AN APPLICATION FOR AN ENVIRONMENTAL PERMIT TO AUTHORISE THE DEPOSITION OF WASTE ON LAND AS A RECOVERY ACTIVITY FOR THE RESTORATION OF ESCRICK QUARRY, NORTH YORKSHIRE

HYDROGEOLOGICAL RISK ASSESSMENT (HRA)

Report reference: PL/ES/LJB/5689/01/HRA
February 2024

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CONTENTS

TABLES

FIGURES

APPENDICES

1. Introduction

1.1 MJCA is commissioned by Plasmor Limited (Plasmor) to prepare and submit an application for a bespoke Environmental Permit (EP) for the deposition of waste on land as a recovery activity in order to restore Escrick Quarry, North Yorkshire to agricultural and nature conservation interest including waterbodies and wetland habitats. This report comprises the hydrogeological risk assessment (HRA) to support the application for the EP. The structure of this HRA report is based on guidance from the Environment Agency (EA) entitled 'What to include in your hydrogeological risk assessment' published in January 2020 and most recently updated on 17 January 2024. Pre-application advice was sought from the EA prior to preparation of this application and a copy of the advice received from the EA is provided at Appendix HRA A.

1.2 Escrick Quarry comprises two areas separated by National Route 65 of the National Cycle Network (NR65) and part of the Trans Pennine Trail (TPT) which run in a generally north south direction and comprises a former railway line. The two areas which are the subject of the Environmental Permit application are referred to collectively as the site. The eastern area of the site is approximately 9.9ha and is centred on National Grid Reference (NGR) SE 620 407 (the eastern area). The western area of the site is approximately 51.1ha and is centred on NGR SE 615 404 (the western area). The site is located approximately 1.7km south south west of the village of Escrick, 1.4km east south east of Stillingfleet and 1.5km north of the village of Riccall in North Yorkshire. The location and boundary of the site the subject for the EP application is shown on Figure ESSD 1 and Figure ESSD 2 of the Conceptual Site Model, Environmental Setting and Site Design (ESSD) report which is provided at Appendix E of the application.

1.3 There are 15 phases of mineral extraction and restoration at the site. Phases 1 to 3 are located in the eastern area and Phases 4 to 15 are located in the western area of the site. The phase boundaries are shown on Figure ESSD 3 of the ESSD. Clay mineral extraction operations are ongoing in Phases 1 to 3 under planning permission reference C8/2019/0917/CPO granted by North Yorkshire County Council (NYCC) in March 2021 with restoration of the site to agriculture and nature conservation using

up to 2,670,000m³ of imported inert restoration materials. A copy of the planning permission is presented at Appendix ESSD A of the ESSD.

1.4 The HRA is based on the conceptual site model (CSM) presented in the ESSD report. Details of the environmental setting of the site, the geology, hydrology, hydrogeology, the history of the site, potential contamination migration pathways and receptors are described in the ESSD report. The acceptance at the site of inert waste materials only will be the subject of waste acceptance procedures which are described in the ESSD and are presented at Appendix K of the application report. The structure of this HRA report generally is based on Environment Agency (EA) guidance[1] updated in January 2024. The hydrogeological risk assessment and technical precautions sections specified in the EA guidance are presented in section 2 of this report. All of the relevant subheadings from the guidance are included in these sections albeit in a different order to those presented in the risk assessment. Subheadings are omitted where items are not relevant to the HRA presented. Additional subheadings have been included as appropriate.

1.5 It is concluded in the HRA that there is no significant risk from the proposed deposition of inert waste as a recovery activity to groundwater and surface water quality in the vicinity of the site over the whole life cycle of the site.

1 https://www.gov.uk/guidance/landfill-operators-environmental-permits/what-to-include-in-your-hydrogeological-risk-assessment

2. Hydrogeological risk assessment – Qualitative risk screening (Tier 1)

2.1 The hydrogeological risk assessment is undertaken in accordance with EA guidance[1] and follows a tiered approach to risk assessment[2] with the level of risk assessment proportional to the risks to groundwater and surface water from the recovery operation. Information on the geology, hydrology and hydrogeology of the site is presented in the ESSD report. The information in the ESSD report is used to identify the relationships between the source, pathways and the identified potential receptors.

Nature of the hydrogeological risk assessment

Potential risks presented by the site

2.2 The areas in which imported inert restoration material will be deposited comprise Phases 1 to 15 (Figure ESSD 3). As set out in the ESSD, inert waste is defined in the EU Landfill Directive (Council Directive 1999/31/EC) as:

> *"…waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to health. The total leachability and pollutant content of the waste and the eco toxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater."*

2.3 The waste types that it is proposed may be accepted at the site are presented in Table ESSD 1 comprising inert waste types only. Detailed waste acceptance procedures will be in place for the rejection of non-conforming loads. The waste acceptance procedures are presented at Appendix K of the application report. The receipt, handling and storage of materials are the subject of procedures in the company management system which is the subject of the ISO 14001 Environmental

2 https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit#use-a-tiered-approach-to-your-risk-assessment

Management System (EMS) a summary of which is presented at Appendix I of the application report.

2.4 As set out in the ESSD, it is considered that the waste does not comprise a contaminant source with the potential to have a significant detrimental effect on groundwater quality. As the restoration materials imported to the site will comprise inert waste only there will be no significant concentrations of hazardous substances and no significant concentrations of non-hazardous pollutants in water that has percolated through the waste mass. Based on the proposed use of inert imported restoration materials and on site materials only it is considered that there will be no significant risks to human health or to the environment from the proposed development.

Sensitivity of surrounding water environment

2.5 As set out in the ESSD, the superficial geology at the site comprises the Skipwith Sand Member of the Breighton Sand Formation and the Hemingbrough Glaciolacustrine Formation comprising the Thorganby Clay Member, the middle Lawns House Farm Sand Member (LHFSM) and the lower Park Farm Sand Member. The Hemingbrough Glaciolacustrine Formation comprises the main mineral deposit at the site. The Skipwith Sand Member comprises well sorted medium grained slightly clayey sand and comprises the overburden at the site together with any sandy clay in the top of the Hemingbrough Glaciolacustrine Formation. The Skipwith Sand Member is designated as a secondary (undifferentiated) aquifer. The Hemingbrough Glaciolacustrine Formation comprises predominantly low permeability clay and is designated as both unproductive strata (Thorganby Clay Member) and a secondary (undifferentiated) aquifer (LHFSM and Park Farm Clay Member). The superficial deposits at the site overlie the Triassic strata of the Sherwood Sandstone Group which is designated a principal aquifer.

2.6 The Skipwith Sand Member is a water bearing unit generally between approximately 2m and 3m thick in the south and west of the western part of the site and is between approximately 0.5m and 1.5m thick across the remainder of the site. The Skipwith Sand Member receives recharge from infiltrating rainwater with groundwater supported on the clays of the underlying Hemingbrough Glaciolacustrine Formation.

