Additional Information in Respect of Application to Discharge Condition 3 of Planning Permission APP/N4205/W/21/3274951 Addition of a Concrete Area, HGV Parking Area, Offices and Extension to Existing Maintenance Sheds

Pilkington Quarry, Horwich, Bolton BL6 6RS

Prepared Armstrongs Aggregates Limited

January 2024

Contents

Prepared By: Mark Leivers
Status: FINAL
For and on behalf of Armstrongs Aggregates Limited

1. Introduction

1.1 Armstrong's Aggregates Limited applied for retrospective planning permission for new offices, workshops and HGV parking at it's Pilkington Quarry George's Lane Horwich Bolton.

1.2 The planning permission was granted via appeal under reference APP/N4205/W/21/327495. There are four conditions attached to the planning permission that require discharging. A submission was made in November 2022. Additional information has been requested in respect of discharge of Condition 3 relating to drainage of the development.

2. Background

2.1 Condition 3 of permission APP/N4205/W/21/327495 requires the submission of an amended water drainage scheme in response to an issue raised by the Local Lead Flood Authority (Drainage Team) which noted that not much drainage had been installed on the new hard surfaces around the building to capture water and the HGV parking area was not very permeable as it had been contacted by the trafficking of HGVs.

2.2 The officer report to Committee on the application stated that '*whilst the proposed layout will perform some sort of attenuation of flows, better management of surface water flows is required, so in large rainfall events the surface water is directed to better disposal routes and done so in a more controlled manner. officers consider this could be achieved through a system of ditches to channel water away. Drainage offices, therefore, recommend that the applicant submit a revised surface water drainage scheme for the development*.'

2.3 A revised scheme proposed for the HGV parking area comprises a series of interconnected French drains around the perimeter of the parking area that will remove surface water via a Class 1 drainage Interceptor into the quarry water body. The water level within the quarry is controlled naturally by the permeable nature of the underlying rock strata.

2.4 The drainage system will comprise a 100mm diameter HDPE slotted pipe within a minimum 300mm deep channel backfilled with pipe bedding crushed rock from the quarry. The drainage system will be located around the perimeter of the HGV parking area. Where the drain will cross heavy traffic areas it will be protected by a minimum 150 mm concrete slab. In all other locations, the surface will comprise of compacted 40mm crusher-run to a minimum depth of 100mm. The HDPE pipe will be located a minimum of 250mm below ground level to protect against potential damage from traffic movements.

2.5 The drain around the HGV parking area will direct all surface water into a Class 1 oil and silt interceptor, which will ensure against any oils/mud and fines from entering into d the quarry water body.

2.6 A response to the information outlined above, submitted in November 2022, stated:

The Council's Drainage Officers have advised that the submitted scheme cannot be approved and therefore another solution needs to be proposed. They state that the drainage solution will need to comply with the requirements of the NPPF and DEFRA's Sustainable Drainage Systems: non-statutory technical standards. A detailed design would need to be submitted to how the proposal meets these standards. Officers have advised that the document submitted for this discharge of condition application only addresses a small part of the site: the main issue that needed to be addressed was uncontrolled run-off from the development and the HGV parking area in a westwards direction. This run-off was at one time flooding the public right of way and affecting the watercourse at Grundy Cottages, Makinson Lane, and therefore it needs to be shown how this will be adequately controlled: this run-off is not discussed in the submitted document.

2.7 This submission is aimed at addressing the Drainage Officer's comments.

3. Sustainable Drainage System

3.1 The latest iteration of the National Planning Policy Framework (NPPF), December 2023, states in relation to Sustainable Drainage in paragraph 173 that

"*When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*

c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate…"

3.2 This requirement is repeated in paragraph 175 which states:

Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should:

a) take account of advice from the lead local flood authority;

b) have appropriate proposed minimum operational standards;

c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and d) where possible, provide multifunctional benefits

3.3 The NPPF does not however define what a Sustainable Drainage System is.

3.4 DEFRA in December 2011 produced a consultation document entitled *National Standards for sustainable drainage systems Designing, constructing, operating and maintaining drainage for surface runoff*. The publication described a Sustainable Drainage System (SuDS) as:

SuDS are an approach to managing rainwater falling on roofs and other surfaces through a sequence of actions. The key objectives are to manage the flow rate and volume of surface runoff to reduce the risk of flooding and water pollution. SuDS also reduce pressure on the sewerage network and can improve biodiversity and local amenity.

