WATER NEUTRALITY STATEMENT FOR ROCK COMMON QUARRY, NEAR WASHINGTON, WEST SUSSEX

Reference: 20220805

H2Ogeo Reference: 20220401P1

Date: 16 October 2023

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Contents

Executive Summary

A planning application was submitted to West Sussex County Council, 14 July 2021, for the *continued winning, working and processing of sand from the existing Rock Common Quarry, the importation of inert classified engineering and restoration material, the stockpiling and treating of the imported material, the placement of the imported material within the quarry void and the restoration and landscaping of the quarry.*

Since the original submission, the requirement for a Water Neutrality Statement has been introduced to the area.

Water Neutrality Statements are required as Natural England cannot, with certainty, conclude that the Sussex North Water Supply Zone (WSZ), that includes supplies from a groundwater abstraction, is not having an adverse effect on the integrity of:

- Arun Valley Special Area Conservation (SAC);
- Arun Valley Special Protection Area (SPA); and
- Arun Valley Ramsar Site.

The Hardham groundwater abstraction provides Southern Water's Sussex North WSZ. As it cannot be concluded that the existing abstraction at Hardham is not having an impact on the Arun Valley site, Natural England have advised that developments within the Sussex North WSZ must not add to this impact.

This Water Neutrality Statement replaces, in full, all previously submitted Water Neutrality Statements and is provided to accompany the planning application to demonstrate that the proposed development does not increase the requirements for mains water above existing levels within the supply zone.

To achieve Water Neutrality it is proposed to:

- Install efficient fixtures and fittings to Performance Level 3 in the existing and proposed development; and
- Use treated groundwater from the existing groundwater abstraction.

Based on the findings of this Water Neutrality Statement the proposed development will not contribute to an existing adverse effect upon the integrity of the internationally designated Arun Valley Special Area of Conservation, Special Protection Area and Ramsar sites by way of increased water abstraction.

1 Introduction

1.1 Background

A planning application was submitted to West Sussex County Council, 14 July 2021, for the *continued winning, working and processing of sand from the existing Rock Common Quarry, the importation of inert classified engineering and restoration material, the stockpiling and treating of the imported material, the placement of the imported material within the quarry void and the restoration and landscaping of the quarry.*

Since the original submission, the requirement for a Water Neutrality Statement has been introduced to the area.

Water Neutrality Statements are required as Natural England cannot, with certainty, conclude that the Sussex North Water Supply Zone (WSZ), that includes supplies from a groundwater abstraction, is not having an adverse effect on the integrity of:

- Arun Valley Special Area Conservation (SAC);
- Arun Valley Special Protection Area (SPA); and
- Arun Valley Ramsar Site.

As it cannot be concluded that the existing abstraction is not having an impact on the Arun Valley site, Natural England have advised that developments within the Sussex North WSZ must not add to this impact.

Rock Common Quarry has been active since the 1920's and has been the subject of many planning permissions granted for sand extraction since the 1950's. The Quarry is currently working in accordance with a permission granted on 16 September 2004 (Ref WS/15/97) which was an application submitted by the then operator, Tarmac Limited, under the provisions of Environment Act 1995 requiring the review of "old mining permissions".

This application is being made firstly, to enable the recovery of the remaining reserves of sand and secondly, to permit the importation and placement of suitable, inert classified engineering and restoration materials in order to change the approved restoration of the Quarry and create a "dry", restored landform.

The current approved restoration is to create a body of deep water within the final excavated void described as a landscaped lake with the associated quarry margins managed for amenity and nature conservation use. Whilst the creation of deep bodies of water in quarries was acceptable at the time that the restoration was approved, restoring (and creating) large bodies of deep, open water with steep underwater slopes is no longer considered to be "best practice", not least because they are a danger to the public. An additional issue with deep water is that it does not provide suitable conditions for the creation of a wide and variable range of ecological interest.

Significant environmental concerns with the approved scheme also exist, in relation to the pollution of Controlled Waters, through the cessation of dewatering at Rock Common. The restoration scheme is proposed to ensure that the quarry is restored to a safe, sustainable and ecologically varied landform.

This Water Neutrality Statement is the third submitted to West Sussex County Council and replaces, in full, all previous iterations. It presents an alternative means of mitigation and therefore should be considered a stand-alone document.

The Water Neutrality Statement has been prepared following the receipt of Water Environment Ltd's Technical Note dated 13 April 2023 (22180-WRC-TN-02).

1.2 Scope of Work

The scope of work is to provide a Water Neutrality Statement to understand if the proposed development will contribute to an existing adverse effect upon the integrity of the internationally designated Arun Valley Special Area of Conservation, Special Protection Area and Ramsar sites by way of increased water abstraction.

2 The Site

2.1 Location

The Site is situated within the District of Horsham, West Sussex (NGR TQ12460 13520) approximately 350 metres to the north-east of the village of Washington. At its nearest point the boundary of the South Downs National Park lies approximately 50 metres to the south of the Site following the line of the A283 road.

The Site location is shown in Figure 1.

The A24 (Worthing to Dorking Road) runs within 100 metres of the western boundary. A narrow, unclassified road (which connects the A283 and A24 and known as "The Hollow") runs along the north-east boundary of the Quarry. Access to the site is via the Hollow road off the A24/A283.

2.2 Existing Site

The layout of the existing site is shown in Annex A.

The fixtures and fittings using mains water on site were confirmed during a site visit on 22 June 2022, they comprise:

- A toilet block consisting of two toilets, two urinals and one sink with separate hot and cold taps;
- One kitchen sink with a mixer tap in the workshop kitchen; and
- One outside tap used at the reception for drinking and washing down vehicles.

The washing plant and existing processing area uses groundwater abstracted from the pit, Rock Common is licensed to abstract 6000m^3/day for the purposes of dewatering and processing.

2.3 Proposed Development

The proposed development is for the continued winning, working and processing of sand from the existing Rock Common Quarry, the importation of inert classified engineering and restoration material, the stockpiling and treating of the imported material, the placement of the imported material within the quarry void and the restoration and landscaping of the quarry.

The areas under consideration for the purpose of this Water Neutrality Statement do not include the quarry area, as no mains water is consumed in this part of the site.

The mains water consumption is currently restricted to the site office, welfare facilities and kitchen area.

The processing of sand and any recycling planned will continue to use extracted groundwater until completion of the proposed restoration.

In the proposed material reception area there will be:

- New staff welfare buildings comprising one kitchen sink with a mixer tap, one dishwasher, two male and one female dual-flush toilet;
- Two urinals;
- Four wash-hand basins; and
- A wheel-wash and general vehicle cleaning facility.

The existing reception area for the quarry will remain and will be decommissioned including the toilet blocks, reception building and workshop kitchen on completion of restoration.

Other water uses on site will include landscaping and dust suppression, there will be no public conveniences.

3 Baseline Calculations

3.1 Existing Consumption

This section estimates the existing mains water consumption at Rock Common.

Mains water is currently only consumed in the existing site office, welfare facilities and staff kitchen.

No processes to do with the sand extraction or preparation use mains water on site as these are all carried out using the water from the licensed groundwater abstraction. The processes that use groundwater are listed below:

- Dust suppression;
- Aggregate washing/processing; and
- Occasional vehicle washing.

The site has a metred connection provided by Business Stream, part of Scottish Water and the bills received in 2022 are presented in Annex B. The consumption on site is estimated on page two of each bill and those estimates are presented below in Table 1 along with the working days during that period:

Table 1 Water Bill Summary

From	*To*	*Working Days*	*m3*
11/03/2022	23/05/2022	52	6
23/05/2022	12/08/2022	60	0
12/08/2022	23/11/2022	74	7

Based on the most recent information 7m^3 between August 2022 and November 2022 equates to an annual consumption of 25m^3. When annualised to working days (255 for 2022) this equates to 98 Litres/Day.

It has been noted that due to uncertainties of site worker patterns in combination with office workers calculating the theoretical mains water consumption on site is challenging. To address this the actual annualised metred consumption is presented as the baseline figure for the existing operation:

Baseline Mains Water Consumption Figure: 98 Litres/Day

3.2 Proposed Consumption

The proposed water consumption has been calculated using the BREEAM UK New Construction 2018 3.0 (Non Domestic Buildings) Wat 01 Water Efficiency Calculator using Performance Levels 3, it is summarised below and presented in Annex C:

- One kitchen tap = 6 Litres/Minute;
- One drinking water tap = 1.58 Litres/Person/Day;
- One Domestic Sized Dishwasher = 12 Litres/Cycle;
- Two male dual flush and one female dual-flush toilet = 3.75 Litres Effective Flush
- Three wash-hand basins with mixer taps = 5 Litres/Minute; and
- Two urinals = 1.5 Litres/Bowl/Hour.

3.2.1 Calculated Baseline Performance Consumption

Performance Level 3 (Table 8.3 Water efficient consumption levels by component type – BREEAM) fittings have been assumed for the proposed development and equal a consumption of 19.34 Litres/Person/Day.

Annex D presents the organisational chart for the proposed site and shows 20 FTEs, this is an increase of five FTEs from existing.

The mains water consumption for the proposed development is:

386.8 Litres/Day

As a conservative estimate, it has been assumed that there will be up to three visitors on site per day therefore, an additional 58.02 Litres/Day has been assumed equalling a total mains water consumption of 444.82 Litres/Day.

This assumes full water consumption over a full day spent in the offices from each visitor, in real terms people may only visit for a one hour meeting or alternatively spend all day out on site with no water consumption.

The organogram in Annex D identifies cleaning staff, their mains water consumption is built into the three visitors accounted for above.

3.3 Water Consumption Summary

The calculated proposed water consumption is higher than the existing mains water consumption and requires mitigation in order to achieve water neutrality:

Table 2 Water Consumption Summary

Existing Mains Water Consumption (Litres/Day)	***Proposed Consumption (Litres/Day)***	***Mitigation Required (Litres/Day)***
98	444.82	346.82

3.3.1 Groundwater Use on Site

The Figures Presented in Annex A show the existing conveyance of groundwater on site and the proposed.

The first figure in Annex A shows the existing layout.

Groundwater is abstracted from the centre of the site and conveyed to the Aggregate Processing Area, once used it is passed back to the quarry site for settlement in the lagoon in the north.

Excess groundwater abstracted to maintain groundwater elevations is discharged directly to the Honeybridge Stream in the west of the site.

Figures 3 and 4 present the indicative layout of the groundwater source supply and mains water on site.

It is proposed to use groundwater for all processes on site via a water treatment system apart from drinking water that will be connected to the mains via a drinking water tap in the office. Appropriate signage will be used to discourage consumption of all other water on site, despite it being treated to drinking water standard[1]. Examples of the drinking water tap and appropriate signage is presented in Annex H.

The table below identifies the proposed mains water and groundwater-fed processes and fixtures:

[1] The treated groundwater source of water used for pot washing, WCs and wash hand basins will be treated to drinking water standards.

Table 3 Proposed Water-Supply Summary

Fixture/Fitting	***Mains Water***	***Groundwater***
WC	X	✓
Urinals	X	✓
Wash-hand Basins	X	✓
Kitchen Tap	X	✓
Drinking Water Tap	✓ (1.58 L/P/D)	X
Landscape watering	X	✓
Processing Water	X	✓

3.3.2 Wheel-Wash

In addition to the new facilities a wheel-wash is proposed and details presented in Annex E.

The wheel wash is a Garic Enviro Wheel Wash with water filtration technology combined with a 100 percent water recirculation system. The wheel wash will be supplied by groundwater from the abstraction and therefore does not require assessment in this Water Neutrality Statement.

The initial fill (c1000 Litres) and topping up will be provided by groundwater.

3.3.3 Dust Suppression

Dust suppression has been addressed in the Air Quality Assessment and Dust Management Plan[2] where it states, "If necessary, stockpiles of material in the restoration material reception area will be dampened down at the point of processing following delivery and dampened down within the quarry void using mobile water bowser sprinkler systems."

It is also noted that fixed sprayers will be used in areas of frequently observed dust.

The total combined water consumption of all the bespoke and planned dust mitigation spraying is not known due to its ad-hoc nature however, with a groundwater abstraction deficit of 1967m^3/day available, there is adequate groundwater supply to meet any dust suppression demand.

