Phase II Geoenvironmental Site Assessment
Former Bridgewater Paper Mill

Reference:14-035-R1-2
Date: February 2021

PHASE II GEOENVIRONMENTAL SITE ASSESSMENT

Former Bridgewater Paper Mill
North Road
Ellesmere Port

Prepared for:

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Report Ref: 14-035-R1-2
Date Issued: 5 February 2021

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QUALITY ASSURANCE

PROJECT NUMBER	14-035		
VERSION	Version 1	Version 2	
REMARKS	Draft for Comment	Final	
DATE	16 November 2020	5 February 2021	
PREPARED BY	[redacted]		
QUALIFICATIONS			
SIGNATURE			
CHECKED BY			
QUALIFICATIONS			
SIGNATURE			
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QUALIFICATIONS			
SIGNATURE			

EXECUTIVE SUMMARY

Site Address	Former Bridgewater Paper Mill, North Road, Ellesmere Port,	
Grid Reference	338900, 378700	
Site Area	13 Ha	
Current Site Use	The central and the majority of the western sector of the site is currently un-used and comprises multiple level hardstanding associated with former roads, floor slabs and structures. The west of the site similarly comprises areas of hardstanding, but these are utilised by an adjacent glass recycling firm (Recresco) for the storage and processing of glass. As a result of these operations, there are numerous stockpiles of glass cullet in this sector of the site.	
Proposed Development	It is understood that the site will be developed for a commercial / industrial end use with associated areas of hardstanding and utility infrastructure.	
Environmental Setting	**Drift Geology**	Glacial Till. Alluvium (west).
	Bedrock Geology	Chester Formation Sandstone.
	Faults	None identified.
	Hydrogeology	The Glacial Till is classified as an undifferentiated aquifer. The Chester Formation is classified as Principal Aquifer. The site is not located within a groundwater source protection zone and while the former paper mill is stated to have had abstraction boreholes historically these are reported to have been abandoned due to saline water intrusion.
	Hydrology	Rivacre Brook is located at the western boundary and the Manchester Ship Canal is located to the north. The Riveacre Brook flows into the Mersey Estuary which is located 200 m to the north.
	Flood Risk	Unaffected by flooding from rivers.
Site History	Historical maps indicate that between 1872 and 1873, prior to development of the paper mill, the site mainly comprised agricultural land with two ponds adjacent to northeast boundary, two ponds in the central area, two ponds in the south. By 1938 the paper mill has been constructed and that by 1957 those works had been extended with numerous tanks, railway lines cranes, engine shed, pumping station and coal conveyor. It is stated by IDG that at this time the levels at the western boundary may have been levelled where the site borders Rivacre Brook.	
Previous Reports	The following previous reports have been provided for review and pertinent information is summarised in this report: - E4 Industry Environmental Audit of Bridgewater Paper Company, North Road, Ellesmere Port, Cheshire. Prepared on behalf of Ernst & Young. February 2010. - ID Geo-Environmental Consulting Engineers. Geoenvironmental Appraisal of Land at The Former Bridgewater Paper Mill, Ellesmere Port. Prepared for the Manchester Ship Canal Company. Report No. 3653-G-R001 Rev A. Dated August 2012.	

Utility Locations	The site has been subject to demolition and only relict utilities are present. A high-pressure gas main is present beyond the southern boundary and is listed as a COMAH pipeline.
Landfill Sites and Ground Gases	A historical landfill site is identified beyond Rivacre Brook to the west. The waste types accepted are identified as inert, industrial, commercial, and household and it is reported to have been active from the mid-1970s to the mid-1980s.
Radon	Unaffected – no special precautions required.
Coal Mining/Land Stability	None identified.

E3P INTRUSIVE GROUND INVESTIGATION

Site Investigation Works	E3P has completed an intrusive ground investigation comprising mechanically excavated trial pits, cable percussion boreholes and rotary open holes. Selected borehole locations were fitted with environmental monitoring installations to enable gas and groundwater monitoring.
Ground Conditions	**Hardstanding and Relict Structures** Due to the targeted nature of the site investigation, hardstanding was recorded in the majority of the exploration locations. In the main, hardstanding comprises reinforced concrete that was proven to have a typical depth of 0.15 m to 0.30 m thickness. In some localised areas, such as TP124c that slab was observed to be thicker at 0.45 m. In addition to surface concrete slabs, secondary slabs were also recorded in TP130 at 0.8-1.4 m bgl, TP302 at 0.8-0.9 m bgl and a concrete-lined void was recorded in TP137 between 0.2-2.0 m bgl. In TP137a, TP142, CP109 it was apparent that slabs had been buried beneath a thin (Ca.0.2 m) layer of Made Ground. **Made Ground** Made Ground was recorded in all but one location where the overlying concrete hardstanding was penetrated. The Made Ground and was proven to an average depth of approximately 0.7 m bgl. Locally thicker (>2.5 m) Made Ground was recorded in TP106 (2.6 m bgl), TP110 (3.7 m bgl), TP111 (3.5 m bgl), TP113 (3.2 m bgl) and TP115 (5.0 m bgl). TP110, TP111 and TP113 and TP115 were recorded in the southwest of the site and it should be noted that these locations were formed within a raised stockpile area. Made Ground is predominantly granular at the site, comprising variable grey to brown locally clayey, silty and sandy gravel. The gravel constituent is also variable across the site being of fine to coarse, angular to sub-angular mixed natural lithologies, concrete, brick, plastic, ash, slag and clinker. A previous ground investigation identified relic topsoil in the area of deep Made Ground in the west of the site from 0.4-1.0 m bgl (IDG-TP30) and 0.0-0.7 m bgl (IDG-TP33). This stratum was described as grey clayey silty sand with abundant roots and rootlets.
	Drift The drift stratum predominantly comprises firm to stiff, medium to high strength CLAY and this was recorded in all locations were the Made Ground or surface concrete could be penetrated. The full thickness of the CLAY was only proven in the Cable Percussion boreholes and it was proven to between 5.5 m bgl and 8.9 m bgl with a thickness ranging between 4.2 m (CP104) and 8.1 m (CP110).

