# WATER NEUTRALITY STATEMENT FOR PENFOLD VERRALL, THE HAULAGE YARD, DIAL POST, HORSHAM, WEST SUSSEX, RH13 8NY.

Planning Reference: TBD

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## Executive Summary

H2Ogeo provided this Water Neutrality Statement to accompany a planning application for the installation of high-tech wash plant equipment within the existing licenced yard at the Penfold Verrall reclamation yard in Dial Post, West Sussex.

The Water Neutrality Statement demonstrates that the proposed development, through mitigation, will not increase the rate of water abstraction above existing levels in the Arun Valley. The existing baseline mains water consumption for the site is 1686 Litres/Day. This will increase to up to 8788 Litres/Day following installation and operation of the proposed wash plant.

By harvesting roof water and runoff from the northern portion of the site, it will be feasible to provide the 7102 Litres/Day for operating the new plant with a deficit of 843 Litres/Day.

The proposed 50,000 Litre storage tank on site will provide between seven and eight days operational storage.

Existing Consumption (L/D)	Proposed Consumption (L/D)	Combined Mains Water Consumption (L/D)	Mitigation Water (L/D)	Deficit = Mitigation - Proposed (L/D)	Mitigation Achieved
1686	7102	8788	7945	843	TRUE

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

Natural England cannot, with certainty, conclude that the Sussex North Water Supply Zone, 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 within Sussex North Water Supply Zone is not having an impact on the Arun Valley site, Natural England have advised that developments within this zone must not add to this impact.

West Sussex County Council have requested a Water Neutrality Statement is provided to accompany planning applications to demonstrate that the proposed development does not increase the rate of water abstraction for drinking water supplies above existing levels.

#### 1.1 Sussex North Water Resource Zone (WRZ)

Southern Water supplies water to Crawley Borough, Horsham District, the northern part of Chichester District, southern Waverley and the South Downs National Park from its Sussex North Water Resource Zone (WRZ).

Within the WRZ there are a number of water sources, one of which is the groundwater abstraction from the Hardham source, one of a number of groundwater and surface water abstractions around Pulborough<sup>1</sup> presented in Figure 1 along with the boundary of the Sussex North WRZ

The Hardham Groundwater abstraction is located approximately 12km west of the site.

#### 1.2 Background

Penfold Verrall wish to install a wash plant on their site at Dial Post, as part of this variation a planning application will be submitted. The planning application is for the installation of a high-tech wash plant within the existing licensed yard at the reclamation yard.

The yard has operated the same treatment of Construction, Demolition and Excavation Waste (CDEW) for years utilising crushing machines and separators. It is necessary to upgrade the existing process as the recycling rate reportedly drops from 65% in the Summer to less than 40% in Autumn and Winter in the wetter seasons.

By installing the new wash plant it is anticipated that it will be possible to recycle up to 80% of mixed soils on site all year round.

#### 1.3 Scope of Work

H2Ogeo was contacted by the Client and requested to provide a proposal to deliver a Water Neutrality Statement to support the proposed planning application to be submitted to West Sussex County Council.

The Water Neutrality Statement aims to demonstrate that 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.

<sup>&</sup>lt;sup>1</sup> <u>https://www.horsham.gov.uk/\_\_data/assets/pdf\_file/0019/104482/EYP-JBAU-XX-XX-RP-EN-0001-A1-C03-Water\_Neutrality\_Assessment\_Part\_A.pdf</u>

The proposal was accepted and the Water Neutrality Statement is presented in this report.

A Statement of Limitations is presented at the start of this report.

## 2 Site Location and Setting

The Penfold Verrall site is located in Dial Post in West Sussex east off the A24 approximately 6.5km north east of Washington.

The proposed development is centred on National Grid Reference: TQ15931 18457 (Easting: 515931, Northing: 118457) and presented in Figure 2.

The site is located in the Adur (Knepp) water body catchment area, part of the Adur Upper Operational Cathcment. The hydrometric catchment area is presented in Figure 3.