[2] AIR QUALITY ASSESSMENT AND DUST MANAGEMENT PLAN FINAL REPORT DOCUMENT REFERENCE: 2380W-SEC-00001-03, South Downs Environmental Consultants, 26 December 2020

4 Proposed Mitigation

It is proposed to use treated groundwater to meet the new proposed water demands on site apart from drinking water.

This water is currently abstracted from the aquifer with the majority being discharged into the Honeybridge Stream.

Rock Common currently operates a dewatering system that is licensed to abstract 6000m^3/day to safely win and work the sands, the Site has been actively dewatered since at least 1986. The groundwater abstraction is required not only to secure a dry and safe working platform but to prevent pollution of Controlled Waters from the nearby former landfill at the Rough and the Windmill.

Data presented in Figure 2 is the daily pumping volumes achieved on Site in 2018. Pump 1 ran for 257 days and Pump 2 for 278 days. The average combined daily pumping rate was 4033m^3/day (46.7 Litres/second) with Pump 2 averaging a slightly higher rate than Pump 1, 2590m^3 and 1440m^3 respectively.

There is a deficit between the licensed volume, 6000m^3/day and the actual, 4033m^3/day, is 1967m^3.

It is proposed to use an insignificant portion (<2m^3/Day Max) of this excess to provide groundwater to the site via the proposed treatment system.

4.1 Water Treatment System

The proposed water treatment system will treat groundwater to UK Drinking Water Standards consistent with the Water Supply Regulations (2016).

A suite of analysis has been carried by sampling groundwater on site and testing was carried out by Oakshire Environmental consisting of:

- Dissolved Metals (As,Cd,Ca,Cr,Cu,Fe,Pb,Mg,Mn,Hg,Se,Na,Zn);
- Chloride;
- Fluoride;
- Nitrate;
- Nitrite;
- Sulphate;
- TVC (37°C);
- E.coli;
- Total Coliforms;
- Enterococci;
- Salmonella;
- Clostridia;
- pH;
- Electrical Conductivity; and
- Suspended Solids.

In addition to this suite a second sample was sent for analysis of:

- Total Petroleum Hydrocarbons (TPHs);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Semi-Volatile Organic Compounds (SVOCs); and

- Volatile Organic Compounds (VOCs).

Testing results have been assessed with reference to screening values including the Environment Agency guidelines and Generic Assessment Criteria (GAC) to determine the suitability for use as drinking water.

Electrical Conductivity exceeded the requirements of the Water Supply Regulations and microbiological contaminants were identified in the samples.

There were no organics, TPH, SVOC, VOSs, BTEX detected in the samples.

The results are presented in Annex F and the water treatment system has been designed by Silverline to treat 8 Litres/Minute (480 Litres/Hour). The mains drinking water demand from the proposed development is 1.58 Litres/Person/Day which equates to 36.34 Litres/Day.

4.1.1 Monitoring

Monitoring of the groundwater supply and treated water quality will be carried out in line with the Water Supply Regulations (2016).

The suite of analysis will include:

- Microbiological Parameters;
- Chemical Parameters; and
- The National Requirements for Wholesomeness.

Local authorities are the regulators for private water supplies under the Water Supply Regulations 2016 and have statutory duties under the Private Water Supplies Regulations.

These Regulations place a duty on local authorities to carry out a risk assessment of each private water supply in their area (except supplies to single untenanted dwellings). They are also required to carry out monitoring of its quality to determine compliance with drinking water standards and to verify the risk assessment. The risk assessment considers the contamination hazards of the source of the supply and the surrounding area. It also involves checks on any storage tanks, treatment systems and associated pipe work and fittings. The local authority has powers to require that the supply is improved where necessary by whoever they consider to be the relevant persons. This may be a supply user, owner, someone who exercises control over the supply or the owner of land on which the source is located.

4.2 Water Reduction & Additional Mitigation

To mitigate the increase in FTEs on site and the resulting mains water consumption the following strategies are proposed:

- Upgrade old fixtures and fittings to at least Performance Level 3 (See Annex G);
- Ensure new fixtures and fittings meet or exceed Performance Level 3;
- Use treated groundwater as an alternative to mains water sources;
- Existing operations such as processing, dust suppression and wheel washing will remain the same.

5 Conclusion

A summary of the water balance for the proposed development at Rock Common is presented in the table below:

Table 4 Water Budget for Proposed Development

Existing Mains Water Consumption (L/D)	***NO MITIGATION Proposed Modelled Mains Water Consumption (L/D)***	***MITIGATION Proposed Mains Water Consumption (L/D)***	***Water Neutral***
98	444.82	36.34	Yes

The existing mains water consumption on site is 98 Litres/Day, the proposed water consumption without any mitigation is modelled at 444.82 Litres/Day.

Mitigation will be provided through improving the efficiency of existing fixtures and fittings to BREEAM UK New Construction Performance Level 3 and providing a new water supply sourced from treated groundwater on site. The proposed treatment system will achieve 480 Litres/Hour, when required and will only use groundwater volumes within the current licensed deficit (1,967,000 Litres/Day).

It is proposed to connect a drinking water tap as presented in Annex H, to the mains, that will be used for consumption by staff and visitors and this will equate to 36.34 Litres/Day which is less than the existing 98 L/Day, therefore the proposal, with mitigation, is water neutral.

Monitoring of water quality will be carried out on a basis set by the Local Authority under the Water Supply Regulation 2016.

Based on the findings of this Water Neutrality Statement the proposed development will not contribute to an existing adverse effect upon the integrity of the internationally designated Arun Valley Special Area of Conservation, Special Protection Area and Ramsar sites by way of increased water abstraction.