	Solid SANDSTONE was recorded in all of the cable percussion boreholes beneath the drift. The SANDSTONE was drilled using a rotary open technique to facilitate the installation of deeper monitoring wells. No rock strength data was obtained as part of this phase of work.
	Groundwater Groundwater monitoring has been completed to determine a groundwater flow. This has been completed using groundwater depths collected on the 21 January 2021 and using topographical information from the Survey Operations Topographical Survey completed in January 2021. The data has been split into shallow and deep monitoring wells indicates that the shallow perched groundwater is perched and not in continuity with Sandstone aquifer. Furthermore, the perched groundwater does not appear to be in continuity with Rivacre Brook which is ca. 3-4m below site level. Assessment of water table elevation indicates that groundwater flow within the principal aquifer is to the north east at an approximate gradient of 0.06.

CONTAMINATED LAND ASSESSMENT

Human Health	Analysis of selected soil samples from across the site has identified isolate occurrences of asbestos, heavy metals and polycyclic aromatic hydrocarbons (PAH). Based on a future commercial/industrial end-use the identified determinands are not considered likely to pose a significant risk to human health as any potential pathways are likely to be broken by the presence of hardstanding and buildings. A remediation and enabling works strategy will need to be developed to ensure the safe management of dust due to the presence of asbestos fibres and locally hydrocarbon impacted soil and perched groundwater.
Controlled Waters	Slightly elevated concentrations of metals and volatile organic compounds have been identified within both shallow and deep monitoring boreholes. Subsequent monitoring did not record any elevated concentrations. Monitoring of Rivacre Brook and the Manchester Ship Canal is recommended throughout any future remediation works but given that foundation structures for the proposed buildings will be shallow there is not likely to be the creation of any preferential pathways to the underlying principal aquifer. It is therefore considered that the site will represent a low risk to controlled waters.
Ground Gas	A former landfill was identified beyond Rivacre Brook to the west and this was identified as a potential source of ground gas that was detected in the west of the site during previous ground investigation. Assessment of previous and current results indicates that no significantly elevated ground gas concentrations are present beneath the area of proposed units 1 and 2 and that these areas will be classified as CS1 and that mitigation measure will not be required. However, the full assessment will be determined following the completion of the gas monitoring.
Potable Water Infrastructure	Barrier Pipe is likely to be required but this can be determined following the completion of UKWIR assessment post remediation and enabling works.

GEOTECHNICAL ASSESSMENT

Underground Obstructions	Significant concrete and brick obstructions have been encountered within the Made Ground, indicative of relict foundations and structures.

	During a phase of cut-and-fill enabling works to create a development platform, all below-ground obstructions will require grubbing out to the base of the Made Ground.
Allowable Bearing Pressure	The underlying natural shallow CLAY drift deposits have been assessed as being very stiff, high strength with a net allowable bearing pressure (ABP) in the order of 39-150 kN/m^2 at circa 1–2 m bgl increasing to 104–173 kN/m^2 at circa 3–4 m bgl.
Foundation Options	Prior to the detailed design of suitable foundations solutions, a programme of remediation and enabling works will be required to remove the extensive buried obstructions and cut/fill the site to provide suitable development platform levels. Therefore, upon completion of these enabling works, the Made Ground is likely to be present at varying depths and as such, it is likely that the most cost-effective option for the majority of the site would be to re-engineer the Made Ground using vibro-stone columns (VSCs) to support pad foundation.
Building Floor Slabs	Following enabling works, the site will likely have a variable thickness of Made Ground, that may extend to significant depth in places. Given the structures that are proposed, it is considered that ground-bearing floor slabs will require settlement analysis and detailed design in order to accommodate the variability of the formation and account for differential settlement. Given the depth of Made Ground and its loose/variable nature, it will be necessary to undertake some form of Ground Improvement work, either High Energy Impact Compaction (HEIC) or VSC, to ensure the total and differential settlement is within tolerable limits for the Uniformly Distributed Load of the floor slab and any external reinforced concrete yards/hardstanding.
Heave Precautions	Given that the underlying clay is of low volume change potential, heave precautions will not be required to the internal face of a foundation. However, heave precautions will be required to the underside of floor slabs (where there is no 200 mm void) or ground beams within the modelled influencing distance of trees. As the underlying clay is low volume change potential, heave precautions are not required to the internal face of the external load-bearing walls (outside or within tree influence). TP145 has identified high plasticity CLAY. It is recommended to further delineate this area and if necessary, excavate the CLAY and backfill the void with suitably engineered material. Where a ground-bearing floor slab is to be constructed within the conjectured zone of tree influence, the clay will need to be removed to ensure that any desiccated soil cannot swell and induce heave to the structure. Alternatively, it may be possible to design the structure to resist the influence of clay heave using exaggerated sub-base and additional reinforcement within the slab, to be designed by the structural engineer.
Soakaway Drainage	The site is predominantly underlain by likely low-permeability gravelly CLAY. Therefore, the use of soakaway drainage will be limited, and as the lateral continuity of the Made Ground cannot be assured, it is not recommended that soakaways are utilised for disposal of surface water runoff.
Sulphate Assessment	Concrete classification will be DS2 AC2s.
CBR Design %	Granular soils can be re-engineered to ensure a CBR in the order of 4–5% within the subgrade during favourable climatic conditions.