3.5 The main principles of a SuDS was set out as being:

a. *Surface runoff is managed at its source where it is reasonably practicable to do so;*

b. *Surface runoff is managed on the surface where it is reasonably practicable to do so;*

c. *Public space is used and integrated with the drainage system, where it serves more than one property and it is reasonably practicable to do so;*

d. *Design is cost-effective to operate and maintain over the design life of the development, in order to reduce the risk of the drainage system not functioning;*

e. *Design of the drainage system accounts for the likely impacts of:*

- *climate change; and*
- *changes in impermeable area;*

over the design life of the development, where it is reasonably practicable to do so.

3.6 In terms of surface water run-off, the preferred route is to discharge into the ground, and if this is not possible, then to a surface water body.

3.7 The proposed the drainage scheme envisages discharge to the existing quarry silt lagoon i.e. a surface water body. This is therefore in accordance with the recommendations of the DEFRA consultation document. The silt lagoons are in continuity with ground water and thus ultimately the surface water run-off from the HGV park will enter into the ground via the silt lagoons.

3.8 A Non Technical Summary of the Non-statutory technical standards for sustainable drainage systems was published in March 2015. This confirms in paragraph S1:

Where the drainage system discharges to a surface water body that can accommodate uncontrolled surface water discharges without any impact on flood risk from that surface water body (e.g. the sea or a large estuary) the peak flow control standards and volume control technical standards need not apply.

3.9 Given the quarry silt lagoon is limited, it stands that peak flow control standards and volume control standards apply.

3.10 On Peak Flow in relation to greenfield development, the run-off volume in the 1 in 100 year, 6 hour rainfall event '*should never exceed the greenfield runoff volume in the same event'*.

3.11 The NTS also confirms that the drainage system must be designed to ensure that flooding does not occur on any part of the site for a 1 in 30 year rainfall event. Further, the design must so far as is reasonably practicable ensure that flows resulting from rainfall in excess of a one in 100 year rainfall event are managed to minimise the risks to people and property.

Design

3.12 The revised drainage design incorporates a drain from the HGV parking area with a fall down to the existing quarry lagoon located to the north. There is a minimum fall within the drainage of 1 in 100.

3.13 The surface water storage requirements arising from the HGV park area has been assessed using the software estimation tool developed by HRWallingford, and available at www.uksuds.com . The results confirm that the site will discharge 3.7 l/s in relation to a 1 in 30 and 1 in 100 year rainfall event and require a maximum total storage of 134 m^3. A copy of the results for the scheme is included within Appendix 1.

3.14 The software requires a minimum of 50% of the drainage area to be impermeable. This represents a worst-case scenario as the HGV park has only a limited area (approximately 20%) of concreted area, the remaining being crushed rock to provide a hard standing.

3.15 The quarry lagoon, which will be the accepting water body for surface water run-off from the HGV park extends to approximately 23,500 m^2. 134 m^3 of water would increase the level of the lagoon by approximately 6mm, which can easily be accommodated by the lagoon.

Flooding

3.16 The Drainage Officer's comments into the submitted scheme stated that "*the main issue that needed to be addressed was uncontrolled run-off from the development and the HGV parking area in a westwards direction. This run-off was at one time flooding the public right of way and affecting the watercourse at Grundy Cottages, Makinson Lane*"

3.17 Grundy Cottages on Makinson Lane are located to the east of the HGV parking area and the parking area rises up towards Makinson Lane. It is therefore suggested that the cottages are those on George's Lane to the south west of the HGV parking area.