In general groundwater levels in the Skipwith Sand Member fall from between approximately 5 metres above Ordnance datum (mAOD) and 6mAOD in the north east and north west of the site to between approximately 3mAOD and 4mAOD in the south of the site. The Skipwith Sand Member is in hydraulic continuity with the surface water drainage system managed by the Ouse and Derwent Internal Drainage Board (IDB) at and in the vicinity of the site. Heron Dyke (Drain), Parkhill Dyke (Drain) and Bentley Park Drain are excavated through the Skipwith Sand Member at the site with the base of the drainage ditches in the underlying Hemingbrough Glaciolacustrine Formation in places.

2.7 The Hemingbrough Glaciolacustrine Formation at the site comprises stiff to firm brown and greyish or reddish brown laminated and fissured clays with silt laminae and occasional sand pockets. In general the thickness of the Hemingbrough Glaciolacustrine Formation coincides with the change in elevation of the surface of the underlying Sherwood Sandstone Group. The surface of the Sherwood Sandstone Group falls from approximately -8.5mAOD (15m below ground level (bgl)) in the north east of the proposed Escrick site to between approximately -12.0mAOD (17mbgl) and -12.5mAOD (18.5mbgl) in the south and south east of the site respectively. Inversely the thickness of the Hemingbrough Glaciolacustrine Formation falls from approximately 16m in the south and east of the site to between approximately 13m and 14m in the north.

2.8 Within the Hemingbrough Glaciolacustrine Formation, the LHFSM is a groundwater bearing unit, however this unit is discontinuous. Groundwater levels in the LHFSM are confined by the overlying Thorganby Clay Member of the Hemingbrough Glaciolacustrine Formation. The surface of the LHFSM is approximately 8mbgl to approximately 10mbgl at elevations of between approximately -1mAOD and -3mAOD in the eastern area and between approximately -3mAOD and -4mAOD in the western area, where present, across the site. In general, piezometric groundwater levels recorded in narrow standpipes installed at elevations of the LHFSM range from approximately 4.5mAOD in the north west of the site to approximately 3mAOD in the south of the site with groundwater levels, where recorded across the rest of the site, fluctuating within a similar range.

2.9 On occasions groundwater levels in the LHFSM below 3mAOD have been recorded at boreholes 17/05A (narrow) in the north east of the site and 17/07A (narrow) to the south west of the eastern area and north west of the adjacent Escrick Environmental Services site with a minimum elevation of approximately 2.3mAOD (4.5mbgl) recorded in August 2018 at borehole 17/05A (narrow). Boreholes 17/05A (narrow) and 17/07A (narrow) are the only groundwater monitoring boreholes where the LHFSM was recorded with 1.3m of fine to medium sand (at an elevation of -1.36mAOD) and 0.3m of clayey fine to medium sand (at an elevation of -4.06mAOD) recorded at the boreholes respectively.

2.10 Groundwater levels within the Sherwood Sandstone Group are confined by the overlying Hemingbrough Glaciolacustrine Formation with a piezometric level above the proposed level of the base of the mineral extraction. Groundwater levels range from approximately 4.2mAOD (3.1mbgl) recorded in April 2018 at borehole 17/02A (50mm) in the north west of the site to approximately 2.2mAOD (4.6mbgl) recorded in August 2022 at borehole 17/05A (50mm) in the south of the site. In general groundwater levels in the Sherwood Sandstone Group are similar across the site on any given date with the lateral variation across the site typically less than 1m with a slight fall towards the south or east. Although the groundwater in the Sherwood Sandstone Group is confined and the piezometric level of the groundwater is above the level of the base of the excavation there will be sufficient thickness of material between the base of the excavation and the top of the Sherwood Sandstone Group to prevent basal heave hence maintain a substantial thickness of natural low permeability clay barrier between the principal aquifer and the base of the site.

2.11 During excavation and restoration operations at the site the void will be dewatered to facilitate dry working. Water pumped from the excavations is discharged following settlement of suspended solids to the Ouse and Derwent Internal Drainage Board (IDB) drains round the site under a consent to discharge issued by the IDB. The mineral extraction includes the excavation of the overlying Skipwith Sand Member of the Breighton Sand Formation comprising the overburden at the site together with any sandy clay in the top of the Hemingbrough Glaciolacustrine Formation. The mineral deposit comprising the Hemingbrough Glaciolacustrine Formation and will be excavated to depths of approximately 8.0mbgl (-0.9mAOD) to approximately 9.5mbgl (-2.7mAOD) across the site. The imported inert restoration materials will be placed

within the void adjacent to the Hemingbrough Glaciolacustrine Formation. Once the inert materials are nearing the base of the excavated Skipwith Sand Member, the void will continue to be restored with naturally occurring materials comprising overburden and quarry reject materials. There will be no pathways for the migration of potential contaminants from the imported inert restoration materials to the Skipwith Sand Member as the imported materials will be placed below and not on or in the secondary (undifferentiated) aquifer and there will be no pathway via groundwater to surface water receptors including the IDB drains.

2.12 Groundwater in the LHFSM of the Hemingbrough Glaciolacustrine Formation has been managed at the adjacent Escrick Environmental Services site to the south east over many years where a greater thickness of LHFSM has been recorded. It is likely that any recharge to the LHFSM in the vicinity of the site has previously been from the waterbodies in the adjacent Escrick Environmental Services site. The restoration at the adjacent site includes infilling of the waterbodies following which recharge to the LHFSM may become more limited. The LHFSM at the site is laterally discontinuous hence the lateral extent and significance of the LHFSM will be limited and there is no known resource value in the vicinity of the site. In the unlikely event that significant pockets of the LHFSM are intercepted in the base of the quarry, the material will be excavated and backfilled with clay from the mineral extraction removing any pathway to the LHFSM.

2.13 As the base of the Hemingbrough Glaciolacustrine Formation is between approximately -8.5mAOD and approximately -9.5mAOD at least 6.8m and generally greater than 9m of Hemingbrough Glaciolacustrine Formation will remain in place above the Sherwood Sandstone Group forming a significant natural low permeability clay barrier between the principal aquifer and the base of the site. There will be no pathways for the migration of potential contaminants from the imported inert restoration materials to reach the groundwater within the Sherwood Sandstone Group.

2.14 Based on the Conceptual Site Model, while the site is in a sensitive setting there are no direct pathways for the migration of potential contaminants from the imported inert restoration materials as they will be placed above and separated by a significant thickness of natural low permeability clay barrier from the Sherwood Sandstone

Group principal aquifer and below and separate from the Skipwith Sand member secondary (undifferentiated) aquifer with no direct pathway via groundwater to surface water receptors. In the unlikely event that significant pockets of the LHFSM are intercepted in the base of the quarry, the material will be excavated and backfilled with clay from the extraction removing any pathway to the LHFSM. Schematic cross sections through the proposed void infilled with the imported restoration materials and quarry reject materials and overburden is presented on Figure HRA 1.

Hazards posed and likelihood of the risk happening

2.15 Notwithstanding that it is concluded based on the proposed use of overburden from the site and imported inert restoration materials only there will be no significant risks to human health or to the environment from the proposed development and that waste acceptance procedures will be in place to minimise the risk that unacceptable waste materials are accepted, there will be no direct pathways for the potential migration of potential contaminants from the imported inert restoration materials to the aquifers at and in the vicinity of the site. The placement of overburden and quarry reject materials below the pre-extraction base of the Skipwith Sand Member and above the imported inert restoration materials up to final restoration levels means that there will be no direct pathway for hazardous substances or non-hazardous pollutants to groundwater in the unlikely scenario where water percolating through the waste mass includes discernible concentrations of hazardous substances or non-hazardous pollutants.

