Lower Link Farm –Environmental Management Plan - Permit No. P.05767 and P.05768

This document supersedes document 009 in first application pack

Table of contents

1.0 Introduction

Lower Link Farm is an agro-industrial site comprising a salad processing factory, packhouse, transport yard, and watercress farm.

This EMS version 3 describes the current operations and environmental impacts of Lower Link Farm and the controls put in place that are relevant to the current permit variation.

A proposed new water treatment system is detailed at the end of this document. Any proposed changes to current operations are added to the relevant sections. The aim of this manual is to promote responsible and sustainable development of Lower Link Farm.

Watercress farming is a form of aquaculture, when properly managed aquaculture can exist in harmony with nature and maintain and enhance natural surroundings while producing crops of commercial excellence. The quality of watercress crops is defined by the quality of the environment in which it is grown. Salad processing is food manufacture which involves the washing of salad leaves in spring water, drying the leaves, packing in plastic film and distribution by our lorry fleet to retailers. Hygiene cleaning is required nightly in the factory to ensure food safety compliance and all hygiene related activities are discharged to the Southern Water waste water system.

2.0 Legislation

Legislation Affecting the Site Activity	• Control of Pollution Act (1974) • Environmental Protection Act (1990) • Water Resources Act (1991) (As Amended) • Environmental Protection (Duty of Care) Regulations (1991) (As Amended) • The Controlled Waste Regulations (1992) • Noise and Statutory Nuisance Act (1993) • Pollution Prevention and Control (England and Wales) Regulations (2000) • Control of Pollution (Oil Storage) (England) Regulations (2001) • Control of Substances Hazardous to Health Regulations (2002) • Hazardous Waste (England and Wales) Regulations (2005) • The List of Wastes (England) Regulations (2005)	• Climate Change Act (2008) • The Environmental Damage (Prevention and Remediation) Regulations (2009) • Groundwater (England and Wales) Regulations (2009) • The Environmental Permitting (England and Wales) Regulations (2010) • Waste (England and Wales) Regulations (2011) • The Contaminated Land (England) (Amendment) Regulations (2012) • Waste Electrical and Electronic Equipment Regulations (2013) • Environment Act 2021

3.0 Site plans

Site ownership boundary

Permit Activities map

EA monitoring: inlets, effluent sample points & outlets map

Copy of doc 008 inlets and outlets map

Activity inlet, effluent sample point , and outlet table to accompany site maps

Activity	Map ref	Name	Monthly Lab sample ID	NGR	What3Words	Sampling compliance required?
1. Aquaculture: Watercress Growing	Inlet 1	D11 Borehole	SMB 9	SU 42671 49323	sprains.budgeted.inflame	Y - Sampling tap
	Effluent Sample point 1	D block bottom carrier watercress	SMB 8	SU 42788 49085	Amber.refrained.hairpin	N - Discrete carrier
Activity 1a	Outlet 1a	Discharge to river		SU 42792 49085	Outlooks.frantic.cooks	Carrier discharge to Bourne Rivulet
Activity 1b	Outlet 1b	Discharge to river		SU 42762 49021	Stylists.regulates.robe	Pipe discharge to Bourne Rivulet
2. Aquaculture: Watercress Growing	Inlet 2a	R block borehole 15	SMB 6	SU 42827 49101	Fingernails.linguists.nuns	Y - Sampling tap
	Inlet 2b	R Block borehole 16	SMB 2	SU 42898 48976	Testy.incomes.exams	Y - Sampling tap
Activity 2a	Effluent Sample point 2a	R block manhole	SMB 5	SU 42770 49013	Tomato.region.lump	Y drain cover - Discrete pipe
	Outlet 2a	Top pipe to river		SU 42749 48940	Gums.pounces.truck	Pipe discharge to Bourne Rivulet
Activity 2b	Effluent Sample point 2b	R Block middle chamber	SMB 4	SU 42779 48985	Permit.custom.before	Y drain cover - Discrete pipe
	Outlet 2b	Middle pipe to river		SU 42755 48932	Matchbox.sharper.definite	Pipe discharge to Bourne Rivulet
Activity 2c	Effluent Sample point 2c	R Block chamber	SMB 14	SU 42801 48948	Poetry.pointed.myself	Y drain cover –

		south of BH1				Discrete pipe
	Outlet 2c	Lower pipe to river		SU 42760 48922	Informed.gurgling.spud	Pipe discharge to Bourne Rivulet
3. Aquaculture: Watercress Growing	Inlet 3	C Block borehole 10	SMB 10	SU 42722 49346	Loudness.basket.ember	Y - Sampling tap
	Effluent Sample point 3ab	B Block carrier	SMB 11	SU 42981 49236	Finds.dove.catchers	N- Discrete carrier
Activity 3a	Outlet 3a	Open culvert to eastern channel		SU 43020 49227	Stables.slamming.lifeboats	B block discharge to eastern channel
Activity 3b	Outlet 3b	Pipe to eastern channel		SU 43021 49221	Cove.meatballs.camps	Pipe discharge to eastern channel
Activity 3c	Effluent Sample point 3c	E Block end carrier	SMB 1	SU 42941 48977	Saunas.exist.earphones	N – Discrete carrier
	Outlet 3c	Culverted pipe to eastern channel		SU 43017 48994	Alleyway.minute.puppy	Pipe discharge to eastern channel
4. Vegetable washing	Inlet 4a	Factory Borehole 1	SMB 3	SU 42791 48966	Form.dislikes.stand	N - Sampling tap
	Inlet 4b	Factory Borehole 2	SMB 7	SU 42816 49096	Trials.encodes.upwardly	N - Sampling tap
	Effluent Sample point 4a	Pipe to B11 or B12	SMB 13	SU 42877 49318	Imported.processor.beaters	Mobile pipe to B11 or 12
	Effluent Sample point 4b	Bottom B11	SMB 12	SU 42919 49207	Nobody.shell.transmits	N – walkway required
Activity 4	Outlet 4	Factory discharge to eastern carrier (brown pipe)		SU 43028 49209	Savers.knocking.reprints	N - Discrete pipe
	Site drainage					

	All roof water and carpark site drains are mapped and colour coded according to where they flow. All drains to surface water have witches' hats oil and sediment filters. Oil and fuel interceptors are marked in orange on the map below.

Site drainage map

See Document 007 V3 Water map.pdf to zoom in on map

4.0 Permitted Activities LMC update

There are 9 activities subject to permitting.

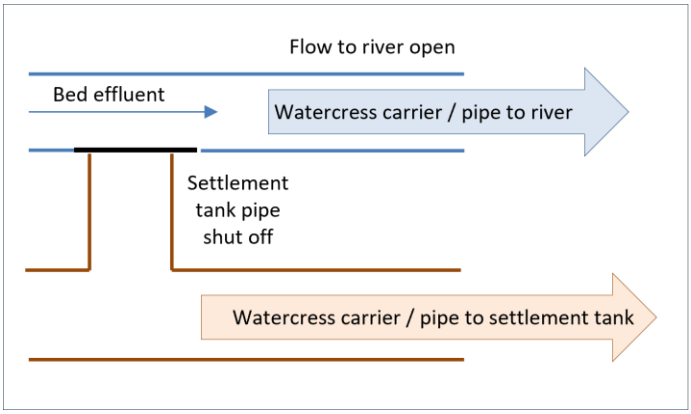
- Activities 1a, 1b, 2a, 2b, 2c, 3a, 3b, and 3c: Aquaculture: Watercress Growing
- Activity 4: Vegetable Washing

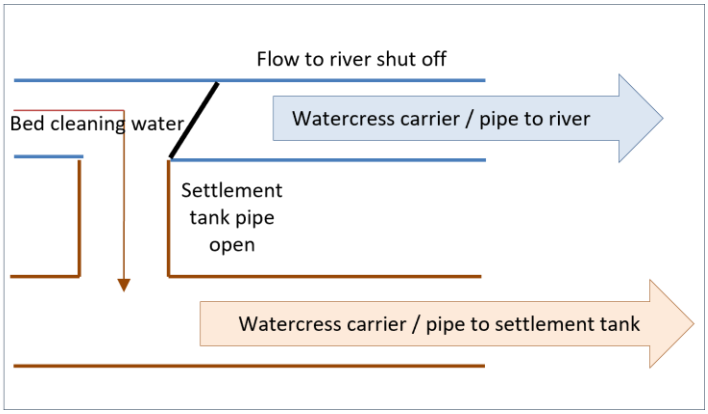
Eight activities are under the category of Aquaculture: Watercress Growing; and one activity is under the category of Vegetable washing. Sections 5 and 6 describe these two activity categories. Section 7 onwards applies to the site as a whole.

