bull shed and wood store into 4No. dwellings.

1.3.6 The Site is located within a phosphorus-sensitive Special Area of Conservation (SAC), necessitating the presence of the two treatment plants.

Figure 1 Site location plan

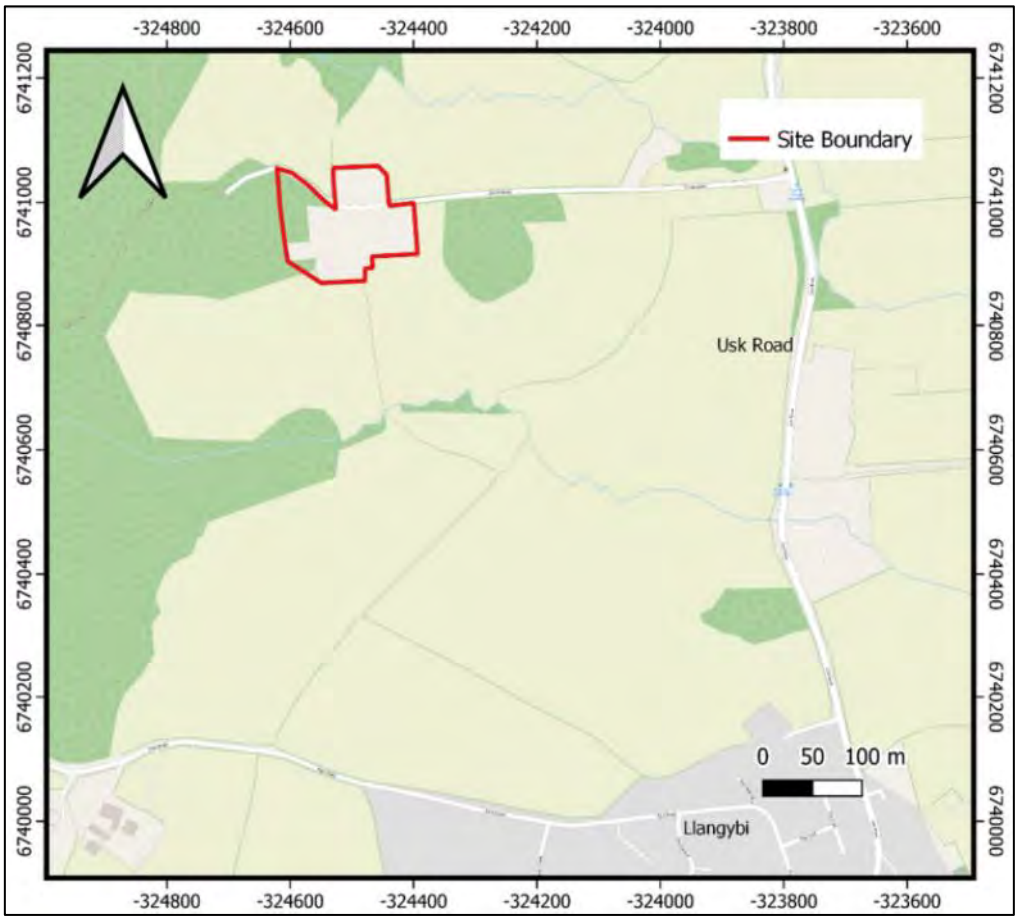
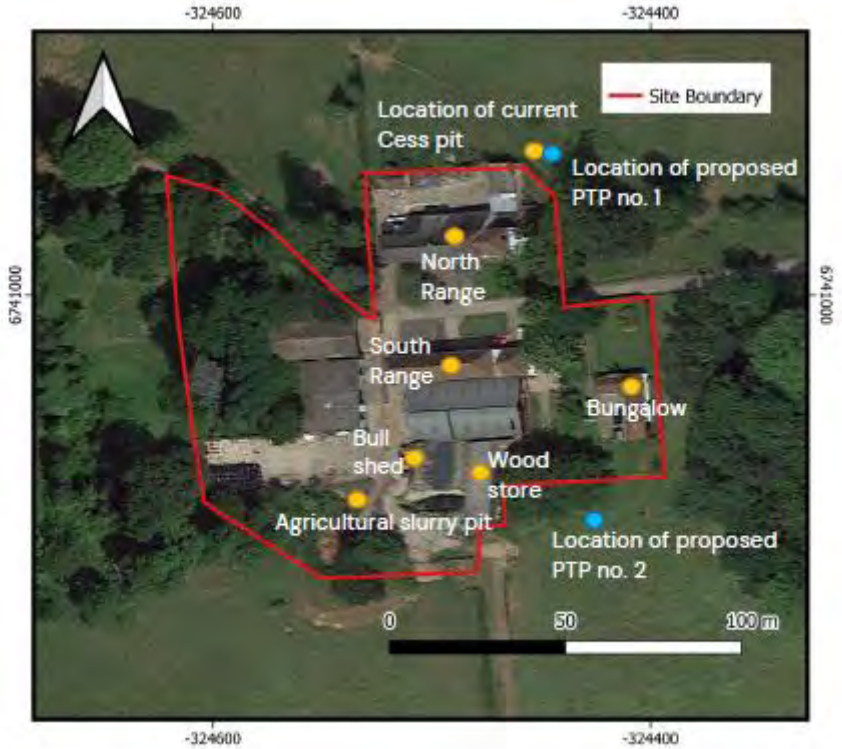


Figure 2 Site layout plan



2 Site Operations

2.1 Drainage System Overview

HISTORIC

2.1.1 Currently, surface water runoff on-Site from roofs, roads, parking areas, etc. simply drains to ground. Foul water drainage from three existing residential units in the northern Site area and one bungalow in the southern site area, drain to a single brick-lined cesspit.

2.1.2 The cesspit discharges untreated effluent to ground via shallow soakaways. It was built to meet the requirements of the 1983 British Standard BS6297:1983. There is also a large belowground agricultural waste slurry pit. This system will be replaced by the two package treatment plants.

TREATMENT PLANT

2.1.3 The treatment plants installed, including installer and installation date at given in Appendix 2a.

2.1.4 The biological treatment aspect of the plant operation will take place automatically and will require periodic inspection, servicing, & maintenance, refilling of the chemical dosing system and repair as and when required.

2.1.5 Care should be taken to ensure that no harmful chemicals enter the septic tank and, subsequently, the treatment plants, as these can inhibit or kill the biomass population that will grow and treat sewage within the BioDisc. e,g, a bottle of bleach tipped down the toilet in Birmingham would be virtually lost amongst the millions of gallons of sewage arriving at the city's treatment works; a bottle of bleach in a plant serving a few houses could be a lethal dose for the biomass.

2.1.6 More examples of what is meant by harmful chemicals are listed in:

- the BioDisc Owner's Handbook – Appendix 2
- Septic tank running guidance - Appendix 4
- Treatment plant running guidance - Appendix 5.

2.1.7 The above should be communicated to the users of the foul system.

2.1.8 Any inspection, servicing and maintenance work will be pre-planned and is required to ensure correct operation of the plant and that the treated effluent remains within permit limits. The latter will require regular water quality testing to ensure compliance.

2.2 Treatment Plant Overview

2.2.1 Each treatment plant contains 2 no. Klargester Environmental BioDisc BN units, fed by a single below ground balancing tank. Details for the chemical dosing equipment, including a diagram, can be seen in Appendix 2.

2.2.2 The 2 x Klargester BioDisc BN treatment plants in each Package Treatment Plant will each comprise a maximum volume of 7,460 litres (5,230 litres of this will be contained in the primary settlement tank, and the remaining 2,260 litres in the secondary settlement tank). 7,460 litres equals a maximum population equivalent (PE) of 37.3. 276 litres/day of wastewater is estimated in the northern Site area, and 1,104 litres/day in the southern Site area. 2.3 persons per dwelling is the recommended population value per proposed dwelling for the Site which, between the 4 existing residential units and the 5 proposed dwellings, would equal approximately 20.7 people. The unit has been sized for the current development at the Castle Farm site.

2.2.3 The discharge permit that has been applied for (to be determined in summer 2023) is for a maximum of 72,000 litres per day. If additional discharged effluent volume was required in the future, then it would need to be supported by a further update in the discharge permit.

2.3 Responsibilities

2.3.1 It is the responsibility of the **Operator** (Llangibby Estate), or their delegate, to ensure the sewage treatment plant is:

- Operated in strict accordance with the manufacturer's guidance and instructions presented in this report, and by competent and trained personnel.
- Fully serviced and maintained in accordance with the manufacturer's guidance and instructions presented in this report and any further information provided by the supplier and main contractor that installed the plant.
- Repaired when necessary.
- Subject to regular inspection. Reports and findings to be logged formally (see Appendix 7).
- Sampled monthly at the treatment plant sampling chamber, discharge point and watercourse. Results to be formally issued to the Operator and records kept.
- De-sludged at the required intervals, depending on usage. This will require tankering, as per the previous sewage treatment plant in place at the Site. All collected sludge must be removed from the Site by a fully licenced waste carrier and carried to a licenced approved disposal facility.
- Fully replenished with the chemical dosing fluid within both of the BioDisc units, before any of them are emptied.

2.3.2 The existing drainage systems should be regularly inspected and cleaned to ensure correct operation and the absence of any defects, leakages, blockages, etc. that may alter the type and volume of water arriving at the sewage treatment plant.

2.4 Chemical Dosing

2.4.1 The sewage treatment plant will utilise a chemical dosing unit in each BioDisc tank to reduce phosphate contact of foul drainage, via injection of a ferric-sulphate-based fluid.

2.4.2 The recommended ferric-sulphate chemical is XL60 although other chemicals which can achieve the same nutrient reduction may also be used. The MSDS sheet for ferric-sulphide is provided in Appendix 6.

2.4.3 The chemical is added to the dosing unit of the treatment plant. This must be regularly topped-up to ensure phosphate removal as intended.

2.4.4 Care must be taken not to over-dose, as this could be more environmentally harmful than the presence of phosphate in the effluent. The volume of chemical used should be just enough to reduce the phosphate concentrations to those required by the Permit. This can be worked out by choosing a starting dose and sampling the effluent.

2.4.5 It is anticipated that each 20 l BioDisc container will need to be changed between every 1 to 1.5 weeks, depending on usage.

2.4.6 The ferric sulphate chemical must be purchased separately as it is not supplied by the treatment plant manufacturer. The ferric sulphate chemical must be stored on Site and changed by the Operator or their delegate.

2.4.7 Larger container sizes are available, which may reduce the replacement period, but may be more difficult to handle.

2.4.8 The chemical will act as a flocculant and subsequently sludge will be generated which will need to be dealt with.

2.5 De-sludging

2.5.1 BioDiscs are designed and engineered for the minimum possible maintenance requirements, consistent

with proper performance. Nevertheless, it is important that routine preventive electro/mechanical maintenance and de-sludging are carried out at the appropriate intervals by suitably qualified persons.

2.5.2 The minimum amount of sludge to be removed, assuming maximum loading over a period of 4 months, is 3000 litres in the primary settlement tank and 1000 litres in the secondary settlement tank.

2.5.3 Based on these volumes an approximate de-sludge period of every four months is anticipated. This is a guide only and regular de-sludging should be carried out to ensure optimum operation.

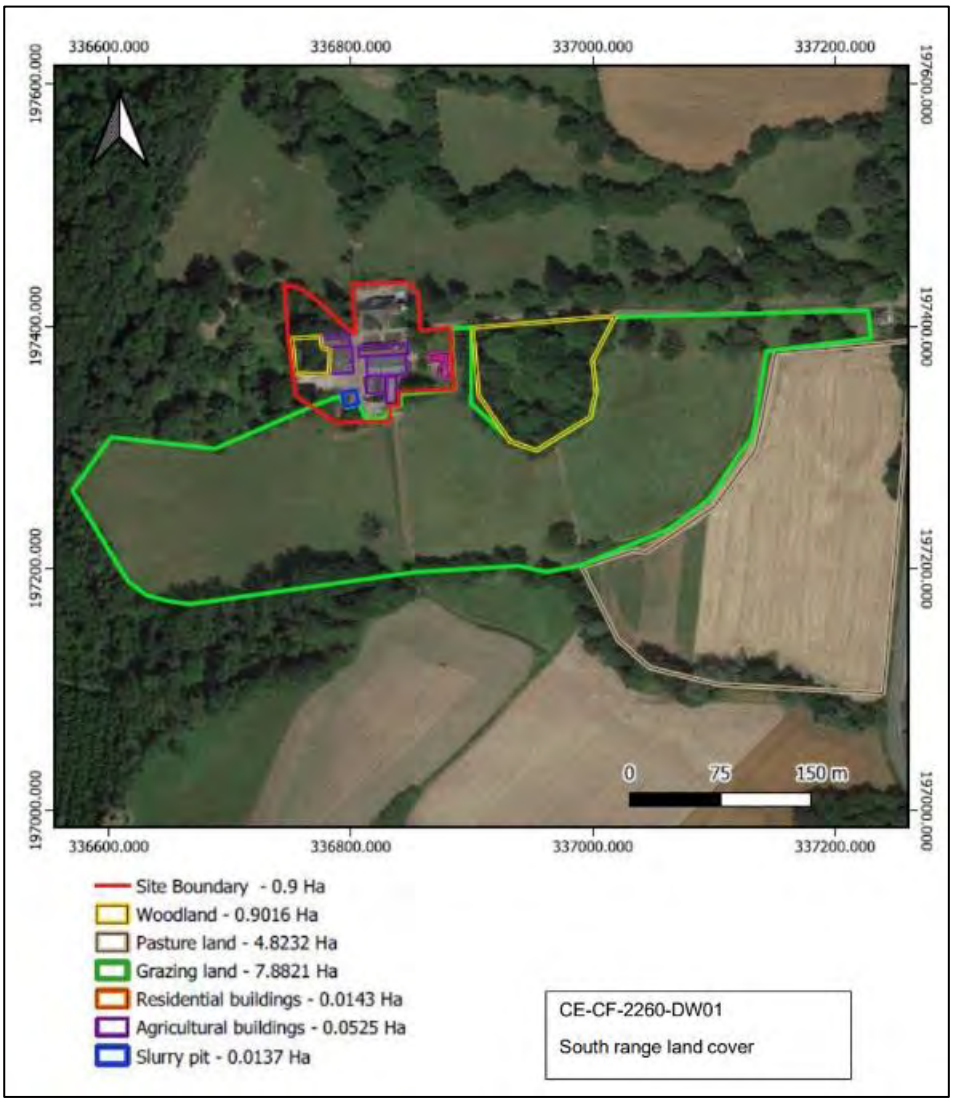
2.5.4 The desludging procedure is described in Appendix 3.

2.5.5 All collected sludge must be removed from Site by a fully licenced waste carrier and carried to a suitably licenced disposal/treatment facility.