2.16 In the unlikely event that significant pockets of the LHFSM are intercepted in the base of the quarry, the material will be excavated and backfilled with clay from the extraction removing any pathway to the LHFSM hence there will be no direct pathway for hazardous substances or non-hazardous pollutants to groundwater in the unlikely scenario where water percolating through the waste mass includes discernible concentrations of hazardous substances or non-hazardous pollutants.

2.17 There will be at least 6.8m and generally greater than 9m thickness of the Hemingbrough Glaciolacustrine Formation remaining above the Sherwood Sandstone Group to prevent basal heave of the clay excavation. This significant thickness of natural low permeability clay barrier also means that there will be no

pathway for hazardous substances or non-hazardous pollutants to groundwater in the unlikely scenario where water percolating through the waste mass includes discernible concentrations of hazardous substances or non-hazardous pollutants.

Qualitative risk screening (Tier 1)

2.18 A qualitative risk screening (Tier 1) is presented above with the source – pathway - receptor linkages throughout the lifecycle of the site summarised in Table HRA 1 and the schematic cross section presented on Figure HRA 1. Based on this qualitative risk screening it is considered that there is no significant risk from the proposed deposition of imported inert restoration materials at the site to groundwater quality in the Skipwith Sand Member and the LHFSM secondary (undifferentiated) aquifers and the Sherwood Sandstone Group principal aquifer and surface water quality within the Heron Dyke (Drain), Parkhill Dyke (Drain) and Bentley Park Drain as it is considered that the waste does not comprise a contaminant source with the potential to have a significant detrimental effect on water quality and there are no pathways to groundwater or surface water receptors.

Review of technical precautions

2.19 A letter from the EA providing enhanced pre-application advice dated 7 October 2022 (reference EPR/L3407XT/A001) (Appendix HRA A) with regard to the approach to the Hydrogeological Risk Assessment stated that:

> *"Under the scenario where a side-wall attenuation layer (e.g. 1m,10-7m/s) is used to protect the Skipworth Sand Member, and waste acceptance is restricted to inert wastes, then a risk screening/qualitative assessment may be appropriate. The types of materials used for the attenuation layer would also need a contaminant profile that does not result in direct discharges to the adjacent aquifer."*

At the time of seeking the pre-application advice it was proposed that an attenuation layer would be placed against the sidewall of the excavations adjacent to the Skipwith Sand Member before placement of imported inert materials against the sidewall. It is now proposed that no inert imported inert materials will be placed above the

elevation of the base of the Skipwith Sand Member hence there will be no pathway between the imported inert materials and the Skipwith Sand Member hence no direct or indirect discharge to the adjacent aquifer.

2.20 As set out in the qualitative risk screening, it is concluded based on the proposed use of inert waste only that there will be no significant risks to the environment from the proposed development and based on the site design and there is no direct pathway to groundwater or surface water receptors. As part of the mineral extraction operations overburden materials comprising soil, the Skipwith Sand Member of the Breighton Sand Formation together with any sandy clay in the top of the Hemingbrough Glaciolacustrine Formation are stripped from the site and stored in bunds while the clay is extracted. Following the first phase of mineral extraction soils and overburden will be stripped from each phase and placed directly, where possible, in the extracted void on top of imported inert restoration materials to achieve the restoration. Accordingly, there will be no pathway between the imported inert restoration materials and the sand from the Skipwith Sand Member in the side slopes of each of the phases as the inert materials will be placed below the Skipwith Sand Member and only site derived quarry reject materials or overburden will be placed in congruence with the Skipwith Sand Member. In the unlikely event that significant pockets of the LHFSM are intercepted in the base of the quarry, the material will be excavated and backfilled with clay from the extraction. With the base of the Hemingbrough Glaciolacustrine Formation being between approximately -8.5mAOD and approximately -9.5mAOD the amount of clay left in situ will be at least 6.8m and generally greater than 9m, leaving sufficient volume of the material above the Sherwood Sandstone Group and therefore a significant thickness of natural low permeability clay protective barrier above the principal aquifer. Escrick Quarry complex will be operated in accordance with the Quarry Regulations 1999. The certified ISO 14001 EMS will be implemented at the site. The backfilling with site derived quarry reject materials and overburden or clay from the extraction will be subject to the requirements of the Quarry Regulations 1999 and the EMS.

3. Hydrogeological risk assessment – Verification monitoring

Hydrogeological leachate completion criteria

3.1 No biodegradable waste materials will be deposited at the site which could result in the generation of leachate. Only inert wastes will be deposited at the site which have a limited potential for leaching of contaminants. As such, leachate completion criteria and leachate monitoring are not relevant to deposit for recovery sites.

Monitoring

3.2 In the enhanced pre-application advice dated 7 October 2022 (reference EPR/L3407XT/A001) (Appendix HRA A) with regard to the approach to the monitoring programme which will be undertaken at the site, it is stated that:

> *"The monitoring focus should be on the Skipworth Sand Member and the IDB drains. The application should include a justification for not monitoring the Lawn House Farm Sand Member and Sherwood Sandstone."*

As detailed above, it is concluded that as the LHFSM is laterally discontinuous across the site hence the lateral extent and significance of the LHFSM will be limited with limited recharge and no known resource value in the vicinity of the site. In the unlikely event that significant pockets of the LHFSM are intercepted in the base of the quarry, the material will be excavated and backfilled with clay from the extraction hence there will be no pathway to the LHFSM. There will be a significant thickness (minimum of 6.8m) of in situ clay of the Hemingbrough Glaciolacustrine Formation left in situ between the base of the site and the top of the Sherwood Sandstone Group aquifer hence no pathway to the underlying aquifer.

3.3 Notwithstanding that it is concluded based on the proposed use of inert waste only that there will be no significant risks to the environment from the proposed development and based on the site design there is no direct pathway to groundwater or surface water receptors a programme of confirmatory groundwater and surface water monitoring is proposed. A programme of groundwater and surface water monitoring is presented in Table ESSD 2. The monitoring will be carried out during

the operation of the site and for a limited period following restoration of the site. The monitoring locations are shown on Figure ESSD 8.

3.4 Groundwater level monitoring will be carried out in boreholes installed in the Skipwith Sand Member, the LHFSM and the Sherwood Sandstone Group at the site to confirm the conceptual site model. While groundwater quality in the Skipwith Sand Member and surface water quality monitoring in the IDB drains are proposed in Table ESSD 2 of the ESSD report, no compliance or assessment limits are provided for groundwater quality or surface water quality as based on the assessments carried out there is no pathway to groundwater or surface water receptors following restoration of the site.