5.0 Activities 1a, 1b, 2a, 2b, 2c, 3a, 3b and 3c: Aquaculture: watercress growing

There are 3 activities under this category. A description of the activity is provided below followed by descriptions of watercress growing that applies to all aquaculture activities. There will be times when watercress beds are not in operational and will therefore be dry.

It is important to understand that the sampling points are located at discrete points to ensure a sample of watercress bed effluent is obtainable. However, the water system at Lower Link Farm is interconnected. Therefore, when beds are being cleaned the effluent passing the sample point will be diverted to the farm settlement tank and not discharged at the permitted outlet. The farm settlement tank pipework is accessed by shutting off the water route to the river and opening the pipe to the settlement tank - this is shown in the diagram below. At these times it will not be possible to take a sample due to the water being 'dirty' and not representative of water discharge to the receiving water.

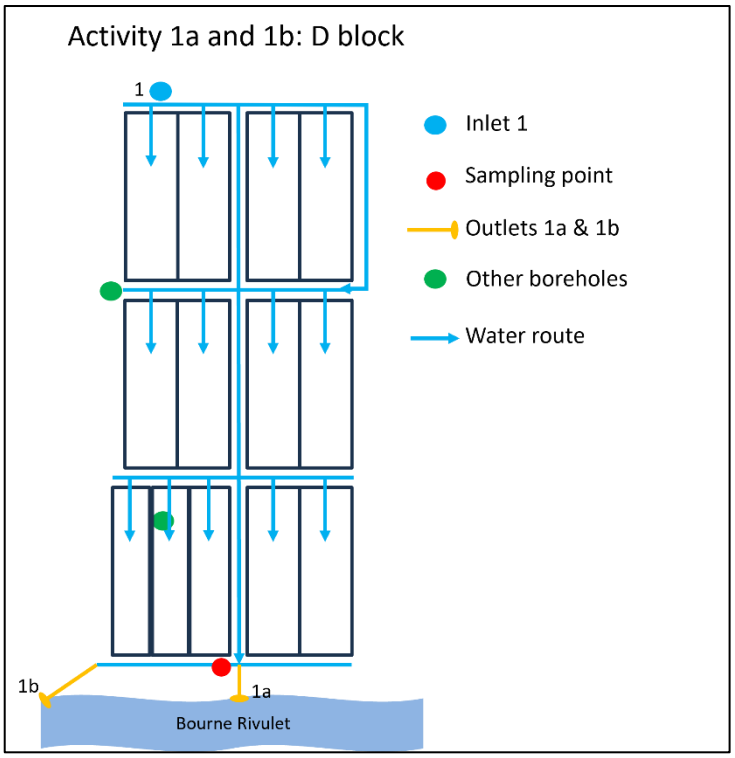




Activity 1a and 1b: D block watercress beds

Water is abstracted from borehole D11 – Inlet 1. From here it flows through D block watercress beds to irrigate the watercress. It discharges through 2 outlets which are Activity 1a and Activity 1b.

- Outlet 1a (SU 42792 49085) is an open channel at the bottom of the D block bed system discharging into the Bourne Rivulet.
- Outlet 1b (SU 42762 49023) is a pipe at the western end of the bottom of the D block bed system discharging into the Bourne Rivulet.



The effluent sample point is in a discrete carrier at the bottom of D block (SU 42788 49085). It is representative of the discharge at both outlets as all watercress beds in that block are subject to the same growing techniques.

Inlet 1 is borehole D11 (SU 42671 49323). The inlet is representative of the activity in D block. Borehole D11 is within the same abstraction area as the other 2 boreholes that provide water to D block. All the boreholes are of similar depths between 40 and 50 meters.

Activity 2a, 2b and 2c: R block watercress beds

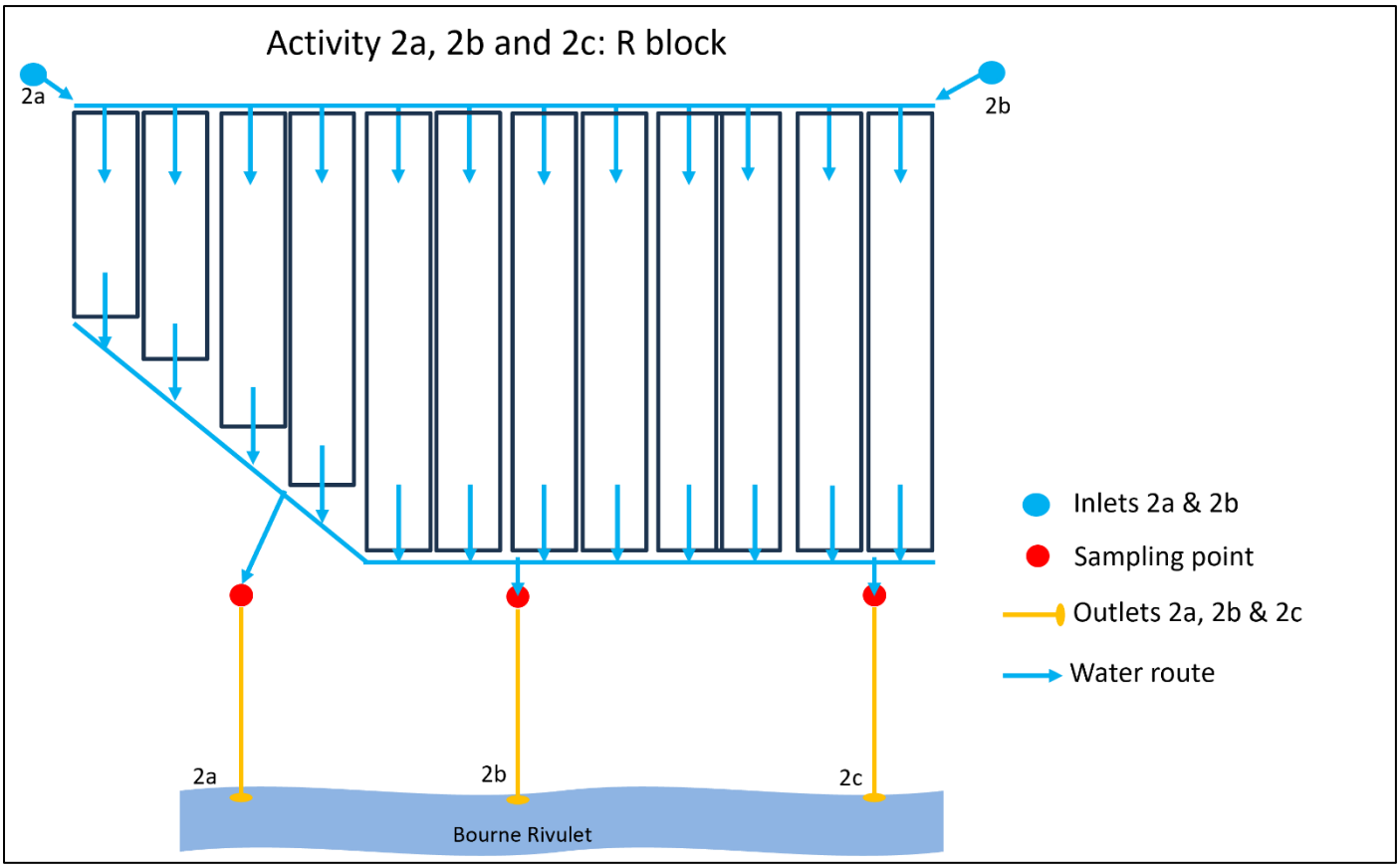
Water is abstracted from either R block borehole 15 – Inlet 2a - or R block borehole 16 – Inlet 2b. From here it flows through R block watercress beds to irrigate the watercress. It discharges through 3 outlets which are Activity 2a, 2b, and 2c.