6 Figures

Figure 1 Site Location

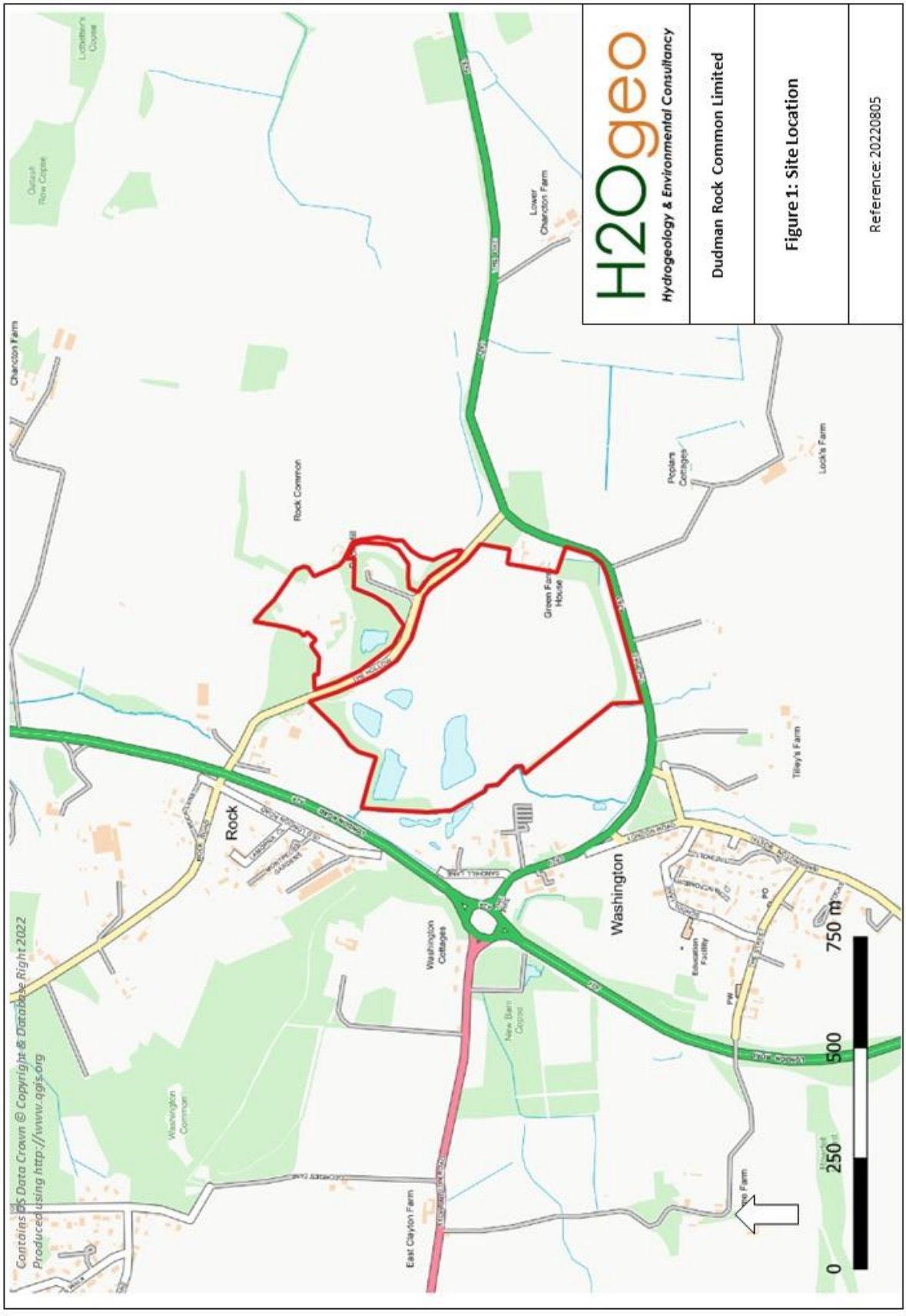


Figure 2 Daily Pumping Rates

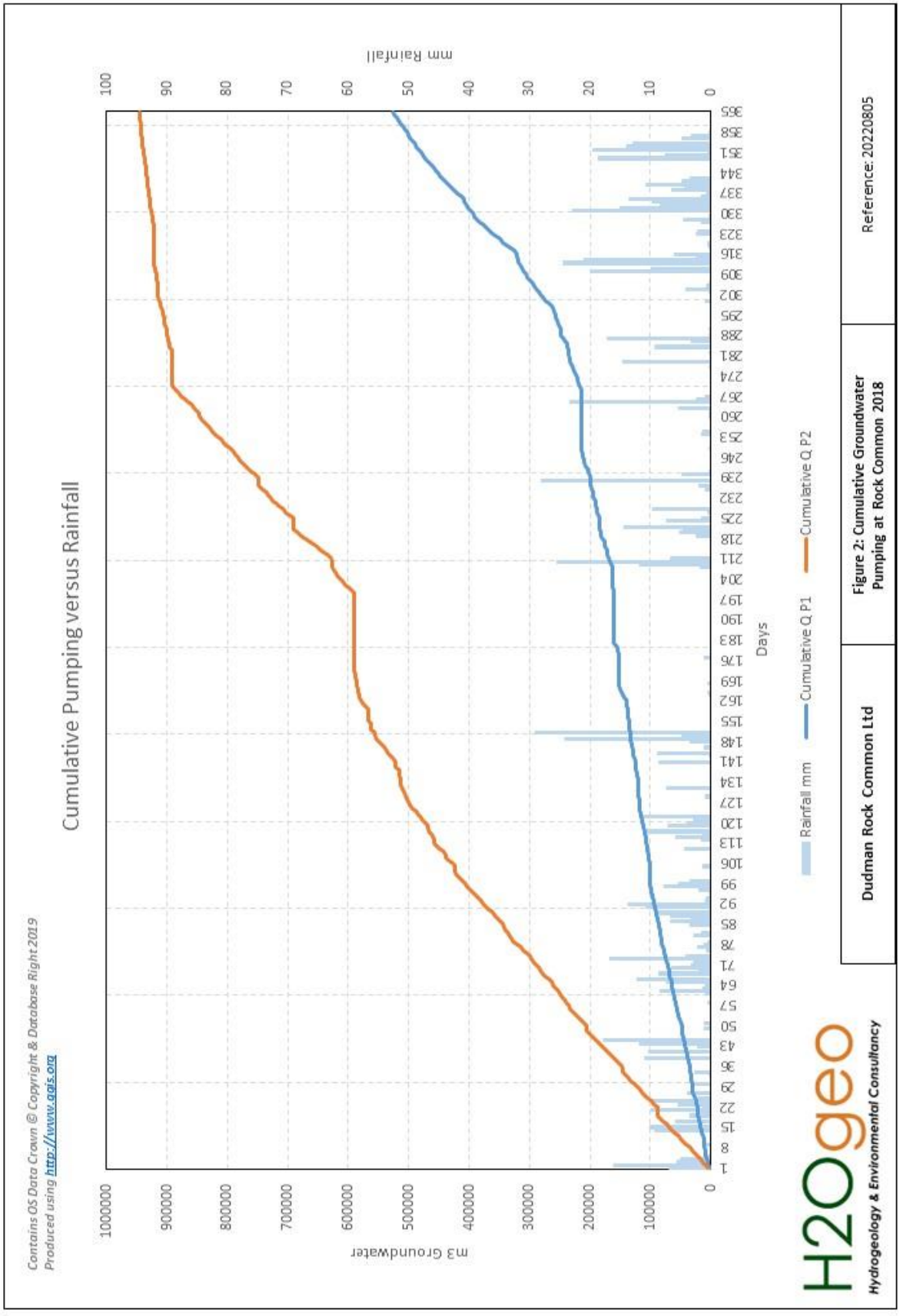


Figure 3 Indicative Water Supply Sources

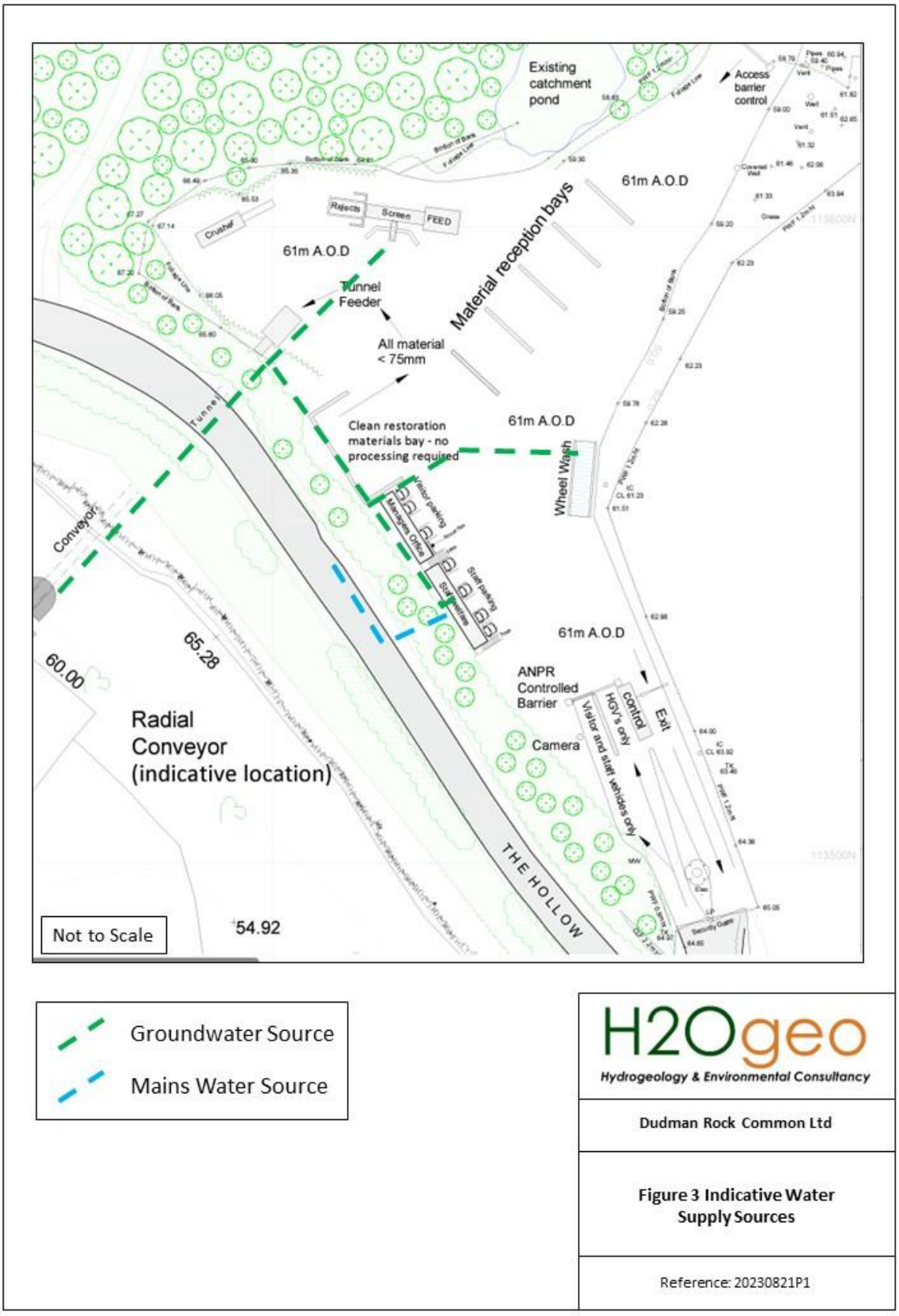
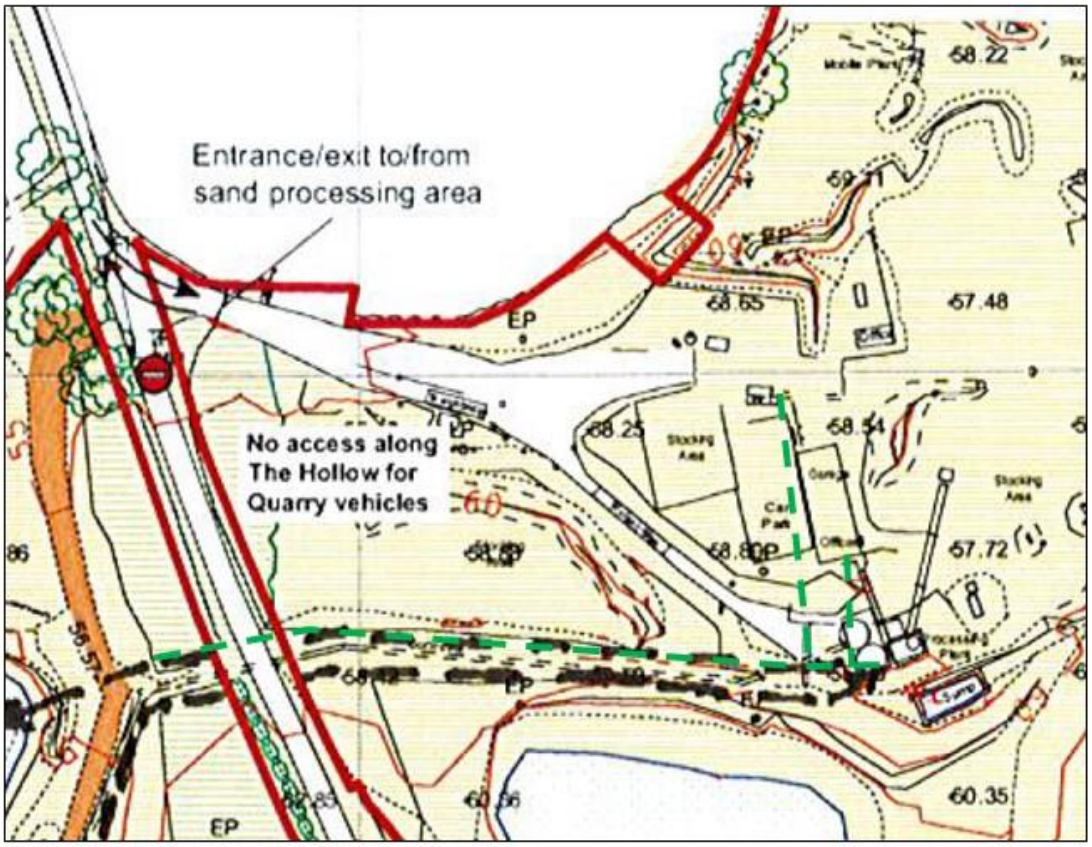


Figure 3 Indicative Water Supply Sources



Not to Scale

Groundwater Source

Mains Water Source

H2Ogeo
Hydrogeology & Environmental Consultancy

Dudman Rock Common Ltd

Figure 4 Indicative Water Supply Sources

Reference: 20230821P1

7 Annexes

Annex A – Site Layout Drawing

Annex B – Water Bills

Annex C – BREEAM Calculations

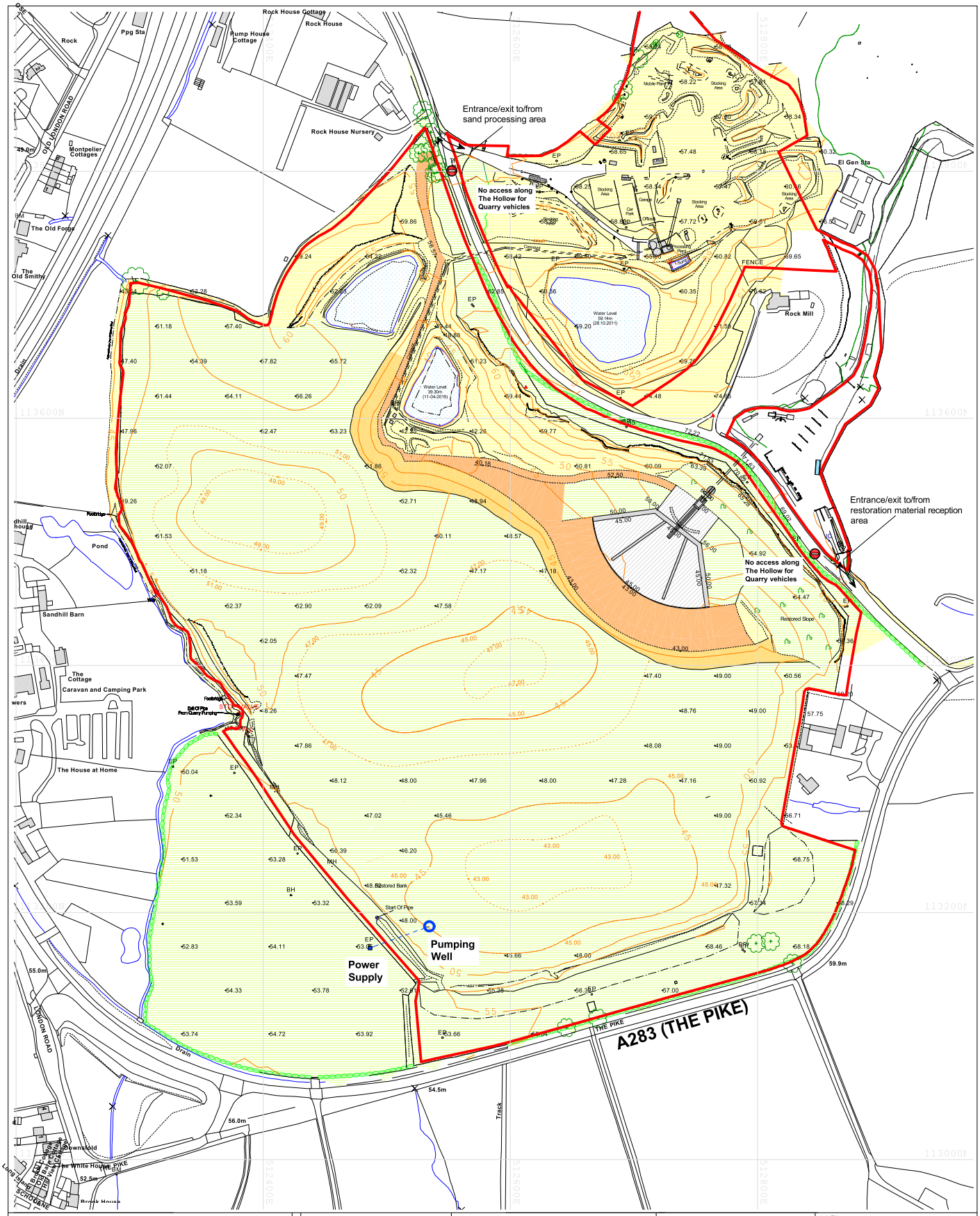
Annex D – Organisation Chart

Annex E - Wheel Wash Specifications

Annex F – Water Quality Results

Annex G - BREEAM Performance Levels

Annex A – Site Layout Drawing



Legend:

Application Area

SCALE BAR

0 50 100 200

N

REVISIONS			
	Date	Description	By
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TERRESTRIA LIMITED

TERRESTRIA LIMITED
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Client

DUDMAN ROCK COMMON LIMITED

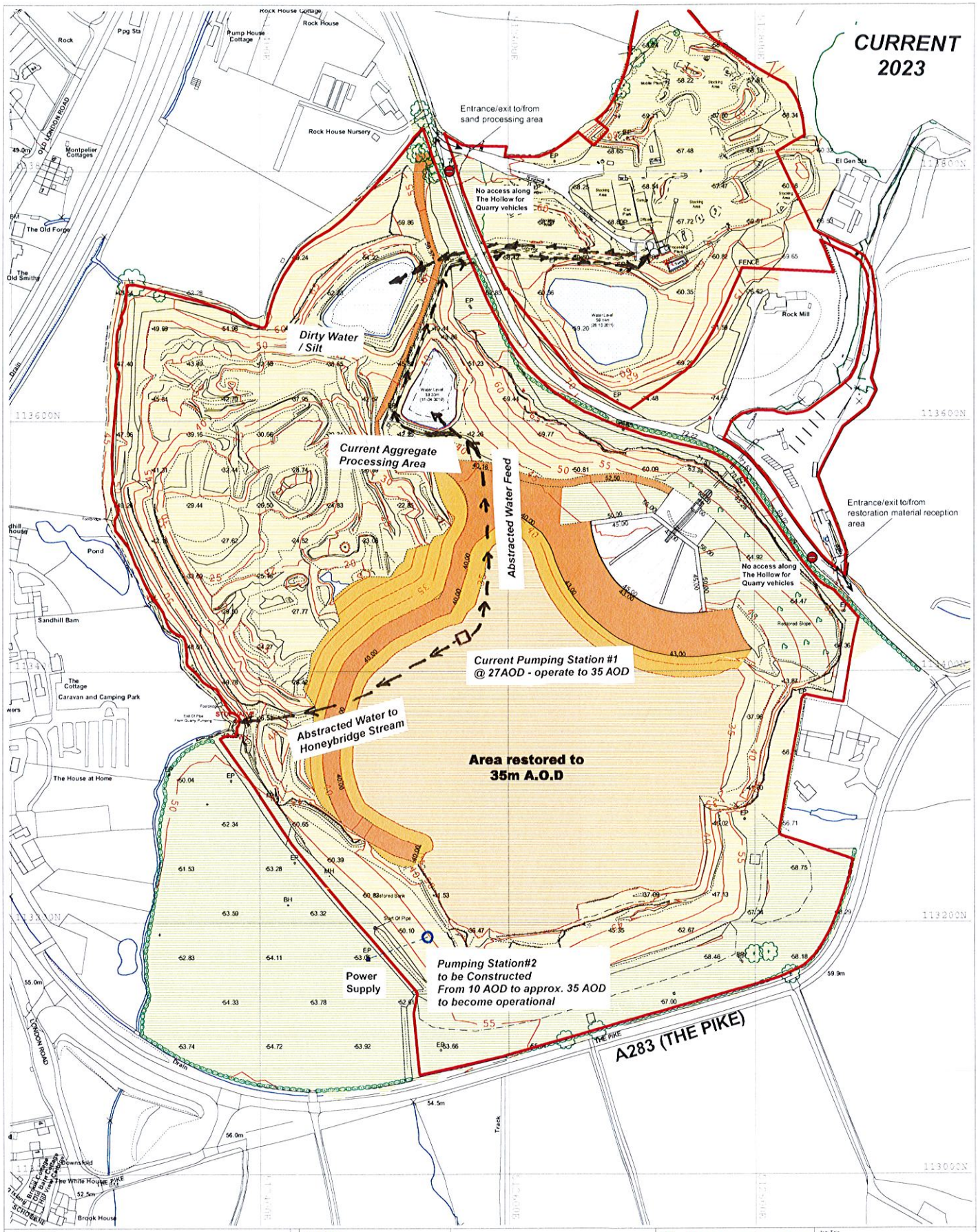
Job Title: Rock Common Quarry

Project Title: Planning application to vary approved restoration

Scale	Date	Drawn by	Checked
1:2000	June 2021	SW	MM

Dwg. title: Phase 7 Restoring to final landform

DWG No. DRCL/RCRA/WP-10



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Application Area

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TERRESTRIA LIMITED

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Client:
DUDMAN ROCK COMMON LIMITED

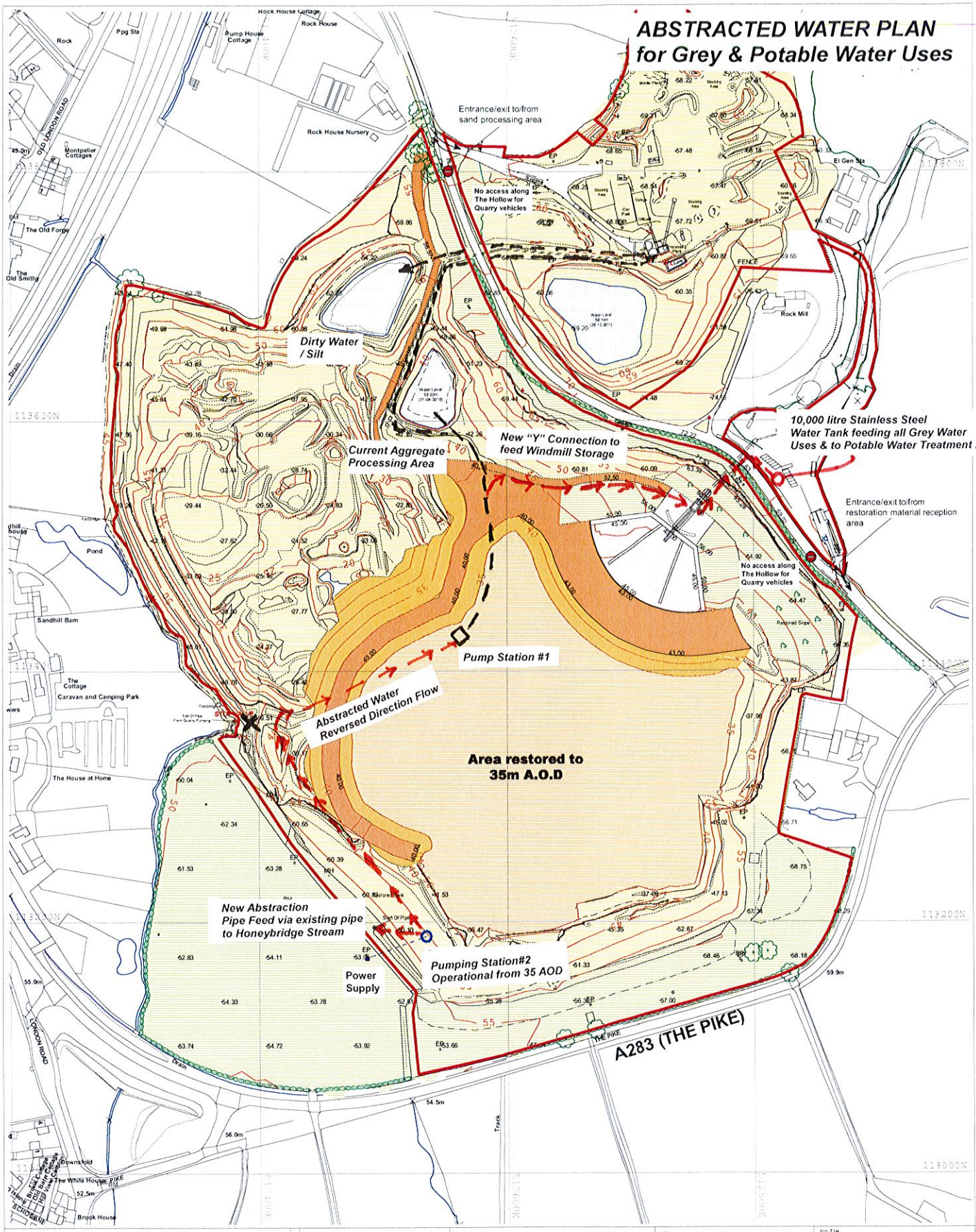
Job Title
Rock Common Quarry

Project Title
Planning application to vary approved restoration

Scale	Date	Drawn by	Checked
1:2000	SEP 20 (v4)	SW	MM

Dwg. title
Phase 3
Restoring to 35 metres AOD

DWG No
DRCL/RCRA/WP-06


ABSTRACTED WATER PLAN
for Grey & Potable Water Uses
Entrance/exit to/from sand processing area
No access along The Hollow for Quarry vehicles
Dirty Water / Silt
Current Aggregate Processing Area
New "Y" Connection to feed Windmill Storage
10,000 litre Stainless Steel Water Tank feeding all Grey Water Uses & to Potable Water Treatment Plant
Entrance/exit to/from restoration material reception area
No access along The Hollow for Quarry vehicles
Pump Station #1
Abstracted Water Reversed Direction Flow
Area restored to 35m A.O.D
New Abstraction Pipe Feed via existing pipe to Honeybridge Stream
Power Supply
Pumping Station#2 Operational from 35 AOD
A283 (THE PIKE)
Rock House Cottage
Rock House
Pump House Cottage
Rock House Nursery
Montpelier Cottages
The Old Forge
The Old Smithy
Rock Mill
Pond
Sandhill Barn
The Cottage Caravan and Camping Park
The House at Home
Brook House
Downs Hold
The White House
OLD LONDON ROAD
LONDON ROAD
FENCE
Track
Legend:
Application Area
SCALE BAR
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TERRESTRIA LIMITED
TERRESTRIA LIMITED
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e-mail : mick@terrestria.co.uk
Client
DUDMAN ROCK COMMON LIMITED
Job Title
Rock Common Quarry
Project Title
Planning application to vary approved restoration
Scale
1:2000
Date
SEP 20 (v4)
Drawn by
SW
Checked
MM
Dwg Title
Phase 3
Restoring to 35 metres AOD
DWG No
DRCL/RCRA/WP-06

Annex B – Water Bills

START_658

business stream
A SCOTTISH WATER COMPANY

business-stream.co.uk
0330 123 2000
If you have an emergency, please contact your:
Water wholesaler: Southern Water
Visit **business-stream.co.uk/wholesaler**

BSM-NEW | 000658 | Page 1 of 2 | BILLS | 000658

DUDMAN AGGREGATES LTD
84
ALBION STREET
SOUTHWICK
BN42 4DP

RECEIVED
27 MAY 2022

Customer reference / invoice no
2744438 / 22

Invoice / tax point date: 24 May 2022

Supply address: WASHINGTON QUARRY, THE HOLLOW, PULBOROUGH, RH20 3DA

Supply point ID: 3019371562W19

Our VAT number: 945 8508 85

Your water services invoice

11 March - 23 May 2022 (73 days, average £0.32 per day)

YOUR ACCOUNT SUMMARY

Your previous balance	£33.39	
Payments received	£33.39	CREDIT
Your balance brought forward	**£0.00**	

YOUR CHARGES THIS PERIOD (see page 2 for details)

Water services charges	£19.31
VAT	£3.87
Total charges this period	**£23.18**

We look forward to receiving your payment of £23.18

For ways to pay see page 3

221501

2022/23 charges

You can find more information on our charges and ways to save water and money on our website.

Visit business-stream.co.uk

Posted
27/5/22

How much water are you using?

If you'd like to reduce the volume of water you're using, check out our water saving tips on our website. You'll also be able to find advice on our website **business-stream.co.uk**

Estimated invoice

This invoice is based on an estimated read. If we receive an actual read, we will use it to calculate your next bill. You can submit your own readings, as long as it's safe to access your meter, on **business-stream.co.uk/meter-reading**. If your water is not provided by us, we will receive reads from your other supplier.