3.5 During the operational phase of the site imported inert restoration materials will be placed below the basal level of the Skipwith Sand Member aquifer. Any groundwater present in the Skipwith Sand Member aquifer will be collected in perimeter drains at the top of the excavated clay slopes of the quarry and discharged following settlement of suspended solids to the IDB drains round the site. The groundwater quality and surface water quality monitoring proposed is confirmatory only. Groundwater quality and surface water quality up hydraulic gradient and upstream of the site will be compared with quality down hydraulic gradient and downstream of the site to confirm the environmental performance of the proposed operations.

4. Conclusions

4.1 The proposed development comprises the deposition of inert waste as a recovery activity hence is not the subject of paragraphs 3.1 to 3.4 of Annex I of the Directive 1999/31/EC on the landfill of waste, as read with Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of, and Annex II to, Directive 1999/31/EC (the Landfill Directive). Irrespective of the fact that the proposed development is not the subject of the Landfill Directive, waste acceptance procedures will be implemented to minimise the probability that non-inert restoration materials will be deposited at the site.

4.2 Based on the results of the Tier 1 qualitative risk assessment presented in this HRA it is concluded that the site will be compliant with Schedule 22 of The Environmental Permitting (England and Wales) Regulations 2016 with regard to the implementation of the Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration (the Groundwater Directive).

4.3 Based on the HRA presented in this report it is concluded that there is no significant risk from the proposed deposition of inert waste as a recovery activity to groundwater and surface water quality in the vicinity of the site over the whole life cycle of the site.

4.4 No groundwater quality or surface water quality compliance and assessment limits are proposed as based on the assessments carried out there are no pathways to groundwater or surface water receptors following restoration of the site. A programme of confirmatory groundwater and surface water monitoring is proposed to confirm the environmental performance of the proposed operations.

TABLES

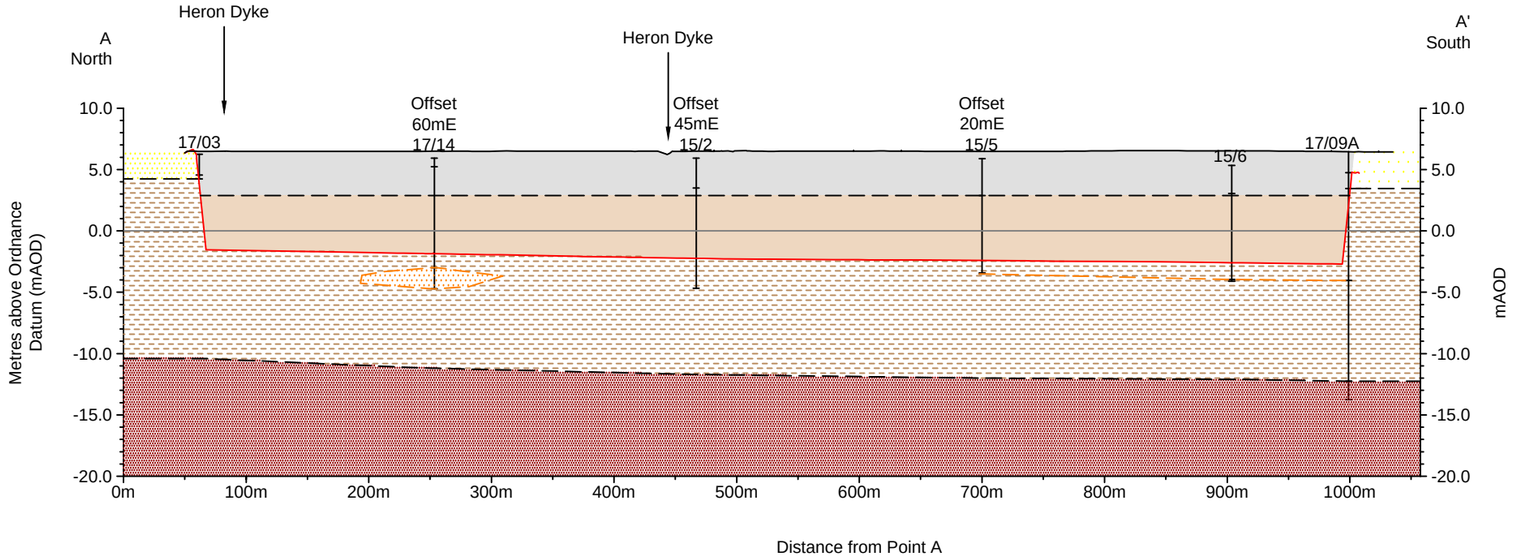
Table HRA 1

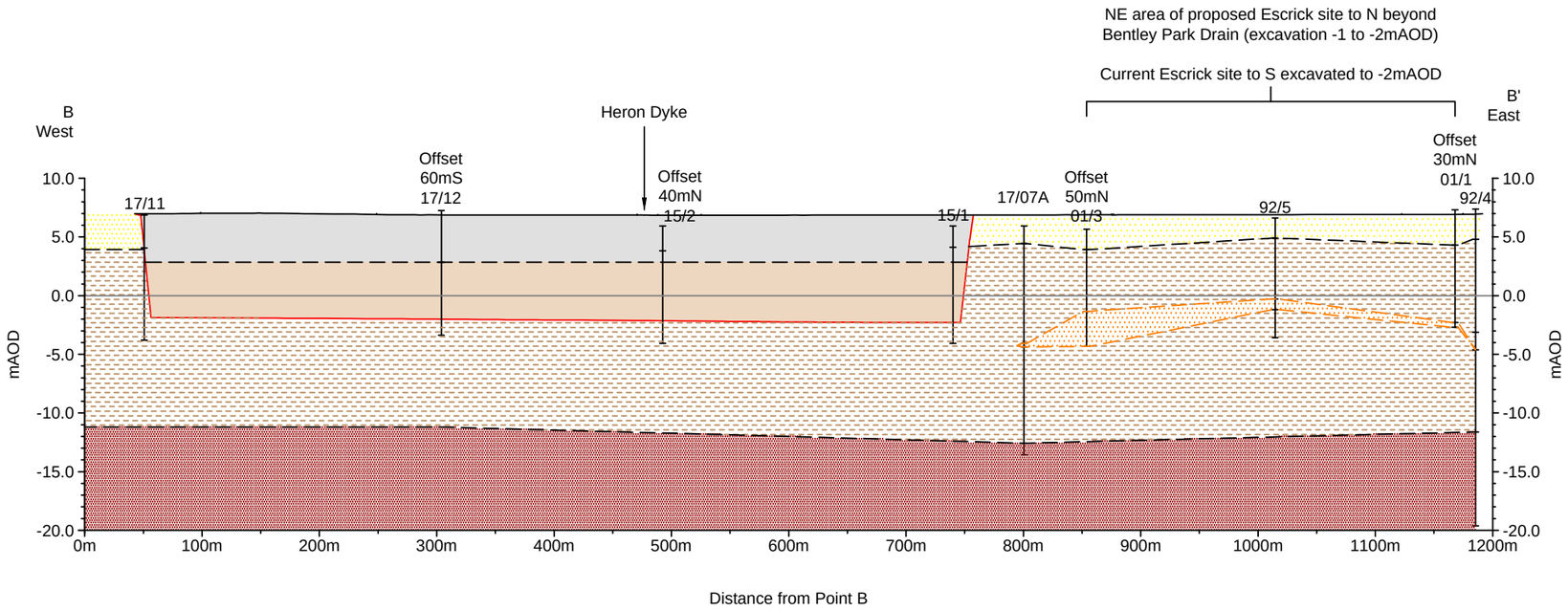
Source - pathway - receptor linkages throughout the lifecycle of the site