#### 2.1 Existing Site

The existing site was granted permission in 2016 and consists of an inert recycling facility that reduces the amount of waste materials that need to be disposed of at landfill sites in Sussex.

The site operates under Environment Agency Permit EPR/EB3105FJ and is permitted to treat waste on site to produce soil, soil substitutes and aggregate.

The existing processing facility comprises a powerscreen, crusher and hardstanding areas for stockpiles. The facility is currently served by wheeled loaders and an excavator. It adjoins the haulage yard facility and is situated in the southern portion.

The site is surrounded on the eastern, southern and western boundaries by an earth bund. There is a narrow strip of trees and shrubs separating the site from the access road in the north.

There are office buildings on site and a maintenance shed for vehicles. Within the offices and maintenance shed are welfare facilities including kitchenettes, WCs and a mess room.

The existing site layout is presented in Annex A.

#### 2.2 Proposed Development

The proposed development is for the installation and operation of a new wash plant at the existing waste transfer and recycling facility.

Drawing No: 22-12-02, presented in Annex A, shows the layout and describes the various processes involved in the new proposed wash plant, these are summarised below:

- Screener and Feed Hopper Loading;
- Pre-Wash and Sand/Silt Divider
- Hydrocyclone;
- Log washer;
- Trash and Finishing Screen;
- Water Management and Desilting Operation; and
- Filter Press, Wate Recycling and Pliable Cake Release.

At the end of the proposed CDEW treatment the final slurry mix is pressed to remove water content with the resultant 'slurry cakes' also destined for re-cyclable uses.

In terms of the overall proposed yard adaptation the installation does not require any site enlargement nor does it create throughput capacities beyond the existing approved limits.

## 3 Baseline Calculations

This section outlines the baseline water consumption for the existing site.

#### 3.1 Existing Demand

The existing mains water demand on site has been calculated by assessing the water bills presented in Annex B.

The table below summarises the mains water consumption between March 2021 and February 2023:

From	То	Days	m3 Billed	Litres/Day (average)
22/03/2021	23/03/2022	623	366	1702
23/03/2022	07/09/2022	283	168	1685
07/09/2022	27/02/2023	289	173	1671
		<u>.</u>	Maximum	1702
			Minimum	1671
			Average	1686

Table 1 Summary of Water Consumption

The average mains water consumption for the site over this billed period is 1686 Litres/Day with a maximum of 1702 Litres/Day in 2021/2022.

There is a quick-fill tank for the road sweeper at the rear of the workshop, this holds 2500 litres of mains water. The sweeper itself requires 1500 litres of water each fill. Average fill rates have been provided by the Client at seven times a week as the sweeper is not operational every day and not always filled up on site.

Seven times a week equates to 10.5m<sup>3</sup>/Week or when pro-rated 1496 Litres/Day.

The Client has informed H2Ogeo that there are approximately 60 staff members, 40 of which are on site during the day, with the rest out on site elsewhere or driving.

Due to the complexities of the staffing structure, i.e. drivers, office workers as well as staff on site, the daily consumption has been evaluated by reporting separately the daily sweeper volumes from the overall site daily average consumption:

The table below outlines the breakdown of existing mains water consumption per day on site.

Activity	No'	Litres/Day	Comments
Full Time Employees on Site	40	190	Calculated by average daily consumption minus the road sweeper average consumption
Road Sweeper	1	1496	Road sweeper average assuming 1.5m <sup>3</sup> /fill seven times per week
	Total Average	1686	

Table 2 Breakdown of Mains Water Consumption

#### 3.2 Proposed Demand

The mains water demand for the wash plant is presented in the table below and can be summarised as follows:

- The initial fill volume of the wash plant is 350,000 Litres;
- The daily requirement for mains water is 6000 Litres/Day used for dosing flocculant in the dirty water tank; and
- 10, 000 Litres/Week for the wash down system that is used to flush the press (10,000 Litres/Week or 143 Litres/Day).

Using the figures provided above, the daily water requirement for the plant is 7102 Litres/Day, including the initial fill volume and, 6143 Litres/Day, excluding the initial fill volume.