3.18 It is understood that there was a 'drainage' event 2 to 3 years ago when works were done to the new internal access road linking Montcliffe Quarry to Pilkington Quarry. There was standing water on the access lane, which was allowed to run down towards the cottages. Since then, there

has been no further drainage issues associated with the HGV park. There is however still an identified risk of uncontrolled surface water run-off towards the cottages from the HGV park.

3.19 There is a general fall of about 2 m from the east of the HGV park (where it meets Makinson Lane) to the west where the internal access road exits the parking area. Whilst the submitted drainage scheme should ensure that all surface water within the HGV park area is controlled, there is a potential, however small, that surface water flows along the access track and thereafter downhill towards the cottages on George's Lane.

3.20 To ensure all surface water run-off within the HGV the park is controlled and discharged by the drainage scheme to the lagoon, a small berm will be created along the western edge of the HGV park. This will inhibit the flow of water along the access road. The berm will only need to be approximately 200mm in height to ensure surface water within the HGV park cannot flow westwards along the track.

3.21 The location of the proposed berm is shown on Drawing AA/PIL/HGV/01 rev 1, provided in Appendix 2.

Appendix 1 – Surface Water Storage Calculations

Calculated by:	Mark Leivers
Site name:	Pilkington Quarry HGV Park
Site location:	Horwich

This is an estimation of the storage volume requirements that are needed to meet normal
best practice criteria in line with Environment Agency guidance "Rainfall runoff management
for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and
the non-statutory standards for SuDS (Defra, 2015). It is not to be used for detailed design
of drainage systems. It is recommended that hydraulic modelling software is used to calculate
volume requirements and design details before finalising the design of the drainage scheme.

Site Details

Latitude:	53.60327° N
Longitude:	2.51632° W
Reference:	2553111959
Date:	Jan 11 2024 10:40

Site characteristics

Total site area (ha):	0.9
Significant public open space (ha):	0
Area positively drained (ha):	0.9
Impermeable area (ha):	.45
Percentage of drained area that is impermeable (%):	50
Impervious area drained via infiltration (ha):	0.45
Return period for infiltration system design (year):	10
Impervious area drained to rainwater harvesting (ha):	0
Return period for rainwater harvesting system (year):	10
Compliance factor for rainwater harvesting system (%):	66
Net site area for storage volume design (ha):	0.3
Net impermable area for storage volume design (ha):	0.18
Pervious area contribution to runoff (%):	30

* where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50% of the 'area positively drained', the 'net site area' and the estimates of Q_{BAR} and other flow rates will have been reduced accordingly.

Methodology

esti	IH124
Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	5	5
SPR:	0.53	0.53

Hydrological characteristics

	Default	Edited
Rainfall 100 yrs 6 hrs:	--	70
Rainfall 100 yrs 12 hrs:	--	94.08
FEH / FSR conversion factor:	1.12	1.12
SAAR (mm):	1238	1238
M5-60 Rainfall Depth (mm):	20	20
'r' Ratio M5-60/M5-2 day:	0.3	0.3
Hydological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 10 year:	1.38	1.38
Growth curve factor 30 year:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Q_{BAR} for total site area (l/s):	10.99	10.99

Design criteria

Climate change allowance factor:	1.4

Urban creep allowance factor:	1.1			
Volume control approach	Flow control to max of 2 l/s/ha or Qbar			
Interception rainfall depth (mm):	5			
Minimum flow rate (l/s):	2			
		Q_{BAR} for net site area (l/s):	3.7	3.7