Phase of landfill	Source	Pathway	Receptor
Operational and post operational/ Completion	***Water percolating through the inert restoration materials*** Given the inert nature of the waste that will be deposited in the site the potential for the presence of discernible concentrations of hazardous substances or significant concentrations of non-hazardous pollutants is negligible. The inert wastes will be placed within the void adjacent to the clayey Hemingbrough Glaciolacustrine Formation only and below the base of the overlying Skipwith Sand Member aquifer.	~~Inert wastes placed below the base of the Skipwith Sand Member aquifer.~~	Skipwith Sand Member aquifer thence the IDB drains.
		~~In the unlikely event that significant pockets of the LHFSM are intercepted in the base of the quarry, the material will be excavated and backfilled with clay from the mineral extraction removing any pathway to the LHFSM.~~	LHFSM aquifer (laterally discontinuous at the site hence limited significance with no known resource value in the vicinity of the site).
		~~A significant thickness (at least 6.8m and generally greater than 9m) of natural clayey Hemingbrough Glaciolacustrine Formation low permeability barrier will remain in place between the Sherwood Sandstone Group aquifer and the base of the site.~~	Sherwood Sandstone Group aquifer.

The conceptual site model is presented as schematic cross sections on Figure HRA 1

FIGURES





Key / Notes

- Skipwith Sand Member
- Heminbrough Glaciolacustrine Formation (HGF)
- Lawns House Farm Sand Member of the HGF
- Sherwood Sandstone Group
- Quarry overburden
- Waste
- Restored ground level
- Limit of excavation

Note:
Location of cross sections shown on drawing reference PL/ES/01-24/24126

Rev	Status	Drn	App	Chk	Date
	Final	KR	JCO	JRC	02/02/24

Site
ESCRICK

Client
Plasmor Limited

Title
Conceptual Site Model - Schematic cross sections

Figure HRA 1

Scale
1:5.000v@A3
1:500h

Drawing Ref
PL/ES/01-24/24159

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APPENDICES

APPENDIX HRA A

ENVIRONMENT AGENCY PRE-APPLICATION ADVICE

[redacted]
PO Box 44
Womersley Road
Knottingley
Yorkshire
WF11 0DN

Our reference: EPR/L3407XT/A001
Date: 07/10/2022

Dear Charlie [redacted]

Pre application advice – Enhanced service

Site: Escrick Quarry, Riccall Road, Escrick, York, North Yorkshire, Y019 6ED

Thank you for your pre application enquiry on 23/06/2022

I am pleased to provide you with your enhanced level of pre-application advice. This advice is based on the information provided on your pre application advice form and conversations/emails recorded on the following dates:

- Email on 03/10/2022 from Jo [redacted]
- Telephone conversation with Jo [redacted] on 03/10/22

Attenuation Layer
This will be required against the Skipworth Sand Member.

Approach to the Hydrogeological Risk Assessment
Under the scenario where a side-wall attenuation layer (e.g. 1m,10-7m/s) is used to protect the Skipworth Sand Member, and waste acceptance is restricted to inert wastes, then a risk screening/qualitative assessment may be appropriate. The types of materials used for the attenuation layer would also need a contaminant profile that does not result in direct discharges to the adjacent aquifer.

Stability Risk Assessment
This will be required for the side-wall attenuation layer against the Skipworth Sand Member.

Monitoring
The monitoring focus should be on the Skipworth Sand Member and the IDB drains. The application should include a justification for not monitoring the Lawn House Farm Sand Member and Sherwood Sandstone.

What enhanced pre application covers

Further information on the enhanced pre-application service is detailed on section 2 of the Environmental permitting charges guidance on GOV.UK.

As part of this service we have provided you with the following information:

Application reference number	**EPR/L3407XT/A001**

You must ensure you provide dates of birth for all appropriate people as per Appendix 1 in form Part A. Failure to do so will delay your application being put into our systems. Please note that these details will not be made available on the Public Register.

A complete application must contain the following information below:

Declaration	Please ensure the declaration section is completed by each relevant person. For a limited company, this must be a director/company secretary as listed on Companies House.
Site Plan	Site plan must be clearly marked with the full site boundary
Payment	Please note your application will not be processed until we receive the full payment.

What happens next?

If you submit an environmental permit application then please quote this pre-application reference number: EPR/L3407XT/A001

If the advice above details using the online digital application form, your application can be submitted using this method. If not, please send your completed application documents via email to:

psc@environment-agency.gov.uk

Please email applications where possible. If email is not possible you can submit by post to:

Environment Agency, Permitting Support Centre, Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WF

Our current queues are large and we are taking longer than usual to allocate work for initial assessment, known as duly making. The table below shows our estimated queue times by application type. Please note, this is based on our average times and some applications may be picked up before or after the timescales listed below.

Application type	Estimated time to allocation
New standard rules	23-27 weeks
New Bespoke	34-38 weeks
Admin variation	23-27 weeks
Minor variation	26-30 weeks
Normal variation	25-29 weeks
Substantial variation	36-40 weeks
Transfer	24-28 weeks
Surrender	25-29 weeks

Disclaimer

The advice given is based on the information you have provided and does not constitute a formal response or decision of the Environment Agency with regard to future permit applications. Any views or opinions expressed are without prejudice to the Environment Agency's formal consideration of any application. Please note that any application is subject to duly making and then full technical checks during determination, and additional information may be required based on your detailed submission and site specific requirements and the advice given is to address the specific pre-application request.

This advice covers waste activities only.

Other permissions from the Environment Agency and/or other bodies may be required for associated or other activities.

Enhanced pre application cost estimate

At this stage the pre-application advice is expected to cost up to £100 plus VAT. An invoice will be sent separately at a later date.

This pre-application request is now closed.

We consider this pre application request is now closed however if you have any questions regarding this letter please contact Roland [redacted]

If you require additional enhanced pre-application advice please complete our online form.

We look forward to working with you on this project.

If you have any questions please call 03708 506 506.

Yours Sincerely

Roland [redacted]
[redacted]
T. 07771127341

cc Jo [redacted]
Nicole [redacted]

Nicole Lawton

From: Jo [redacted]
Sent: 03 October 2022 14:52
To: [redacted], Roland'
Cc: Charlie [redacted]
Subject: RE: Pre-application Cost Estimate - EPR/LB3407XT/A001 - Escrick Quarry
Attachments: ples21166.pdf; Figure HIA 5.pdf; ples21231.pdf

Hi Roland

Further to our telephone conversation earlier today please find attached a schematic cross section through the site (ples21166), a hydrograph for the Skipwith Sand Member (Figure HIA 5) together with a groundwater contour plan (ples21231) taken from the planning application documents for the site. Below is an extract from the planning application documents giving a description of groundwater in the Skipwith Sand Member aquifer.