These daily volumes are in addition to the existing average consumption of 1686 Litres/Day therefore the maximum daily mains water consumption, including the initial fill, at the site will be 8788 Litres/Day.

The site will require mitigation to achieve water neutrality.

## 4 Water Neutrality Mitigation

To achieve water neutrality there are three proposed mitigation schemes, these are:

- Rainwater harvesting;
- Water recycling; and
- Storage.

#### 4.1 Rainwater Harvesting

The site has a high potential to collect rainfall and store it on site.

There are several roof areas that are currently not collected and there is the capacity for tanks to collect surface water runoff and put it into the wash plant system.

The rainwater harvesting potential has been calculated as follows:

Surface Area x Standard Average Annual Rainfall = m<sup>3</sup>/year

The area to be used for rainwater harvesting and capture of surface water runoff is in the north of the site consisting of the workshop roof, lorry parking area, office roofs and hard standing area.

This area is presented in Annex A and covers an area of =  $3,580m^2$ .

The Standard Average Annual Rainfall (SAAR) is 810mm/year<sup>2</sup> therefore the total potential volume of rainwater collection is 2,900m<sup>3</sup>/year, this equates to 7,945 Litres/Day.

#### 4.2 Water Recycling

All water from the wash plant area will be recycled back into the washing cycle achieving 98% efficiency, 2% loss occurs through evaporation and environmental factors.

#### 4.3 Storage

The existing site drainage is via a network of Aco Drains discharging via settlement tanks to a drainage ditch west of the site.

The existing site layout and drainage is presented in Annex A.

The proposed development has a 15,000 Litre storage fresh water tank, this will be upgraded to a 50,000 Litre storage tank. Water from the drainage system will pass via the existing settlement tanks in the north west of the site and discharge into the new tank for use in the process.

The 50m<sup>3</sup> tank will provide water storage during dry periods for between seven and eight days operation.

<sup>&</sup>lt;sup>2</sup> Greenfield runoff rate estimation - members | UK SuDS

## 5 Conclusion

The existing mains water consumption for the site is 1686 Litres/Day. The proposed new wash plant will increase the potential demand to a maximum of 7102 Litres/Day dropping to 6143 Litres/day once the initial fill is complete.

The wash plant has a water efficiency of 98% and therefore will only require up to 6143 Litres/Day including flocculant dosing water (6000 Litres/Day) and water for the wash down system that is used to flush the press (10,000 Litres/Week or 143 Litres/Day).

Mitigation has been proposed through harvesting rainwater from existing buildings and surface runoff that currently discharges to a nearby drainage ditch. There will be no impact of surface water contributions to the Arun Valley as the site is present in the Adur Upper Operational Catchment.

The table below summarises the water consumption as existing and proposed and the positive effect of mitigation:

Table 3 Summary of Water Neutrality
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Existing Consumption (L/D)	Proposed Consumption (L/D)	Combined Mains Water Consumption (L/D)	Mitigation Water (L/D)	Deficit = Proposed – Mitigation (L/D)	Mitigation Achieved
1686	7102	8788	7945	843	TRUE

By providing a supply of water from rainwater harvesting it is feasible to offset the additional demand.