- Outlet 2a (SU 42749 48940) is pipe discharging into the Bourne Rivulet.
- Outlet 2b (SU 42755 48932) is pipe discharging into the Bourne Rivulet.
- Outlet 2c (SU 42760 48922) is pipe discharging into the Bourne Rivulet.

There are 3 effluent sample points. It must be noted that water from any part of R block can enter any of these effluent sample points. All 3 effluent sample points are representative of the discharge at all 3 outlets as all watercress beds in that block are subject to the same growing techniques.

- Effluent sample point 2a (SU 42770 49013) is a chamber where water from R block beds enters via a pipe. The pipe flow from the pipe allows for a discrete sample prior to discharge to Outlet 2a.
- Effluent sample point 2b (SU 42779 48985) is a chamber where water from R block beds enters via a pipe. The pipe flow from the pipe allows for a discrete sample prior to discharge to Outlet 2b.
- Effluent sample point 2c (SU 42801 48948) is a chamber where water from R block beds enters via a pipe. The pipe flow from the pipe allows for a discrete sample prior to discharge to Outlet 2c.

Inlet 2a is borehole R15 (SU 42827 49101) and Inlet 2b is borehole R16 (SU 42898 48976). These inlets should be sampled according to which borehole is pumping on the day. Both inlets are representative of the activity in R block. Boreholes R15 and R16 are within the same abstraction area and of similar depths between 40 and 50 meters.



Activity 3a, 3b and 3c: B, C and E block watercress beds

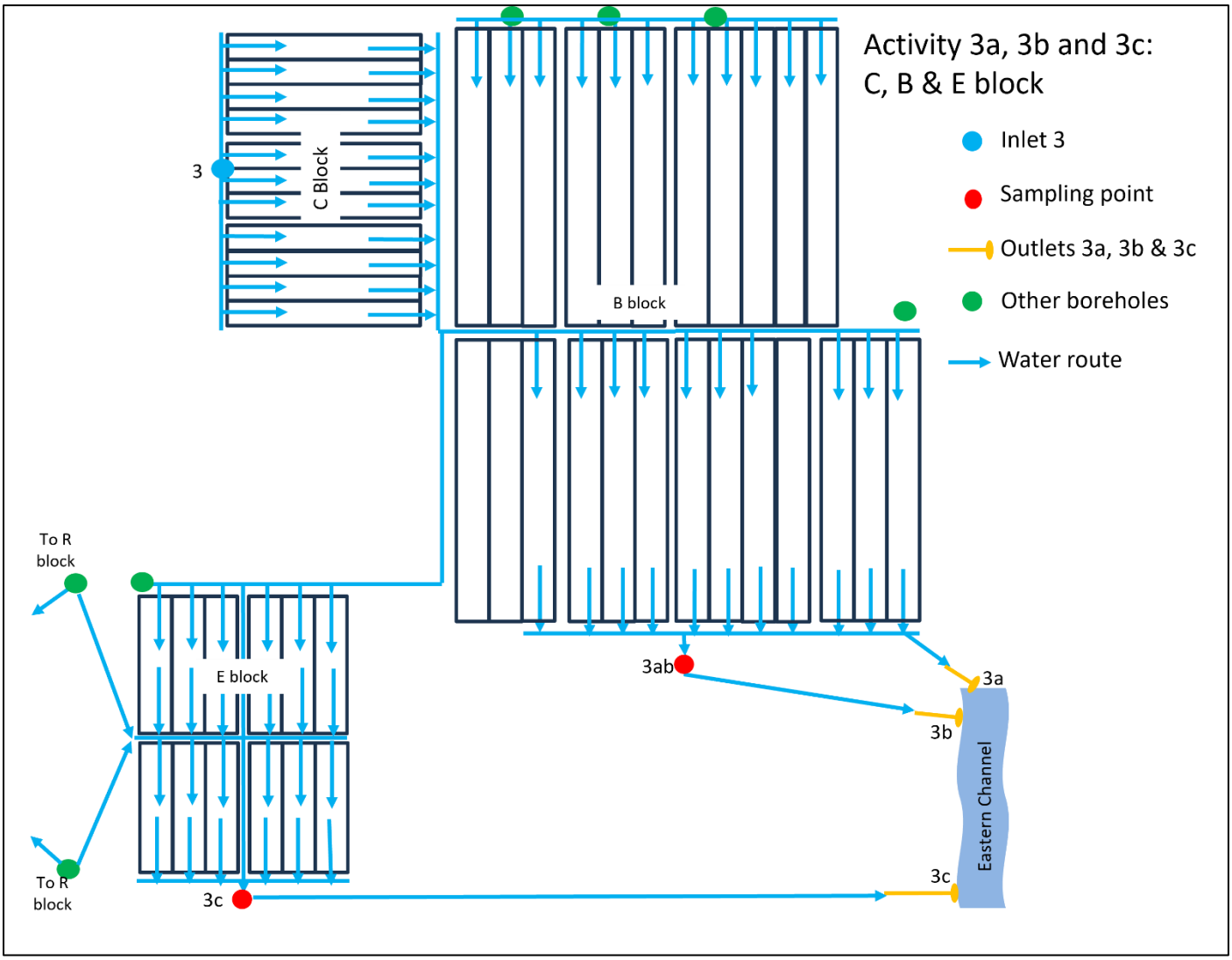
Water is abstracted from borehole C10 – Inlet 3. From here it flows through C block, B block and E block watercress beds to irrigate the watercress. It discharges through 3 outlets which are Activity 3a, 3b, and 3c.

- Outlet 3a (SU 43020 49227) is an open culvert from B block discharging into the Eastern Channel.
- Outlet 3b (SU 43021 49221) is pipe from B block discharging into the Eastern Channel.
- Outlet 3c (SU 43017 48994) is pipe from E block discharging into the Eastern Channel.

There are 2 effluent sample points that are representative of the water used to grow watercress in blocks C, B and E. Both effluent sample points are representative of the discharge at all 3 outlets as all watercress beds in the related blocks are subject to the same growing techniques.

- Effluent sample point 3ab (SU 42981 49236) is a discrete carrier that represents watercress growing in C and B blocks prior to discharge to Outlet 3a and Outlet 3b.
- Effluent sample point 3c (SU 42941 48977) is a discrete carrier that represents watercress growing in C and E blocks prior to discharge to Outlet 3c.

Inlet 3 is borehole C10 (SU 42722 49346). This inlet is representative of the activity in C, B and E blocks. The boreholes are within the same abstraction area as the rest of the farm and are of similar depths between 40 and 50 meters.



Other information on Aquaculture: watercress growing activities

Gravel washing and storage

Crop residue removed during the cleaning down of beds is taken to the concrete pad in the gravel washing area on the site. It is loaded into the on-site gravel washer. The washing separates the crop residue from any gravel. The gravel washer is currently not operational (June 2024). It will be connected to the Trade Effluent system for the wash water, and the green waste will be removed from site by our waste contractor.

General site management and maintenance

The farm is maintained as below for watercress growing operations.

General maintenance of the whole site involves the mowing of grass and repair of tracks, carparks, drain tags and cress bed walls, if required.

Chemicals used for Aquaculture: watercress growing

All chemicals are stored in a bunded containers and are audited on an annual basis to assess compliance.