3.5 Groundwater levels in the Skipwith Sand Member have been monitored at eight boreholes (17/01, 17/02, 17/03, 17/05, 17/06, 17/07, 17/08 and 17/09) at and in the vicinity of the site since October 2017. Groundwater levels recorded between October 2017 and April 2019 are presented on Figure HIA 5. Groundwater levels in the Skipwith Sand Member range from approximately 6.1mAOD (0.76mbgl) recorded in April 2018 at borehole 17/05 in the north east of the site to approximately 3.1mAOD (1.7mbgl) recorded in August 2018 at borehole 17/09 in the south of the site. In general groundwater levels in the Skipwith Sand Member fall from between approximately 5mAOD and 6mAOD in the north east and north west of the site to between approximately 3mAOD and 4mAOD in the south of the site. Heron Dyke

(Drain), Parkhill Dyke (Drain) and Bentley Park Drain are excavated through the Skipwith Sand Member at the site with the base of the drainage ditches in the underlying Hemingbrough Glaciolacustrine Formation in places. Groundwater contours interpolated from groundwater levels recorded in the Skipwith Sand Member in April 2019 show that groundwater flows towards the drainage ditches and in the direction of flow of the drainage ditches to the south (Figure HIA 6) with a hydraulic gradient of approximately 0.0015 across the site.

3.6 Groundwater levels in the Skipwith Sand Member fluctuate seasonally by between approximately 0.2m and approximately 1.0m across the site. Limited seasonal fluctuations in groundwater level are recorded in boreholes 17/02 and 17/03 located adjacent to Heron Dyke (Drain) on the north of the site and boreholes 17/06 and 17/07 adjacent to Bentley Park Drain in the east of the site. In general the saturated thickness of the Skipwith Sand Member is less than 0.5m across the site with a number of boreholes recorded as dry during summer months. More significant saturated thicknesses of between 0.6m and 1.6m are recorded at borehole 17/02 in the north west of the site and at boreholes 17/05 and 17/06 in the north east of the site. It is considered that groundwater in the Skipwith Sand Member does not comprise a significant groundwater resource at the Escrick site, though this unit will provide temporary storage for infiltrating rainwater prior to discharge into the Heron Dyke (Drain), Parkhill Dyke (Drain) and Bentley Park Drain.

We trust that the information provided is sufficient to meet your current needs and look forward to receiving the pre-application advice.

Regards

Jo [redacted]
MJCA
Baddesley Colliery Offices

Main Road
Baxterley
Atherstone
Warwickshire
CV9 2LE

Mob: [redacted]
Tel: 01827 717891 (Office)
www.mjca.co.uk

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Our Ref: PL/ES/NCW/5689/01

From: [redacted] Roland <[redacted]>
Sent: 06 September 2022 09:09
To: Charlie [redacted]
Cc: Jo [redacted]
Subject: RE: Pre-application Cost Estimate - EPR/LB3407XT/A001 - Escrick Quarry

> You don't often get email from [redacted]. Learn why this is important

Hi Charlie,

Thanks for your reply, I'll get a response to you by Wednesday next week.

Thanks
Roland

From: Charlie [redacted]>
Sent: 05 September 2022 15:31
To: [redacted] Roland [redacted]
Cc: Jo [redacted]
Subject: RE: Pre-application Cost Estimate - EPR/LB3407XT/A001 - Escrick Quarry

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Hi Roland,

Thank you for the swift response.

I can confirm a written response is still preferred in the first instance, we can then decide on whether a meeting is required afterwards.

Are you able to give any indication on when we can expect the written response?

Kind regards,

Charlie

From: [redacted] Roland [redacted]
Sent: 05 September 2022 15:09
To: Charlie [redacted]
Subject: RE: Pre-application Cost Estimate - EPR/LB3407XT/A001 - Escrick Quarry

> You don't often get email from [redacted]. Learn why this is important

Hi Charlie,

Thanks for getting in touch. I spoke to Jo Congo on the phone before the holiday break where a written response was suggested in the first instance. If you'd prefer a meeting then I'm happy to do that. Please can you let me know what you want to do, and I'll get some dates sorted out if we need them.

Thanks
Roland

From: Charlie [redacted] >
Sent: 01 September 2022 16:13
To: PreApplication Service [redacted]
Cc: [redacted]
Subject: RE: Pre-application Cost Estimate - EPR/LB3407XT/A001 - Escrick Quarry

> You don't often get email from [redacted] Learn why this is important

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Dear Matt/Pre-application Team,

Please can you provide an update on enhanced application reference EPR/LB3407XT/A001.

We still haven't had anything back on proposed meeting dates.

Kind regards,

Charlie [redacted]
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CV9 2LE

Telephone: 01827 717 891
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From: Nicole [redacted]
Sent: 25 July 2022 12:34
To: PreApplication Service [redacted]
Cc: [redacted]
Subject: RE: Pre-application Cost Estimate - EPR/LB3407XT/A001 - Escrick Quarry

Good afternoon Matt,

Thank you for the cost estimate for the enhanced pre-application service for Escrick Quarry (EPR/LB3407XT/A001). Please find attached the completed declaration form and we can confirm we wish to proceed with the enhanced pre-application service.

Kind Regards,

Nicole [redacted]
MJCA
Baddesley Colliery Offices
Main Road
Baxterley
Atherstone
Warwickshire
CV9 2LE

[redacted]
Telephone: 01827 717 891
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Our Ref: PL/ES/NCW/5689/01

From: PreApplication Service [redacted]
Sent: 20 July 2022 14:50
To: Nicole [redacted]
Subject: Pre-application Cost Estimate - EPR/LB3407XT/A001 - Escrick Quarry

Dear Nicole,

Application Reference: EPR/LB3407XT/A001
Operator: Plasmor Limited
Facility: Escrick Quarry

A cost estimate has been provided for the enhanced pre-application service.

Please find attached:

1- Standard terms for pre-application advice
2- Cost estimate letter
3- Declaration form

To accept the estimate and standard terms, please arrange for a relevant person to complete the declaration.

Please email your completed declaration to [redacted]

An invoice, stating the final cost, will follow after you have received the final advice. A payment can only be made once you have received this. Information on how to make a payment will be detailed within the invoice.