	Natural clay soils will provide a CBR in the order of 2–4% during drier climatic periods. However, if water is allowed to shed onto the formation, the CBR will reduce to < 2%, which will require specialist engineering of the subgrade.
Cut/Fill	Development levels are unknown at this time; however, cut-and-fill works will be required to prepare the development platform. A geotechnical specification of works will be required to document filled material types, compaction methodologies and validation testing relevant to the proposed development end-use. Given that a slope is present along the western boundary, a slope stability assessment will also be required.
Waste Characterisation	Any material that is to be disposed off-site should undergo assessment using Technical Guidance WM3: Waste Classification – Guidance on the classification and assessment of waste.

RECOMMENDATIONS

Based on the findings of the intrusive site investigation, the following additional works are recommended:

- Full 3D topographic survey.
- Further assessment of the ground conditions along the western boundary following removal of glass stockpiles.
- Delineation of the high plasticity CLAY identified in TP145.
- Settlement analysis for proposed ground floor slabs.
- Slope stability assessment at the western boundary.
- Remediation and Enabling Works Strategy incorporating a geotechnical earthworks specification for infrastructure.

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DRAWING LIST

1. INTRODUCTION

1.1. BACKGROUND

E3P has been commissioned by Firethorn Investors Limited to undertake a Phase II Geoenvironmental Site Assessment at the site of the former Bridgewater Paper Mill in Ellesmere Port.

This report is required to determine potential contaminated land liabilities, remediation requirements and geotechnical engineering works that will be required as part of the proposed development for a proposed commercial development.

The scope of work includes the following elements:

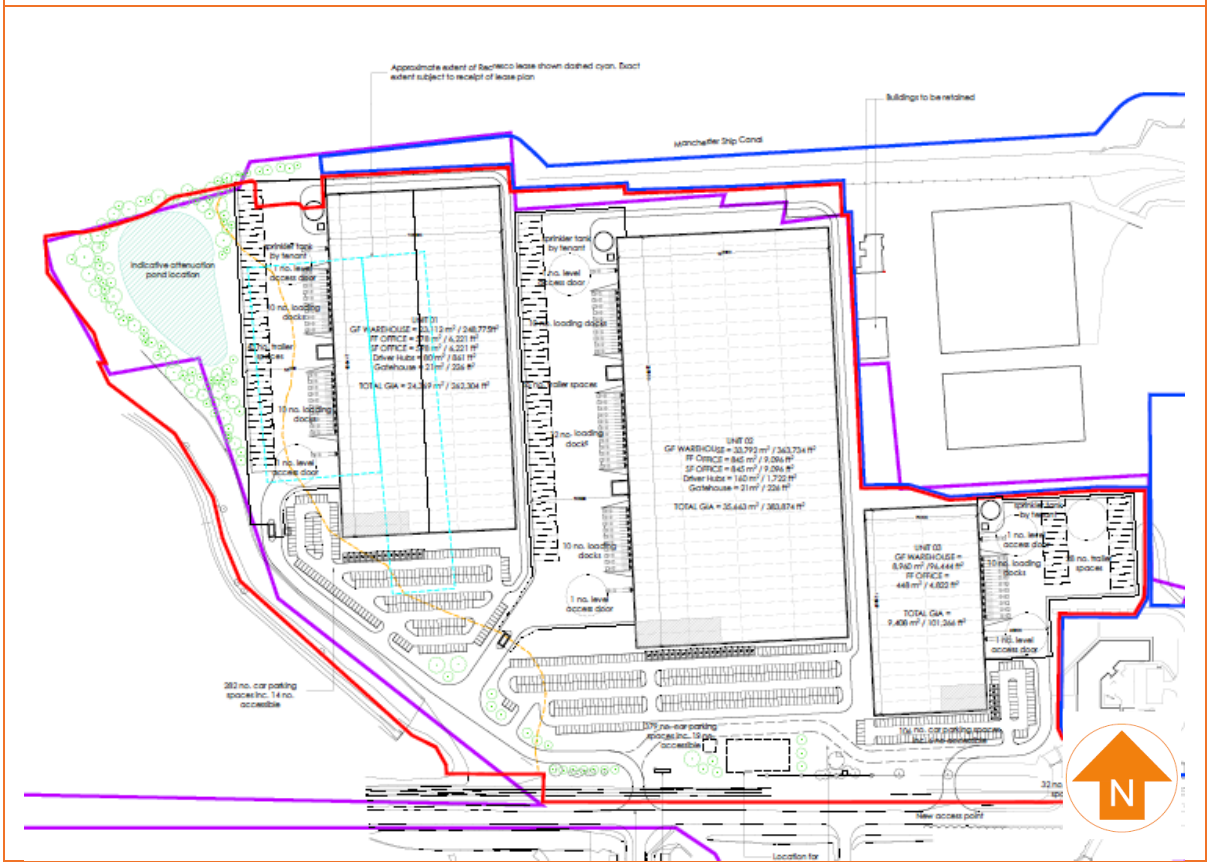
- Detailed review of historic information;
- Deep cable percussive boreholes with groundwater monitoring installations targeted to the footprints of proposed units 1 and 2. CP110 in the northeast of the site was replaced in January 2021;
- Mechanically excavated trial pits targeted to areas of hardstanding not previously investigated;
- In-situ geotechnical testing;
- Chemical and geotechnical laboratory analysis;
- Groundwater monitoring and sampling;
- Ground gas monitoring;
- Contamination risk assessment and conceptual site model;
- Geotechnical assessment and interpretation; and
- Factual and interpretive reporting.