APPENDICES:

APPENDIX 1 SITE BOUNDARIES/SURROUNDING USES

AP 1.1 SOUTHERN RANGE LAND COVER AT SITE



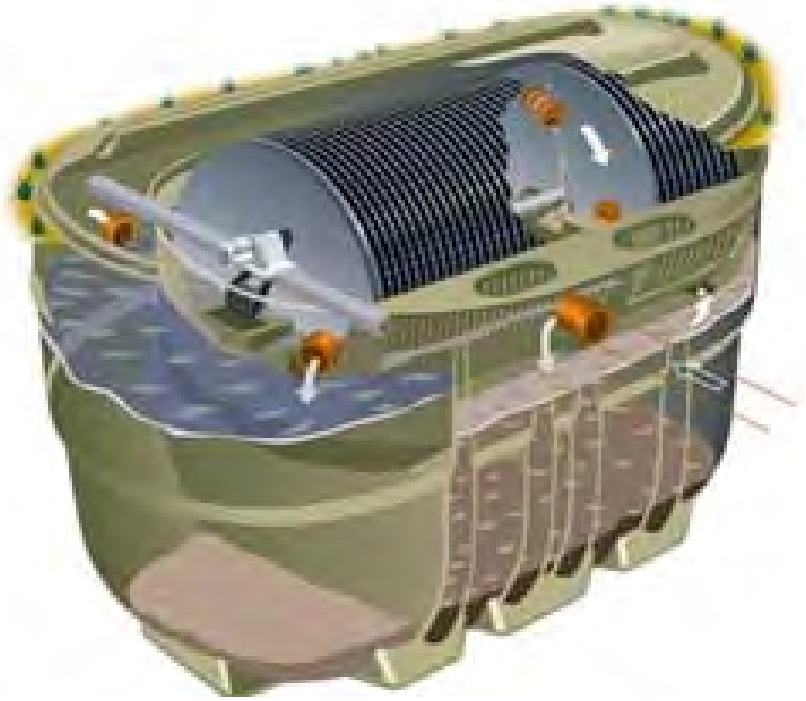
AP 1.2 NORTH RANGE LAND COVER AT SITE

APPENDIX 2 MANAGED FLOW BIODISC – OWNER'S HANDBOOK

OWNERS HANDBOOK

Klargester Environmental	
College Road North, Aston Clinton, Aylesbury, Buckinghamshire, HP22 5EW	
Tel: (01296) 633033	Fax: (01296) 633001
Web site: http://www.klargester.com/	Email: uksales@klargester.co.uk

MANAGED FLOW
BIODISC®
BD, BE, BF, BG
ND, NE, NF, NG



HEALTH AND SAFETY

These warnings are provided in the interest of safety. You must read them carefully before installing or using the equipment.

It is important that this document is retained with the equipment for future reference. Should the equipment be transferred to a new owner, always ensure that all relevant documents are supplied in order that the new owner can be acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following the guidelines supplied with the equipment.

We recommend the use of a dust mask and gloves when cutting GRP components.

A qualified electrician should carry out electrical work.

Sewage and sewage effluent can carry micro-organisms harmful to human health. Any person carrying out maintenance on the equipment should wear suitable protective clothing, including gloves. Good hygiene practice should also be observed.

Covers must be kept locked.

Observe all hazard labels and take appropriate action to avoid exposure to the risks indicated.

The correct ongoing maintenance is essential for the proper operation of the equipment. Service contracts are available and recommended. Please contact Klargester for details of your local service provider.

Should you wish to inspect the operation of the equipment, please observe all necessary precautions, including those listed below, which apply to maintenance procedures.

BioDisc units contain rotating machinery and associated drive chains. Ensure that you are familiar with the safe working areas and accesses. Ensure that the working area is adequately lit.

The power supply to the equipment must be isolated at the control panel(s) before lifting the covers. Where a specific maintenance procedure requires the equipment to be running with the covers off, all care must be taken to avoid contact with moving parts and electrical components or conductors. Drive guards must be replaced and secured if removed during maintenance.

Once power has been isolated, the control panel must be kept locked shut to avoid accidental re-connection whilst work or inspection is being carried out.

Use only the designated access walkways. Do not walk on the cover or deep well safety mesh(es).

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Keep proper footing and balance at all times. Avoid any sharp edges.

Desludging should be carried out by a licensed waste disposal contractor holding the relevant permits to transport and dispose of sewage sludge. The contractor must refer to the desludge instructions in this Handbook, a copy of the instructions are fastened under the covers.

There are separate installation guidelines available to provide full instructions for installations. We recommend the unit is commissioned by an approved engineer.

DECLARATION OF CONFORMITY

Description of Machine	B Range BioDisc Sewage Treatment Plant
Model	.....
Serial Number (see cover label)	.....
Year of Manufacture	.....
Name of Manufacturer	KLARGESTER ENVIRONMENTAL, COLLEGE ROAD NORTH ASTON CLINTON, AYLESBURY, BUCKS, HP22 5EW.
EUROPEAN DIRECTIVES:	Machinery Directive 89/392/EEC Low Voltage Directive 73/23/EEC
	Electromagnetic Compatible Directive 89/336/EEC

We declare that the equipment covered in this manual conforms with the essential Health and Safety requirements.

Alison Andrews PRODUCT MANAGER WASTE WATER 1 JUNE 1997

CE

LLOYD'S REGISTER QUALITY ASSURANCE ISO9002

Klargester Treatment Systems

CONTENTS

The following wiring diagrams are supplied within the panel housing Further copies available on request.

510009 BD & BE Single phase Alarm Control Panel
510030 BD, BE & BF Three phase
510003 BD, BE & BF Three phase alarm control panel
510017 BF Single phase Alarm Control Panel
510012 ND, NE, NF, NG & BG Single phase
510013 ND, NE, NF, NG & BG Single phase Alarm Control Panel
510006 ND, NE, NF, NG & BG Three phase
510007 ND, NE, NF, NG & BG Three phase Alarm Control Panel
510018 Independent Remote Alarm

INTRODUCTION

Thank you for choosing a Klargester product. This manual will help you to keep it operating efficiently over a long service life. Please read this manual thoroughly, preferably before installation.

This manual should be referred to by :

a) The installer
b) The electrician
c) The commissioning engineer
d) The maintenance engineer
e) The desludge contractor
e) The owner/user

Klargester offer various maintenance packages and extended warranty contracts offering peace of mind for the long term operation of the equipment. Details on request. We recommend that the unit is commissioned by an approved engineer before use.

SECTION 1

TECHNICAL DATA

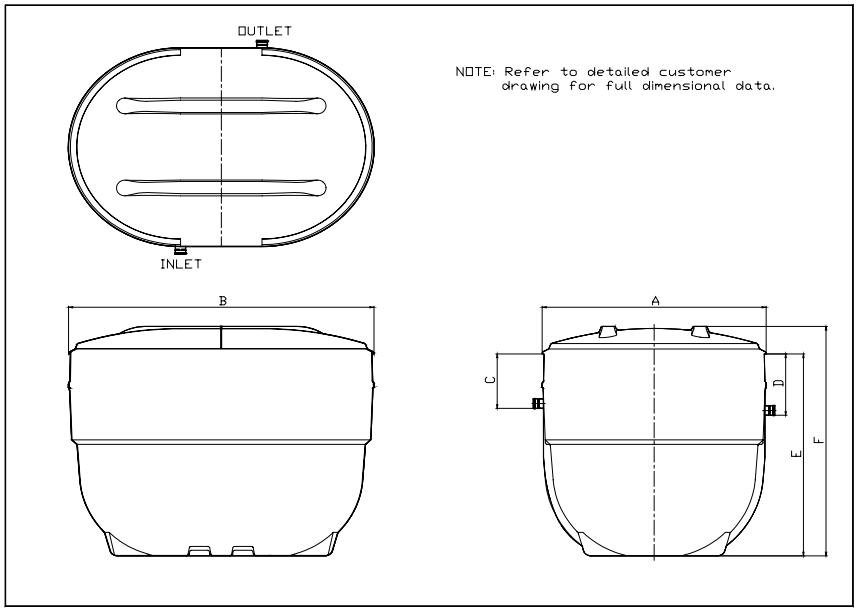


Fig. 1

UNIT		BD/BE/ND/NE		BF/NF	BG/NG
Width	A mm	2450		2450	2450
Length	B mm	3340		4345	5235
Inlet Invert depth	C mm	600	1100	600	600
Outlet Invert Depth	D mm	685	1185	700	700
Depth Below Ground	E mm	2425	2925	2420	2420
O/A Height	F mm	2830	3330	2825	2825

UNIT	BD	ND	BE	NE	BF	NF	BG	NG
Standard Power Supply	1 phase							
Optional Power Supply	3 phase							
Drive Motor Rating 1ph/3ph watts	55		75		110		180	
Sludge Return Pump Rating watts	N/A	480	N/A	480	N/A	480		
Maximum Daily BOD(1) kg	1.5	1.2	2.1	1.62	3.0	2.4	4.2	3.72
Maximum Daily Flow m^3	5	4.0	7	5.4	10	8.0	14	12.4
Peak Flow Rate (2) m^3/hr	0.63	0.5	0.88	0.68	1.25	1.0	1.75	1.56

(1) Domestic housing applications only. Consult Klargester for other applications.

(2) For ½ hour max. in any 2 hour period.

All surface water must be excluded. Units are individually assessed with regard to sewage load and composition. E.g. Proportion of laundry waste water from commercial premises. Please contact Klargester if you plan any changes that might affect your sewage output.

SECTION 2

DESCRIPTION AND PROCESS

(1) INTRODUCTION

BioDisc systems are designed to accept crude domestic sewage and produce an effluent of suitable quality for discharge to a watercourse or soakaway system, subject to the approval of the appropriate regulatory authority. BioDiscs in the range BD to BF and ND to NG are self contained single piece units.

The main casing and cover of the BioDisc are constructed of Glass Reinforced Plastic (GRP). All steel parts are stainless, galvanised or surface coated to protect against corrosion. The discs are vacuum formed polyethylene.

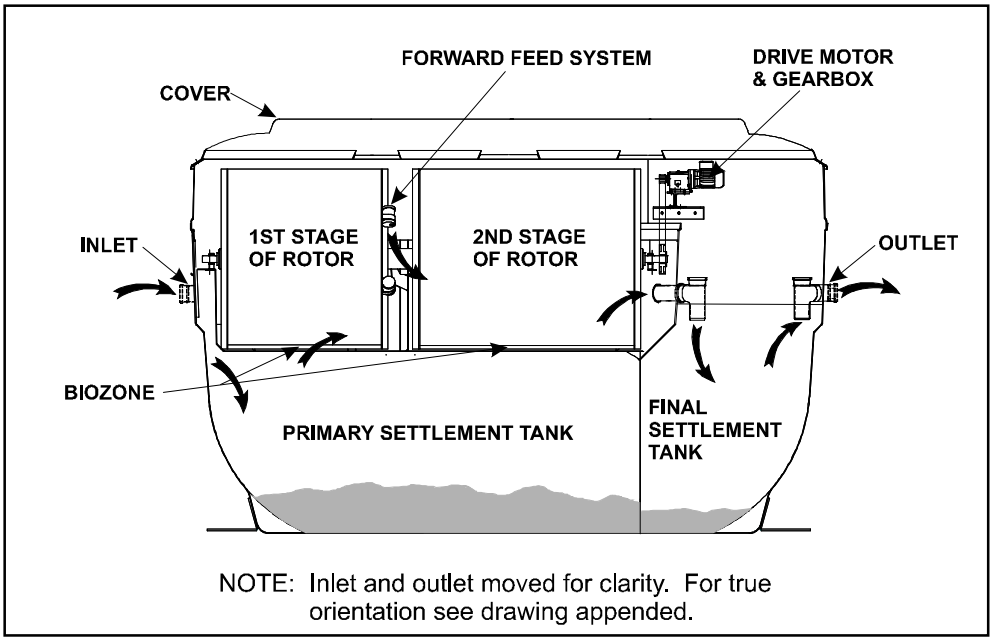


Fig. 2 - General Arrangement of BioDisc System

(2) PRIMARY SETTLEMENT TANK

Crude sewage enters the Primary Settlement Tank (PST), through an inlet pipe in the side of the BioDisc. Solids are settled out and retained for periodic desludging.

The PST is designed to have sufficient capacity to accept high flows over a short period and the patented Managed Flow System allows the liquid level to fluctuate to accommodate such surges.

(3) BIOZONE

The Biozone contains the Rotor, which consists of corrugated polyethylene discs mounted on a horizontal shaft, supported by a bearing at each end. The bearings are either plastic, requiring no lubrication or roller bearings continuously lubricated by pressurised grease cartridges. The Rotor is slowly rotated by an electric motor and reduction gearbox with a chain or belt drive. Chain drives are continuously lubricated by a pressurised grease cartridge and brush assembly.

The surface of the discs becomes colonised by naturally occurring micro-organisms, which form a visible coating known as the Biomass. As the discs rotate, the Biomass is alternately submerged in the settled sewage and aerated by exposure to the atmosphere. Under these conditions the Biomass can efficiently break down the pollutants in the sewage.

A flat GRP walkway along either side of the Biozone contains a number of ports which give desludge access to the PST.

The Biozone and discs are divided into two stages, separated by a fixed baffle. Settled sewage enters the first stage of the Biozone through a submerged transfer slot. The liquid level in this stage will fluctuate in the same way as in the PST and the bacteria are exposed both to the fluctuating liquid level and to fluctuations in sewage strength and concentration of domestic chemicals such as washing powders. One of the functions of this stage is to minimise the effect of such shock loads, which could otherwise inhibit the process.

The second stage of the Biozone is hydraulically sealed from the first stage and maintains a constant liquid level. Liquid is transferred from the first to the second stage, at a steady rate, by a series of buckets attached to the rotor. This controlled flow of effluent is at the heart of the patented Managed Flow System, which promotes healthy and balanced growth of the micro-organisms essential for efficient treatment.

Excess Biomass (also referred to as humus) sloughs off the surface of the discs and passes with the flow, to the Final Settlement Tank.

(4) FINAL SETTLEMENT TANK

The Final Settlement Tank (FST) is situated under the drive motor and receives a steady flow of treated effluent from the Biozone. The humus settles out and is retained for periodic desludging.

N Range units include a timer controlled pump return sludge system so as to enable the settled humus to be periodically returned to the PST, for co-settlement. Final treated effluent discharges from the FST through a dip pipe. The FST is covered by a pedestrian duty walkway which allows service access and guards against the possibility of personnel falling into the FST.

(5) COVER

A GRP cover is provided to guard against injury to personnel and to protect the BioDisc from the weather. Please do not walk over the covers: they are not weight bearing. The cover sections are secured by latches, operated by keys supplied with the unit.

(6) CONTROL PANEL

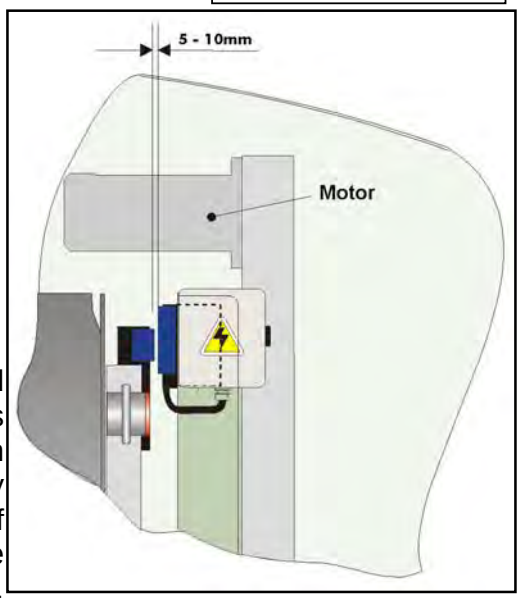
The weatherproof control panel should be mounted adjacent to the BioDisc. There are three panel types that can be fitted, all with current overload protection, power isolation function and automatic re-start following a power failure. (See Section 5, paragraph (3)).

All N range control panels also contain a timer and relay to control the operation of the sludge return pump and current overload protection for the pump motor.