Yours sincerely

Matt [redacted]
Pre-application Team
National Permitting Service Sheffield
Environment Agency | Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WF
[redacted]

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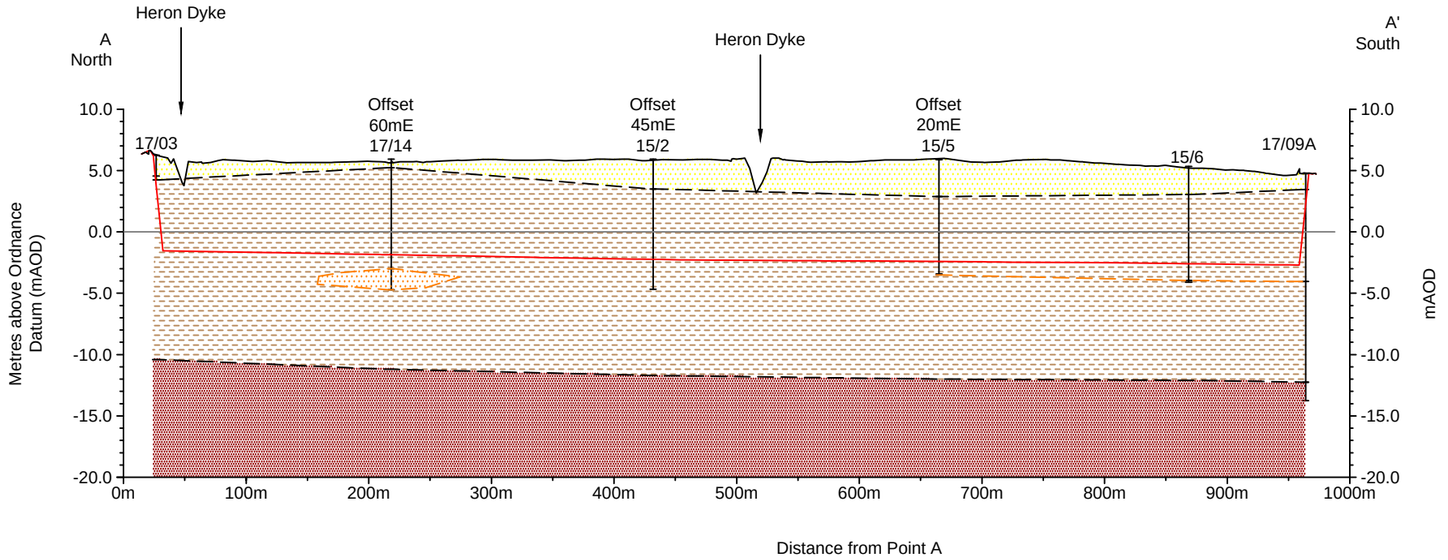

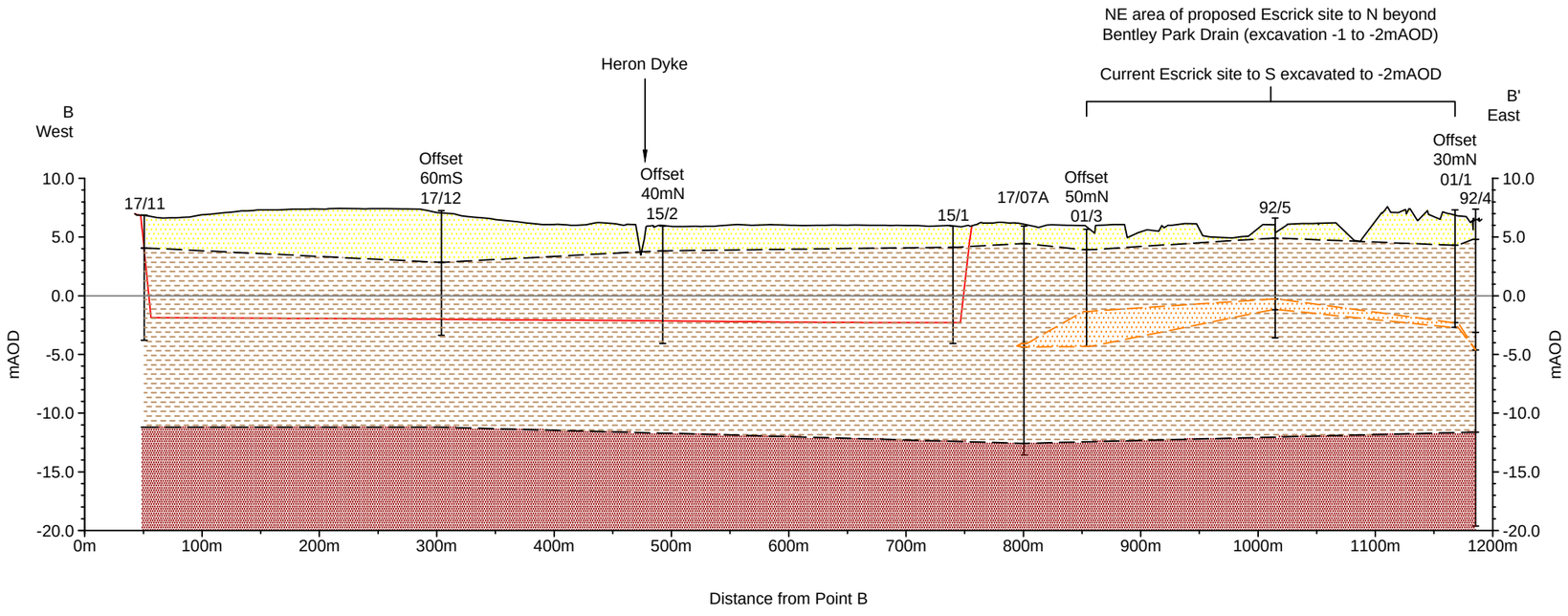

Key / Notes

- Skipwith Sand Member
- Heminbrough Glaciolacustrine Formation (HGF)
- Lawns House Farm Sand Member of the HGF
- Sherwood Sandstone Group
- Current ground level
- Proposed excavation