1.2. PROPOSED DEVELOPMENT

Firethorn Investors Limited intends to construct two (potentially three) industrial warehouses with associated access roads, storm water attenuation and utility infrastructure. Drawing 14-035-002 (Appendix III) identifies the proposed development layout.

An excerpt of the proposed development layout is indicated in Figure 1.1 overleaf.

FIGURE 1.1 SNAPSHOT OF PROPOSED DEVELOPMENT



1.3. OBJECTIVES

The objectives of the geoenvironmental assessment are as follows:

- Review previous site reports within the context of the proposed development.
- Undertake an intrusive investigation, targeting areas not previously covered, with subsequent sampling and analysis to provide an overview of environmental issues identified.
- Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors.
- Assess the geotechnical information and provide preliminary recommendations in relation to foundations, pavement construction and floor slabs.
- Provide recommendations regarding future works required.

1.4. LIMITATIONS

The limitations of this report are presented in Appendix I.

1.5. CONFIDENTIALITY

E3P has prepared this report solely for the use of the client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from E3P; a charge may be levied against such approval.

2. SITE SETTING

2.1. SITE DETAILS

Site Address	Former Bridgewater Paper Mill, North Road, Ellesmere Port, CH65 1BW
National Grid Reference	338900, 378700
Site Area	13 Ha

All acronyms used within this report are defined in the Glossary presented in Appendix II.

A site location map is presented in Appendix III as Drawing 14-035-001.

2.2. CURRENT SITE USE

E3P has undertaken a site walkover of the entire site and a description of the key findings is summarised in Table 2.1.

TABLE 2.1 SITE DESCRIPTION

Occupancy/Use	The central and the majority of the western sector of the site is currently un-used and comprises multiple level hardstanding associated with former roads, floor slabs and structures. The west of the site similarly comprises areas of hardstanding, but these are utilised by an adjacent glass recycling firm (Recresco) for the storage and processing of glass. As a result of these operations, there are numerous stockpiles of glass cullet in this sector of the site.
Structures	The majority of the above ground structures have been demolished and removed from the site. The only above ground structures that are present are: Warehouse in the north-east – No internal access but appears to be of steel portal frame construction with cement bonded (presumed asbestos containing material (ACM)) cladding. Form filter beds in the north-east – Concrete structures set partially below ground level and containing water. Former effluent treatment plant building – No internal access but building is of concrete/brick construction and bounds the railway siding to the north. Former pump house in the north-east – Metal building containing disconnected electrical switch gear. Weighbridge – Located by southern site entrance and comprising the weighbridge and adjacent kiosk. Water tower – Located at southern boundary and comprises steel tower and tank. The tank is connected to the surface by steel pipework. It is not known if these are still connected to mains water supply. A review of United Utilities records would suggest that they are not, but this would need to be confirmed prior to demolition.
Access	Access to the site is obtained via North Road site entrance. There is internal access to the site from east.