The water experts

14422L00_BSM-NEW | 000658 | Page 1 of 4 | BILLS
NNYNNN/400/MQC/SME/0/22

Your charges in detail

Based on this period your annual carbon consumption is **5.41 kgCO2e/yr**, based on National Government statistics.

Meter number / meter size: 13A10225 ARAD 25mm

Water charges			Units	Rate	VAT	Charge
Fixed water charge						
Yearly fee £49.15	11 Mar 22 - 31 Mar 22		21 days	0.134658	S	£2.83
Yearly fee £51.61	1 Apr 22 - 22 May 22		52 days	0.141397	S	£7.35
Volumetric water charge						
Estimated reading	23 May 22	429				
Estimated reading	11 Mar 22	423				
=Volume used this period			6.00 m³			
Charges	11 Mar 22 - 31 Mar 22		2.00 m³	1.476100	S	£2.95
Charges	1 Apr 22 - 23 May 22		4.00 m³	1.545000	S	£6.18
Total water charges						**£19.31**

A yearly fee for the upkeep of external pipes and pumps that supply water to your property.

The charge for the recorded amount of water you've used, measured by your meter.

Subtotal	**£19.31**
VAT at 20%	£3.87
Total charges this period	**£23.18**

VAT on our charges
Most of our services are zero-rated (Z) but some are standard rate (S) or outside scope (O).
See **business-stream.co.uk/vat** for more information.

14422L00_BSM-NEW | 000658 | Page 2 of 4 | BILLS
NNYNNN/400/MQC/SME/0/22

business stream
A SCOTTISH WATER COMPANY

business-stream.co.uk
0330 123 2000
If you have an emergency, please contact your:
Water wholesaler: Southern Water
Visit **business-stream.co.uk/wholesaler**

BSM-NEW | 000860 | Page 1 of 2 | BILLS | 000860
DUDMAN AGGREGATES LTD
84
ALBION STREET
SOUTHWICK
BN42 4DP

RECEIVED
19 AUG '2022

Customer reference / invoice no
2744438 / 23

Invoice / tax point date: 16 August 2022

Supply address: WASHINGTON QUARRY, THE HOLLOW, PULBOROUGH, RH20 3DA

Supply point ID: 3019371562W19

Our VAT number: 945 8508 85

Page 1 of 4

Your water services invoice

23 May - 12 August 2022 (81 days, average £0.17 per day)

YOUR ACCOUNT SUMMARY

221501

Your previous balance	£23.18	
Payments received	£23.18	CREDIT
Your balance brought forward	**£0.00**	

YOUR CHARGES THIS PERIOD (see page 2 for details)

Water services charges	£11.45
VAT	£2.29
Total charges this period	**£13.74**

We look forward to receiving your payment of £13.74

For ways to pay see page 3

Posted
19/8/22

2022/23 charges

You can find more information on our charges and ways to save water and money on our website.

Visit business-stream.co.uk

How much water are you using?

If you'd like to reduce the volume of water you're using, check out our water saving tips on our website. You'll also be able to find advice on our website **business-stream.co.uk**

Actual meter read

This invoice is based on an actual read. To ensure the accuracy of future bills, you can submit your own readings, as long as it's safe to access your meter, on **business-stream.co.uk/meter-reading**. If your water is not provided by us, we will receive reads from your other supplier.

The water experts

Unless otherwise agreed, Scottish Water Business Stream Ltd provides services to you in accordance with our standard terms and conditions, a copy of which is available here: www.business-stream.co.uk/EnglandWalesTerms. Copies are also available on request. Through your continued receipt and acceptance of our services, you are deemed to have accepted our standard terms and conditions.

22822L00_BSM-NEW | 000860 | Page 1 of 4 | BILLS
NNYNNN/400/MQC/SME/0/22

Your charges in detail

Based on this period your annual carbon consumption is **0.00 kgCO2e/yr**, based on National Government statistics.

Meter number / meter size: 13A10225 ARAD 25mm

Water charges			Units	Rate	VAT	Charge
Fixed water charge						
Yearly fee £51.61	23 May 22 - 11 Aug 22		81 days	0.141397	S	£11.45
Volumetric water charge						
Actual reading	12 Aug 22	429				
Estimated reading	23 May 22	429				
=Volume used this period			0.00 m³			
Charges	23 May 22 - 12 Aug 22		0.00 m³	1.545000	S	£0.00
Total water charges						**£11.45**

A yearly fee for the upkeep of external pipes and pumps that supply water to your property.

The charge for the recorded amount of water you've used, measured by your meter.

Subtotal	**£11.45**
VAT at 20%	£2.29
Total charges this period	**£13.74**

VAT on our charges
Most of our services are zero-rated (Z) but some are standard rate (S) or outside scope (O).
See **business-stream.co.uk/vat** for more information

22822L00_BSM-NEW | 000860 | Page 2 of 4 | BILLS
NNYNNN/400/MQC/SME/0/22

START_481

business stream
A SCOTTISH WATER COMPANY

business-stream.co.uk
0330 123 2000
If you have an emergency, please contact your:
Water wholesaler: Southern Water
Visit **business-stream.co.uk/wholesaler**

BSM-NEW | 000481 | Page 1 of 2 | BILLS | 000481
DUDMAN AGGREGATES LTD
84
ALBION STREET
SOUTHWICK
BN42 4DP

RECEIVED
28 NOV 2022

Customer reference / invoice no
2744438 / 24

Invoice / tax point date: 24 November 2022

Supply address: WASHINGTON QUARRY, THE HOLLOW, PULBOROUGH, RH20 3DA

Supply point ID: 3019371562W19

Our VAT number: 945 8508 85

Page 1 of 4

Your water services invoice

12 August - 23 November 2022 (103 days, average £0.30 per day)

YOUR ACCOUNT SUMMARY

22 SC1

Your previous balance	£13.74	
Payments received	£13.74	CREDIT
Your balance brought forward	**£0.00**	

YOUR CHARGES THIS PERIOD (see page 2 for details)

Water services charges	£25.38
VAT	£5.07
Total charges this period	**£30.45**

We look forward to receiving your payment of £30.45

For ways to pay see page 3

2022/23 charges

You can find more information on our charges and ways to save water and money on our website.

Visit business-stream.co.uk

Posted 5/12/22

How much water are you using?

If you'd like to reduce the volume of water you're using, check out our water saving tips on our website. You'll also be able to find advice on our website **business-stream.co.uk**

Estimated invoice

This invoice is based on an estimated read. If we receive an actual read, we will use it to calculate your next bill. You can submit your own readings, as long as it's safe to access your meter, on **business-stream.co.uk/meter-reading**. If your water is not provided by us, we will receive reads from your other supplier.

The water experts

Unless otherwise agreed, Scottish Water Business Stream Ltd provides services to you in accordance with our standard terms and conditions, a copy of which is available here: www.business-stream.co.uk/EnglandWalesTerms. Copies are also available on request. Through your continued receipt and acceptance of our services, you are deemed to have accepted our standard terms and conditions.

32822L00_BSM-NEW | 000481 | Page 1 of 4 | BILLS
NNYNNN1400/MOC/SME/0/22

Your charges in detail

Based on this period your annual carbon consumption is **4.47 kgCO2e/yr**, based on National Government statistics.

Meter number / meter size: 13A10225 ARAD 25mm

Water charges			Units	Rate	VAT	Charge
Fixed water charge						
Yearly fee £51.61	12 Aug 22 - 22 Nov 22		103 days	0.141397	S	£14.56
Volumetric water charge						
Estimated reading	23 Nov 22	436				
Actual reading	12 Aug 22	429				
=Volume used this period			7.00 m³			
Charges	12 Aug 22 - 23 Nov 22		7.00 m³	1.545000	S	£10.82
Total water charges						**£25.38**

A yearly fee for the upkeep of external pipes and pumps that supply water to your property.

The charge for the recorded amount of water you've used, measured by your meter.

Subtotal	**£25.38**
VAT at 20%	£5.07
Total charges this period	**£30.45**

VAT on our charges
Most of our services are zero-rated (Z) but some are standard rate (S) or outside scope (O).
See **business-stream.co.uk/vat** for more informati

Annex C - BREEAM Calculations

Proposed Baseline Performance Level

Proposed Performance Level 3

BREEAM 2018 Wat 01 Water consumption: Water efficiency calculator for new non domestic office buildings

BREEAM UK delivered by bre

Building type	Description of building type	Default occupancy	Default annual days/operation	Default daily hours of operation
Office	Offices and workshop business (including those with a basic (category 1) laboratory area)	15.0405	253	10

	Main building activity areas	Description of activity area	Activity area present in building?	Net Floor Area (m^2)
	Office - Office areas	Cellular or open plan office space, including staff kitchen where present/adjacent and reception areas. Exlcude meeting rooms, visitor waiting or circulation areas.	Yes	135.5
>	Office - Small workshop / laboratory space	Small scale workshop or category 1 laboratory area	Please select	
>	Office - Staff canteen dining area	Seated dining areas that accompany a permanently staffed kitchen preparing food for consumption on the premises (excludes small un-staffed kitchen's used by office staff to re-heat food, make tea etc.)	Please select	
>	Office - Fitness suite/gym (with changing facility and showers)	A fitness suite or gym that is part of the office building/development and used by the building's employees only. The gym will have its own changing facility with showers.	Please select	

Water consumption - building microcomponent

WC component - all activity areas	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
WC - male (urinals installed)	Effective flush volume (Litres)	3.75	1.00	1.00	1.88
WC - female	Effective flush volume (Litres)	3.75	4.00	1.00	7.50

Urinal component - all activity areas	units	Specification	No. of cisterns	Flushing frequency (flushes/hour)	Consumption (L/person/day)
Automatically operated flushing cistern	Cistern capacity (Litres)				0.00
	No. of urinal bowls				
	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
Manual/automatic operated pressure flushing valve (all activity areas)	Flush volume (litres)	1.50	3.00	1.00	1.80
	No. of urinal bowls	4.00			
	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
Waterless urinals (all activity areas)	Flush volume (litres)	Waterless urinals - not specified	3.00	1.00	0.00
	No. of urinal bowls				

	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
Taps components (personal hygiene) - all activity areas					
Wash hand basin taps	Flow rate (litres/min)	5.00	4.00	0.25	3.39
Shower use	Flow rate (litres/min)	0.00	0.154	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	1.58
Tap components (cleaning) - staff kitchenette					
Kitchen taps - kitchenette	Flow rate (litres/min)	6.00	1.00	0.67	2.72
Dishwasher	Litres/cycle	12.00	0.04	1.00	0.48
Tap components (cleaning and food preparation) - staff canteen food preparation area					
Kitchen taps - pre-rinse nozzle	Flow rate (litres/min)	0.00	-	60.00	0.00
Dishwasher	Litres/rack	0.00	-	0.217	0.00
Waste disposal unit	Flow rate (litres/min)	0.00	-	30.00	0.00
Fixed use - food preparation	Litres/person/day	-	-	-	0.00
Fixed use - kitchen cleaning	Litres/person/day	-	-	-	0.00

	Microcomponent consumption (L/person/day)
Total	19.34

Minimum requirements according to EU taxonomy for sustainable finance

Do all the installed wash hand basin taps and kitchen taps have a maximum water flow of 6 litres/min?	System not specified
Do all the installed showers have a maximum water flow of 8 litres/min?	System not specified
Do all WCs, including suites, bowls and flushing cisterns, have a full flush volume of a maximum of 6 litres and a maximum average flush volume of 3,5 litres?	System not specified
Do all urinals use a maximum of 2 litres/bowl/hour and flushing urinals have a maximum full flush volume of 1 litre?	System not specified
Is all the EU taxonomy requirements for sanitary equipment met?	Yes

Non potable water yield - greywater system

Has, or will, the greywater system be specified and installed in compliance with BS8525-1:2010 Greywater Systems - Part 1 Code of Practice	No

Greywater source (building components)	Greywater collected	Proportion of components collected from (%)	Greywater yield (L/person/day)

Greywater source (other components)	Typical greywater yield (litres)	Frequency of yield (days)	Greywater yield (litres/day)	Greywater yield (L/person/day)

	Greywater yield (L/person/day)
Total	0.00

Non potable water yield - rainwater system

Has, or will, the rainwater system be specified and installed in compliance with BS EN 16941-1:2018 Rainwater Harvesting Systems - Code of practice	No
How has the storage capacity for the proposed system been calculated?	