Name	Type	Use
Eco-base	Fertiliser	Base dressing on watercress beds
Fibrophos	Fertiliser	Base dressing on watercress beds

Eco +	Fertiliser	To dressing on watercress beds
Roundup non-bio	Weed control	General site maintenance
Diesel (red)	Fuel	Farm machinery
Jet 5	Cleaner	Harvesting machinery – not to watercourse

Chemicals not used on the farm

- Zinc (zinc may be present as an impurity on the fertiliser)
- Ammoniacal nitrogen

6.0 Activity 4: Vegetable washing

There is one activity under the category of vegetable washing.

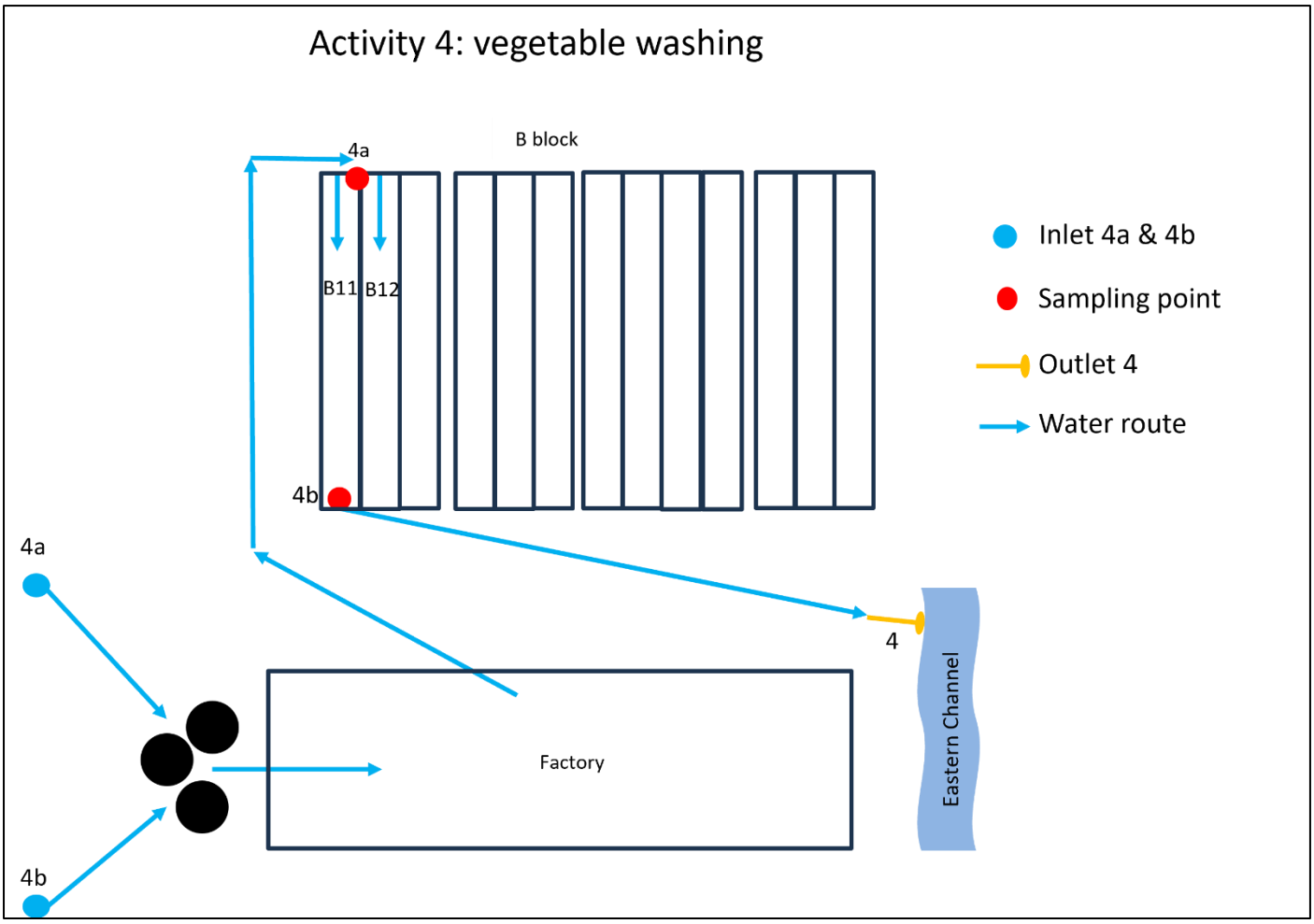
Water is abstracted from either Factory Borehole 1 – Inlet 4a - or Factory Borehole 2 – Inlet 4b. It is used in the factory to wash leafy salads. From here it is pumped to 3 holding tanks that supply the factory. The water is drawn into the factory to wash salads. Once the water has been used it is discharged across screens to remove leaf matter and then pumped into 2 sacrificial watercress beds, B11 and B12. It flows through these beds across three weirs where sediment drops out. At the bottom of these beds the water is then pumped to the eastern channel where it is discharges through Outlet 4 which is Activity 4.

- Outlet 4 (SU 43028 49209) a pipe discharging to the Eastern Channel

There are 2 effluent sample points that are representative of the water used in the factory for vegetable washing where it discharges and then after it has flowed through sacrificial watercress beds to deposit sediment.

- Effluent sample point 4a (SU 42877 49318) is a mobile pipe that can be moved between the top of sacrificial beds B11 and B12 and represents water used for washing salads.
- Effluent sample point 4b (SU 42919 49207) is a discrete pump area at the bottom of sacrificial bed B11. It represents factory water that has run the sacrificial beds B11 and B12 where sediment will have been dropped out.

Inlet 4a is Factory Borehole 1 (SU 42791 48966). Inlet 4b is Factory Borehole 2 (SU 42816 49096). Either one of these boreholes could be running so samples should be taken from both or whichever is running at the time. The inlets are representative of the activity the factory and the boreholes are within the same abstraction area as the other boreholes on the site. All the boreholes are of similar depths between 40 and 50 meters.



Other information on vegetable washing activity

All chemicals are stored in bunded containers and are audited on an annual basis to assess compliance. Factory chemicals are discharged through the trade effluent system under a Southern water discharge consent.

7.0 Flood management

According to the "Flood map for planning" (EA, 2019b) much of the site is within Flood Zone 3, an area with a high probability of flooding. In years with high groundwater levels the lower end of the northernmost watercress beds in B and C Blocks can become inundated with groundwater. The last known flooding to have occurred at the site was in 2024 when the Bourne Rivulet over-topped and D and R Blocks were flooded.

Land within Flood Zone 3 has an annual probability of flooding greater than 1.0 % from rivers. Land within Flood Zone 2 has an annual probability of flooding of between 0.1% and 1.0% from rivers. As part of the farm Growing Site Risk Assessment, flooding has been deemed as low risk. Any flooding on site will impact the crop and not the environment. In times of high groundwater, the Bourne Rivulet can rise above its banks at the lower end of D block watercress beds and at the top part of the farm where the river flows through a culvert. This situation is managed using sandbags to prevent water flowing into the watercress beds. Weed cuts are also undertaken throughout the year to reduce the risk of fluvial flooding.

The majority of the factory and hardstanding is located within Flood Zone 1. Land within Flood Zone 1 has little or no flood risk, with an annual probability of flooding of less than 0.1% from rivers or the sea. The factory site has never been flooded.