Slope	The site is generally level, though a slope is understood to be present at the western site boundary down to Rivacre Brook. This could not be observed at the time of the E3P site visit to due dense vegetation.	
Retaining Structures	None observed.	
Surface Cover (%)	**Buildings**	2%
	Hardstand	90%
	Soft Cover	8%
Vegetation/Ecology	An ecological appraisal has been completed and is reported under separate cover.	
Hazardous Material Storage	No above-ground storage tanks (ASTs) or underground storage tanks (USTs) were observed at the site during the preliminary site walkover. However, given the previous use of the site as a paper mill, potentially hazardous materials were stored at the site. E3P has obtained a copy of a previous environmental audit that was completed prior to the closure of the site and a summary of the findings is presented in Section 4.0.	
Asbestos-Containing Material (ACM)	The warehouse in the north-east of the site is clad with a cement bonded sheeting that is presumed to be ACM. Furthermore, given the age and use of the wider site prior to demolition, it is likely that ACM will have been present within the building fabric and that construction and demolition activities may have resulted in the release of fibres/materials into the sub-surface.	
Polychlorinated Biphenyls (PCBs)	No equipment identified that may contain PCBs within the site boundary with the paper mill's former sub-station located off-site to the east.	
Waste Storage	The glass cullet being stored and processed on-site is considered unlikely to result in significant impact and as this process is being undertaken by the adjacent landowner, it is considered that these materials will be removed in their entirety prior to the commencement of any site remediation works. Of significant note is the presence of significant stockpiles of possible domestic type waste in the west of the site. This material comprises plastic and organic material and was noted to have a strong organic odour and discoloured leachate that was ponding on the surface. The material appears to have been placed over earlier stockpiles of predominantly construction and demolition material. This material was largely obscured by dense vegetation.	
Drainage	A formal drainage survey has not been completed though it was observed that former drainage infrastructure (grids and inspection covers) was still present though entirely blocked with soil and debris. The site's former effluent treatment area is partially intact with the below ground structures still present and the effluent treatment building having not been demolished. It is recommended to access the building and inspect what, if any, structures are still present.	

2.3. SURROUNDING AREA

The surrounding area land uses are summarised in Table 2.2.

TABLE 2.2 SURROUNDING LAND USES

DIRECTION	LAND USE
North	Rail head and Manchester Ship Canal
East	CHP Plant and Recresco Ltd (glass recycling).
South	North Road with Eastham Metals and electrical sub-station beyond
West	Residential units

2.4. UNEXPLODED ORDNANCE (UXO)

A Stage 1 Preliminary UXO Risk Assessment has been completed for the site by Brimstone Site Investigations. This report is presented XI.

The UXO Risk Assessment concludes the following:

> *"Liverpool / Birkenhead was the second most heavily bombed conurbation, however as the Site is located a significant distance south of the primary target area, it was not significantly affected by these raids. Wartime figures confirm that the local district experienced a low bombing density. The adjacent airfield was never the specific subject of a large-scale targeted raid, however this facility could have drawn solitary aircraft to the vicinity with the potential for opportunistic bombing. It is conceivable therefore that wayward bombs (potential UXB) were released over the Site. The mill appears to have survived the war largely intact and therefore probably remained operational throughout the bombing conflict. Furthermore, the adjacent RAF base would have been a hive of activity with LAA gunners likely keeping watch around the clock. Any German UXO falling within the Site boundary is unlikely to have occurred unobserved. The proposed works (being SI) will disturb a relatively small volume of soil and consequently there is a low likelihood of a UXO encounter.*
>
> *There is currently considered to be a Low Risk to the proposed works from German UXO.*
>
> *The Site was separated from the adjacent airfield by a civilian road and therefore, as it was occupied by an industrial facility, RAF personnel probably would not have accessed the Site. However, an army fortification was built at the northern corner of the Site during WWII. Armed HG or army soldiers accessing the Site could conceivably have discarded / disposed of unwanted ammunition in peripheral soft ground. It is quite possible that an unexploded British AA shell struck peripheral vegetation on Site unobserved (during WWII) and remains shallow buried today.*
>
> *There is currently considered to be a Low-Moderate Risk to the proposed works from British UXO.*
>
> *A Stage 2 Detailed UXO Risk Assessment is not considered necessary, however a UXO encounter cannot be completely ruled out. Therefore, a UXO Safety Awareness Briefing to all personnel conducting ground works would be considered prudent."*

3. ENVIRONMENTAL SETTING

3.1. GEOLOGY AND HYDROGEOLOGY

The British Geological Survey (BGS) map for the site, (1:50,000, Solid and Drift editions) and online records indicate the site is underlain by the geological sequence presented in Table 3.1.

TABLE 3.1 SUMMARY OF UNDERLYING GEOLOGY

GEOLOGICAL UNIT	CLASSIFICATION	DESCRIPTION	AQUIFER CLASSIFICATION
Drift	Glacial Till	Clay with sand, silt, gravel and cobbles	Undifferentiated
	Alluvium (western boundary)	Clay and sand	Secondary A
Solid	Chester Formation	Sandstone	Principal

The subject site is not located within a currently defined groundwater source protection zone or drinking water safeguarding zone. The site is known to have had up to five groundwater abstraction licences when operational. All relevant licences have been surrendered and it is assumed that the wells have been decommissioned in line with relevant IPPC permit requirements.

According to Hydrogeological Map of Clwyd and the Cheshire Basin (1:100,000) – 1989; groundwater within the Chester Formation is likely to flow in a western direction towards the Mersey Estuary. It is also understood that due to the influence of historical groundwater abstractions and presence of the Manchester Ship Canal that this region of Ellesmere Port has undergone a degree of saline water intrusion into the Chester Formation aquifer.