Rainwater yield if basic approach:

Collection area (m2)	Rainfall (average mm/yr)	Hydraulic filter efficiency (%)	Yield co-efficient (%)	Annual rainwater yield (Litres)	Rainwater yield (L/person/day)

Rainwater yield if detailed:

Daily rainfall collection (litres)	Rainwater yield (L/person/day)

Non Potable Water Demand - Building Components

	Greywater and/or rainwater yield (L/person/day)
Total	

Component	Greywater and/or rainwater utilised for component	Proportion of components using greywater and/or rainwater yield (%)	Maximum permissible demand (L/person/day)

	Demand met by yield (L/person/day)
Total	

Other permissible components

	Maximum permissible demand (L/day)

	Demand met by yield (L/person/day)
Total	

	Greywater and/or rainwater demand met by yield (L/person/day)
Total	

Water consumption calculation results

	Litres/person/day	m^3/person/yr
Water consumption - modelled baseline performance benchmark (excludes fixed uses)	**113.53**	**28.72**
Microcomponent water consumption - modelled performance (excludes fixed uses)	**17.76**	**4.49**
Modelled water demand met via greywater and rainwater sources	**0.00**	**0.00**
If greywater/rainwater systems specified has the minimum % efficiency improvement for component specifications been met	**System not specified**	
Net modelled water consumption (excludes fixed uses)	**17.76**	**4.49**
Percentage improvement	**84.35%**	
Total Wat 01 BREEAM credits achieved, before checking minimum requirements according to EU taxonomy for sustainable finance.	**5 credits**	
Total Wat 01 BREEAM credits achieved	**5 credits**	
Total Wat 01 BREEAM Exemplary credits achieved	**1 innovation credit achieved**	
Key performance indicator - use of freshwater resource (includes fixed uses)	**19.34**	**4.89**

BREEAM 2018 Wat 01 Water consumption: Water efficiency calculator for new non domestic office buildings

BREEAM UK delivered by bre

Building type	Description of building type	Default occupancy	Default annual days/operation	Default daily hours of operation
Office	Offices and workshop business (including those with a basic (category 1) laboratory area)	3.774	253	10

	Main building activity areas	Description of activity area	Activity area present in building?	Net Floor Area (m^2)
	Office - Office areas	Cellular or open plan office space, including staff kitchen where present/adjacent and reception areas. Exlcude meeting rooms, visitor waiting or circulation areas.	Yes	34
>	Office - Small workshop / laboratory space	Small scale workshop or category 1 laboratory area	Please select	
>	Office - Staff canteen dining area	Seated dining areas that accompany a permanently staffed kitchen preparing food for consumption on the premises (excludes small un-staffed kitchen's used by office staff to re-heat food, make tea etc.)	Please select	
>	Office - Fitness suite/gym (with changing facility and showers)	A fitness suite or gym that is part of the office building/development and used by the building's employees only. The gym will have its own changing facility with showers.	Please select	

Water consumption - building microcomponent

WC component - all activity areas	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
WC - male (urinals installed)	Effective flush volume (Litres)	4.00	1.00	1.00	2.00
WC - female	Effective flush volume (Litres)	4.00	4.00	1.00	8.00

Urinal component - all activity areas	units	Specification	No. of cisterns	Flushing frequency (flushes/hour)	Consumption (L/person/day)
Automatically operated flushing cistern	Cistern capacity (Litres)				0.00
	No. of urinal bowls				

	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
Manual/automatic operated pressure flushing valve (all activity areas)	Flush volume (litres)	1.50	3.00	1.00	1.80
	No. of urinal bowls	4.00			

	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
Waterless urinals (all activity areas)	Flush volume (litres)	Waterless urinals - not specified	3.00	1.00	0.00
	No. of urinal bowls				

	units	Specification	Usage/person/day	Usage factor	Consumption (L/person/day)
Taps components (personal hygiene) - all activity areas					
Wash hand basin taps	Flow rate (litres/min)	4.50	4.00	0.25	3.05
Shower use	Flow rate (litres/min)	0.00	0.154	5.60	0.00
Fixed use - vessel filling	Litres/person/day	-	-	-	1.58
Tap components (cleaning) - staff kitchenette					
Kitchen taps - kitchenette	Flow rate (litres/min)	5.00	1.00	0.67	2.27
Dishwasher	Litres/cycle	0.00	0.04	1.00	0.00
Tap components (cleaning and food preparation) - staff canteen food preparation area					
Kitchen taps - pre-rinse nozzle	Flow rate (litres/min)	0.00	-	60.00	0.00
Dishwasher	Litres/rack	0.00	-	0.217	0.00
Waste disposal unit	Flow rate (litres/min)	0.00	-	30.00	0.00
Fixed use - food preparation	Litres/person/day	-	-	-	0.00
Fixed use - kitchen cleaning	Litres/person/day	-	-	-	0.00

	Microcomponent consumption (L/person/day)
Total	18.69

Minimum requirements according to EU taxonomy for sustainable finance

Do all the installed wash hand basin taps and kitchen taps have a maximum water flow of 6 litres/min?	System not specified
Do all the installed showers have a maximum water flow of 8 litres/min?	System not specified
Do all WCs, including suites, bowls and flushing cisterns, have a full flush volume of a maximum of 6 litres and a maximum average flush volume of 3,5 litres?	System not specified
Do all urinals use a maximum of 2 litres/bowl/hour and flushing urinals have a maximum full flush volume of 1 litre?	System not specified
Is all the EU taxonomy requirements for sanitary equipment met?	Yes

Non potable water yield - greywater system

Has, or will, the greywater system be specified and installed in compliance with BS8525-1:2010 Greywater Systems - Part 1 Code of Practice	No

Greywater source (building components)	Greywater collected	Proportion of components collected from (%)	Greywater yield (L/person/day)

Greywater source (other components)	Typical greywater yield (litres)	Frequency of yield (days)	Greywater yield (litres/day)	Greywater yield (L/person/day)

	Greywater yield (L/person/day)
Total	0.00

Non potable water yield - rainwater system

Has, or will, the rainwater system be specified and installed in compliance with BS EN 16941-1:2018 Rainwater Harvesting Systems - Code of practice	No
How has the storage capacity for the proposed system been calculated?	

Rainwater yield if basic approach:

Collection area (m2)	Rainfall (average mm/yr)	Hydraulic filter efficiency (%)	Yield co-efficient (%)	Annual rainwater yield (Litres)	Rainwater yield (L/person/day)

Rainwater yield if detailed:

Daily rainfall collection (litres)	Rainwater yield (L/person/day)

Non Potable Water Demand - Building Components

	Greywater and/or rainwater yield (L/person/day)
Total	

Component	Greywater and/or rainwater utilised for component	Proportion of components using greywater and/or rainwater yield (%)	Maximum permissible demand (L/person/day)

	Demand met by yield (L/person/day)
Total	

Other permissible components

	Maximum permissible demand (L/day)

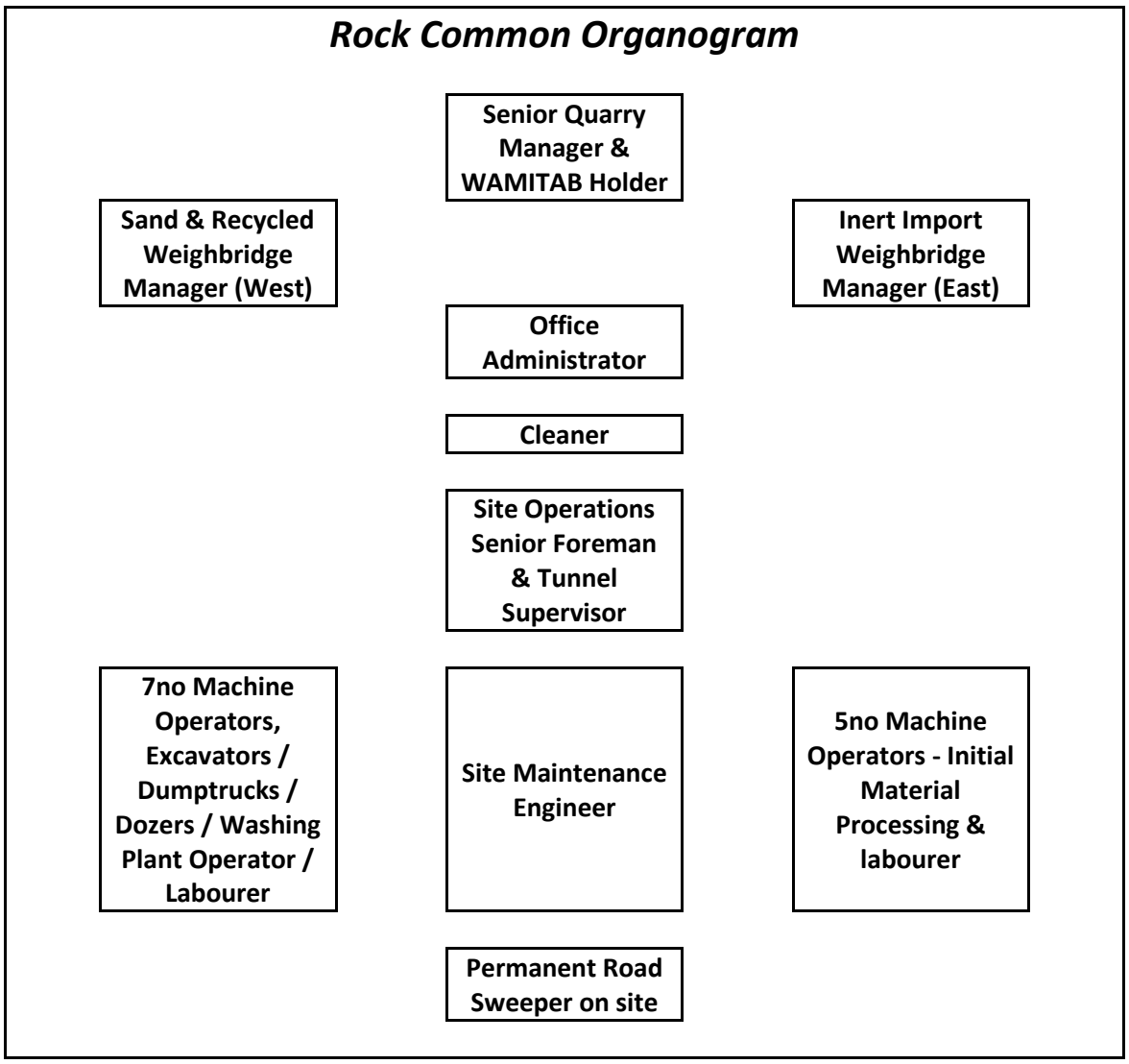
	Demand met by yield (L/person/day)
Total	

	Greywater and/or rainwater demand met by yield (L/person/day)
Total	

Water consumption calculation results

	Litres/person/day	m^3/person/yr
Water consumption - modelled baseline performance benchmark (excludes fixed uses)	**337.42**	**85.37**
Microcomponent water consumption - modelled performance (excludes fixed uses)	**17.11**	**4.33**
Modelled water demand met via greywater and rainwater sources	**0.00**	**0.00**
If greywater/rainwater systems specified has the minimum % efficiency improvement for component specifications been met	**System not specified**	
Net modelled water consumption (excludes fixed uses)	**17.11**	**4.33**
Percentage improvement	**94.92%**	
Total Wat 01 BREEAM credits achieved, before checking minimum requirements according to EU taxonomy for sustainable finance.	**5 credits**	
Total Wat 01 BREEAM credits achieved	**5 credits**	
Total Wat 01 BREEAM Exemplary credits achieved	**1 innovation credit achieved**	
Key performance indicator - use of freshwater resource (includes fixed uses)	**18.69**	**4.73**

Annex D – Organisation Chart



Annex E - Wheel Wash Specifications

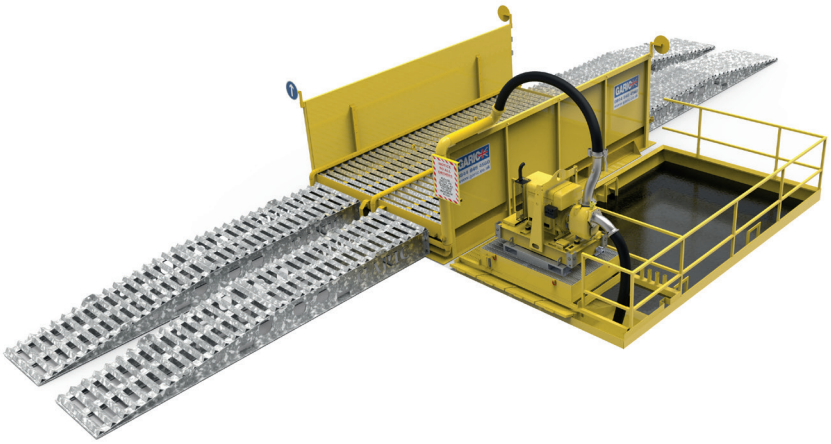
GARIC

ON-DEMAND, ON-SITE, ON-TIME.