8.0 Training and competence

Training	Description	Competence	Qualification
Agronomy	We are Leading Standard with regard to our Agronomy.	UK Senior Farm Manager has completed a BASIS Diploma in Agronomy, which includes BASIS, FACTS and Nutrient Management	BASIS and FACTS Qualified and on the Professional Register.
Spills Training	Learning to recognise and deal with spills	Farm Manager Farm operatives Factory and yard operatives	In house training & Arco 1 day spills response course
Farm Operations	SOPs & WIs for farm operations including bed cleaning etc	Farm Manager Farm operative	In House training
Facilities Operations	Cleaning, grass cutting and landscaping	Facilities operatives	In house training
Spraying ticket	To use herbicides and pesticides	Farm Manager Farm operative Facilities	NPTC PA1 Safe use of pesticides NPTC PA6A Safe application of pesticides handheld equipment
Pest control	Use of rodenticides, hawks, guns, baits	Ecolab Farm Manager External contractors	Contractors and staff have the appropriate qualifications and game licenses
Forklift	Use of forklift for suitable operations	Farm Manager Yard operatives Factory operatives	The Provision and Use of Work Equipment Regulations 1998 (PUWER) required adequate training
Tractor handling	Competence	Farm Manager Farm operatives	LANTRA tractor driving certificate or equivalent
Chainsaw		Farm operative Facilities operatives	NPTC/ LANTRA L2 crosscut and chainsaw maintenance

9.0 Record keeping

Weekly records are kept by the Farm Manager and Farm Department for bed cleaning, settlement tank cleaning, planting, fertilising, and harvesting.

A water quality database is held by the HSE department. This database is used to record monthly sampling and to understand trends. Aquatic biological sampling reports are also maintained by the HSE dept. Factory Hygiene records are held by the hygiene and technical teams.

10.0 Incidents and Emergencies

Chemical pollution

In the event of a potential pollution incident, emergency spills procedures to stop pollution of surface water will be carried out by trained staff while the cause of the spill is determined.

Sediment pollution

In the event of sediment release the causational operations would cease, and the situation monitored. If the farm settlement tank has capacity then waters will be diverted to that facility while the incident is being addressed.

Recording and monitoring of pollution events

The company uses the ASSURE system to log incidents and near misses and monitor the actions created during the investigations. The entire incident and action history for that event is saved for future reference on the system, after closure of the incident.

Monitoring of pH is undertaken by 3 probes located across site, providing real time monitoring of pH to act as an alert of any potential issues. The probes will alarm trained staff if pH breaches low and high parameters of 6 and 9.

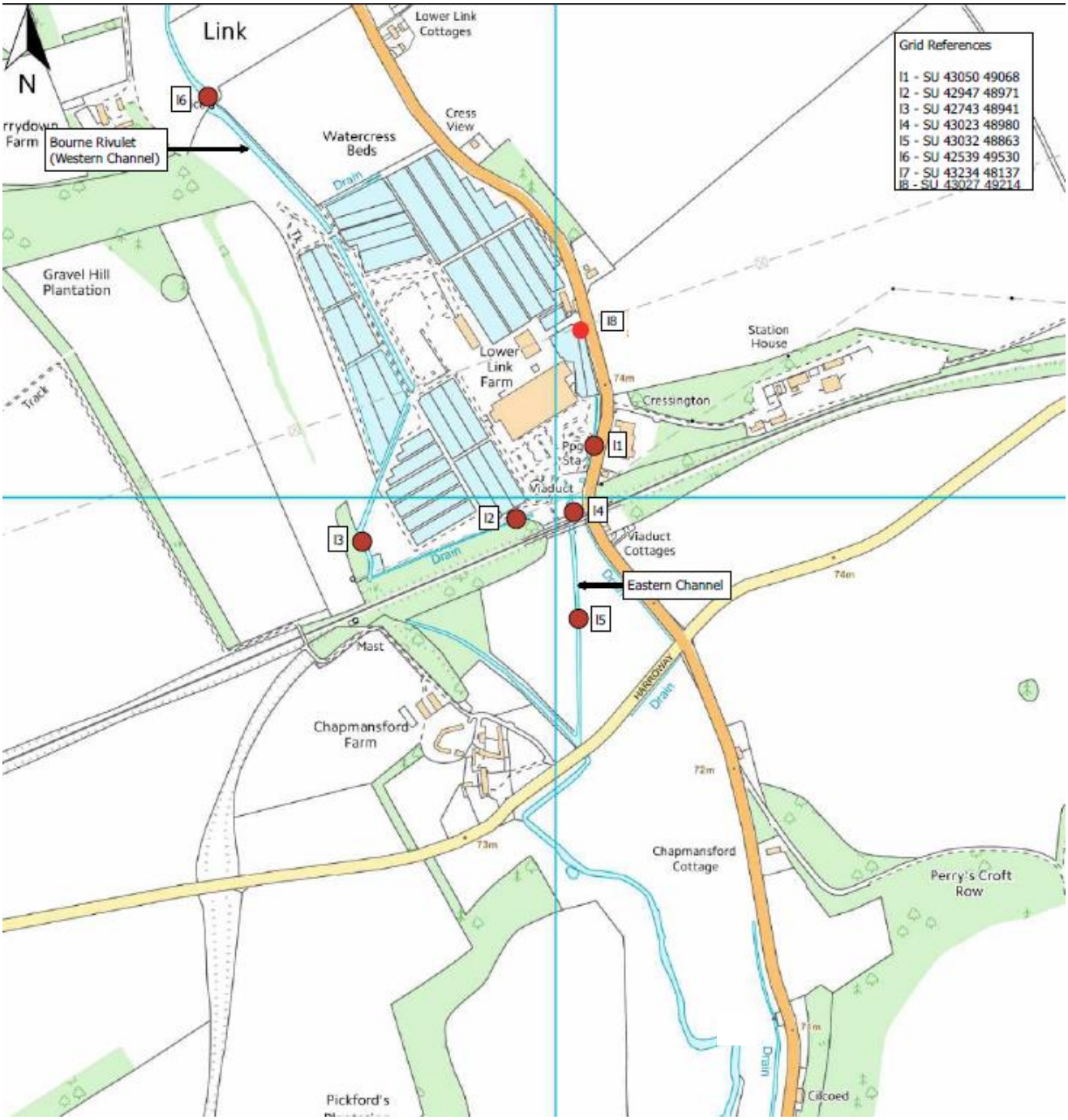
Environmental fire procedures

In the event of a fire or other potentially harmful event, the Vitacress Salads fire action form and incident management plan would be activated. It is clearly stated in the fire evacuation procedure that all surface water drains must be covered, and the area is bunded if fire tackling is carried out, to avoid pollution of the surface waters.