3.2. HYDROLOGY

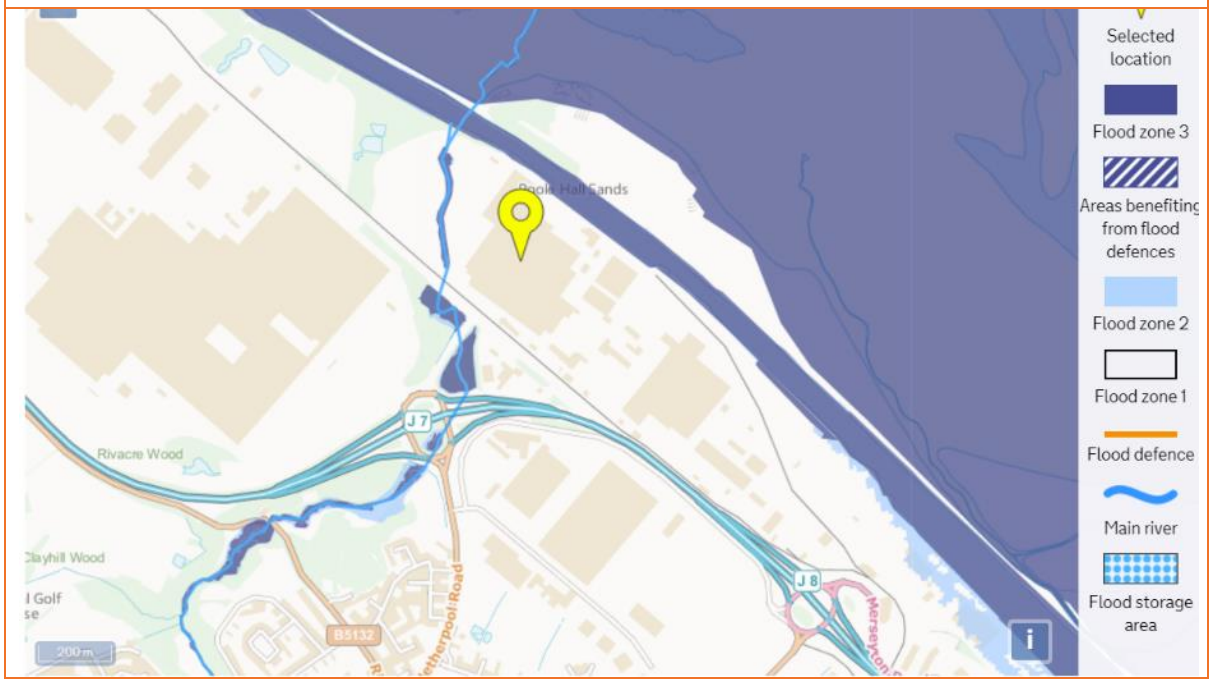
Surface water features within 250 m of the subject site are summarised in Table 3.2.

TABLE 3.2 SURFACE WATER FEATURES

SURFACE WATER FEATURE	QUALITY (2019)	DISTANCE (m)	DIRECTION
Manchester Ship Canal	Chemical – Fail Ecological – Moderate **Overall - Moderate**	20 m	North
Mersey Estuary	Chemical – Fail Ecological – Moderate **Overall - Moderate**	200 m	North
Rivacre Brook	Chemical – Fail Ecological – Moderate **Overall - Moderate**	15 m	West

The site is predominantly located within a currently defined “Flood Risk Zone 1”; defined as land assessed as having less than 1 in 1,000 annual probability of river or sea flooding (< 0.1%), and as such is considered to be unaffected by river flooding. In addition, the Envirocheck report states there is a limited potential for groundwater flooding to occur at the site. The Environment Agency (EA) Flood Risk Map for the site is presented as Figure 3.1.

FIGURE 3.1 EA FLOOD RISK MAP



Source - https://flood-map-for-planning.service.gov.uk/

3.3. RADON RISK POTENTIAL

The Envirocheck report indicates the site is situated in an area where less than 1% of homes are above the “Action Level” and that the BGS reports that full radon protective measures are not necessary in the construction of new dwellings or extensions.

3.4. COAL MINING

The site is not located with a Coal Authority Coal Mine Reporting Area.

3.5. BRINE WORKINGS

The site is not situated within the Cheshire Brine Subsidence Compensation Board (CBSCB) Compensation District.

3.6. INDUSTRIAL LAND USES

The site is located within a predominantly industrial area and adjacent land uses are discussed in Section 2.3.

Valley to the west of the site was a registered landfill site that received inert, industrial, commercial and household waste between 1976 and 1988.

3.7. SENSITIVE LAND USES

The Mersey Estuary, approximately 200 m to the north is classified as a Site of Special Scientific Interest (SSSI) Ramsar Site and Special Protection Area (SPA).

Rivacre Valley approximately 450 m to the west is classified as a Local Nature Reserve.

3.8. SITE SENSITIVITY ASSESSMENT

The site is assessed to be located within a "Moderate/High" sensitivity setting as discussed within Table 3.3.