1. Standard Control Panel.
2. Alarm Control Panel. This replaces the Standard Control Panel and includes a Loss of Rotation (LOR) Alarm, which activates after a delay of 2-3 minutes if the rotor stops turning for any reason, other than a failure in the power supply. It has stop and run lights on the door, and an optional alarm beacon on top. An additional remote slave beacon may also be fitted. Loss of rotation of the rotor is sensed by a reed switch mounted near the BioDisc motor in conjunction with a magnet attached to the rotor.

Optional Loss of Rotation Alarm

The alarm sensor (reed switch) is mounted adjacent to the motor/gearbox assembly. The sensor may be supplied out of position, to allow for possible minor rotor movement during transport. Check the sensor position and if necessary adjust to provide a gap of 5 - 10 mm between the sensor and the actuator magnet.



- Alarm Sensor Adjustment
(position may vary)

3. Independent Remote Alarm Panel. This is fitted in addition to the Standard Control Panel, and is suitable for any indoor location, up to a maximum of 100 metres from the BioDisc. It would usually be connected to a power supply independent of the BioDisc, and works in a similar manner to the Alarm Control Panel. It has an audible alarm, with mute button and a warning light.

SECTION 3 INITIAL START UP PROCEDURE

(1) INTRODUCTION

Every care is taken to ensure that all mechanical components are correctly fitted, adjusted and lubricated prior to leaving the factory. However, subsequent handling during transportation and installation may result in the movement of components and a subsequent need to re-adjust prior to starting the unit. If on inspection, you consider that any components require adjustment, please contact Klargester to request a commissioning service.

Once the unit has been installed it should be left filled with water. Please switch on the motor, following the procedure below and leave the unit running, even if there is no sewage being fed into the plant. If the unit has been installed with no operational power supply, then remove the motor/gearbox unit and store it in a dry or heated environment until such time as the unit is ready for permanent operation. The motor/gearbox unit should then be replaced and the chain tensioned by Klargester.

We recommend that the system should be commissioned by Klargester; details on request. Where an immediate start-up is necessary, the following basic procedures should be carried out. Ensure that all Health and Safety precautions are observed.

(2) WATER Check that the BioDisc is full of water to the outlet level.

(3) ELECTRICAL Check that the power supply is connected to the control panel. Check that all electrical components and conductors are earthed.

(4) BIODISC

Check that the BioDisc is in order, with no obvious damage or misalignment of parts. If any possible problems are discovered, contact Klargester.

Check that all electrical components: Drive Motor, Sludge Return Pump and LOR Alarm sensor, (where applicable) are connected to the Control Panel.

Units with FST Sludge Return System only: Check that the Sludge Return Timer in the BioDisc Control Panel is set correctly, as indicated on the wiring diagram.

AUTOMATIC GREASE CARTRIDGES

Where pressurised grease cartridges are fitted (to chain drives and/or roller bearings)

these must be activated before the unit is started.

a) Turn the control knob and its linked dial until the figure 6 is against the arrow on the casing, as in Figure 3 (this should give a lubrication period of 12 months at the temperature in the BioDisc).

b) Depress the red button. This secures the setting and releases the control knob from dial.

Rotate the knob clockwise to activate the unit.

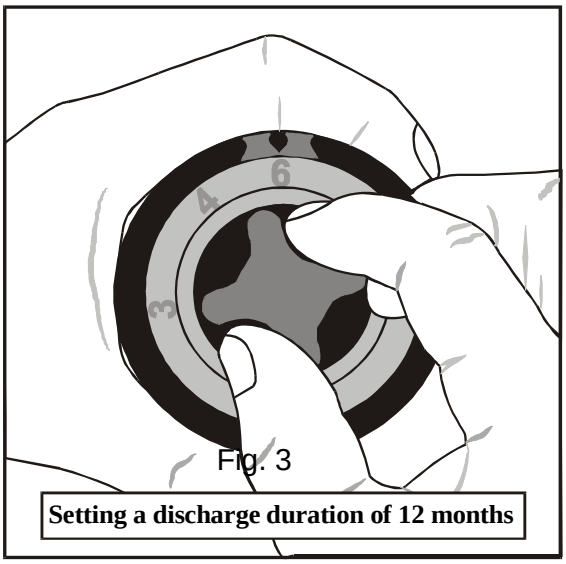


Fig. 3

Setting a discharge duration of 12 months

6) SWITCH ON

Open the Panel. Put the isolating switch and/or circuit breaker(s) into the “on” position. Close the panel and lock it, if applicable. Note: If the unit is fitted with a the sludge return pump, this should start and run for the set time when the unit is switched on.

(7) RUNNING CHECKS

Check that the rotor is running smoothly in the correct direction of rotation and is not contacting any part of the fixed structure.

Check that the forward feed buckets are discharging correctly from the first to second stage Biozone.

(8) OPTIONAL LOSS OF ROTATION ALARM

Where fitted, check operation of the Loss of Rotation (LOR) Alarm as follows:

a) Open the Control Panel and isolate the drive motor whilst maintaining power supply to the alarm circuit. For units with a combined Alarm Control Panel this can be done either by removing the motor fuse or by operating the motor overload trip (refer to wiring diagram). Where a remote independent alarm is fitted, simply isolate power supply at the BioDisc control panel. After a delay of 2-3 minutes the alarm should activate.
b) Push the reset button on the front of the Panel. The alarm beacon or sounder should cease and the red indicator light on the panel front should remain illuminated.
c) Re-connect power to the drive motor and close the Control Panel. The alarm should cease after approximately one minute.
d) Depress and release the “Beacon Off” button to reset it.

Malfunctioning of the LOR Alarm does not prevent operation of the BioDisc System, but it should be reported to your maintenance engineer for early rectification.

(9) PROCESS INITIATION

During installation, the unit will have been filled with water to prevent flotation in the concrete surround. Allow sewage to enter the unit, this will gradually displace the clean water used during installation.

The colonisation by micro-organisms will commence naturally and a operating biomass will establish itself on the discs in 3-6 weeks, depending on individual site circumstances. This will continue to develop, but note the development is chemical and temperature sensitive.

SECTION 4

OPERATION

(1) INTRODUCTION

The biological treatment process of your BioDisc is self regulating and it requires no specialised operational knowledge, but it is important that you are aware of the following:

Your BioDisc system uses colonies of live natural micro-organisms (biomass), to break down the pollutants in the sewage. Many chemicals used in households and commercial establishments can inhibit or kill these micro-organisms; particularly if used in excessive amounts.

Bear in mind that treatment plants serving small populations do not have the benefit of dilution that occurs at a large sewage works. A bottle of bleach tipped down the toilet in Birmingham would be virtually lost amongst the millions of gallons of sewage arriving at the city's treatment works; a bottle of bleach in a plant serving a few houses could be a lethal dose for the biomass.

If the biomass is damaged, it will usually recover in time. But in the meanwhile one of the more obvious symptoms is an unpleasant smell, so it is in the operators interest to avoid this.

Generally speaking all common household cleaning fluids are acceptable, provided they are used in accordance with the makers instructions and stipulated concentrations. The following “Do’s and Don’ts“ includes the most common household chemicals, but It is not an exhaustive list and the golden rule is "If in doubt - leave it out."

Bear in mind too that it isn't only the toilet that is connected to the treatment plant; anything that goes down the sink, bath etc. also ends up there.

(2) DO’S AND DON’TS

Washing machine and dishwasher detergents, washing up liquids:

These are generally all right to use in the normal concentrations and usage found in domestic housing applications. BioDisc incorporates a unique flow management system which enhances its ability to handle shock loads of detergent waste, but problems can sometimes occur due to high laundry usage in commercial establishments such as hotels and nursing homes. Each BioDisc is supplied on the basis of an individual assessment of the sewage load, including laundry usage. Please contact Klargester before making any changes that might increase sewage output or the proportion of laundry waste water. Excessive use of Biological and enzyme containing detergents may affect the biomass.

Floor cleaners, disinfectants and bleaches:

These are safe to use in accordance with the makers recommendations and in the minimum necessary concentration. Do not pour neat disinfectant or bleach down sinks or outside gullies. If these are smelly it usually indicates a build up of decaying material or a plumbing problem and should be dealt with accordingly.

Nappy disinfectants and bottle sterilising fluids E.g. Milton:
When disposing of the used fluid, ensure that it is well diluted with water. The easiest way of doing this is usually to flush it away down the toilet.

Waste disposal units:

These do not inhibit the biomass, but, depending on use, they can present the treatment plant with considerable extra load. This can result in the treatment process becoming unbalanced, leading to problems. Much better to compost your vegetable peelings etc - it's cheaper and environmentally friendly.

Home beer and wine making.

This presents a similar problem to waste disposal units. The BioDisc has to work as hard to treat one pint of beer tipped down the drain as it does to treat all the normal waste produced by one person in 24 hours. See also the notes above regarding sterilising fluids.

THE FOLLOWING MUST NOT BE DISCHARGED INTO THE DRAINS

Motor oil, grease, anti-freeze, brake fluid etc.

Cooking oil and fat.

Weed-killers, insecticides, fungicides and other gardening chemicals.

Paint, thinners, white spirit, turpentine, creosote etc.

Medicines

Take unused medicines to a pharmacist for safe disposal.

Chemical toilet waste.

Photographic developing fluids.

Nappies, sanitary towels, rags, soft toys, tennis balls etc.

This may seem obvious, but it is amazing what gets flushed down the loo from time to time. Although such items are not directly damaging to the biomass they can cause problems, not the least of which is simple blockage of the drains.

Even so-called disposable nappies and sanitary towels often do not degrade fully in the treatment plant and can lead to malfunction, so it is best to dispose of them by other means.

(3) DE-SLUDGING AND MAINTENANCE

These are vital to the plant's ongoing operation and should be carried out in accordance with the guidelines in the maintenance section of this manual.

Mechanical and electrical maintenance must be performed by properly trained engineers, with reference to the appropriate maintenance guidelines. Klargester offer a range of maintenance packages, details on request.

SECTION 5 MAINTENANCE

(1) INTRODUCTION

Klargester BioDiscs are designed and engineered for the minimum possible maintenance requirements, consistent with proper performance. Nevertheless, it is important that routine preventive electro/mechanical maintenance and de-sludging are carried out at the appropriate intervals by suitably qualified persons.

Klargester offers planned contract maintenance and can be contacted on Aylesbury (01296) 633000 by telephone or by fax on (01296) 633001.

(2) CUSTOMER MAINTENANCE CHECKS

The following periodic checks may be carried out at approximately monthly Intervals.

- Visually check the general condition of the plant and listen for any unusual noises. Report any aspects of concern to your maintenance engineer.
- Check the appearance of the Biomass. It should be light grey to brown at the first bank, and may gradually changing to dark brown at the drive end of the rotor. If the growth is excessively thick and the colour predominantly grey throughout, an overload condition is indicated.
- Visually check that all fixings are secure.
- Clear any debris from inlet and outlet pipes.
- Check dosing buckets and transfer baffle for any build up of debris. Clean, if required, using a stiff bristled brush.
- Check the Loss of Rotation Warning Device for correct operation (see Initial Start Up Section). If the alarm does not operate properly, contact your maintenance engineer.

Your attention is specifically drawn to the Health and Safety section of this manual.

(3) AUTOMATIC RE-START AFTER POWER FAILURE

BioDiscs are designed to re-start automatically when power is resumed, but the re-start may not succeed in some circumstances, such as extended power cuts.

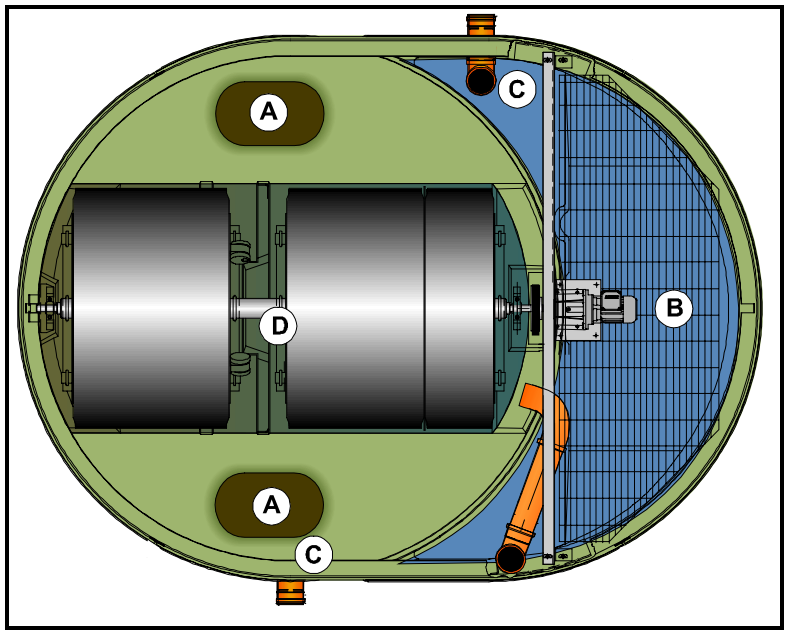
When power is re-established, check that the rotor is turning correctly (see Section 3.0 paragraphs (6) and (7). In the event of any difficulties, contact Klargester.

(4) SLUDGE REMOVAL DESLUDGE VOLUMES

The volumes shown in the table are those anticipated when the plant is fully loaded. If the system is not loaded to full capacity, the desludge period and volumes removed may be adjusted, but it is essential that sludge is not allowed to accumulate to the detriment of the process and that all settled sludge and floating matter are removed at each desludge visit.

Volumes in litres (gallons in brackets)

UNIT	Desludge Period	Primary Settlement Tank		Final Settlement Tank	
		Min	Max.	Min	Max
BD/ND	6 months	4,000 (880)	5,230 (1,150)	1,500 (330)	2,260 (500)
BE/NE	4 months	3,350 (740)	5,050 (1,110)	1,500 (330)	2,260 (500)
BF/NF	4 months	5,650 (1,245)	8,150 (1,800)	2,000 (440)	2,950 (650)
BG/NG	3 months	7,100 (1,565)	10,610 (2,340)	1,000 (220)	2,260 (500)



a) Isolate power to the BioDisc at the Control Panel.

b) Undo the BioDisc cover latches and fold back the hinged cover sections as required to gain access. Alternatively the covers can be completely removed. Hinged sections should be folded back before lifting off.

c) Remove surface scum from the Primary Settlement Tank through the desludge ports [A] on either side of the rotor.

d) Lower the sewage level by approximately 500mm. Use the ports alternately

e) Lift off the walkway covering the Final Settlement Tank [B], and remove settled sludge and any floating matter. Replace the walkway. Some units have a sludge return pump located in this chamber - if the pump is exposed during de-sludging it is important to refill the chamber with water, sufficient to cover the pump, before switching on the unit.

f) Lower the hose into the bottom of the Primary Settlement Tank and remove settled sludge. Use each port sequentially and cover all ports not in use. It may be necessary to empty the tank completely to ensure full sludge removal. Replace all port covers.

g) **DO NOT** attempt to remove any liquid from the Rotor Section.

h) **DO NOT** attempt to clean off the gelatinous growth on the rotor.

i) Ensure that the BioDisc inlet and outlet pipes [C] and the Forward Feed Buckets [D] are free of debris.

j) Ensure that the walkway and all desludge port covers are replaced, then close and lock the BioDisc covers.