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 Hardham WRZ

Figure 2 Site Location

Figure 3 Hydrometric Catchment







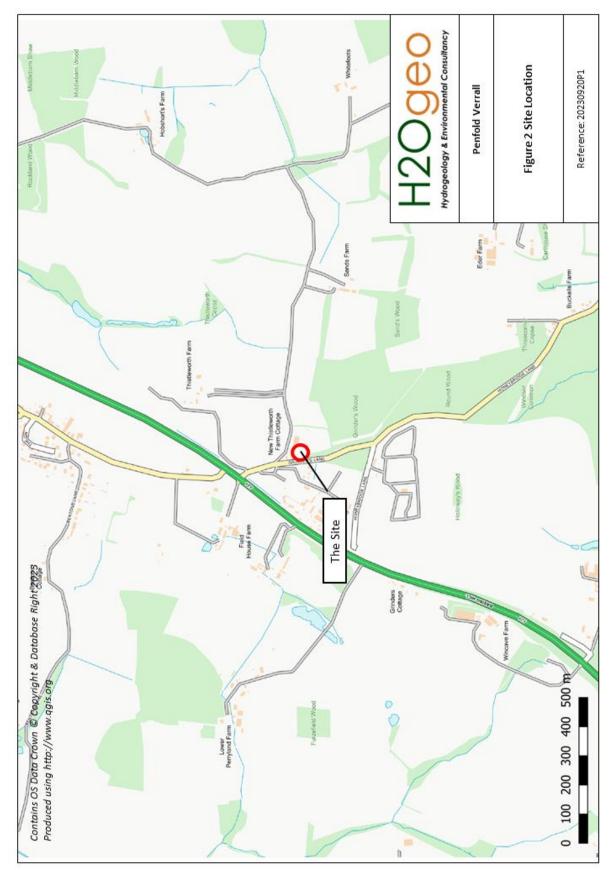
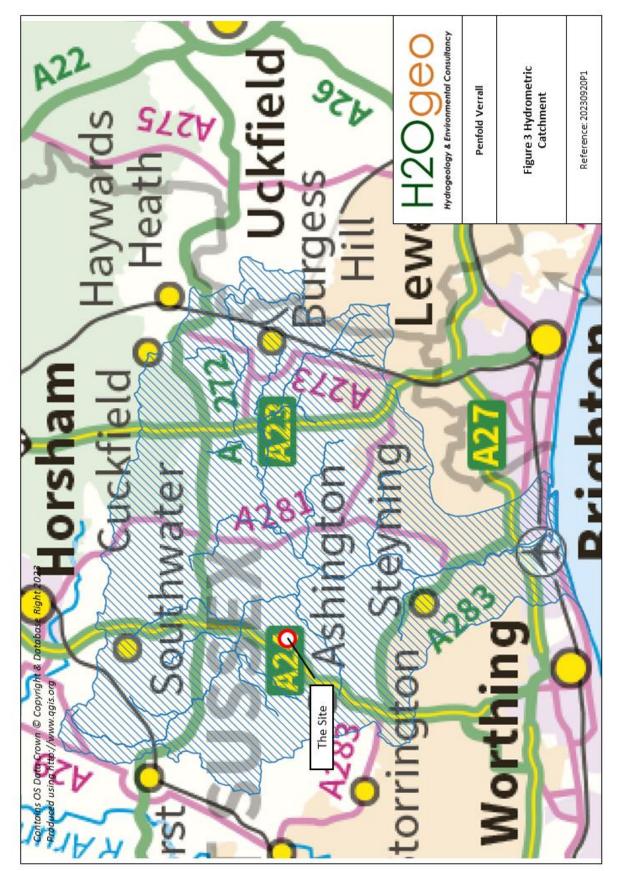