SALE ITEM
BUY ME TODAY

ENVIRO WHEEL WASH

A HISTORY OF INNOVATION



STANDARD SPECIFICATIONS:

Product Code	300002
Unit Name	Enviro Wheel Wash
Dimensions with ramps	62 x 24ft / 20 x 7.3m
Dimensions without ramps	22 x 24ft / 6.7 x 7.3m
Weight	12,200Kg
Weight (with ramps)	14,200Kg
Power type	6" Diesel water pump
Steel fabricated wash area	✔
Internal removable rumble road sections	✔
25mm water inlet (c/w ball cock fitted)	✔
Heavy duty lifting/lashing points	✔
Automated magic eye system	✔
Dig Measurements	6.3m length x 1.02m depth x 3.5m width

Our enviro wheel wash is the ideal solution for demolition, quarrying and ground works sites where trucks, dumpers and lorries are regularly passing through heavy duty mud, dirt and debris.

Our fully automated and totally self-sufficient enviro wheel wash is perfect for sites where sticky clay and mud can be a big problem. As vehicles pass through the wheel wash, exceptionally powerful jets spray water onto the wheels, chassis and undersides, cleaning the vehicles without them even needing to stop. The wheel wash is environmentally friendly and utilises the latest water filtration technology combined with a 100 percent water recirculation system.

It doesn't require an operative and is easy to maintain due to an innovative easy-clean water catchment area. Furthermore, it requires no electricity power source because it runs off a simple yet reliable 6" diesel pump.

The enviro wheel wash can be elevated and placed directly onto a surfaced area with ramps or excavated into the ground making it suitable for a large variety of sites.

KEY FEATURES:

- Powered heavy duty wheel wash
- Steel fabricated wash area
- Heavy duty lifting and lashing points
- Cleaning area with vertical spray jets
- Automatic sensors

OPTIONAL EXTRAS AVAILABLE

- Remote lagoon
- Upgrade max load
- Upgrade - Additional spray/wash nozzles
- Upgrade - duel pump system
- Electric pump
- Corporate paint spec.

Annex F – Water Quality Results

Source: Drinking Water Contamination Test, Oakshire Environmental, 4 September 2023

			Sample ID	W02
			Sample Location	Rock Common
			Sampling Date	15/08/2023
Determinand	**Codes**	**Units**	**LOD**	
Dissolved Metals				
Arsenic	U	ug/l	0.5	< 0.5
Calcium	U	ug/l	50	64100
Cadmium	U	ug/l	0.5	< 0.5
Chromium	U	ug/l	0.5	< 0.5
Copper	U	ug/l	0.5	< 0.5
Iron	U	ug/l	10	< 10
Mercury	U	ug/l	0.05	< 0.05
Magnesium	U	ug/l	50	10900
Manganese	U	ug/l	0.5	63.6
Sodium	U	ug/l	50	29600
Lead	U	ug/l	0.5	< 0.5
Selenium	U	ug/l	1	< 1
Zinc	U	ug/l	1.2	16.3
Anions				
Chloride	U	mg/l	0.5	36.3
Fluoride	U	mg/l	0.5	< 0.5
Nitrite	U	mg/l	1	< 1.0
Nitrate	U	mg/l	0.5	22.2
Sulphate	U	mg/l	0.5	41.4
Miscellaneous				
Electrical Conductivity	U	uS/cm	50	433
pH	U	pH units	0.1	fg 7.3
Suspended Solids	N	mg/l	0.1	18

OAKSHIRE
ENVIRONMENTAL

Quantum Intelligent Trading Ltd
Company No: 06537088
VAT No: 369 2662 60
Tel: 0800 433 2906
oakshireenvironmental.co.uk

Drinking Water Contamination Test

14 October 2023

Dudman Holdings
Rock Common, Washington, RH20 3BN

Report by Mr Louis Turner BSc (Hons)
Supervised by Mr Joseph Turner

CONTENTS

1. Introduction

The following document provides details of a Drinking Water Contamination Test carried out by Oakshire Environmental, and includes a description of the site, proposed project, sampling methodology, testing methodology and an evaluation laboratory testing.

1.1 Project Overview

Drinking water contamination testing has been requested by the client, to determine the suitability of sampled water from “Rock Common” for use as drinking water. Oakshire Environmental will carry out water testing, including delivery and collection of a water test kit, as described below.

1.2 Purpose of Investigation

The objectives of the Water Contamination Testing will be to:

- Identify contamination sampled water from Hydrocarbons.
- Determine the suitability of sampled water for use as drinking water.
- Assess the requirement for further investigations or treatment.

1.3 Scope of Work

- Brief introductory information will be noted to provide context to the report and will include an Introduction, Project Overview, Scope of Work and Limitations.
- In order to identify contamination sampled water, 1 x sample will be taken by the client from water at the site and analysed for Semi-Volatile Organic Compounds (SVOCs) inc TICs, Volatile Organic Compounds (VOCs) inc TICs and TPH (Aliphatic/ Aromatic) in a UKAS accredited laboratory.
- Results of laboratory testing will be assessed with reference to suitable screening values, including Environment Agency guidelines and Generic Assessment Criteria (GAC), to determine the suitability for use as drinking water.
- This information will be used to provide a clear, easy to understand and actionable summary of results, and assess the requirement for further investigations or treatment.
- Report will be carried out, by professional Environmental Consultants with BSc (Hons) in Environmental Science or above, in accordance with appropriate technical guidelines, which may include Environment Agency Land Contamination: Risk Management (LCRM) guidelines, The Water Framework Directive and Oakshire Environmental reporting guidelines.

1.4 Limitations

Quantum Intelligent Trading Ltd is previously and hereafter referred to as “Oakshire Environmental” or “the company”. Oakshire Environmental has exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant when undertaking works of this nature. This report is only valid when used in its entirety and any information or advice contained within the report should not be relied upon until considered in the context of the whole report. Oakshire Environmental disclaims any responsibility to the client, as named on the front of this report (“the client”), and others in respect of any matters outside the scope of this work. Any comments made on the basis of information obtained from the client or other third parties are given in good faith on the assumption that the information is accurate. This report has been prepared solely for the benefit of the client and any other party using or placing reliance upon any information contained in this report does so at their own risk. Oakshire Environmental accepts no responsibility or liability for the contents of this report being used for any purpose or project for which it was not commissioned. Oakshire Environmental accepts no liability whatsoever for any loss or damage arising from the interpretation or use of this report and in no event shall the company be liable for any punitive, exemplary or other special damages, or for any indirect, incidental or consequential damages, including with respect to the performance or non-performance of any services, whether arising under breach of contract, tort or any other legal theory, and regardless of whether the company has been advised of, knew of, or should have known of the possibility of such damages. Furthermore, Oakshire Environmental does not accept any liability for the consequences of any legislative changes or the release of subsequent guidance documentation and following delivery of the report has no obligation to advise the client or any other party of such changes or their repercussions.

This report excludes consideration of potential hazards arising from any activities at the site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities. Oakshire Environmental does not warrant or guarantee that the site is free of hazardous or potentially hazardous materials or conditions. It should be noted that this report has been produced for environmental purposes only.

Oakshire Environmental cannot be held responsible for incorrect analysis of samples. The information and conclusions provided in this report are limited to, and representative of, the samples taken and cannot be extended to apply to the whole site, in addition, Oakshire Environmental cannot guarantee the accuracy of analysis for samples not taken at the source by the company or those which deviate due to exceedance of holding time or inappropriate sampling practises. The findings and/or recommendations of this report do not take into account any conditions that may be present but have hitherto not been encountered and as such further investigation and/or a reconsideration of the findings of this report should be undertaken if such conditions are subsequently encountered or an alternative development plan or land use is subsequently proposed.

2. Site

The following section describes the site and outlines the details of proposed project.

2.1 Site Description and Location

The site is located at Rock Common, Washington, RH20 3BN.

2.2 Proposed Project

Water contamination testing has been requested by the client, to determine the suitability of sampled water from the site for use as drinking water.

3. Methodology

3.1 Sampling Methodology

One sample was taken by the client from proposed drinking water sources at the site, on 29th September 2023, and placed into sample containers. Sample containers used were filled as much as possible, to ensure a suitable sample size was obtained.

3.2 Health & Safety

When collecting potentially contaminated water samples it must be assumed that the water is contaminated in order to protect the health of the assessor, Personal Protective Equipment (PPE) was used during the sampling process to mitigate this risk. Sample containers were packed with biodegradable fill for protection and placed in a sealed container for transportation to the laboratory.

3.3 Testing Methodology

UKAS accredited laboratory testing included a suite of contaminants, including Semi-Volatile Organic Compounds (SVOCs) inc TICs, Volatile Organic Compounds (VOCs) inc TICs and TPH (Aliphatic/ Aromatic).

4. Evaluation of Results

4.1 Screening Values

Laboratory testing of water samples were analysed by comparing them to World Health Organisation (WHO) Guidelines for drinking-water quality. These guidelines include standards provided by the WHO that are used to manage the risk from hazards that may compromise the safety of drinking water. Screening values take a conservative approach to assessing potential risk and concentrations below these values can be considered to represent 'uncontaminated conditions' which pose a 'LOW' risk.

It is important to note that exceedance of a relevant screening value does not necessarily constitute evidence of either a ‘significant possibility of significant harm’ or the need for treatment. Rather such exceedance should usually trigger a further detailed quantitative risk assessment, where site-specific parameters are used to derive site-specific assessment criteria. Common sense tells us, and a robust risk evaluation reveals, that a gross exceedance is a good indicator that an unacceptable risk is present.

4.2 Summary of Results

- BTEX & MTBE concentrations were below the laboratory limit of detection
- TPH (Aliphatic/ Aromatic) concentrations were below the laboratory limit of detection
- Semi-Volatile Organic Compounds (SVOCs) concentrations were below the laboratory limit of detection and no Tentatively Identified Compounds (TICs) were identified
- Volatile Organic Compounds (VOCs) concentrations were below the laboratory limit of detection and no Tentatively Identified Compounds (TICs) were identified

4.3 Conclusions

Based on the results of laboratory testing, sampled water from a proposed drinking water source is not considered to have been impacted by VOC, SVOC or TPH contamination, suggesting a low risk to human health.

5. References

Environment Agency *Land contamination: risk management*. [online] Available at: <gov.uk/guidance/land-contamination-how-to-manage-the-risks>.

The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

Water Framework Directive – United Kingdom Technical Advisory Group, 2015. Metal Bioavailability Assessment Tool (M-BAT).

World Health Organization, 2017. *Guidelines for drinking-water quality: fourth edition incorporating the first addendum.* Geneva. Licence: CC BY-NC-SA 3.0 IGO.