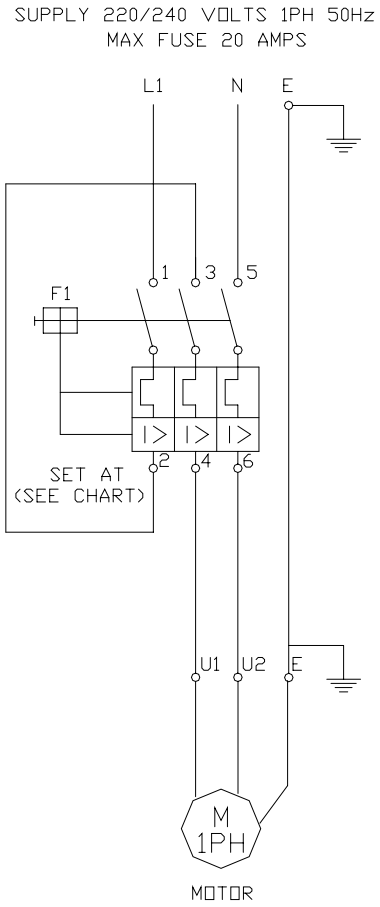
k) Re-connect the power supply. Ensure that the Control Panel door is locked shut.

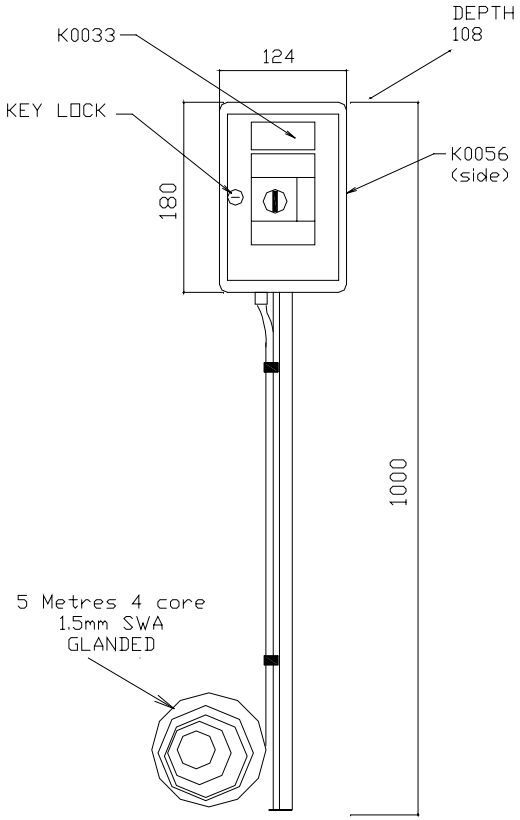
l) Units with Loss of Rotation Alarms only: Wait for two minutes. If the alarm on the control Panel does not activate, this indicates that the Rotor has successfully re-started. If the alarm activates, switch off the power at the Control Panel and immediately switch on again. If the alarm continues to activate, isolate the power supply and notify the plant owner so that the problem can be investigated.

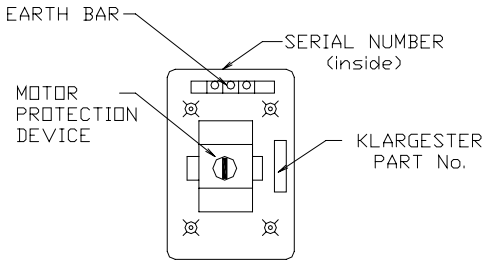
m) Units should be refilled with water.

TROUBLE SHOOTING GUIDE FOR BIODISC UNITS

SYMPTOM	CAUSE	ACTION
Strong odour	Excessive build up of sludge and scum	Desludge the unit.
	Grease (white/cream crust in primary tank and/or thick, smooth biomass[1])	De-sludge unit. If necessary hose off discs. Avoid excessive use of fats and oils. Please note removal of Biomass will reduce treatment until new Biomass establishes.
	Chemicals in the system (very sparse or no biomass[1])	In most instances, units will recover naturally from toxic inhibition events. See general guidance on use of domestic chemicals.
	Excessive laundry use (thick, stringy whitish biomass[1] on first section)	Spread out laundry operations. Avoid biological powders where possible and use the minimum possible amounts of detergent. .
	Unit overloaded (thick/grey biomass[1]) over most of rotor	Check section for the process capability of the unit. If in doubt, contact Klargester.
	Rotor stopped	See rotor stopped section below.
	Drains inadequately ventilated	Check that there is an open high level vent at the head of the drains (not tile vent or “Durgo” valve).
Rotor stopped	Switched off	Check that the motor switch on the panel is in the “on” position. Re-set if necessary.
	Power failure	Check the fuse/trip at the supply board. Replace/re-set as necessary. If the problem persists, contact Klargester.
	Wiring fault	Have the wiring to control panel checked by a competent electrician. If the supply wiring is OK contact Klargester.
	Drive chain broken	Contact Klargester.
	Drive motor faulty	Contact Klargester.
	Loose pulleys on rotor or gearbox output shaft	Contact Klargester.
Rotor fails to re-start after a stoppage	Rotor unbalanced	Consider Hosing off excess Biomass on the heavy side of the rotor. Note removal of biomass reduces treatment.
Loss of rotation alarm not operational	Rotor Sensor out of alignment with bracket	Adjust one or both
Rotor turns intermittently	Drive motor overheating	Contact Klargester.
Effluent discharge not to required standard	See strong odour and rotor stopped sections.	
	Managed flow system in-operative.	Check that bucket(s) are in place and discharging correctly into the biozone second stage.
	Sludge return pump inoperative (ND/NE/NF/NG only)	Contact Klargester.
Unit flooded	Drain outlet blocked.	Check drain downstream of unit , Check location, ? is unit correctly installed and recessed







INTERNAL COMPONENT LAYOUT

MODEL	PANEL NUMBER	MOTOR TRIP AMPS
BE	E0187	1.15A
BF	E0189	1.30A

ISSUE	DATE	DRAWN	MODIFICATION
3	04.08.04	A.L.	BORDER UPDATED
2	21.03.03	A.L.	BORDER UPDATED
1	10.04.97	W.B.	INITIAL ISSUE

THIRD ANGLE PROJECTION

ALL DIMENSIONS ARE IN MILLIMETRES – DO NOT SCALE

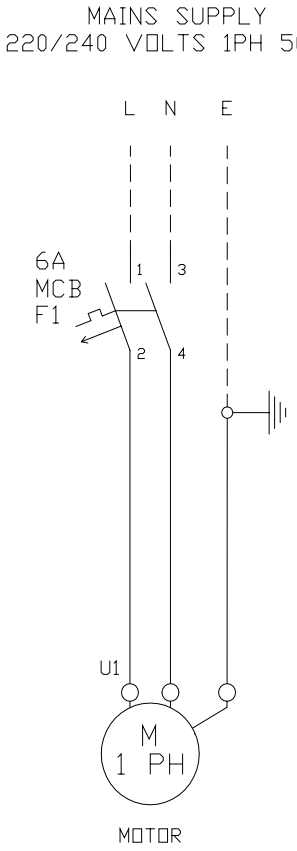
Klargester Treatment Systems
Klargester Environmental
College Road North, Aston Clinton,
Aylesbury, Bucks. HP22 5EW.
Tel:- 01296 633000
www.klargester.com

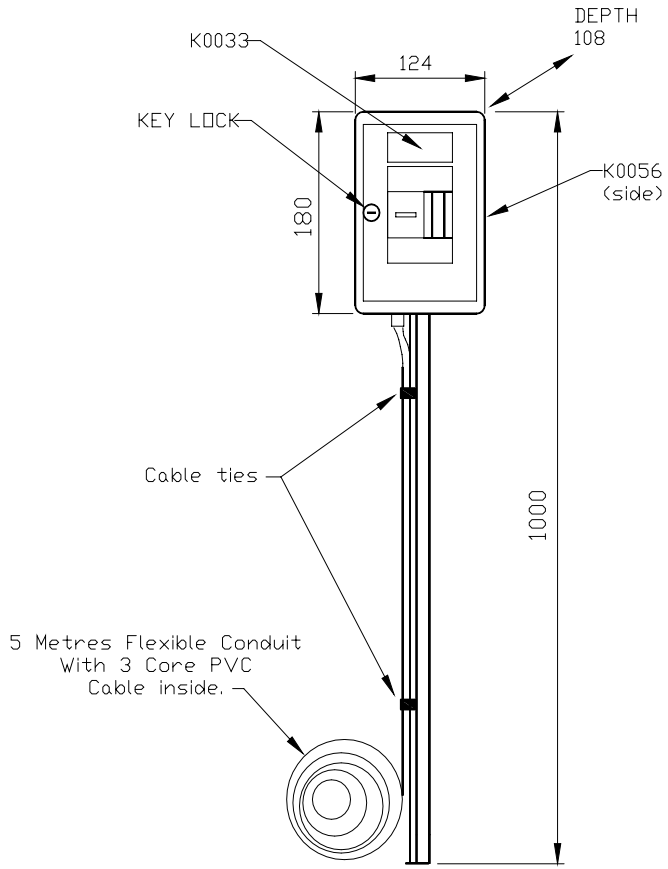
TITLE
BE/BF BIODISC
1 PHASE
CONTROL
PANEL

SCALE 1:1 | SHEET SIZE A4

DRAWING No. 510031 | ISSUE 3

PD0136 Issue 8 AUGUST 2004





SPECIFICATION	PART No.	REF
* ENCLOSURE	80200001	
* KEY LOCK	80200041	
* MCB 3A 2 POLE	32100121	F1
* 5 MTRS 20mm FLEXIBLE CONDUIT	70300001	
* 2 – GLAND FOR FLEXIBLE CONDUIT	70300011	
* 2 – 20mm LOCKNUTS	70300021	
* 2 – 20mm WASHERS	70300031	
* 1 METRE GALVANIZED ANGLE IRON	92200001	
* 5.25 MTRS 4 CORE 1mm FLEX CABLE	72300001	
* VINYL LABEL 'KLARGESTER'	K0033	
* VINYL LABEL 'DO NOT WALK ON COVER'	K0056	
* VINYL LABEL '230 VOLTS WARNING'	K0043	
* 2 – CABLE TIES	70500001	

PART No. E0181

ALL DIMENSIONS ARE IN MILLIMETRES – DO NOT SCALE

ISSUE	DATE	DRAWN	MODIFICATION
2	18.02.04	A.L.	BORDER UPDATE
1	01.07.01	M.P.C.	INITIAL ISSUE

THIRD ANGLE PROJECTION

Klargester Environmental
College Road North, Aston Clinton,
Aylesbury, Bucks. HP22 5EW.
Tel:- 01296 633000
www.klargester.com

TITLE
BC/BD/BE BIODISC
1 PHASE
CONTROL PANEL
WIRING DIAGRAM

SCALE	SHEET SIZE
1:1	A4

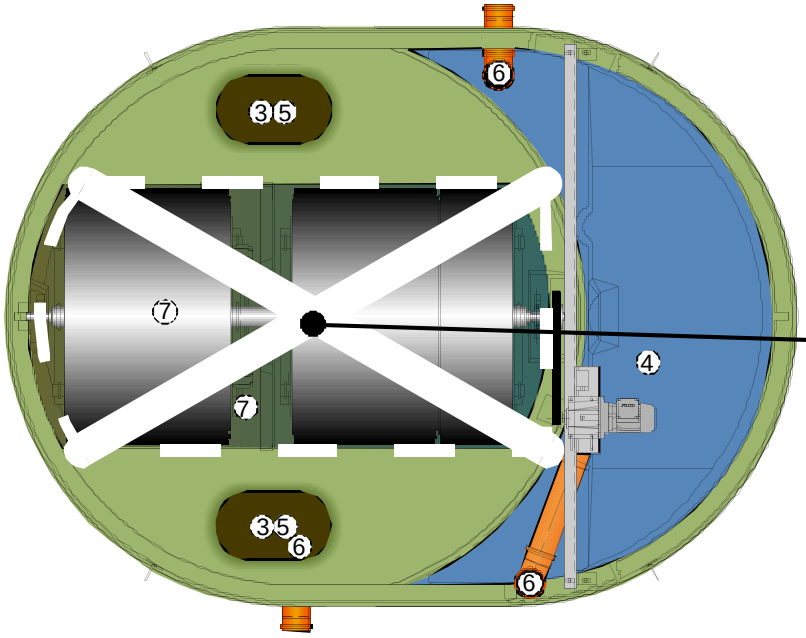
DRAWING No.	ISSUE
510101	2

APPENDIX 3 BD BIODISC DESLUDGING PROCEDURE

IMPORTANT

Isolatepower to unit before attempting any maintenance and ensure that all local procedures are complied with concerning the Health and Safety at work act.

RefertoOwner'sHandbook for MaintenanceDetails



Desludging Procedure:

1. Isolatepowertounit.
2. Coverishingedatcentre,withsecurelockinglatchesonbothsections (keyssuppliedwithunit).Foldingonehalfovertorestontheotherwill allowaccesstotheplantonalternatesides.Alternativelycoverscanbe removedcompletely,thusavoidingpossibledamage,byundoingboth latches,foldingonecoverhalfovertheotherandthenpullingbothto oneside.
3. LowerDesludge Hose into tank and, using the desludging holes on either side of the rotor, remove half the contents of the Primary SettlementTank.TheliquidlevelintheFirstStageoftheBiozone will empty atthesamerateasthePrimaryTank,whereastheSecondStage willremainfull.

DONOTremoveliquorfromBiozone.

4. Lowerthe hoseinto theSecondarySettlement Tank, underthe drive arrangement,andremovecontents.
5. Return the hose to the Primary Tank and remove the remaining material.
6. EnsureInletandOutletpipesareclearofdebris.Cleanasnecessary.
7. EnsureForwardFeedarrangementisclear.
8. ReplaceCoversandrestartunit.

N.B. The MINIMUM amountofmaterialtoberemoved,iftheunitis subject to maximum loading over a period of 4 months, will be approximately3000litres fromthePrimaryand1000litresfromthe Secondary. Ensure thatallscumisremovedfromthesurfaceofeach tank.

BD BioDisc Desludging Procedure

Klargester Treatment Systems

APPENDIX 4 SEPTIC TANK RUNNING GUIDANCE

H+H Drainage

Tremayne, Mortimer's Cross, Herefordshire HR6 9TG
Phone: 0845 2008421. Mobile: 07837 628764

HOW TO KEEP YOUR SEPTIC TANK RUNNING SWEETLY

Septic tanks use colonies of live natural anaerobic micro-organisms to break down pollutants in domestic sewage. Many chemicals found in the household can inhibit or kill these micro-organisms, particularly if used in excessive amounts. Such chemicals can also reduce settlement of sludges.

Bear in mind that septic tanks serving a one house or a few houses do not have the benefit of dilution that occurs at a large sewage works. A bottle of bleach tipped down the toilet in Birmingham would be virtually lost amongst the millions of gallons of sewage arriving at city's treatment works; a bottle of bleach in a plant serving half a dozen houses could be a lethal dose.

If the micro-organisms are damaged, they will usually recover in time. But in the meanwhile one of the more obvious symptoms is an unpleasant smell, so it is in residents' interest to avoid this.

Generally speaking all common household cleaning fluids are acceptable, provided they are used in accordance with the makers' instructions and stipulated concentrations.

The following are some of the most common chemicals found in household situations. It is not an exhaustive list and the golden rule is "If in doubt - leave it out." Bear in mind too that it isn't only the toilet that is connected to the treatment plant; anything that goes down the sink, bath, shower etc. also ends up there.

Washing machine and dishwasher detergents, washing up liquids:
Perfectly all right in normal concentrations and usage. Problems can occur if, for instance, you are washing the jerseys of the local rugby club's five teams! Excess amounts of biological detergent can affect the biomass development. So if you have to do unusual amounts of clothes washing it would be a good idea to spread it over a few days.