Figure 3 Hydrometric Catchment

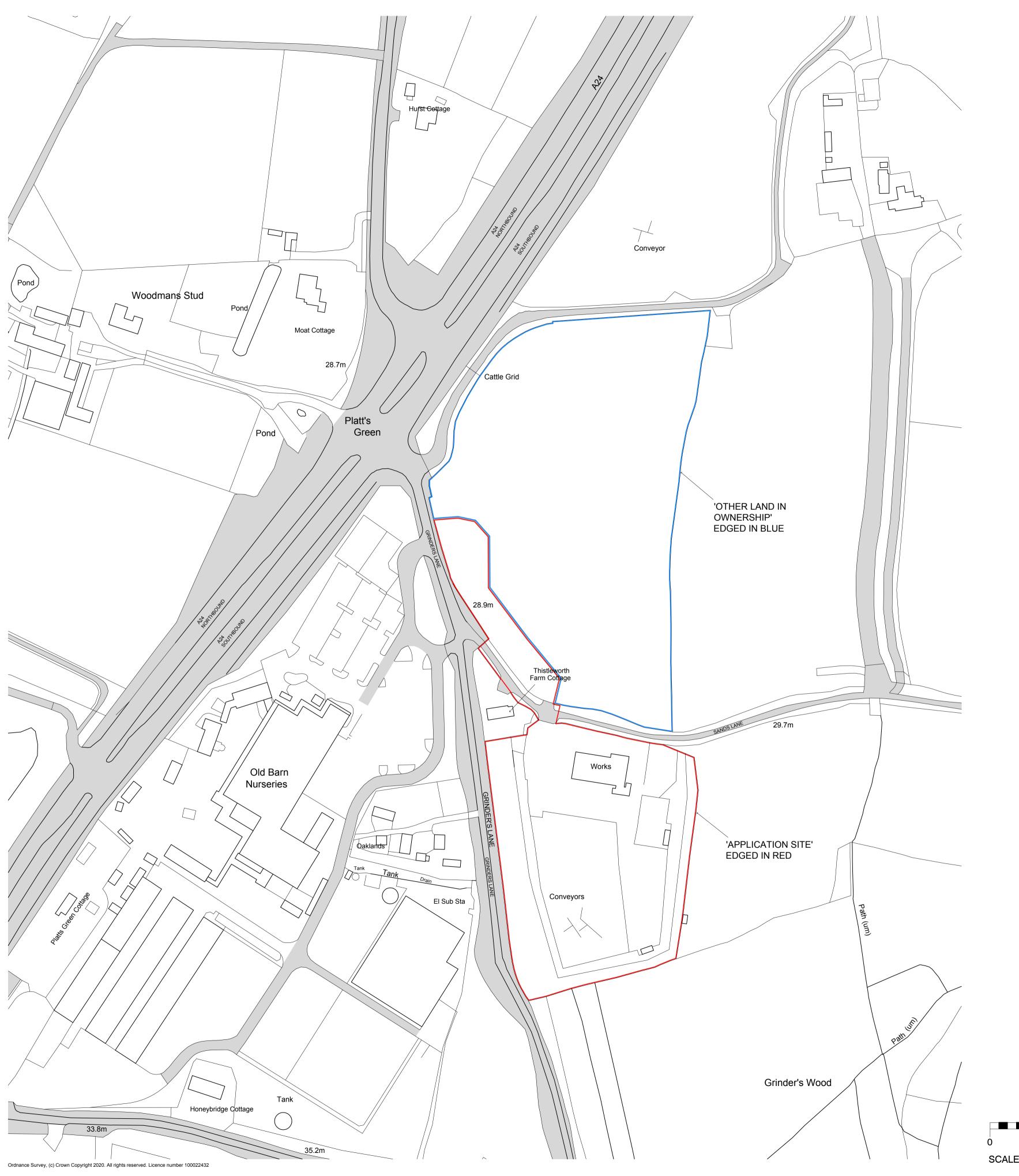


## 7 Annexes

Annex A - Drawings

Annex B – Water Bills

Annex A – Planning Drawings



NORTH

50 SCALE - METRES

	Revisions	Date	
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Clie PE			
	INFOLD VERRALL LTD.		
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C C C C T	Chartered Building Surveyors ploying Chartered Architects & Surveyo Chartered Architects & Surveyo		
C C C C T T E	Chartered Building Surveyors mploying Chartered Architects & Surveyo cel: 01403 740034 mail: info@douglasjpedwards.co.uk Construction Co	rs	