11.0 Monitoring

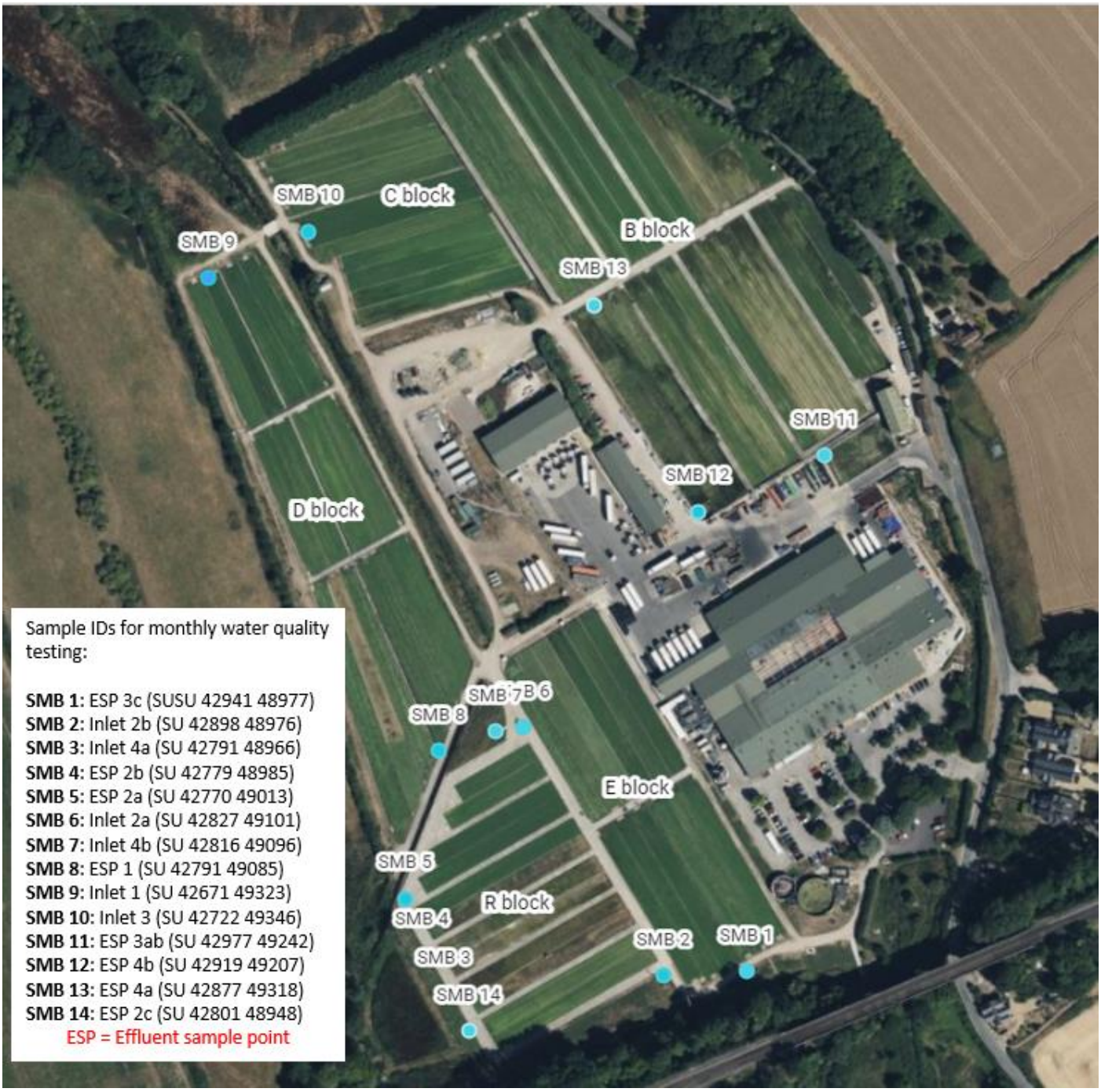
Aquatic biological

Spring and autumn aquatic biological sampling are carried out each year by an independent consultant. Seven sampling points (shown in red below) are surveyed across the Bourne Rivulet and the eastern channel above and below the viaduct. The target indicators are an ASPT score of 5.0 or above and the relative abundance of Gammarus at 500 or above. Results and raw data are shared with wider stakeholders.



Monthly non micro water testing

Monthly water quality testing is carried out on all watercress farms across the business. Samples are taken from inlets and outlets on the farms to give a wide range of data matching the permitted inlet and outlets. Samples are sent for testing to i2 Analytical laboratory. On receipt of the results, they are recorded and analysed by the environment staff and any unusual results are flagged to the growing teams for further investigation. The database is available to view at Vitacress Salads offices in St Mary Bourne. The database contains data from all our watercress farms in Hampshire and Dorset. To supplement our results, we also regularly consult and monitor the WIMS database of Environment Agency results.



Components tested for monthly:

- PH
- Conductivity @ 20deg.C

- Phosphate (ortho as P)
- Ammoniacal Nitrogen as N (not added by Vitacress but included to provide water quality information)
- Nitrate No3
- Nitrate No2
- Total Oxidised Nitrogen as N
- Suspended Solids, Total
- Iron (dissolved)
- Magnesium (dissolved)
- Potassium (dissolved)
- Zinc (dissolved) (not added by Vitacress but included to provide water quality information)
- Iron
- Phosphorus
- Zinc (not added by Vitacress but included to provide water quality information)
- Magnesium
- Potassium

The Environment Agency also takes monthly samples from the current discharge points (under Consent to discharge P.05767 and P.05768) for D, block, R Block, Factory Borehole, Parabolic screens and Eastern Channel to monitor compliance with the Consents. The EA will take samples from the Inlet and effluent sample points identified in this EMS once the new permit goes live.

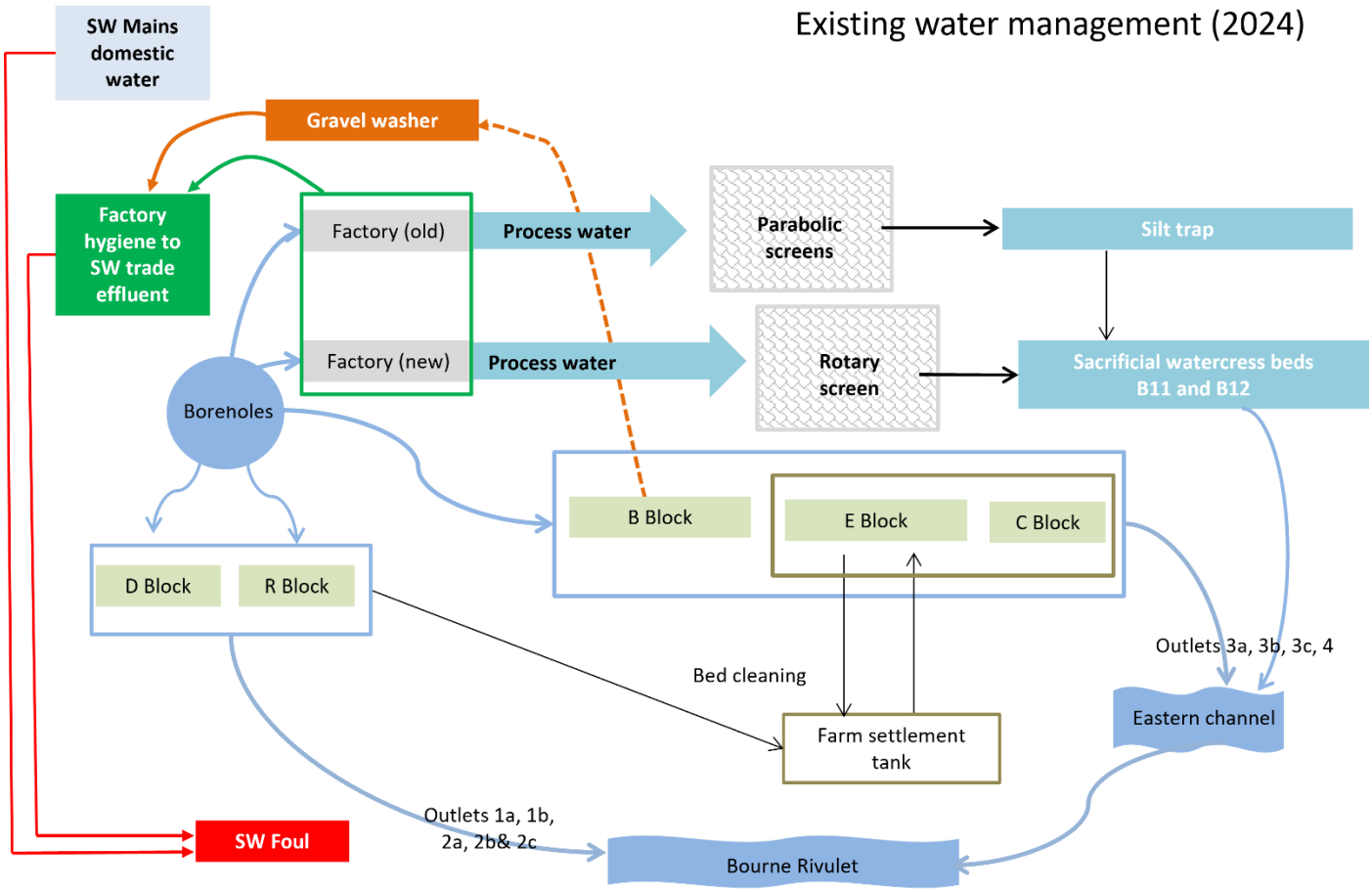
Pesticides

VSL has undertaken extensive monitoring for pesticides in salad wash water between January 2022 and December 2022. The sampling plan, methodology and results are in documents 004 and 005.