Floor cleaners, disinfectants and bleaches:
These are safe to use in accordance with the makers recommendations and in the minimum necessary concentration. Do not pour neat disinfectant or bleach down the sink or outside gullies. If these are smelly it usually indicates a build up of decaying material or a plumbing problem and should be dealt with accordingly.

Nappy disinfectants and bottle sterilizing fluids eg. Milton:
When disposing of the used fluid, ensure that it is well diluted with water. The easiest way of doing this is usually to flush it away down the toilet.

H+H Drainage

Tremayne, Mortimer's Cross, Herefordshire HR6 9TG
Phone: 0845 2008421. Mobile: 07837 628764

Waste disposal units:
These do not inhibit the micro-organisms, but, depending on use, they can present the septic tank with considerable extra load. Much better to compost your vegetable peelings etc. - it's cheaper and environmentally friendly.

Home beer and wine making.
This presents a similar problem to waste disposal units. The septic tank has to work as hard to treat one pint of beer tipped down the drain as it does to treat all the normal waste produced by one person in 24 hours. See also the notes above regarding sterilizing fluids.

THE FOLLOWING MUST NOT BE DISCHARGED INTO THE DRAINS OF EITHER A SEWAGE TREATMENT PLANT OR SEPTIC TANK.

Motor oil, grease, anti-freeze, brake fluid etc.
Motor oil and grease are basically fats. Fat build-up is the most common reason for treatment plant and septic tank failure, while anti-freeze and brake fluid are poisonous to microscopic organisms.

Cooking oil and fat.
Fat build-up is the most common reason for treatment plant and septic tank failure. The human body, cooking and washing all result in fats and oils being discharged into the treatment plant, so it is best to keep fats to a minimum where possible.

Weed-killers, insecticides, fungicides and other gardening chemicals.
Fluids that kill germs in the kitchen, bathroom or garden also kill useful germs in your septic tank.

Paint, thinners, white spirit, turpentine, creosote etc.
Medicines
Take unused medicines to a pharmacist for safe disposal.

Photographic developing fluids.

Nappies, sanitary towels, rags, soft toys, tennis balls etc.
It may seem a bit obvious to say this, but it is amazing what gets flushed down the loo from time to time. Although such items are not directly damaging to the micro-organisms they can cause problems, not the least of which is simple blockage of the drains.

Even so-called disposable nappies and sanitary towels often do not degrade fully in the septic tank and can lead to malfunction, so it is best to dispose of them by other means.

The General Binding Rules stipulates that septic tanks should be emptied or desludged at least once per year. In some cases, more frequent desludging may be required.

APPENDIX 5 TREATMENT PLANT RUNNING GUIDANCE

H+H Drainage

Tremayne, Mortimer's Cross, Herefordshire HR6 9TG
Phone: 0845 2008421. Mobile: 07837 628764

HOW TO KEEP YOUR SEWAGE TREATMENT PLANT RUNNING SWEETLY

Sewage treatment plants use colonies of live natural micro-organisms to break down pollutants in domestic sewage. Many chemicals found in the household can inhibit or kill these micro-organisms, particularly if used in excessive amounts.

Bear in mind that treatment plants serving a few houses do not have the benefit of dilution that occurs at a large sewage works. A bottle of bleach tipped down the toilet in Birmingham would be virtually lost amongst the millions of gallons of sewage arriving at city's treatment works; a bottle of bleach in a plant serving half a dozen houses could be a lethal dose.

If the micro-organisms are damaged, they will usually recover in time. But in the meanwhile one of the more obvious symptoms is an unpleasant smell, so it is in residents' interest to avoid this.

Generally speaking all common household cleaning fluids are acceptable, provided they are used in accordance with the makers' instructions and stipulated concentrations.

The following are some of the most common chemicals found in household situations. It is not an exhaustive list and the golden rule is "If in doubt - leave it out." Bear in mind too that it isn't only the toilet that is connected to the treatment plant; anything that goes down the sink, bath etc. also ends up there.

Washing machine and dishwasher detergents, washing up liquids:
Perfectly all right in normal concentrations and usage. Problems can occur if, for instance, you are washing the jerseys of the local rugby club's five teams! Excess amounts of biological detergent can affect the biomass development. So if you have to do unusual amounts of clothes washing it would be a good idea to spread it over a few days.

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These are safe to use in accordance with the makers recommendations and in the minimum necessary concentration. Do not pour neat disinfectant or bleach down the sink or outside gullies. If these are smelly it usually indicates a build up of decaying material or a plumbing problem and should be dealt with accordingly.

Nappy disinfectants and bottle sterilizing fluids eg. Milton:
When disposing of the used fluid, ensure that it is well diluted with water. The easiest way of doing this is usually to flush it away down the toilet.

Waste disposal units:
These do not inhibit the micro-organisms, but, depending on use, they can present the treatment plant with considerable extra load. Much better to compost your vegetable peelings etc. - it's cheaper and environmentally friendly.

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Motor oil, grease, anti-freeze, brake fluid etc.
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Cooking oil and fat.
Fat build-up is the most common reason for treatment plant failure. The human body, cooking and washing all result in fats and oils being discharged into the treatment plant, so it is best to keep fats to a minimum where possible.

Weed-killers, insecticides, fungicides and other gardening chemicals.
Fluids that kill germs in the kitchen, bathroom or garden also kill useful germs in your sewage treatment plant.

Paint, thinners, white spirit, turpentine, creosote etc.
Medicines
Take unused medicines to a pharmacist for safe disposal.

Photographic developing fluids.

Nappies, sanitary towels, wipes, soft toys, tennis balls etc.
It may seem a bit obvious to say this, but it is amazing what gets flushed down the loo from time to time. Although such items are not directly damaging to the micro-organisms they can cause problems, not the least of which is simple blockage of the drains.

Even so-called disposable nappies, flushable-wipes, thread, kitchen paper-towel and sanitary towels often do not degrade fully in the treatment plant and can lead to malfunction, so it is best to dispose of them by other means.

In an ideal world, only toilet tissue and human waste should be flushed!

Finally, it is now a legal requirement to ensure that your sewage treatment plant is maintained correctly. This includes regular desludging/emptying and an annual maintenance visit by a British Water Accredited Engineer.

To book an Engineers visit, or to find out more, please call 0845 200 8421.

APPENDIX 6 DOSING INFORMATION

HEALTH AND SAFETY

These warnings are provided in the interest of safety. You must read them carefully before installing or using the equipment.

It is important that this document is retained with the equipment for future reference. Should the equipment be transferred to a new owner, always ensure that all relevant documents are supplied in order that the new owner can be acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following the Guide-Lines supplied with the equipment.

We recommend the use of a dust mask and gloves when cutting GRP components.

Electrical work should be carried out by a qualified electrician.

Sewage and sewage effluent can carry micro-organisms harmful to human health. Any person carrying out maintenance on the equipment should wear suitable protective clothing, including gloves. Good hygiene practice should also be observed.

Covers must be kept locked.

Observe all hazard labels and take appropriate action to avoid exposure to the risks indicated.

The correct ongoing maintenance is essential for the proper operation of the equipment. Kingspan offer a range of maintenance contracts, details on request.

Should you wish to inspect the operation of the equipment, please observe all necessary precautions, including those listed below, which apply to maintenance procedures.

BioDisc units contain rotating machinery and associated drive chains or belts.

Ensure that you are familiar with the safe working areas and accesses.

Ensure that the working area is adequately lit.

The power supply to the equipment must be isolated at the control panel(s) before lifting the covers. Where a specific maintenance procedure requires the equipment to be running with the covers off, all care must be taken to avoid contact with moving parts and electrical components or conductors. Drive guards must be replaced and secured if removed during maintenance.

Once power has been isolated, the control panel must be kept locked shut to avoid accidental re-connection whilst work or inspection is being carried out.

Use only the designated access walkways. Do not walk on the cover or deep well safety mesh(es). Desludge port covers, where fitted, must be replaced if removed.

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Keep proper footing and balance at all times. Avoid any sharp edges.

Desludging should be carried out by a contractor holding the relevant permits to transport and dispose of sewage sludge. The contractor must refer to the desludge instructions in the Operating Manual, a copy of which is fastened under the covers.

Ensure that you have the appropriate COSH sheet and chemical handling information for the chemical selected for dosing. The chemicals used for control of phosphorus are dangerous and must be stored and handled safely. They are acidic and corrosive. See the Material Safety Data Sheet (MSDS) provided by the supplier for appropriate personal protective equipment.

CE

Kingspan Water and Energy Ltd
College Road North
Aston Clinton
Aylesbury
HP22 5EW
United Kingdom

EN 12566-3+A2:2013	
Name of Product Type:	**BioDisc BA**
Material:	**GRP**
Treatment process:	**Rotating Biological Contactor (RBC) with chemical dosing equipment**
Testing authority:	**PIA GmbH, NB 1739**
Effectiveness of treatment:	
Treatment efficiency:	**COD: 95.9%**
(at tested organic daily load BOD_5 = 0.28 kg/d)	**BOD_5: 98.0%**
	N_{tot}: 63.9%
	NH_4-N: 84.8%
	P_{tot}: 95.4%
	SS: 95.6%
Nominal hydraulic flow (100%)	**0.9 m^3/d**
Number of desludging	**1**
Power consumption	**1.5 kWh/d**
Treatment capacity (nominal designation)	**6 PT**

CONTENTS **Page**

1.0 Chemical Dosing kit

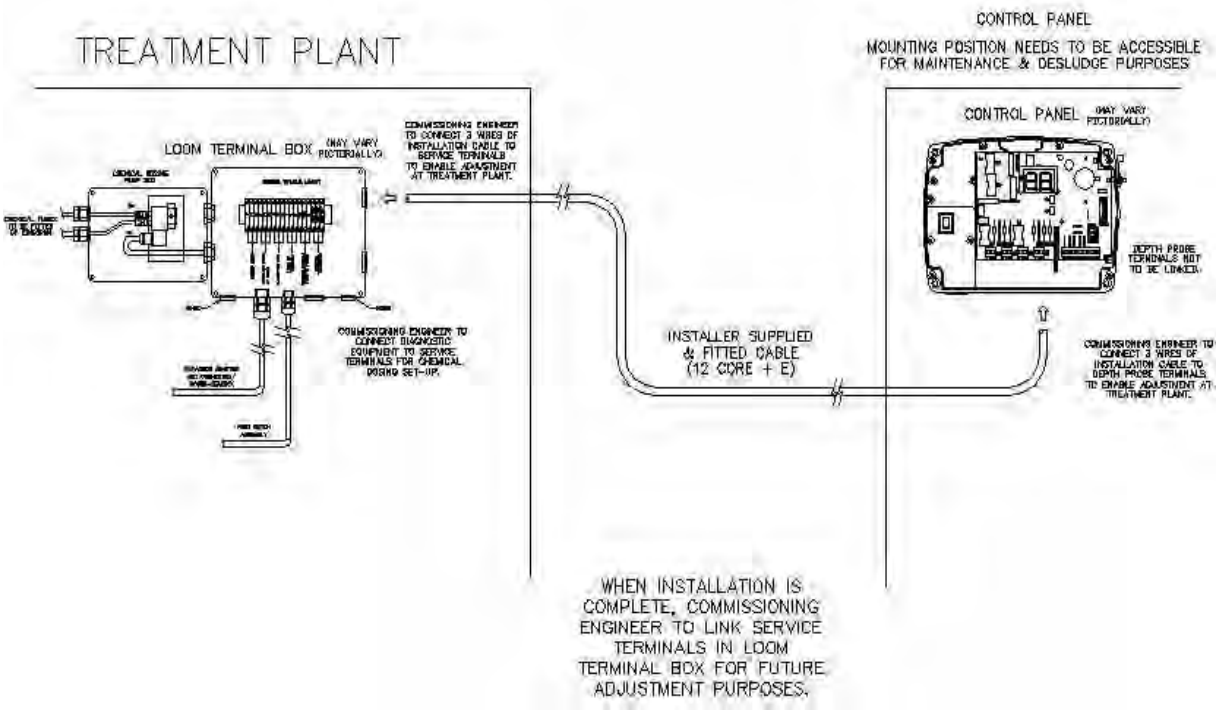
Please see the relevant BioDisc Installation and Operating manual, which indicates the flows permitted and expected daily volumes. These manuals should be followed however; **your unit has been modified to include chemical dosing equipment.**

In addition to the standard features described, your unit includes additional equipment and a special control panel.

Units are supplied with the additional equipment pre fitted. Your system and chemical dosing operations will be set up by the service engineer at installation due to variations of on-site conditions.

Wiring Loom

The wiring loom allows easy connection of the internal electrical components, i.e. chemical dosing pump, BioDisc motor, Loss of rotation sensor, sludge return pump (if included)



Chemical dosing pump

- The pump (shown below) is mounted on the wall of the tank within a chemical box or attached to the junction box. Its operation is controlled by the control panel.
- The duration of the dose and the interval of the dose can be altered using the control panel.
- Check that the chemical tubes are connected correctly to the pump inlet and outlet. (Labels are attached to the tubing externally and within the box, the white nipples are faintly embossed with in and out)
- Ensure that the pump and tube are primed with chemical and the line is bled of air.
- The discharge tube should be positioned /located at the pre drilled point at the end of the second biozone to allow the chemical to fall freely and to ensure that the chemical is delivered into the mixing zone. The discharge must be above the level of the stored chemical to prevent siphoning.

Gotec Pump

Flexible chemical Tubing

- Chemical inlet. Place the chemical draw pipe with weighted end into the chemical tank so that the chemical is drawn from above the base of the tank.
- Remove any excess tubing. The chemical tubes should be vertical and not be so long as to form unnecessary loops.

Chemical (Customer supply)

The recommended chemical is XL 60 obtainable from Kemira or Univar.
Other chemicals may be used but they must be checked for suitability. Please contact Kingspan

- **See enclosed chemical specification. Please ensure that you have the most up to date versions of the health and safety data sheets from the chemical supplier and observe all health and safety precautions.**
- The chemical container(s) should be placed inside the unit on the ledge adjacent to the chemical pump.
- Ensure that the chemical container is carefully located and secured into position.

Control panel

The control panel includes a micro-processor which is provided pre set to dose the estimated dose of chemical at the appropriate interval.

- The setting assumes that the influent Phosphate (P) is approx 8-12 mg/l and assumes that an outlet of 2 mg/l is required. These settings may be altered by the commissioning engineer if there are known different volumes or different incoming or effluent phosphate values.

- During commissioning, a check can be made of the sewage inlet P level and the pump setting adjusted if necessary. (Commissioning cost is additional)

See wiring diagram for connection details.

2.0 Process Description

The chemical dosing process is started when the sludge return pump is activated and operates for a predetermined time. Chemical is intermittently pumped into the dosing point. The chemical mixes with the dissolved phosphate and coagulates together to form settleable particles which settle in the final settlement zone.

Using a chemical increases the volume of sludge formed within the treatment unit when compared to a standard unit. The level of sludge produced also relates to loading and so an assessment of the sludge production should be made monthly bearing in mind that there is a need for increased emptying frequency when compared to the standard recommendations given in the manual.

Addition of the chemical is fundamental to the process and it is important to check the chemical usage and replace the drum. Should the chemical run out, there will be no phosphate removal.

The reduction of phosphate is required by the environmental regulator in order to protect the local environment. The addition of limiting nutrients such as phosphate can cause eutrophication in the receiving water.