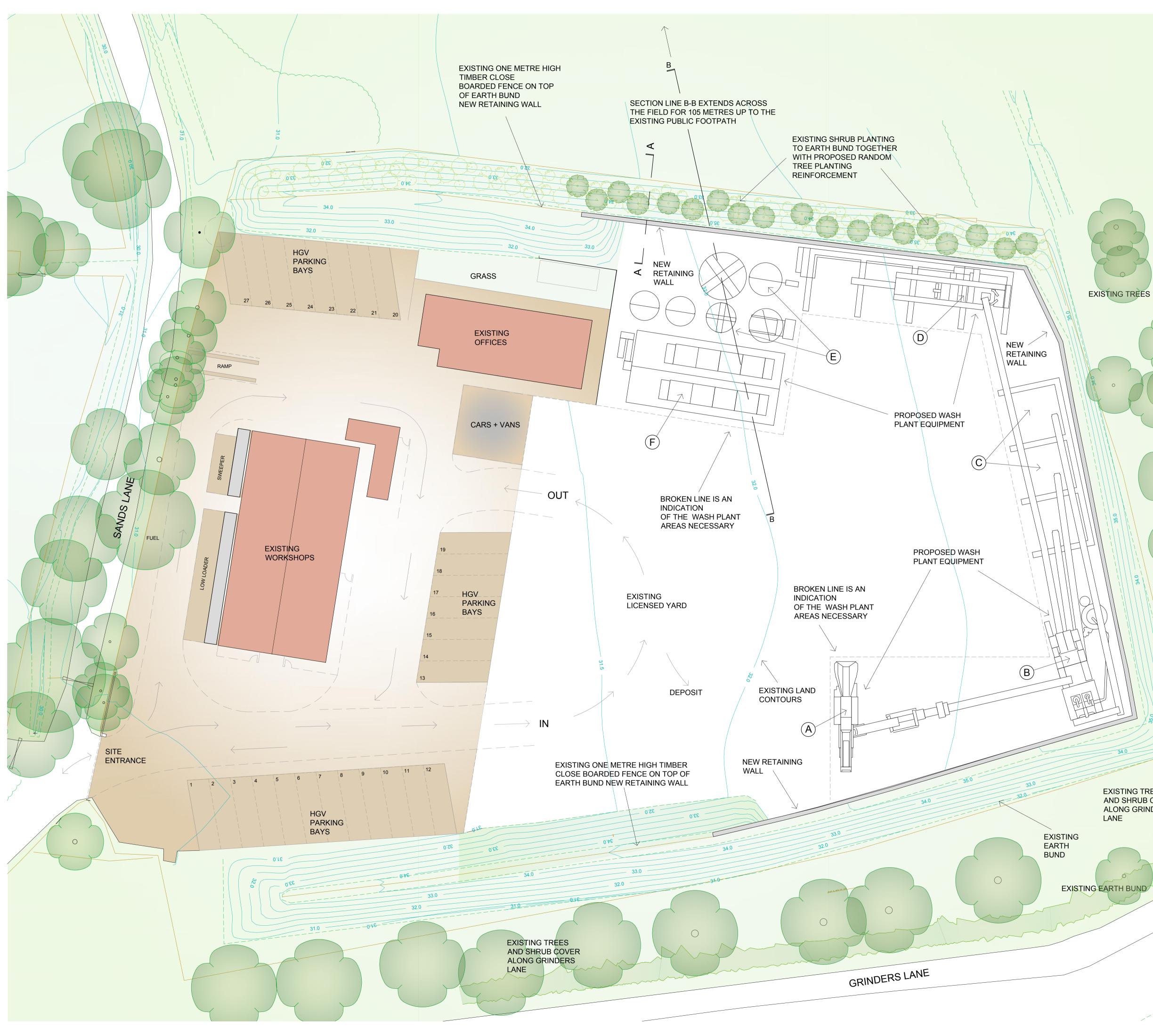
RED LINE ALTERED

Α

24-09-2023

All dimensions must be checked on site and not scaled from this drawing. If in doubt please ask.

This drawing to be read in conjunction with all engineers and consultants drawings and specifications etc.

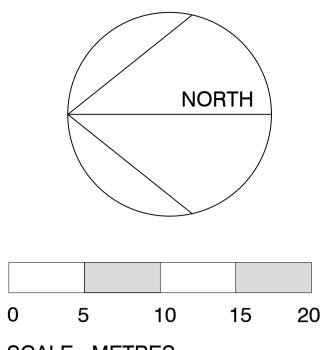


#### Notes

All dimensions must be checked on site and not scaled from this drawing.

If in doubt please ask.