TABLE 4.9 SITE SENSITIVITY ASSESSMENT

SENSITIVITY PROFILE	DISCUSSION	RATING
Sensitive Land Uses Within Close Proximity (e.g. Residential, School, Nursery, Local Nature Reserves)	No residential properties are located in close proximity to the site. However, the River Mersey, approximately 200 m to the north, is classified as a Ramsar site, SSSI and SPA.	Moderate
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	The site is not located within a groundwater source protection zone or drinking water safeguarding zone	Low
Distance to the Closest Groundwater Abstraction Point	The closest identified potable water abstraction is located approximately 3.5 km to the west.	Low
Aquifer Classification in Superficial Drift Deposits	The underlying Glacial Till is identified as being an undifferentiated aquifer. A small extent of Alluvium associated with Rivacre Brook is present at the western site boundary. While this is not likely to be important for groundwater abstraction purposes due to its limited extent, it may be important for baseflow to the brook.	Low/Moderate
Aquifer Classification in Bedrock	Principal aquifer	High
Is the Site Underlain by Low-Permeability Drift to Depths in Excess of 10 m?	The Glacial Till was proven to range between 5.2 m in the east to a maximum thickness of 15.5 m in the west during the IDG ground investigation. The Alluvium in the west was proven to depths ranging between 3.1 m and 9.4 m. Both the Glacial Till and Alluvium are described as being cohesive deposits and are therefore likely to be low permeability.	Low
Is the Site Located Within 50 m of a Surface Watercourse?	The closest watercourse if Rivacre Brook ca.15 m to the west; with the Manchester Ship Canal and River Mersey approximately 20 m and 200 m to the north respectively. All of these watercourses are classified as moderate quality.	High
OVERALL SITE ENVIRONMENTAL SENSITIVITY		Moderate/High

4. PREVIOUS SITE REPORTS

The following previous site assessments have been reviewed by E3P:

- E4 Industry Environmental Audit of Bridgewater Paper Company, North Road, Ellesmere Port, Cheshire. Prepared on behalf of Ernst & Young. February 2010.
- ID Geo-Environmental Consulting Engineers. Geoenvironmental Appraisal of Land at The Former Bridgewater Paper Mill, Ellesmere Port. Prepared for the Manchester Ship Canal Company. Report No. 3653-G-R001 Rev A. Dated August 2012.

Salient historical features determined by these previous reports have been included on Drawing 14-035-003 - Historical Feature Plan presented in Appendix III.

4.1. ENVIRONMENTAL AUDIT

The objectives of this report were to provide an understanding of the current environmental liabilities and processes that apply to the Bridgewater Paper Company Ltd site, specifically with respect to its Environmental Permit (formerly PPC) and other key significant consents/licenses/authorisations.

The report contains descriptions of the site operations and the location of key pieces of infrastructure and key findings are summarised below.

The mill operated two paper machines, referred to as PM 1 and 2, and these machines produce a range of newsprint grades and directory papers. Integrally linked with the two paper machines are three de-inking plants, a re-slushing facility for baled CTMP (chemi-thermo-mechanical pulp) and UPWW (unprinted white waste), a primary and secondary stage effluent treatment plant and sludge dewatering plant.

Power and steam were supplied from the on-site Combined Heat and Power Plant (CHP)). The CHP plant is owned and operated by NPower and was technically linked to the mill process with respect to their individual Environmental Permits (PPC). It should be noted that this facility is still active and located to the east of the subject site.

The site had three deinking plants referred to as DIP 1, DIP 2 and DIP 3. This process generated various grades of waste which were also disposed of off-site to landfill. The de-inking process utilised a number of different materials which reportedly included:

- Sulphuric acid
- Sodium silicate
- Biocide (peracetic acid)
- Phosphonate
- Polyacrylamide
- Dimethyamine-epichlorohydrin copolymer

The paper making element required the addition of various process chemicals at various points and these chemicals are identified as being:

- Sulphuric acid
- Peracetic acid
- Methylenebisthiocyanate

- Polyacrylic acid
- Dimethylamine-epichlorohydrin copolymer
- Ethoxylated alcohol
- Potassium hydroxide
- Dyes (no further information)

At the time of the audit, the site held six groundwater abstraction licences issued by the Mersey and Weaver River Authority (now regulated by the EA) with respect to the Water Resources Act 1963 (now superseded by the Water Resources Act 1991). Three of the groundwater abstraction boreholes are already dormant, whilst three were currently active (wells 4, 5 & 6).

All of the above groundwater abstraction boreholes were stated as being located off the paper making processing plant complex between approximately 1.5 and 2km to the south and southwest of the factory complex. The locations of (dormant) Wells 1, 2 and 3 were not fully known. It is reported that wells 1, 2 and 3 had not been used for a number of years following a deterioration in groundwater quality (saline intrusion). However, the licenses for these three abstractions had been maintained as a strategic resource to maintain the water supply.

The site formerly held a Trade Effluent Discharge Consent to public foul sewer from the BPC Mill. Site engineering projects had already removed the disposal of process effluent from the mill and it was confirmed that in 2010 only 'domestic' sources of effluent from the site are now transferred to the public foul sewer.