3.0 Customer Information

A BA unit is normally supplied for use at 1 property with a maximum occupancy of 6 persons.
A BB, 2 properties with a maximum of 12 people.
A BC unit is normally supplied for use by multiple properties with a maximum occupancy of 18 persons. For applications of larger units consult Kingspan Sales.

Detergents and chemical products used within the properties should be selected with care so as to reduce the amount of added phosphates going into the treatment plant. It is possible to reduce the amount of phosphates entering the unit by up to 50%. The less phosphate entering the plant, the less chemical dose is required.

Each person / and visitor to the property contributes wastewater into the treatment plant and the volume treated by the unit will change on a daily and hourly basis. The volume treated is controlled by a flow device which transfers liquid over the baffle into a biozone.

Units which are over dosed with too much chemical tend to develop a creamy biomass, but this colour of biomass may also be the sign of excess fat or overloading, see trouble shooting notes in main manual.

The chemical dosing settings can be reviewed and, if necessary, adjusted at the next maintenance visit.

4.0 Chemical Consumption

The chemical dosing duration for units are set depending on their size.

The interval between the doses can be adjusted to suit the expected incoming phosphate load and the number of persons using the unit.

Low and average settings are given for each population load to assist the selection of the appropriate interval. These settings were calculated using averages obtained during performance testing, but higher use settings may be required to reflect high incoming phosphate levels or higher volume uses.

Initial Chemical dosing setting Single Control Panel for BA to BD.
BE and above require separate chemical dosing panel with timers.

	PE	Seconds	Minutes
		on	off
BA	6	3	25
BB	12	3	12
BC	18	4	12
BD	25	3	6
	PE	Seconds	Seconds
BE	35	7	593
BF	50	10	590
BG	70	13	587
BH	75	14	586
BJ	100	19	581
BK	125	23	577
BL	150	28	572
BM	225	5	7200
BN	300	5	7200

<u>No occupancy (i.e. periods > 3 days without residents)</u>

The BioDisc should be left on.
The recycle pump (if fitted) returns treated effluent so as to maintain the biomass on the discs.

If the period of absence is expected to be longer, then in order to save chemical and to protect the biomass, the chemical draw tube can be removed from the chemical drum. (it can be placed into a small container of water located on the biozone so that water is used in place of chemical.

On return, replace the draw tube in chemical drum and check that the chemical doses.

5.0 Installation of Chemical Dosing System for BA-BD Control Panel.

Upon installation, the multi-core cable between the control panel and the junction box in the unit, must link all relevant operating terminals. **Wiring Diagram 1011027**

Refer the DTP Control Panel Manual 1011026 for the setting up of Chemical Dosing Timetable.

Use the Guide in Section 4 to set the desired time on the Panel.

6.0 Maintenance

Excess solids are created by using the chemical. Units with chemical dosing systems will require desludging more often than standard units without the addition of chemical.

Regular replacement of the chemical containers is required, before the chemical runs out.
The chemical dosing lines should be checked each time the chemical container is replaced.
The dosing action should be checked when the container is replaced.

SAFETY DATA SHEET

FERRIC SULPHATE 40%

Compilation date: 08/09/2011

Revision date: 03/08/2016

Revision No: 3

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: FERRIC SULPHATE 40%

REACH registered number(s): 01-2119513202-59-XXXX

CAS number: 10028-22-5

EINECS number: 233-072-9

Synonyms: IRON (III) SULPHATE 40%

DIIRON TRIS(SULPHATE) 40%

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

Use of substance / mixture: Water and effluent treatment.

1.3. Details of the supplier of the safety data sheet

Company name: Tan International Ltd

Tayview Industrial Estate

Perth

PH2 8DG

UK

Tel: +44 (0)1738 632 909

Fax: +44 (0)1738 632 901

Email: qa@taninternational.com

1.4. Emergency telephone number

Emergency tel: +44 (0)1270 502 891

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Met. Corr. 1: H290; Acute Tox. 4: H302; Eye Dam. 1: H318; Skin Irrit. 2: H315

Most important adverse effects: May be corrosive to metals. Harmful if swallowed. Causes skin irritation. Causes serious eye damage.

2.2. Label elements

Label elements:

Hazard statements: * H290: May be corrosive to metals.

H302: Harmful if swallowed.

H315: Causes skin irritation.

H318: Causes serious eye damage.

Signal words: Danger

[cont...]

Hazard pictograms: GHS05: Corrosion
GHS07: Exclamation mark

Precautionary statements: P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+312: IF SWALLOWED: Call a POISON CENTER/doctor/ if you feel unwell.
P303+361+353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P363: Wash contaminated clothing before reuse.
P501: Dispose of contents/container to an authorised waste contractor.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients:

FERRIC SULPHATE AQUEOUS SOLUTION - REACH registered number(s): 01-2119513202-59

EINECS	CAS	PBT / WEL	CLP Classification	Percent
233-072-9	10028-22-5	-	Met. Corr. 1: H290; Acute Tox. 4: H302; Skin Irrit. 2: H315; Eye Dam. 1: H318	35-75%

SULPHURIC ACID - REACH registered number(s): 01-2119458838-20-XXXX

231-639-5	7664-93-9	-	Skin Corr. 1A: H314	<1%

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: * Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. If irritation persists, seek medical advice/ attention. Launder contaminated clothing thoroughly before re-use.

Eye contact: Seek immediate medical attention. Rinse immediately with plenty of water. Remove any contact lenses and keep eye-lids wide apart. Continue rinsing for at least 10 minutes or until trained medical assistance arrives.

Ingestion: Seek immediate medical attention. Never give anything by mouth to an unconscious person. Do not induce vomiting. Wash out mouth with water. Give plenty of water to drink.

Inhalation: Move to fresh air in case of accidental inhalation of vapours. Rinse nose and mouth with water. Seek medical attention if any discomfort persists.

[cont...]

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: * There may be irritation and redness at the site of contact.

Eye contact: There may be irritation and pain. Corneal burns may occur. May cause permanent damage.

Ingestion: * Corrosive burns may appear around the lips. May cause burns to the digestive system. Ingesting large quantities may cause damage to liver and kidneys. May prove fatal if ingested in large quantities.

Inhalation: There may be irritation to the respiratory system.

Delayed / immediate effects: * Immediate effects can be expected after short-term exposure. Prolonged and repeated exposure can cause sensitisation/dermatitis and/ or other skin damage. Not expected to cause cancer. Not expected to be a reproductive toxicant. Not expected to be a mutagenic toxicant.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Show this safety data sheet to the doctor in attendance. Eye bathing equipment should be available on the premises. A decontamination shower should be available on the premises.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: * Non-flammable. Corrosive. Reacts with many metals to form the flammable gas hydrogen. In combustion emits toxic fumes of sulphur oxides.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Turn leaking containers leak-side up to prevent the escape of liquid. Provide adequate ventilation. Avoid contact with eyes and skin.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding. Spillages or uncontrolled discharges into watercourses must be immediately alerted to the appropriate environmental agency.

[cont...]

6.3. Methods and material for containment and cleaning up

Clean-up procedures: * If permitted, small volumes may be neutralised with soda ash solution and washed to sewer with copious amounts of water. OR - Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method. For larger spills, use a suction pump to transfer the spilled material to a salvage container. Wash the spillage site with large amounts of water.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: * Ensure there is sufficient ventilation of the area. Avoid the formation or spread of mists in the air. Do not wear contact lens when handling this material. Avoid contact with eyes and skin. Use normal safe handling techniques.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed. Separate from incompatible material - see Section 10.

Suitable packaging: It is recommended that this product is only kept in its original packaging. Use non-metallic containers.

7.3. Specific end use(s)

Specific end use(s): Water and effluent treatment.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: **Respirable dust**

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	1mg/m3	2mg/m3	-	-

Hazardous ingredients:

FERRIC SULPHATE AQUEOUS SOLUTION

Workplace exposure limits: **Respirable dust**

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	1mg/m3	2mg/m3	-	-

[cont...]

SULPHURIC ACID...100%

UK	1 mg/m3	-	-	-

DNEL/PNEC Values

FERRIC SULPHATE 40%

Type	Exposure	Value	Population	Effect
DNEL	Dermal (long term)	2mg/kg/day	Workers	Systemic
DNEL	Inhalation (long term)	7.2mg/m3	Workers	Systemic
PNEC	Sewage Treatment Plant	500mg/l	-	-

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area. Ensure eyewash stations and safety showers are provided in the storage and working areas.

Respiratory protection: Respiratory protective device is not required in normal working conditions but may be required in areas of poor ventilation. Gas/vapour filter, type E: sulphur dioxide and other acid gases (EN141).

Hand protection: * Gloves (acid resistant). The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material. Recommended types include:- PVC gloves. Neoprene gloves.

Eye protection: Tightly fitting safety goggles. Face-shield. Ensure eye bath is to hand.

Skin protection: Acid-resistant protective clothing. Boots. Ensure safety shower is to hand.

Environmental: Storage should be placed inside a fully bunded area of sufficient size to contain the volume plus 10%.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Orange-brown

Odour: Not significant.

Oxidising: Non-oxidising (by EC criteria)

Solubility in water: Miscible in all proportions

Boiling point/range°C: 100 - 105

Flammability limits %: lower: Not applicable.

upper: Not applicable.

Flash point°C: Not applicable.

Autoflammability°C: Not applicable.

pH: <1

9.2. Other information

Other information: Decomposition Temperature 315C

Section 10: Stability and reactivity

[cont...]

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below. Reacts with many metals which may cause the flammable gas Hydrogen to be released.

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: * Bases. Metals. Oxidising agents. Hypochlorites.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes of sulphur oxides.

Section 11: Toxicological information

11.1. Information on toxicological effects

*** Toxicity values:**

Route	Species	Test	Value	Units
ORAL	RAT	LD50	>500	mg/kg
DERMAL	RAT	LD50	>800	mg/kg

Hazardous ingredients:

SULPHURIC ACID...100%

ORL	RAT	LD50	2140	mg/kg

Relevant hazards for substance:

Hazard	Route	Basis
Acute toxicity (ac. tox. 4)	ING	Hazardous: calculated
Skin corrosion/irritation	DRM	Hazardous: calculated
Serious eye damage/irritation	OPT	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: * There may be irritation and redness at the site of contact.

Eye contact: There may be irritation and pain. Corneal burns may occur. May cause permanent damage.

Ingestion: * Corrosive burns may appear around the lips. May cause burns to the digestive system.

[cont...]

Ingesting large quantities may cause damage to liver and kidneys. May prove fatal if ingested in large quantities.

Inhalation: There may be irritation to the respiratory system.

Delayed / immediate effects: * Immediate effects can be expected after short-term exposure. Prolonged and repeated exposure can cause sensitisation/dermatitis and/ or other skin damage. Not expected to cause cancer. Not expected to be a reproductive toxicant. Not expected to be a mutagenic toxicant.

Other information: Symptoms from inhaling combustion fumes may not be readily apparent. Keep under medical supervision for at least 24 hours.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values:

Species	Test	Value	Units
RAINBOW TROUT (Oncorhynchus mykiss)	96H LC50	>100	mg/l
Daphnia magna	48H EC50	80	mg/l

12.2. Persistence and degradability

Persistence and degradability: The methods for determining biological degradability are not applicable to inorganic substances. This product is a flocculating agent. It should react with suspended material in an aquatic system and be neutralised.

12.3. Bioaccumulative potential

Bioaccumulative potential: * The methods for determining bioaccumulative potential are not applicable to inorganic substances.

12.4. Mobility in soil

Mobility: Soluble in water.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: * The low pH may have a temporary adverse effect on the aquatic environment. This product is not expected to have a long term adverse effect on the aquatic environment.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Dispose of waste and residues in accordance with local and national requirements. Transfer to a suitable container and arrange for collection by specialised disposal company.

Disposal of packaging: Dispose of packaging in accordance with local and national requirements. Dispose of in a regulated landfill site or other method for hazardous or toxic wastes.

[cont...]

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: * UN1760

14.2. UN proper shipping name

Shipping name: CORROSIVE LIQUID, N.O.S. (Ferric Sulphate)

14.3. Transport hazard class(es)

Transport class: 8

14.4. Packing group

Packing group: III

14.5. Environmental hazards

Environmentally hazardous: No **Marine pollutant:** No

14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: E

Transport category: 3

Section 15: Regulatory information

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

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H290: May be corrosive to metals.

H302: Harmful if swallowed.

H314: Causes severe skin burns and eye damage.

H315: Causes skin irritation.

H318: Causes serious eye damage.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive

[cont...]

and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

APPENDIX 7 RECORD SHEETS

AP 7.1 TREATMENT PLANT RECORD

ENVIRONMENTAL MANAGEMENT SYSTEM			
1. TYPE OF TREATMENT PLANT			
	EXISTING	**PROPOSED**	**PROOSED**
	NORTH RANGE	**NORTH RANGE**	**SOUTH RANGE**
	septic tank	treatment plant	treatment plant
	Registered.		
MAKE	Clearwater or	Kingspan	Kingspan
	similar		
MODEL	Brick	Biodisc BD	Biodisc BD
INSTALLATION DATE		not yet installed	not yet installed
WHO INSTALLED IT?	Llangibby Estate	N/A	N/A
CAPACITY		25 person	25 person

AP 7.2 MONITORING AND MAINTENANCE CHECKLIST

ENVIRONMENTAL MANAGEMENT SYSTEM	CASTLE FARM, LLANGIBBY					
2. MONITORING AND MAINTENANCE CHECKLIST						
	How often					
	(tick the appropriate box)					
ITEM	**Day**	**Week**	**Month**	**Year**	**2 Years**	**5 years**
1. Check the ground through which the infiltration systems runs for any adverse effects e.g. Sewage effluent breaking out of the ground. If you observe any adverse effect contact an appropriately qualified contractor to investigate and remediate the cause.		*				
2. Check to see if the treatment plant (if applicable) appears to be operating effectively, for example no unsual noises odours and so on. If it is not operating correctly contact an appropriately qualified contractor to investigate and remediate the cause.		*				
3. Ensure that the sample point is accessible at all times. If it is not accessible, ensure access is reinstated.			*			
Desludging should take place at least twice a year or at a frequency specified by the manufacturer.				*		

AP 7.3 MAINTENANCE RECORD

Aspect	Yes	No	Comment
Septic Tank (North) is in good working order and free of blockages.			
Treatment Plant (North)			
The general condition of the plant is good with no unusual noises. *Report any aspects of concern to your maintenance engineer.*			
The appearance of the Biomass is light grey to brown at the first bank. *This may gradually change to dark brown at the drive end of the rotor. If the growth is excessively thick and the colour predominantly grey throughout, an overload condition is indicated.*			
All fixings are secure.			
Inlet and outlet pipes are free of any debris. *If not, clear inlet and outlet pipes.*			
Dosing buckets and transfer baffle are free of build-up or debris. *Clean, if required, using a stiff bristled brush.*			
The Loss of Rotation Warning Device is operating correctly. *(See Initial Start Up Section). If the alarm does not operate properly, contact your maintenance engineer.*			
Treatment Plant (South)			
The general condition of the plant is good with no unusual noises. *Report any aspects of concern to your maintenance engineer.*			
The appearance of the Biomass is light grey to brown at the first bank. *This may gradually change to dark brown at the drive end of the rotor. If the growth is excessively thick and the colour predominantly grey throughout, an overload condition is indicated.*			
All fixings are secure.			
Inlet and outlet pipes are free of any debris. *If not, clear inlet and outlet pipes.*			
Dosing buckets and transfer baffle are free of build-up or debris. *Clean, if required, using a stiff bristled brush.*			
The Loss of Rotation Warning Device is operating correctly. *(See Initial Start Up Section). If the alarm does not operate properly, contact your maintenance engineer.*			

Signed: _____

Date: _____

AP 7.4 TRAINING CHECKLIST AND RECORD SHEETS

4. TRAINING REQUIREMENTS

JOB	TRAINING REQUIRED
	ENVIRONMENTAL AWARENESS
OCCUPIER	Awarenss of local sensitive sites for example site of special scientific interest.
SITE MANAGER	Read and understood what is required to comply with the permit
SITE SUPERVISOR	Understand how the environment may be harmed by the system.
SITE OPERATOR	
	MAINTENANCE
OCCUPIER	Understand purpose/operation of the treatment plant and normal/abnormal operation.
SITE MANAGER	Compatibility of chemicals e.g. Cleaning products
SITE SUPERVISOR	Frequency of required maintencne operations.
SITE OPERATOR	Fequency of de-sludging
	ACCIDENTS AND EMERGENCY
OCCUPIER	Fire procedure
SITE MANAGER	Spill response procedure
SITE SUPERVISOR	Flood procedure (where applicable)
SITE OPERATOR	Failure of services (e.g. Power cut) and how to restart the plant.