Note:
Location of cross sections shown on drawing reference PL/ES/11-18/20901

Rev	Status	Drn	App	Chk	Date
	Final	KR	JRC	JRC	01/08/19

Site
ESCRICK

Client
Plasmor Limited

Title
Schematic cross sections through the proposed Escrick site

Figure HIA 4

Scale
1:5.000v@A3
1:500h

Drawing Ref
PL/ES/06-19/21166

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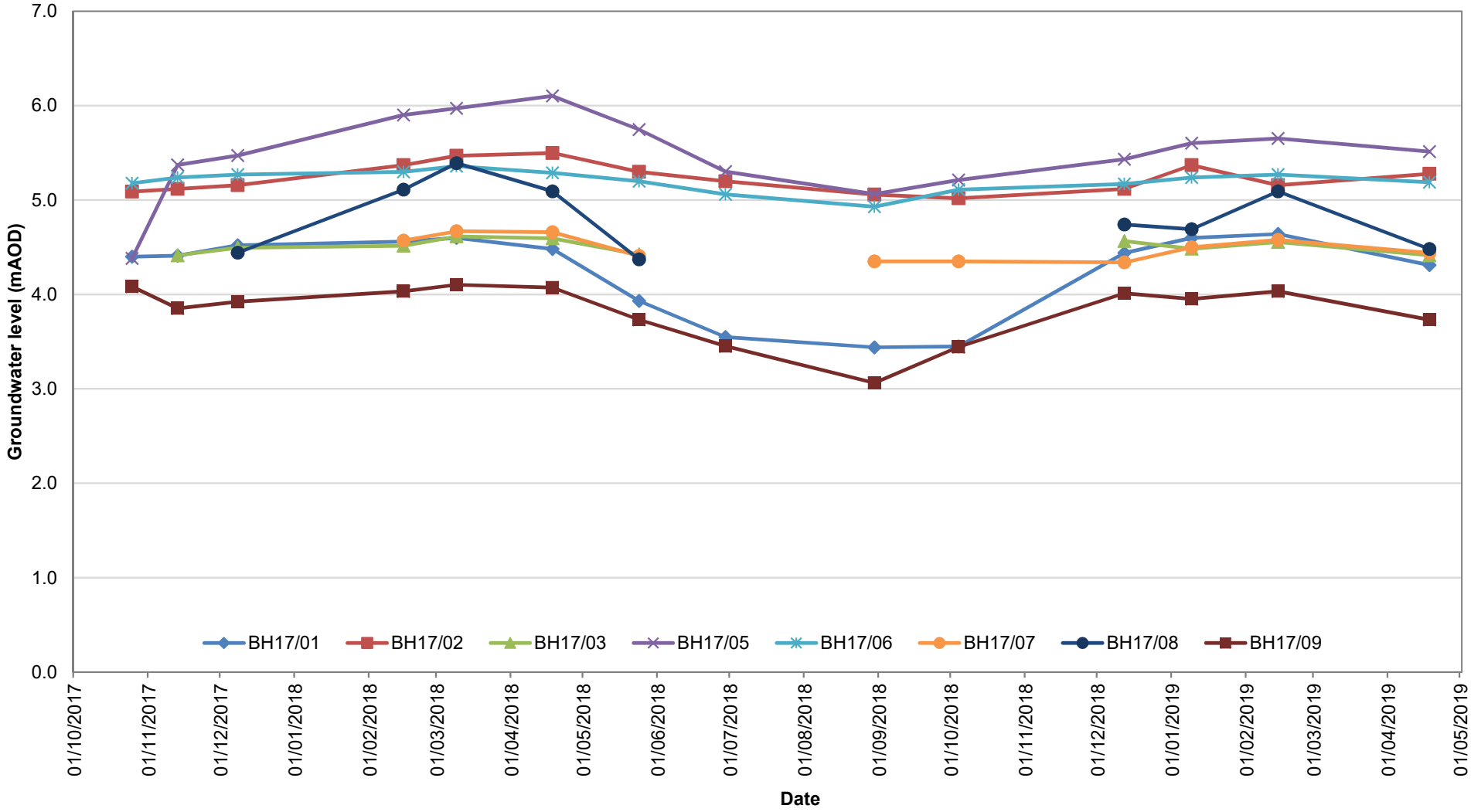
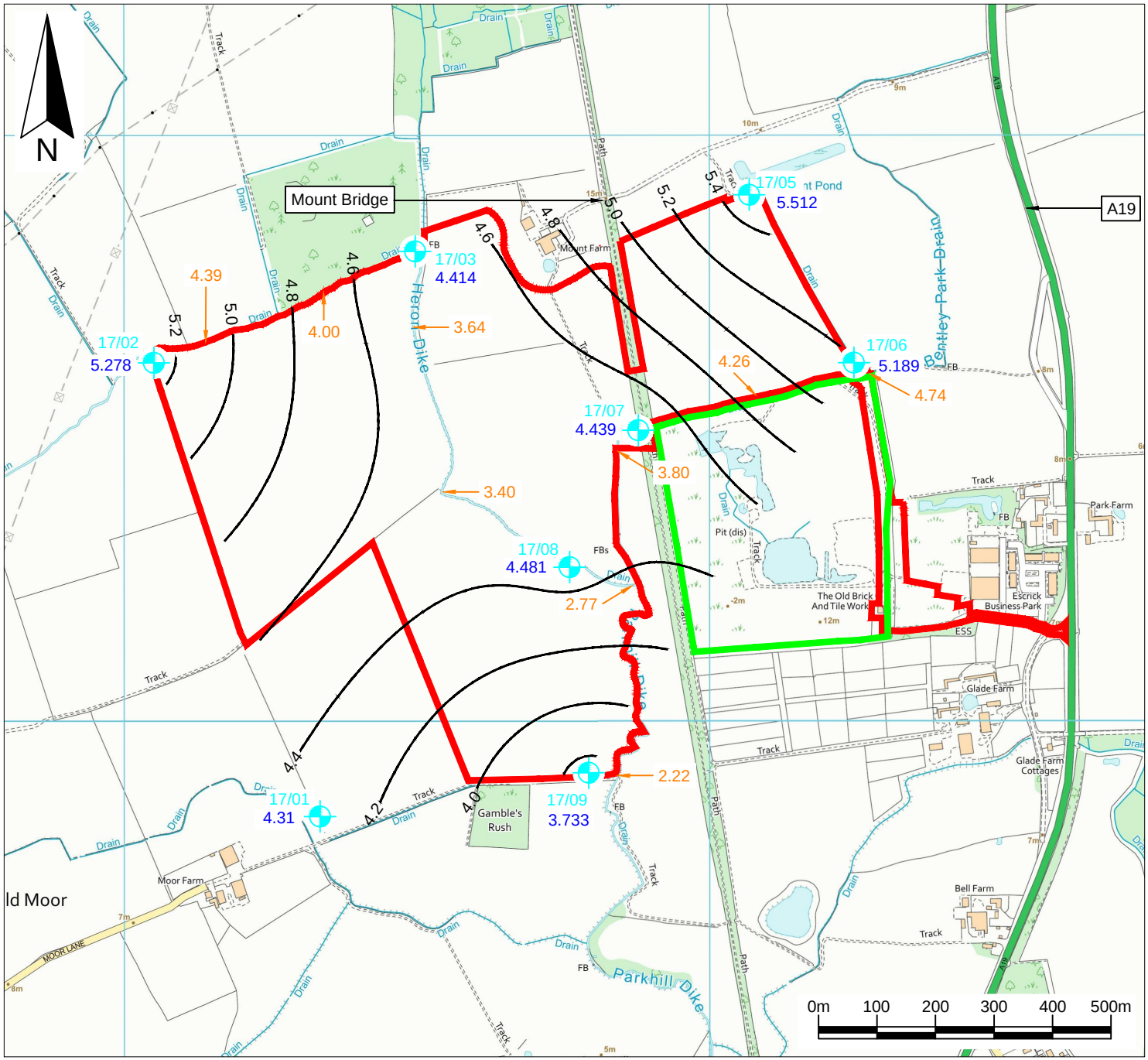
Telephone : 01827 717891
Fax : 01827 718507

Figure HIA 5 - Groundwater levels recorded in the Skipwith Sand Member at groundwater monitoring boreholes at the proposed Escrick site between October 2017 and April 2019





Key / Notes

- Planning application boundary
- The current Escrick site
- Location of a monitoring borehole in the Skipworth Sand Member of the Breighton Sand Formation
- 4.439 — Groundwater levels recorded in the Skipworth Sand Member in April 2019 (mAOD)
- 5.0 — Groundwater levels contours interpolated from groundwater levels
- 4.39 — Invert level of IDB drain

Rev	Status	Drn	App	Chk	Date
	Final	KR	ML	JRC	01/08/19

Site
ESCRICK

Client
Plasmor Limited

Title
Groundwater level contours interpolated from groundwater levels recorded in the Skipworth Sand Member in April 2019

Figure HIA 6

Scale
1:10,000@A4

Drawing Ref
PL/ES/06-19/21231

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