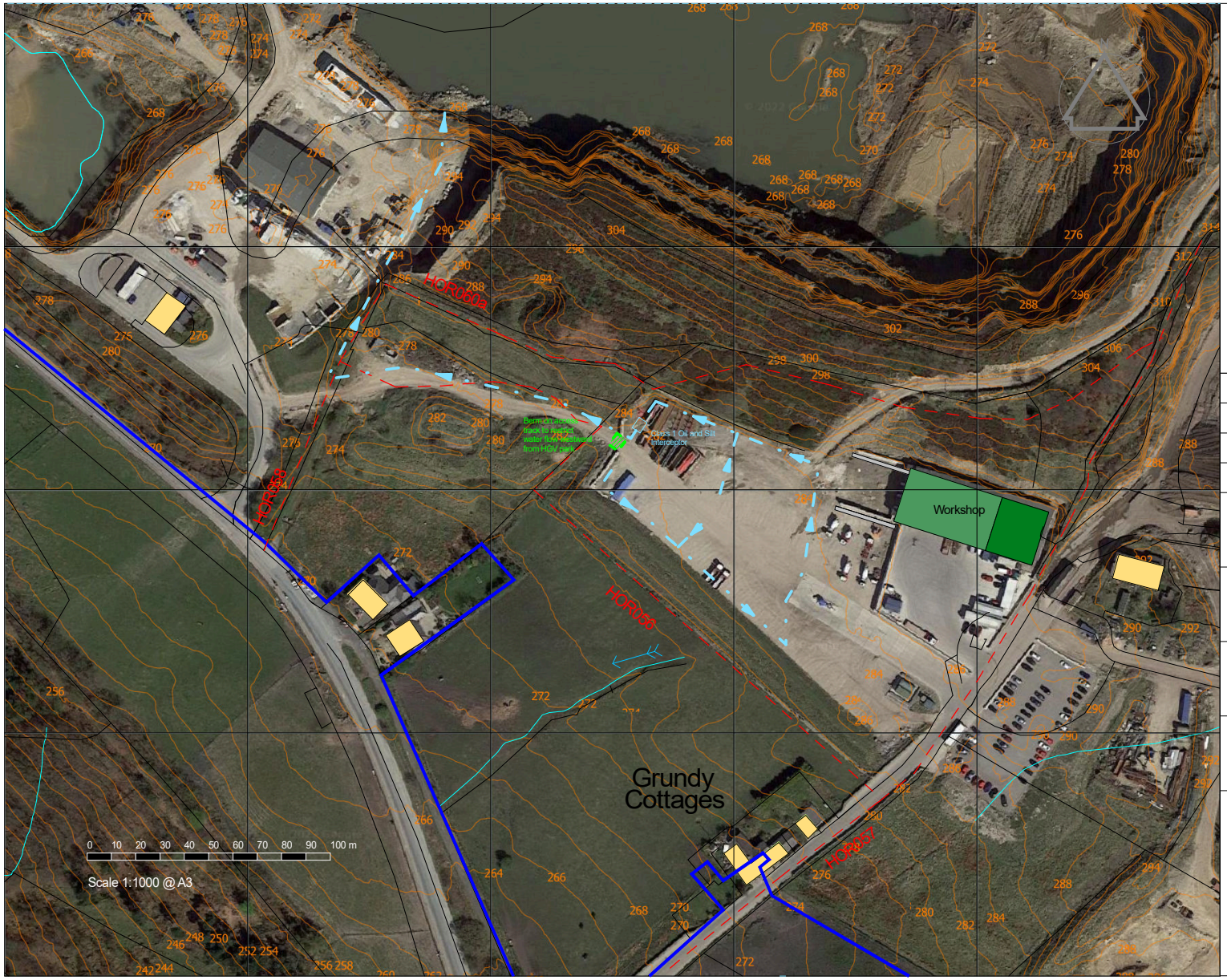
Site discharge rates

	Default	Edited
1 in 1 year (l/s):	3.2	3.2
1 in 30 years (l/s):	3.7	3.7
1 in 100 year (l/s):	3.7	3.7

Estimated storage volumes

	Default	Edited
Attenuation storage 1/100 years (m^3):	134	134
Long term storage 1/100 years (m^3):	0	0
Total storage 1/100 years (m^3):	134	134

Appendix 2 – Drainage Proposals Drawing AA/PIL/HGV/01rev1



Key

Proposed
Drain Route

Revision	Date	Change
Rev 1	Jan 24	Inclusion of berm on internal access track to west of HGV park

Client

Armstrongs Aggregates Ltd

Plan Title

Pilkington Quarry HGV Parking
Proposed Revised Drainage

Plan No.

AA/PIL/HGV/01rev1

Drawn	Date	
M Leivers	Nov 2022	