When the site is sold both North and South systems will be overseen by a competant contractor.

NOTE: See Appendix 6

ENVIRONMENTAL MANAGEMENT SYSTEM					CASTLE FARM, LLANGIBBY			
4.1 TRAINING/AWARENESS RECORD								
NAME				ADDRESS				
ACTION				DATE DUE	DATE DONE	COMMENTS		
Read and understood responsibilities								
required by the permit								
Aware of purpose of sewage treatment								
plant and restrictions on its use								
Checked for local sensitive sites								
Aware of types of chemicals which								
may cause the treatment plant to								
malfunction								

Environmental Management System Castle Farm, Llangibby

Attachments to Accident Management Plan

1. Topographical Surveys	1. North	)
	2. South	)
2. OS maps 1:2500	1. North	)
	2. South	) All in Appendix 1
3. Site plans	1. North Drwg 1321:1998:16A	)
	2. South Drwg 1321:1997:20A	)
	3. A4 OS map 1:1250 Drainage	)
	4. Ground Water Risk Assessment Version D – Appendix 2	

Explanation:

The following applications have been submitted to Monmouthshire County Council:

1.	South	Planning	DM/2023/00032	(1997 CK job ref. no.)
2.		LBC	DM/2023?00038	
3.	North	Planning	DM/2023/00046	(1998 CK job ref. no.)
4.		LBC	DM/2023/00047	
5.	Agricultural Access	Planning	DM /2023/00059	(2000 CK job ref. no.)
6.	Bungalow	Planning	Not registered yet	(1993 CK job ref. no.)

When planning permission has been obtained the above properties will be sold.

Castle Farm
Llangybi
Usk
NP15 1NP

Topographical Survey

Notes

1) Survey undertaken utilising an assumed grid and datum commencing at 1000m E 2000m N with a level of 100.000m.

2) North arrow is indicative only and does not represent true north.

3) Drawing produced at A3 plan size.

Client
Mr C Knock
Tinkers Grove Cottage
Eastnor
Ledbury
Herefordshire
HR8 1RQ

Woodford Surveys Ltd
Woodford House
11 Farjeon Close
Ledbury
Herefordshire
HR8 2FU

Tel: 01531 634039

Scale Bar
0 1 2 3 4 5 6 7 8 9 10m

Drg No: CK07 1 of 2 | Revision: A

Scale 1:200 | Date: 22/07/21

Castle Farm
Llangybi
Usk
NP15 1NP

Topographical Survey

Notes

1) Survey undertaken utilising an assumed grid and datum commencing at 1000m E 2000m N with a level of 100.000m.

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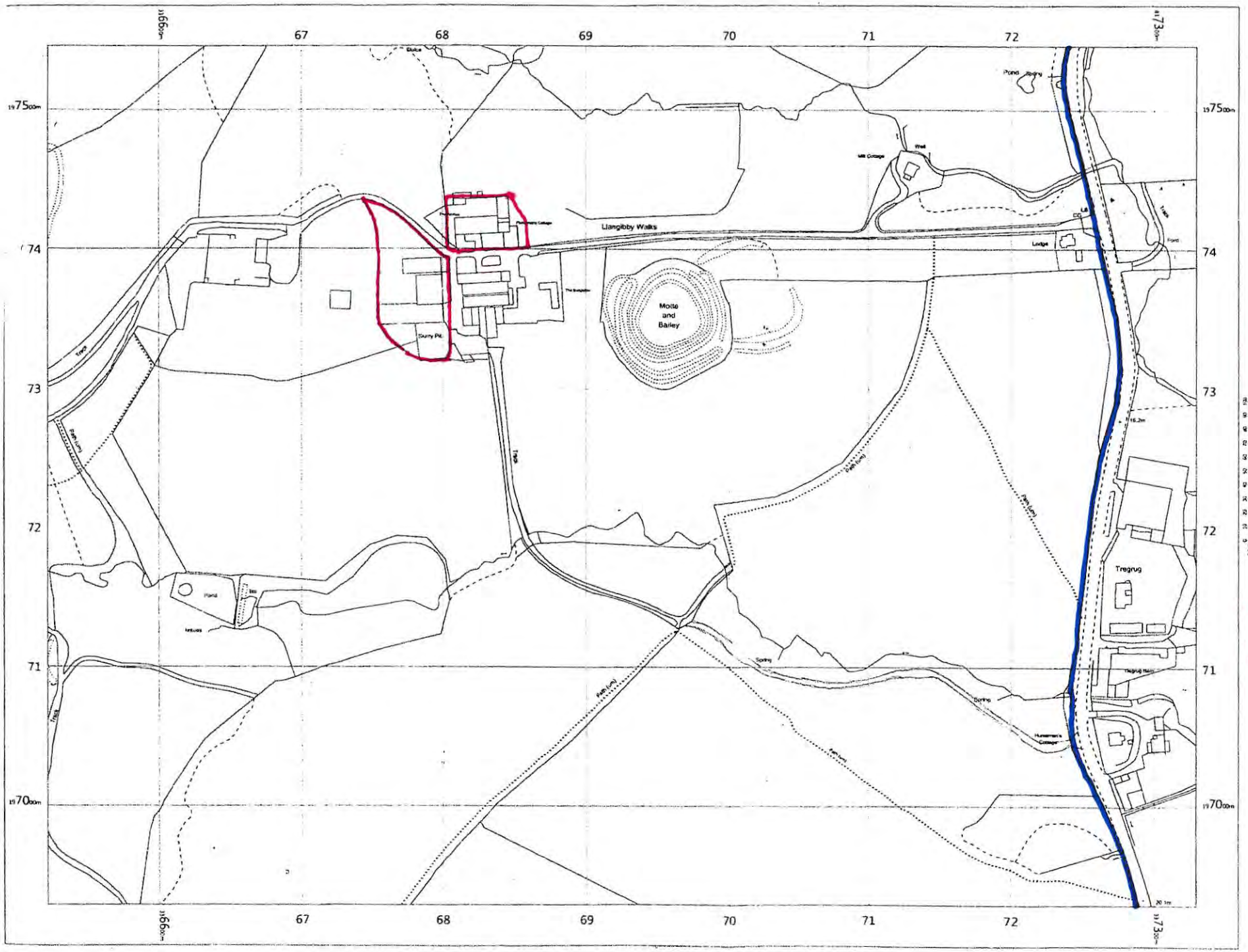
Herefordshire
HR8 2FU

Tel: 01531 634039

Scale Bar 0 1 2 3 4 5 6 7 8 9 10m

Drg No: CK07 2 of 2 | Revision: A

Scale 1:200 | Date: 22/07/21



N

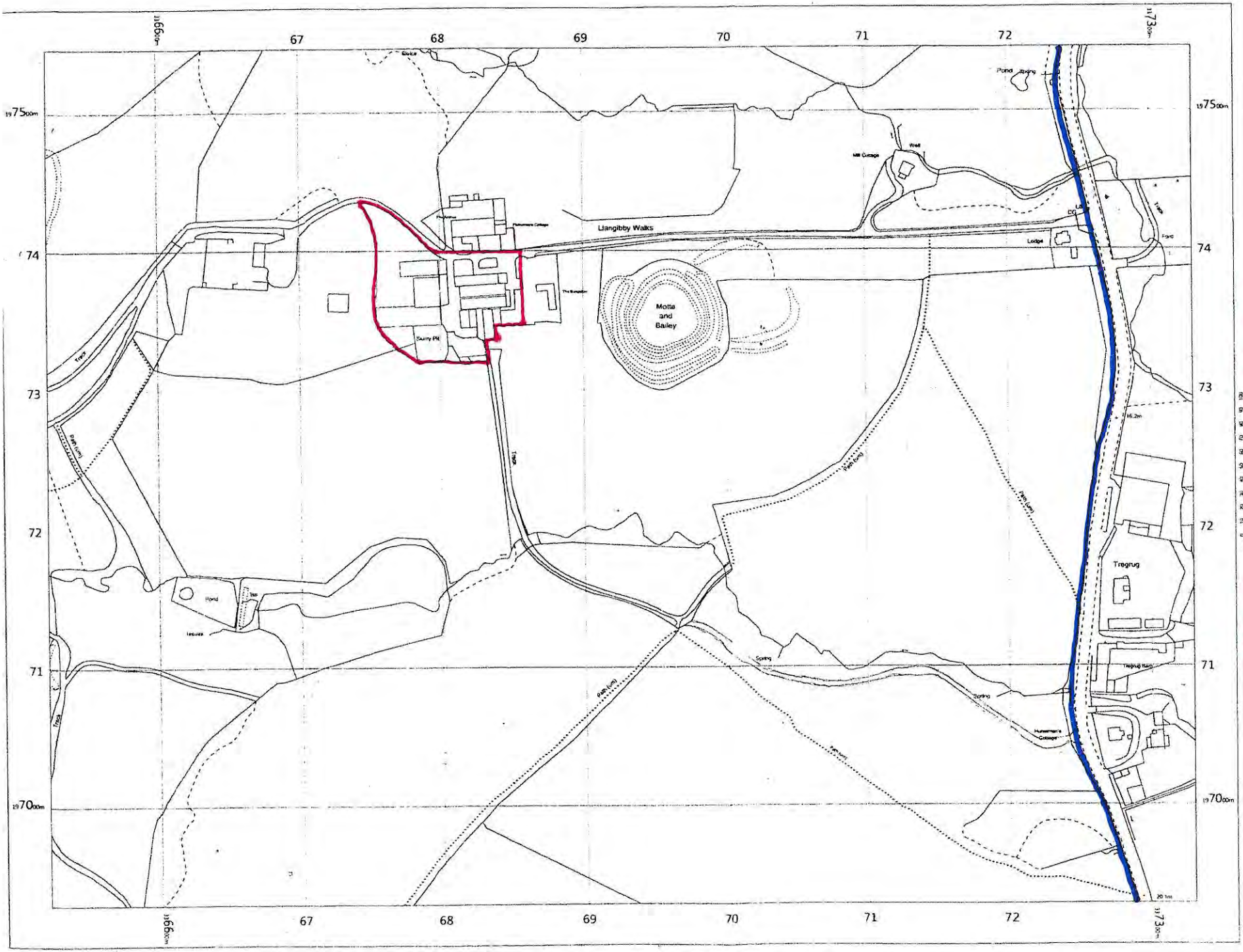
NORTH RANGE
Castle Farm
Llangibby

09 February 2023
Amendment. A.

OS MasterMap 1250/2500/10000 scale
Thursday, November 5, 2020, ID: BLIT-00914533
www.planningapplicationmaps.co.uk

1:2500 scale print at A3, Centre: 336926 E, 197238 N

blue mapping



N

SOUTH RANGE
Bull Shed,
Woodstove.

Castle Farm
Llangibby

09 February 2023

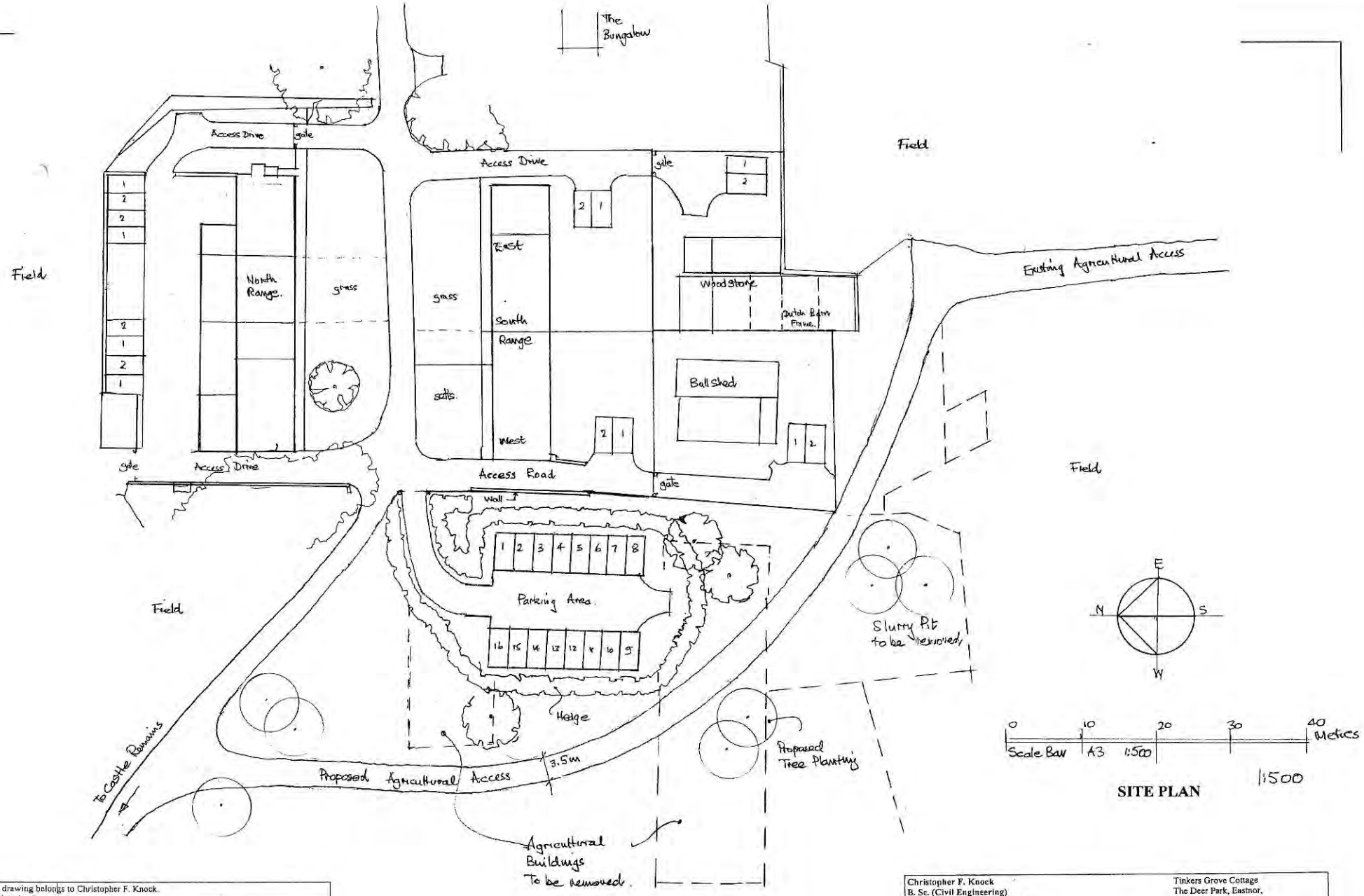
Amendment A.