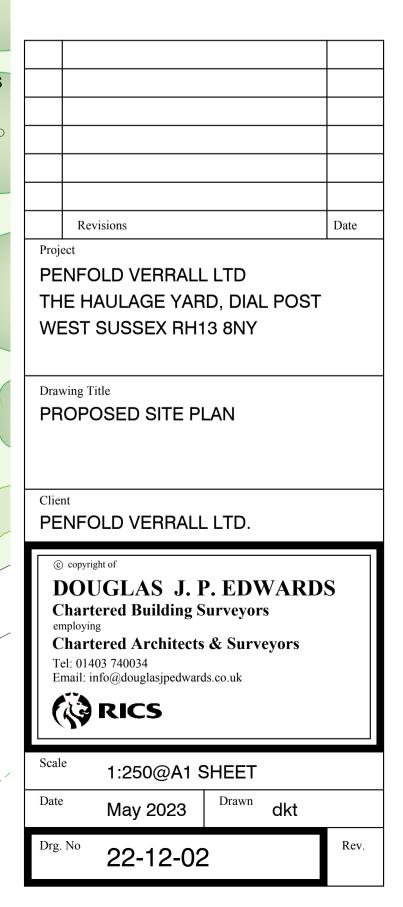
This drawing to be read in conjunction with all engineers and consultants drawings and specifications etc.