12.0 Operating Technique – Existing Water Management

Lower Link Watercress Farm is operated by a dedicated farm manager, and the factory is managed by the Head of Operations. There are currently two Consents to Discharge. Permit P.5767 with outlet at NGR SU4276 4892 is used for the discharge of watercress effluent to the western Bourne Rivulet; and permit P.5768 with outlet at NGR SU43013 48996 is used for the discharge of watercress effluent, site drainage, and vegetable wash effluent to the eastern Bourne Rivulet. This application will combine both of these into one environmental permit for the Lower Link site for the permitting of 8 activities for aquaculture: watercress growing, and 1 activity for vegetable washing as described in section 5 and 6.

Water routing at Lower Link Farm



13.0 Operating Technique - Suspended solids and sediment management (release)

Current factory water (activity 4: vegetable washing) and sediment management

Factory and farming operations may result in sediment being present in the water. At Lower Link Farm water from activity 4: vegetable washing in the factory is discharged to the eastern channel. There are two systems operating at Lower Link. From the 'Old Factory' vegetable washing water passes across 2 parabolic screens to remove any remaining leaf and then passes across a silt trap to allow larger sediment particles to settle out. From the silt trap the water is then pumped to the sacrificial watercress beds B11 and B12. From the 'New Factory' vegetable washing water passes across a rotary screen to remove leaf particles, and this joins the Old Factory water prior to entering sacrificial watercress beds B11 and B12. The combined water then flows through B11 and B12, each of which have a series of 3 weirs that slow the water and allow remaining finer sediment to settle out, before being pumped from the bottom of the beds to the eastern channel through Outlet 4 . The water from the remaining watercress beds in B block and some of C block flows into the eastern channel via Outlet 3a. Factory and watercress effluent flows down the eastern channel where it merges with effluent from E block and the C block. This water continues to flow down the eastern channel under the viaduct in the south of the site.

The discharge consent P.5768 (eastern channel) has a condition of 20mg/l for suspended solids.

Current watercress water (activities 1a to1b, 2a to 2c, and 3a to 3c: aquaculture: watercress growing) and sediment management

Bed cleaning

Bed cleaning has 2 stages: clean down and wash down. Both activities divert water to the farm settlement tank to prevent any sediment entering the receiving watercourse. The settlement tank must have capacity to accept dirty water.

> **Step1: Clean down.** Crop residue is removed from the bed using a tractor with front forks (any gravel attached to the root of the plant will also be removed) and deposited into a trailer.
>
> **Step 2: Wash down.** The bed is washed bed down using sufficient water and a tractor with roller or rake to move all the sediment into discharge course. Once the last of the dirty water has entered the discharge flow to the settlement tank the operator will follow it to sluice. When the water is clear then the flow can be diverted back to discharge directly to the watercourse.

Carrier and bed wall cleaning is carried out at the same time as the bed cleaning operation to ensure any debris is directed into the settlement tank.

The water in the settlement tank is allowed to settle out any sediment before being released. To be released the water must contain less than 20mg/L of suspended solids. This process takes a minimum of 12 hours. The discharge is checked against the sample of 20mg/L on every release. The clean water from the tank is pumped to the watercress beds in E and C block. It irrigates the watercress in these beds and deposits any remaining finer sediments before direct discharge to the receiving waters of the eastern channel.

Levelling

Levelling the bed is required to ensure that watercress can be planted on an even surface with a low fall that will allow water to dissipate evenly across the bed to ensure all plants are irrigated. Water flow into the cress bed that is to be levelled is minimised. Some water must remain in the bed to allow the operator to identify depressions that form puddles. Clean gravel is added to these depressions prior to levelling. Levelling is carried out using a tractor and rake either by eye (depending on experience) or by laser.

Base dressing (see also nutrient management)
Once levelling has been completed a base dressing of fertiliser is applied (see nutrient management). Application is carried out by hand or tractor mounted fertiliser spreader. The bed is then rolled with a tractor and roller for an even finish.

Planting

Seedlings
Watercress seedlings are machine planted with a set density of seedlings per square metre.

Direct sowing
Watercress seeds are applied directly to the bed using a drop seeding applicator at a set density.

Top dressing (see also nutrient management)
Approximately 7 - 10 days after planting a top dressing of fertiliser is applied to the beds. After another 7 - 10 days another top dressing is applied if the farm manager deems it necessary for the health of the crop. Application is carried out by hand or quad-mounted fertiliser spreader.

Chipping and harvesting
Both operations are carried out by machines. Water flowing into the beds is minimised prior to harvesting and chipping. Harvesting uses a Morrish Harvesting machine and chipping is by bespoke machine.

Settlement tank cleaning
The settlement tank is cleaned 2 – 3 times per year starting in autumn when farm operations have ceased and then around May and/or June. Water from the bed cleaning process is allowed to settle to allow sediment to drop out. The resulting clean water is then recirculated through watercress bed blocks C and E prior to discharge to the eastern channel. The remixing sediment in the tank is removed by contractors using tankers and taken off site. The settlement tank was installed in the early 1990s.

Nutrient Management (Management of Plant Nutrition in watercress growing systems)
VSL Watercress sites operate a stable approach to fertility within their watercress beds to maintain a healthy crop, which will in turn minimise the incidents of pest and disease.

This is achieved by creating a base fertility level to counter fluctuations in crop demand. However, situations will occur when supplementary fertiliser is required for crop growth, shown as visible crop deficiency. This requirement will depend on the climatic/environmental conditions prevailing during growth of the watercress crop and the stage of growth.

Environmental conditions will undoubtedly affect the growth of the watercress crop, more so during the period from winter to spring when conditions are cold and the nutrients within the water source are less available to the growing crop. This also coincides with young seedling crops, which whilst establishing themselves within the bed, lack the root system to draw the nutrients from the water essential for plant development.

Seedling crops planted at any period within the year, will suffer from the problem of root development to some extent regardless of climatic conditions, although it is worse earlier in the year, therefore a level of supplementary fertilisers is required at planting out of a new crop, at all cases to ensure adequate development of the plants.

Due to the nature of watercress crops growing extremely fast and the medium in which they are grown, any nutrient deficiency, that may be predicted, due to the plants state of growth, environmental conditions or plant analysis, will need to be treated ASAP so that the crop may reach the quality standards required by the customer.

It has been shown over several seasons of commercial production that watercress crops can be successfully grown from a returning regrowth crop during late summer and early autumn without the need for any supplementary nutrients, plant growth is simply sustained from the ground water that is added to the crop.

Fertiliser Application Records are completed weekly, by the Growing Management. These are collected and audited against our requirements the Watercress Assistant Manager.

We operate a comprehensive regime of water testing. Samples are collected on a monthly basis, from all inlet and outlet points on the Farm. These are sent for testing at the i2Analytical laboratory. On receipt of the results, they are circulated within the business for detailed analysis and comment by the Growing Team and our FACTS trained technical staff. Data is mapped to show trends and all data, and all historical information is kept for reference.