OS MasterMap 1250/2500/10000 scale
Thursday, November 5, 2020, ID: BLJT-00914533
www.planningapplicationmaps.co.uk

1:2500 scale print at A3, Centre: 336926 E, 197238 N

OS Data

blue pal mapping



SITE PLAN

1:500

Date:	Revisions:	
10.04.2023	Rear North & Dutch Barn.	A
04.07.2023	General	B

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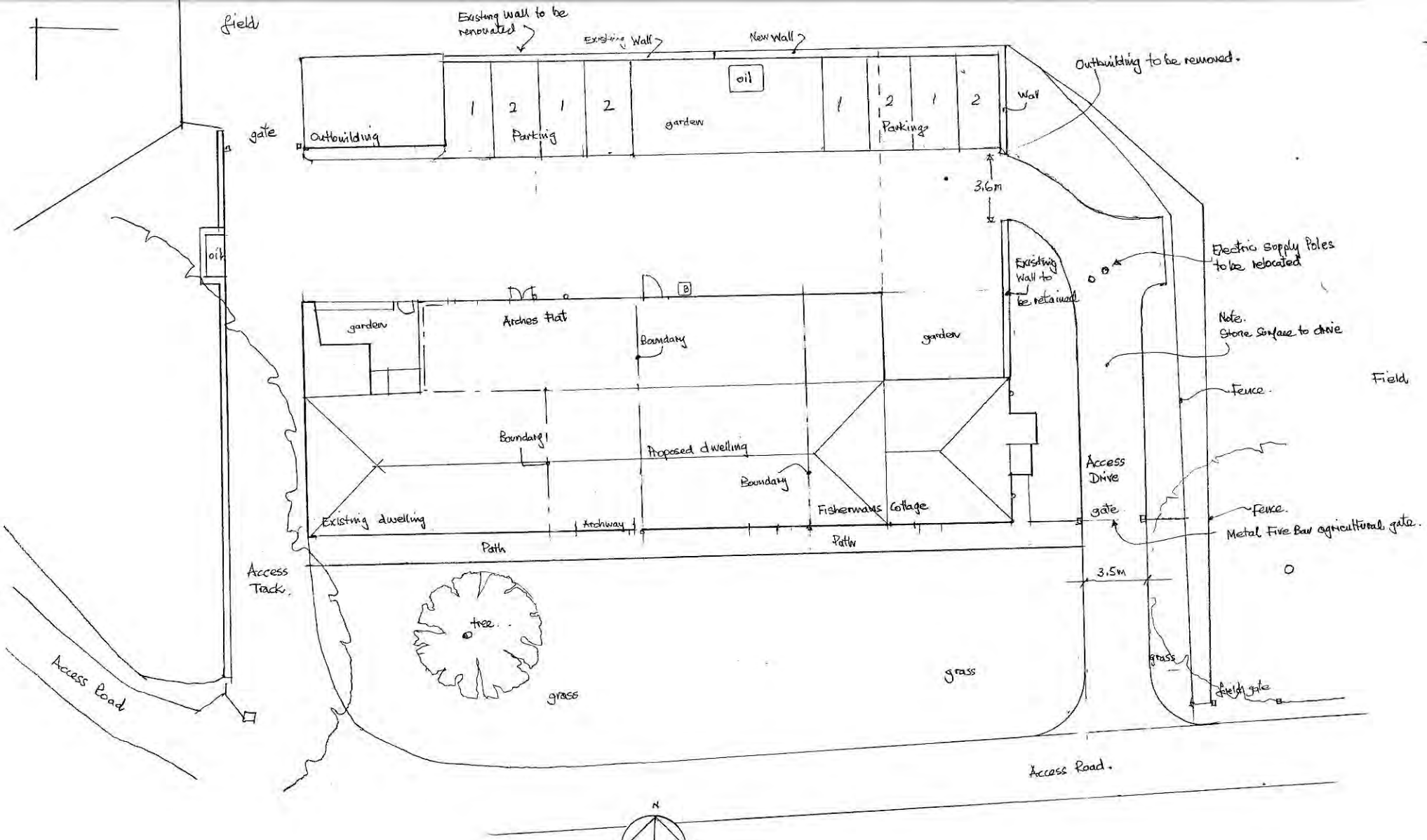
JOB TITLE: Castle Farm, Llangibby Estate, Nr. Usk, Monmouthshire NP15 1NJ
Proposed conversion of buildings to residential use and extension of agricultural access.
For Llangibby Estate c/o Mr. D. Addams-Williams.

DRAWN BY: C. F. Knock

DRAWING TITLE: Proposed extra parking area.

DATE: 7th February 2023 SCALE: 1:500. A3 DRAWING NO: **1323:1997/8/2000:01** B



SITE PLAN

1:200

Date:	Revisions:	
13.05.2022	General	A
08.02.2023	Parking.	B
10.04.2023	Gardens + Rear Yard.	C
05.07.2023	General.	D

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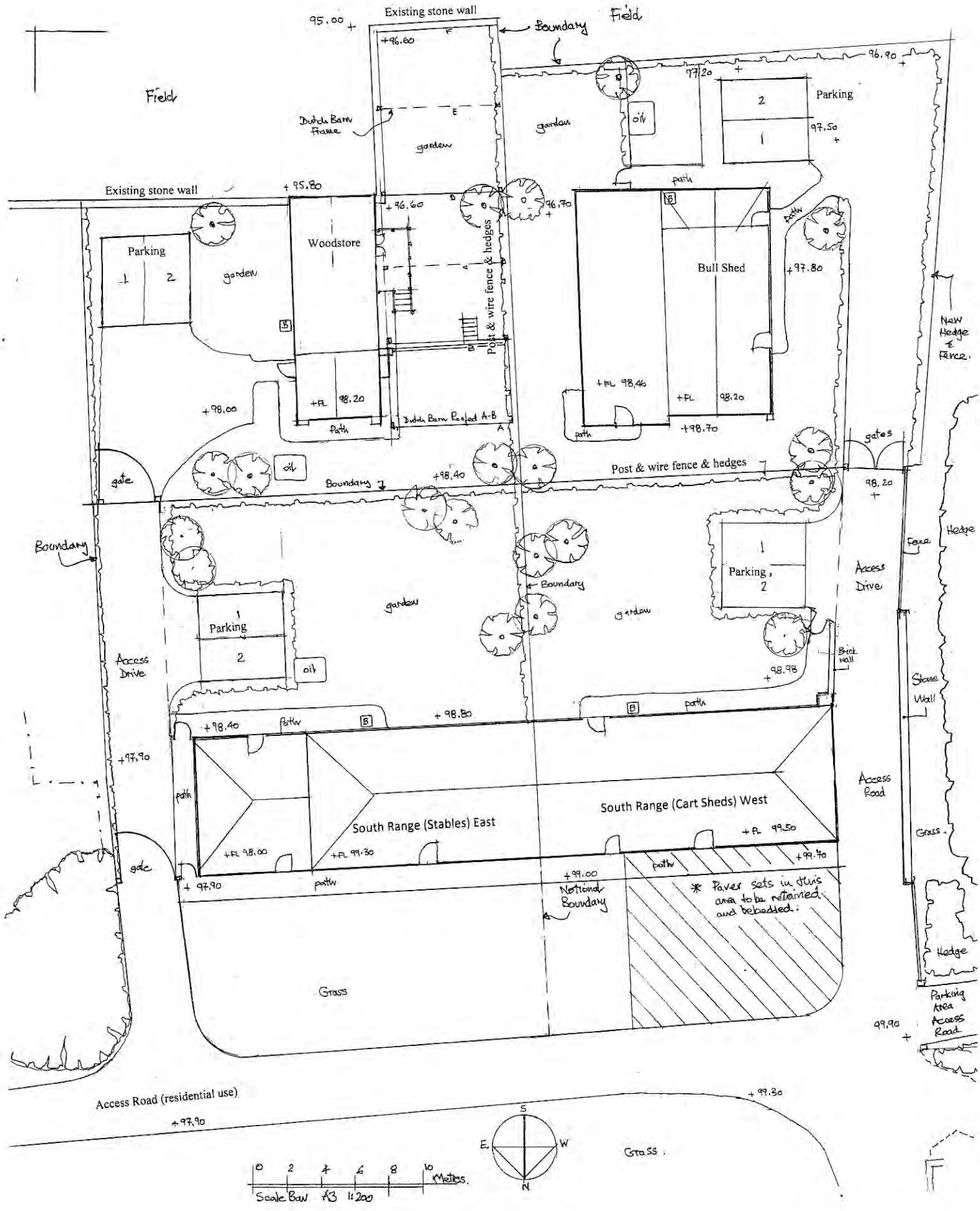
JOB TITLE: Castle Farm Stables, Llangibby Estate, Nr. Usk, Monmouthshire NP15 1NJ
Proposed conversion of part North Range of buildings to residential use
For Llangibby Estate c/o Mr. D. Addams-Williams.

DRAWN BY: C. F. Knock
DRAWING TITLE: Proposed site plan

DATE: 27th November 2021 SCALE: 1:200. A3 DRAWING NO: 1321:1998:16 D



Date:	Revisions:	
10.05.2021	General	A
07.02.2023	Parking	B
10.04.2023	Dutch Barn & Garden areas.	C
06.07.2023	General	D

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JOB TITLE: Castle Farm, Llangibby Estate, Nr. Usk, Monmouthshire NP15 1NJ
South Stable Range, Bull Shed and Woodstore
Proposed conversion of buildings to residential use
For Llangibby Estate c/o Mr. D. Addams-Williams.

DRAWN BY: C. F. Knock
DRAWING TITLE: Proposed site plan

DATE: 28th September 2021 SCALE: 1:200. A3 DRAWING NO: 1321:1997:20 D

ENVIRONMENTAL MANAGEMENT SYSTEM				CASTLE FARM, LLANGIBBY		
4.1 TRAINING RECORD						
EMPLOYEE NAME			**JOB TITLE**			

TRAINING REQUIRED	DATE DUE	DATE DONE	PASSED AS COMPETENT YES/NO	REVIEWERS SIGNATURE	DATE FOR REFRESHER	COMMENTS
Trained by manufacturer in operation of treatment plant						

AP 7.5 COMPLAINTS FORM

Ap 7.5.1 For recording complaints about your site from members of the public

5. COMPLAINTS RECORD

Who made the complaint? **Name**

Address

Tel. No.

Date and time complaint made

What happened

Was anyone else aware of this? If so, who?

If complaint relates to your site, what was the problem? If unable to find source of problem contact suitably qualified person to do so and record their name and the nature of the problem

What has been done to ensure that the probel does not recur?

Was there any significant pollution - e.g. Smell or spillage of untreated sewage into drain or watercourse? If so, Natural Resources Wales must be informed.

If there was - contact NRW on 0300 065 3000 ASAP. Has this been done?

Yes/No/Not applicable

At what time was NRW contacted?

Environment Agency incident No.

You must also write or send an email to confirm this to the local office (see accident management plant for the address). Has this been done?

Yes/No/Not applicable

Time:

Date:

AP 7.6 ACCIDENT AND INCIDENT RECORDS

6. ACCIDENT AND INCIDENT RECORD

Date and time of the incident?

What happened? What was it about?

Was anyone else aware of this - other witness? If so, who?

What caused it?

1. Power failure
2. Blockage
3. Drainage field failure

What has been done to ensure that it does not happen again?

Was there any significant pollution - e.g. Raw sewage being discharged to ground?

If so, what?

If there was then you must	Yes/No/Not applicatable
notify NRW on 0300 0653000	Date:
as soonn as possible.	EA Incident Number
Has this been done?	

Please print your name and sign:

AP 7.7 ACCIDENT MANAGEMENT PLAN

Ap 7.7.1 Key site and emergency contacts

Ap 7.7.2 Preventing accidents and what to do if they happen

ENVIRONMENTAL MANAGEMENT SYSTEM		CASTLE FARM, LLANGIBBY
7. ACCIDENT MANAGEMENT PLAN		
Created by:		**Date:**
ACCIDENT MANAGEMENT PLAN CONTENTS (ATTACHED):		
A. - Site plan		
1	Site entrance and exits	
2	Buildings	
3	Drainage	
4	Accident and emergency response items	
5	Vlnerable receptors	
6	Ground Water Risk Assessment Ve Version D	

SITE DETAILS							
Address:							
Postcode							
Sie access and grid reference:							
SITE CONTACT NUMBERS:							
	Name			**Office hours (specify)**		**Out of hours**	
Owner	Llangibby Estate					01633 450320	
General manager	Paul Long					01633 450320	
Site manager							
Siote supervisor							
Security contact							
Landowner/Agent							
EMERGENCY SERVICES				**Office hours**		**Out of hours**	
Emergency				**999 or 112 (mob.)**		**999 or 112 (mob)**	
Medical							
Police							
Fire							
REGULATORS				**Office hours**		**Out of hours**	
Health & Safety Executive (HSE)							
Local Authority MCC							
Natural Resources Wales (general)				0300 065 3000			
Environment Agency (24 emergency line)				0800 80 70 60		0800 60 70 80	
Natural England							
UTILITY AND KEY SERVICES				**Office hours**		**Out of hours**	
Treatment works maintenance contractor							
- H + H Drainage				07837 628764			
Sludge removal contractor				0845 2008421			
Electricity supplier							
Electrician							
Plumber							
OTHER KEY CONTACTS TS				**Office hours**		**Out of hours**	
Company Head office (if applicable)							
Adjacent landowners							
Neighbours							
Specialist advisors							

ENVIRONMENTAL MANAGEMENT SYSTEM		CASTLE FARM, LLANGIBBY	
C. PREVENTING ACCIDENTS AND WHAT TO DO IF THEY HAPPEN			
POSSIBLE ACCIDENT	**What harm to the environment?**	**How to reduce chance of recurrence?**	**What to do in such an event**
SPILLAGES			
Overloading of treatment works - due to inadequte size	Contamination of land, drains, groundwater and watercourses	If any changes to property ensure treatment works correct size	Follow spill response procedure
Spillage during desludging	Ensure pipe integrity and that operator observes correct desludging process		
Slow seepage of liquids	Ensure integrity of treatment works are tested and maintained to manufacturer's instructions		
FAILURE OF PLANT OR EQUIPMENT			
Release of untreated sewage due to any fault in treatment works	Contamination of land, drains, groundwater and watercourses	Visual inspection & completion of weekly inspection Preventative maintenance regime Underground pipes/ tanks to be tested for integrity	Follow spill response procedure
FLOOD			
Due to ingress of watercourse floodwater, blocked drains burst water mains, use of fire water	Contamination of land, drains, groundwater and watercourses with untreated sewage and flodwater	Ensure no surface water or flood water can enter treatment works	Follow flood procedure

FAILURE OF SERVICES			
Due to failure of supply - electricity and of sewerage system	Death of microorganisms resulting in possible subsequent contamination of groundwater and water courses	Provide alarm system on treatment works to warn ot power failure Provision of back up generator	
FAIILURE OF CONTAINMENT			
Due to land movement, impact, corrosion etc	Contamination of land, drains, groundwater and watercourses	Provision of secondary containment for hazardous liquids Inspection of primary and secondary containment facilities	Follow spill response procedure
VANDALISM			
Unauthorised entry and tampering or malicious damage to property, plant and equipment	Contamination of land, drains, groundwater and watercourses	Secure treatment works	Follow spill response procedure

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