Oakshire Environmental Available at: <oakshireenvironmental.co.uk>

		Sample Type	WATER
		Sample Location	Rock Common
		Sampling Date	29/09/2023
Determinand	**Codes**	**Units**	
BTEX			
Benzene	U	ug/l	< 1.00
Toluene	U	ug/l	< 1.00
Ethylbenzene	U	ug/l	< 1.00
Xylenes	U	ug/l	< 1.00
MTBE	U	ug/l	< 1.00
TPH CWG			
>C5-C6 Aliphatic (HS_1D_MS)	N	ug/l	c < 1.0
>C6-C8 Aliphatic (HS_1D_MS)	N	ug/l	c < 1.0
>C8-C10 Aliphatic (EH_CU_1D_AL)	N	ug/l	c < 5.0
>C10-C12 Aliphatic (EH_CU_1D_AL)	N	ug/l	c < 5.0
>C12-C16 Aliphatic (EH_CU_1D_AL)	N	ug/l	c < 5.0
>C16-C21 Aliphatic (EH_CU_1D_AL)	N	ug/l	c < 5.0
>C21-C35 Aliphatic (EH_CU_1D_AL)	N	ug/l	c < 5.0
>C35-C40 Aliphatic (EH_CU_1D_AL)	N	ug/l	c < 5.0
Total (>C5-C40) Aliphatic (HS_1D_MS+EH_CU_1D_AL)	N	ug/l	c < 5.0
>C5-C7 Aromatic (HS_1D_MS)	N	ug/l	c < 1.0
>C7-C8 Aromatic (HS_1D_MS)	N	ug/l	c < 1.0
>C8-C10 Aromatic (EH_CU_1D_AR)	N	ug/l	c < 5.0
>C10-C12 Aromatic (EH_CU_1D_AR)	N	ug/l	c < 5.0
>C12-C16 Aromatic (EH_CU_1D_AR)	N	ug/l	c < 5.0
>C16-C21 Aromatic (EH_CU_1D_AR)	N	ug/l	c < 5.0
>C21-C35 Aromatic (EH_CU_1D_AR)	N	ug/l	c < 5.0
>C35-C40 Aromatic (EH_CU_1D_AR)	N	ug/l	c < 5.0
Total (>C5-C40) Aromatic (HS_1D_MS+EH_CU_1D_AR)	N	ug/l	c < 5.0
Total (>C5-C40) Ali/Aro (HS_1D_MS+EH_CU_1D_Total)	N	ug/l	c < 5.0
VOC			
MTBE	U	ug/l	c < 1
Heptane	N	ug/l	c < 1
Octane	N	ug/l	c < 1
Nonane	N	ug/l	c < 1
Benzene	U	ug/l	c < 1
Toluene	U	ug/l	c < 1
Ethylbenzene	U	ug/l	c < 1
m+p-xylene	U	ug/l	c < 1
o-xylene	U	ug/l	c < 1
cis-1,2-dichloroethene	U	ug/l	c < 1
1,1-Dichloroethane	U	ug/l	c < 1
Chloroform	U	ug/l	c < 1
Tetrachloromethane	U	ug/l	c < 1
1,1,1-Trichloroethane	U	ug/l	c < 1
Trichloroethylene	N	ug/l	c < 1
Tetrachloroethylene	U	ug/l	c < 1
1,1,1,2-Tetrachloroethane	U	ug/l	c < 1
1-1-2-2-Tetrachloroethane	N	ug/l	c < 1
Chlorobenzene	U	ug/l	c < 1
Bromobenzene	U	ug/l	c < 1
Bromodichloromethane	U	ug/l	c < 1
Methylethylbenzene	U	ug/l	c < 1
1,1-Dichloro-1-propene	U	ug/l	c < 1
Trans - 1-2 -dichloroethylene	U	ug/l	c < 1
2,2-Dichloropropane	U	ug/l	c < 1
Bromochloromethane	U	ug/l	c < 1
1,2-Dichloroethane	U	ug/l	c < 1
Dibromomethane	U	ug/l	c < 1
1,2-Dichloropropane	U	ug/l	c < 1
cis-1,3-Dichloro-1-propene	U	ug/l	c < 1
trans-1,3-Dichloro-1-propene	U	ug/l	c < 1

1,1,2-Trichloroethane	U	ug/l	c < 1
Dibromochloromethane	U	ug/l	c < 1
1,3-Dichloropropane	U	ug/l	c < 1
Dibromoethane	U	ug/l	c < 1
Styrene	U	ug/l	c < 1
Propylbenzene	U	ug/l	c < 1
2-Chlorotoluene	U	ug/l	c < 1
1,2,4-Trimethylbenzene	U	ug/l	c < 1
4-Chlorotoluene	U	ug/l	c < 1
t-butylbenzene	U	ug/l	c < 1
1,3,5-Trimethylbenzene	U	ug/l	c < 1
1-methylpropylbenzene	U	ug/l	c < 1
p-cymene	N	ug/l	c < 1
1,3-Dichlorobenzene	U	ug/l	c < 1
Butylbenzene	U	ug/l	c < 1
1,2-Dibromo-3-chloropropane	U	ug/l	c < 1
Hexachlorobutadiene	U	ug/l	c < 1
1-2-3 - Trichlorobenzene	U	ug/l	c < 1
Naphthalene	U	ug/l	c < 1
1-2-4 - Trichlorobenzene	U	ug/l	c < 1
1,4-Dichlorobenzene	U	ug/l	c < 1
1,2-Dichlorobenzene	U	ug/l	c < 1
Bromoform	U	ug/l	c < 1
VOC TIC			
Various	N	ug/l	c None Detected
TIC			
SVOC			
Phenol	N	ug/l	c < 1.00
Aniline	N	ug/l	c < 1.00
Bis(2-chloroethyl)ether	N	ug/l	c < 1.00
2-Chlorophenol	N	ug/l	c < 1.00
1,3-Dichlorobenzene	N	ug/l	c < 1.00
1,4-Dichlorobenzene	N	ug/l	c < 1.00
Benzyl Alcohol	N	ug/l	c < 1.00
1,2-Dichlorobenzene	N	ug/l	c < 1.00
2-Methylphenol	N	ug/l	c < 1.00
Bis(2-chloroisopropyl)ether	N	ug/l	c < 1.00
3 and 4-methylphenol	N	ug/l	c < 1.00
N-Nitrosodi-n-propylamine	N	ug/l	c < 1.00
Hexachloroethane	N	ug/l	c < 1.00
Nitrobenzene	N	ug/l	c < 1.00
Isophorone	N	ug/l	c < 1.00
2-Nitrophenol	N	ug/l	c < 1.00
2,4-Dimethylphenol	N	ug/l	c < 1.00
Bis(2-chloroethoxy)methane	N	ug/l	c < 1.00
2,4-Dichlorophenol	N	ug/l	c < 1.00
1,3,5-Trichlorobenzene	N	ug/l	c < 1.00
Naphthalene	N	ug/l	c < 0.01
3-Chloroaniline	N	ug/l	c < 1.00
Hexachloro-1,3-butadiene	N	ug/l	c < 1.00
4-Chloro-3-methylphenol	N	ug/l	c < 1.00
2-Methynaphthalene	N	ug/l	c < 1.00
1-Methylnaphthalene	N	ug/l	c < 1.00
Hexachlorocyclopentadiene	N	ug/l	c < 1.00
2,4,6-Trichlorophenol	N	ug/l	c < 1.00
2,4,5-Trichlorophenol	N	ug/l	c < 1.00
1-Chloronaphthalene	N	ug/l	c < 1.00
2-Nitroaniline	N	ug/l	c < 1.00
1,4-Dinitrobenzene	N	ug/l	c < 1.00
Dimethyl phthalate	N	ug/l	c < 1.00
1-3-dinitrobenzene	N	ug/l	c < 1.00
2-6-dinitrotoluene	N	ug/l	c < 1.00
Acenaphthylene	N	ug/l	c < 0.01
1,2-Dinitrobenzene	N	ug/l	c < 1.00
3-Nitroaniline	N	ug/l	c < 1.00

Acenaphthene	N	ug/l	c < 0.01
4-nitrophenol	N	ug/l	c < 1.00
Dibenzofuran	N	ug/l	c < 1.00
2,3,5,6-Tetrachlorophenol	N	ug/l	c < 1.00
2,3,4,6-Tetrachlorophenol	N	ug/l	c < 1.00
Diethyl phthalate	N	ug/l	c < 1.00
1-chloro-4-phenoxybenzene	N	ug/l	c < 1.00
Fluorene	N	ug/l	c < 0.01
4-Nitroaniline	N	ug/l	c < 1.00
Dinitro-o-cresol	N	ug/l	c < 1.00
Diphenylamine	N	ug/l	c < 1.00
Azobenzene	N	ug/l	c < 1.00
1-bromo-4-phenoxybenzene	N	ug/l	c < 1.00
Hexachlorobenzene	N	ug/l	c < 1.00
Pentachlorophenol	N	ug/l	c < 1.00
Phenanthrene	N	ug/l	c 0.01
Anthracene	N	ug/l	c < 0.01
Carbazole	N	ug/l	c < 1.00
Dibutyl phthalate	N	ug/l	c < 1.00
Fluoranthene	N	ug/l	c < 0.01
Pyrene	N	ug/l	c < 0.01
Butyl benzyl phthalate	N	ug/l	c < 1.00
Bis-2-ethylhexyladipate	N	ug/l	c < 1.00
Diisooctyl phthalate	N	ug/l	c < 1.00
Benzo(a)anthracene	N	ug/l	c < 0.01
Chrysene	N	ug/l	c < 0.01
Bis(2-ethylhexyl)phthalate	N	ug/l	c < 1.00
Benzo(b)fluoranthene	N	ug/l	c < 0.01
Benzo(k)fluoranthene	N	ug/l	c < 0.01
Benzo(a)pyrene	N	ug/l	c < 0.01
Indeno(1,2,3-CD)pyrene	N	ug/l	c < 0.01
Dibenzo(a,h)anthracene	N	ug/l	c < 0.01
Benzo(ghi)perylene	N	ug/l	c < 0.01
SVOCTIC			
Various	N	ug/l	c None Detected
TIC			

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Water					
Aliphatic/Aromatic hydrocarbons in water	N		09/10/2023		GC-FID
VOC in waters	U		04/10/2023		GC-MS
SVOC in waters	N		05/10/2023	167	GC-MS
BTEX in waters	U		05/10/2023	200	GC-MS
Low range Aliphatic hydrocarbons water	N		05/10/2023	200	GC-MS
Low range Aromatic hydrocarbons water	N		05/10/2023	200	GC-MS
VOC in waters	U		04/10/2023	200	GC-MS
Aliphatic hydrocarbons in water	N		05/10/2023	215	GC-FID
Aromatic hydrocarbons in water	N		05/10/2023	215	GC-FID

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

LOD — LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.
The results relate only to the sample received.
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

Annex G - BREEAM Performance Levels

Table 8.3 Water efficient consumption levels by component type

Component	Performance levels (quoted numbers are minimum performance required to achieve the level)						
	Base	1	2	3	4	5	Unit
WC	6	4.5	4	3.75	3.5	3	Effective flush volume (litres) (see Definitions on page 210)
Wash-hand basin taps	10	8	6	5	4	3	litres/min
Showers	12	10	8	6	5	3.50	litres/min
Baths	200	180	160	140	120	100	litres
Urinal (2 or more urinals)	7.50	6	3	1.50	0.75	0	litres/bowl/ hour
Urinal (1 urinal only)	10	8	4	2	1	0	litres/bowl/ hour
Greywater and rainwater system	0%	0%	0%	25%	50%	75%	% of WC or urinal flushing demand met using recycled non-potable water
Kitchen tap: kitchenette	10	8	7	6	5	5	litres/min
Kitchen taps: restaurant (pre-rinse nozzles only)	10.30	9	8.30	7.30	6.30	6	litres/min
Domestic sized dishwashers	17	13	13	12	11	10	litres/cycle
Domestic sized washing machines	90	60	50	40	35	30	litres/use
Waste disposal unit	17	17	0	0	0	0	litres/min
Commercial sized dishwashers	8	7	6	5	4	3	litres/rack
Commercial or industrial sized washing machines	14	12	10	7.50	5	4.50	litres/kg

BREEAM UK New Construction, Non-Domestic Buildings, Technical Manual SD5078 2018 v3.0

Annex H – Drinking Water Tap and Signage Arrangements

Example of Push Lever Drinking Water Tap

Drinking Water Signage