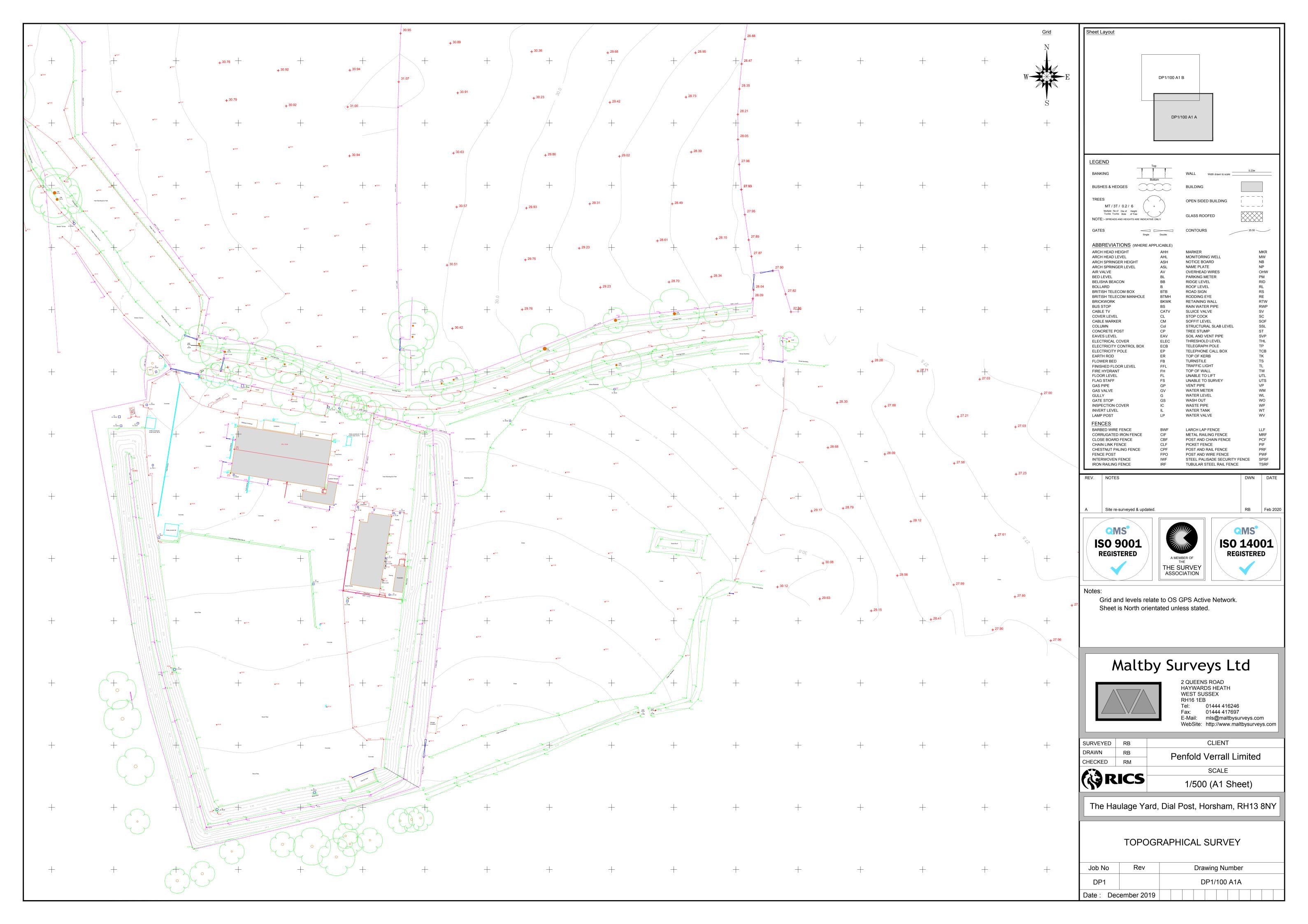
SCALE - METRES

## LEGEND

- (A) SCREENER AND FEED HOPPER LOADING
- B PRE-WASH AND SAND / SILT WASH DIVIDER
- C AGGREGATE STOCKPILING
- D LOG WASH, STONE / SOIL AND SILT SEPARATOR
- E WATER MANAGEMENT AND DE-SILTING OPERATION
- F FILTER PRESS WATER RECYCLED AND PLIABLE CAKE RELEASE



CATH BUND



Annex B – Water Bills

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WATED	- 3 MAR 2023		
for LIFE Southern Water		Ø	Visit our website for live chat or to log into your account southernwater.co.uk/help
THE PENFOLD VERRALL LTD THE HAULAGE YARD GRINDERS LANE HORSHAM		S	0330 303 0277 Weekdays - Bath to 7pm Saturday - 8.30am to 2pm
RH13 8NY	-1-	2	Your customer number 11149719
Meter reading	3/3	0	Your payment reference
51128		Ð	1211 8841 0001X
Dear The BENEOLO UEDDALL LTD			Invoice number 712001973487

Dear The PENFOLD VERRALL LTD,

Here's your latest bill based on the meter reading we estimated on 27 February 2023. You currently pay by cash – see page two for your payment options.



114-100199-2-020



Here's your latest bill based on the meter reading we estimated on 07 September 2022. You currently pay by cash – see page two for your payment options.

Meter reading	Cha	rges	Future payments Total payment of	
283 m <sup>3</sup>	£44	7.15	£447.15	
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2 0 7 7 2 8 0	Bill 1 Metered	ype I - Cash	Struggling to pay? See p. 3	
Previous bill's usage 622.80 m <sup>4</sup>	Previous bill's charges £946.70			
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Period: 01 April 2022 to 07 September 2022		So, you don't re us.	ceive any wastewater charges from	
Period: 01 April 2022 to 07 September 2022 Variable Rate £1.550 x 270.00m <sup>3</sup>			ceive any wastewater charges from	

Standing Charge: This covers essential service costs such as sending bills, collecting payments and dealing with enquiries.

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		-	20 - 002	101	Page 1 of 4
	WATER for LIFE	Southern ~ Water *	3.6 10	(j. 2022	Visit our website for live chat or to log into your account southernwater.co.uk/help
24	THE PENFOLD VE THE HAULAGE YA GRINDERS LANE			0	0330 303 0277 Weekdays - 8am to 7pm Saturday - 8.30am to 2pm
OUT FOODDAET N	HORSHAM RH13 8NY	CODE 2110	TADORESS		Your customer number 11149719
11216201000		REG NO OR CONT	B		Your payment reference 1211 8841 0001X
		691	2		A 712001890286

Dear The PENFOLD VERRALL,

Here's your latest bill based on the meter reading we estimated on 23 March 2022. You currently pay by cash – see page two for your payment options.



Standing Charge:

This covers essential service costs such as sending bills, collecting payments and dealing with enguiries. Tel mar in the