14.0 Environmental Impacts Plan and Controls

Site	LOWER LINK FARM
Site Activity	WATERCRESS FARM
Permit	P.5767, P.5768

List all Processes / Activities / Equipment at the site. **If the process/activity/equipment can result in an environmental impact listed adjacent (under normal or abnormal operation) this is assigned a High (H), Medium (M) or Low (L) impact.**	**Emissions to Water**
Extraction/movement of watercress bed gravel	L
Cleaning of watercress beds	M
Fertilisation/ application of chemicals at watercress beds	L/M
Extraction of groundwater for watercress growth	-
Cleaning of Settlement Tank	L
Planting of Seedlings	L
Rolling of the Crop	-

TABLE 2.2 – EMISSIONS TO WATER (E.G. FROM WASTEWATER TREATMENT AND DIRECT DISCHARGES, SITE DRAINAGE)						
Process / Activity / Equipment on site	**Potential impact**	**Is impact controlled by equipment ?**	**Is equipment included on maintenance checklist?**	**Is impact controlled by a procedure ?**	**Person using the procedure received training?**	**Comments**
Extraction / movement of watercress bed gravel	The extraction or movement of gravel within the	Yes – A settlement tank is	Refer to Form 38 – Record of bed cleaning and settlement	Yes – Form 36: Standard operating procedures	Yes – Signatures of trained personnel	When there is no Bed Cleaning Operations happening Form 38 will still need to be

TABLE 2.2 – EMISSIONS TO WATER (E.G. FROM WASTEWATER TREATMENT AND DIRECT DISCHARGES, SITE DRAINAGE)						
Process / Activity / Equipment on site	**Potential impact**	**Is impact controlled by equipment ?**	**Is equipment included on maintenance checklist?**	**Is impact controlled by a procedure ?**	**Person using the procedure received training?**	**Comments**
	watercress beds has the potential to mobilise sediments and fertiliser chemicals which could pollute receiving surface waters	located on-site.	system monitoring). No structural issues are associated with the settlement pond	for bed cleaning Form 38: Record of bed cleaning and settlement system monitoring	are required on Form 36	completed on a weekly basis to ensure constant & effective monitoring Discharge from the settlement tank only occurs when suspended solids are recorded at less than 20 mg/l
Cleaning of watercress beds	As above, the cleaning of gravel within the watercress beds has the potential to mobilise sediments and fertiliser chemicals which could pollute receiving surface waters	Yes – Settlement tank	Yes – Details are provided above	Yes – Form 36: Standard operating procedures for bed cleaning Form 38: Record of bed cleaning and settlement system monitoring	Yes – Signatures of trained personnel are required on Form 36 Furthermore, OP No. 15 requires operatives to have previously completed Form 40: Skills review sheet	The process of cleaning the watercress beds is considered to be as disruptive as the extraction/movement of bed gravel discussed above. No additional procedures are considered to be required
Fertilisation / application of chemicals at watercress beds	Accidental release of excess fertilisers could lead to pollution of receiving surface waters	Yes – Settlement Pond	Yes – Details are provided above	No	Yes - Training Matrix	Form 41: Code of practice for the use of fertilisers (includes list of approved fertilisers)
Storage of chemicals used in the production of watercress and	Spillages of chemicals used in the fertilisation process or other	Yes – chemicals and hazardous materials are stored in	Yes – Visual inspection / maintenance is undertaken as set out in Form 109:	Yes – yard and barn safety inspections	Yes – training is provided to the relevant Manager/ Foreman	Only fertilisers and chemicals previously approved are stored and utilised at the site.

TABLE 2.2 – EMISSIONS TO WATER (E.G. FROM WASTEWATER TREATMENT AND DIRECT DISCHARGES, SITE DRAINAGE)						
Process / Activity / Equipment on site	**Potential impact**	**Is impact controlled by equipment ?**	**Is equipment included on maintenance checklist?**	**Is impact controlled by a procedure ?**	**Person using the procedure received training?**	**Comments**
other hazardous materials	hazardous materials may adversely affect surface waters or groundwaters	double skinned containers or bunds of an appropriate size	Bund and oil storage code of practice/ quarterly inspection report	Inspection of outdoor areas and spill kits	undertaking the inspections Fuel delivery drivers are required to read and sign regulations prior to their first delivery	
Transportation of chemicals and other hazardous materials around the site	Spillages of chemicals or hazardous materials while being transported may adversely affect surface waters or groundwaters	Transported in bunded containers, where possible	Fuel Storage Tanks are bunded and a quarterly check is carried out and put onto Form 109 (Bund & Oil Storage Tank Quarterly Inspection Report.)	Yes – Spillage action plan and emergency incident plan Inspection of yard and spill areas	Yes – Managers/ employees undertaking the routine inspections have been provided with training Fuel delivery drivers are required to read and sign regulations prior to their first delivery	The Emergency Spill Procedure contains emergency contact details, this is not provided as employees have given their permission for it to be circulated internally only
Planting of Seedlings	Adverse Weather Conditions may have the potential to wash away seedlings and their growing medium into receiving waters.	No	N/A	No	N/A	
Use of diesel engines/generators and other machinery or	Leaking of oils or other lubricants could enter	No	N/A	Yes – Visual observations and	Yes - Routine servicing and/or maintenance	If damage is caused to any machinery, equipment, vehicles etc. this is recorded

TABLE 2.2 – EMISSIONS TO WATER (E.G. FROM WASTEWATER TREATMENT AND DIRECT DISCHARGES, SITE DRAINAGE)						
Process / Activity / Equipment on site	**Potential impact**	**Is impact controlled by equipment ?**	**Is equipment included on maintenance checklist?**	**Is impact controlled by a procedure ?**	**Person using the procedure received training?**	**Comments**
equipment at the site	surface waters or groundwaters			servicing at intervals.	is undertaken as necessary either by employees or contractors	on the UK Watercress Farm Damage Notification Form
Storage of chemicals used for factory hygiene operations and other hazardous materials	Leaking of hazardous chemicals to the surface or groundwaters	No	NA	Yes – chemical spills procedure Barn and yard safety inspections	Yes, spills training provided to staff in all appropriate departments	Stored in secure bunded COSHH locations near to spill kits
Factory hygiene operations	Accidental release to Surface water	yes	yes	Yes – switched to hygiene mode at nighttime which diverts all water to trade effluent	Yes, hygiene and factory workers trained to use the equipment	New factory is set to divert to hygiene at night to prevent leaks to environment
Lorry washing	Release of fuels and sediment to surface water	No	NA	All drains in lorry washing and fuelling area run straight to trade effluent	NA	

TABLE 4 - LIST OF PROCEDURES

(List procedures identified in Tables 2.1 to 2.7 above, plus any additional procedures not previously mentioned)

Procedure Name	What process / activity / equipment does it relate to?	Where is the procedure kept?	Version Number	When was the procedure last reviewed?	Comments?
VSHSOP00001 Spillage action plan	How to tackle spills when they are found on site	All forms/ procedures are stored electronically on the company Shared drive unless stated otherwise	3.0	16/06/2023	Due for revision 2024
VSHSOP00015 – Vitacress Salads Incident Management Plan	How to manage large incidents on site	All forms/ procedures are stored electronically on the company Shared drive unless stated otherwise	47	25/08/2023	
Farm weekly recording sheets	Extraction/movement of watercress bed gravel Cleaning of watercress beds	All forms/ procedures are stored electronically on the company Shared drive unless stated otherwise	3	30/10/2023	
Monthly Inspection of Emergency Spill Kits	Storage of chemicals used in the production of watercress and other hazardous materials Transportation of chemicals and other hazardous materials around the site	Within the Assure monthly audit for yard safety supervisor		01/04/2023	Currently under review
Form 36: Standard operating procedures for bed cleaning	Extraction/movement of watercress bed gravel Cleaning of watercress beds	All forms/ procedures are stored electronically on the company Shared drive unless stated otherwise	3	2016	Process not changed

TABLE 4 - LIST OF PROCEDURES (List procedures identified in Tables 2.1 to 2.7 above, plus any additional procedures not previously mentioned)					
Procedure Name	**What process / activity / equipment does it relate to?**	**Where is the procedure kept?**	**Version Number**	**When was the procedure last reviewed?**	**Comments?**
Form 40: Skills review sheet	Skills for farm staff to undertake specific tasks	All forms/ procedures are stored electronically on the company Shared drive unless stated otherwise	3	06/03/2014	
Form 41: Code of Practice for the use of Fertilisers	Fertiliser applications at watercress beds	All forms/ procedures are stored electronically on the company Shared drive unless stated otherwise	1	25/10/2023	
Form 69: Watercress crop production process flow	Growing practice for watercress	All forms/ procedures are stored electronically on the company Shared drive unless stated otherwise	3	26/01/2016	Process not changed
Farm Machinery Maintenance Plan	Use of diesel engines/generators and other machinery or equipment at the site	Workshop maintenance records – currently being centralised into a maintenance plan		2023	Currently under review to consolidate