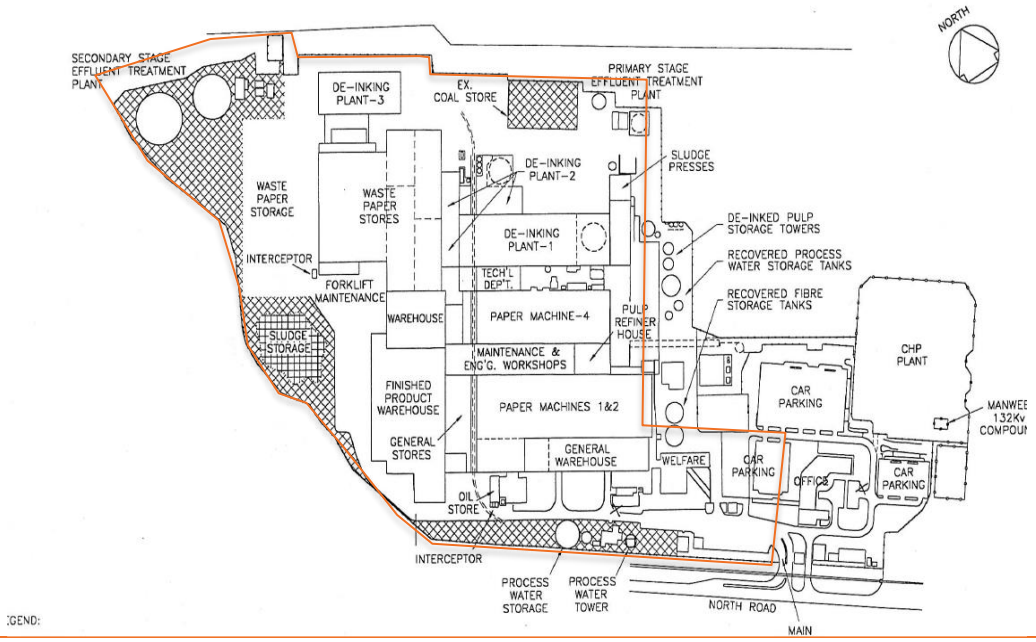
The activities carried out at the BPC facility were regulated with respect to 'The Environmental Permitting (England & Wales) Regulations 2007 (formally called Pollution Prevention & Control (PPC)). A key requirement of the installation's permit (BK6718) is the continued pollution release monitoring to air, water and waste.

At the time of the environmental audit, the paper mill was only required to monitor final effluent release from the treatment plant to the Manchester Ship Canal. Other emissions to water included rain and surface waters that were discharged to Rivacre Brook and the Manchester Ship Canal.

The facility once held a surface water abstraction license for the abstraction from the adjacent Manchester Ship Canal (license No. 25/68/009/004). This abstraction was required for cooling purposes when the site operated its own coal-fired power plant. This is likely to have been outside of the current site boundary.

The site layout was present in the Environmental Audit report and this is reproduced in Figure 4.1.

FIGURE 4.1 ABITIBI INSTALLATION LAYOUT WITH CURRENT SITE BOUNDARY



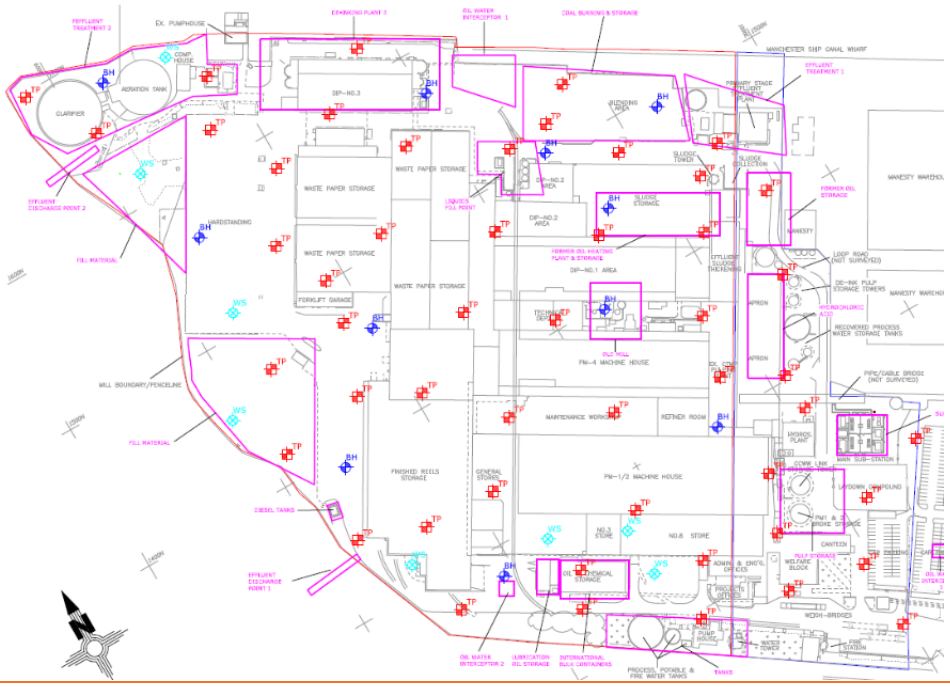
4.2. IDG GEOENVIRONMENTAL APPRAISAL

IDG's scope of work comprised the following:

- Review of third-party reports
- Site walkover and inspection
- Assessment of the land-use history
- Determination of the site's environmental setting
- Intrusive ground investigation comprising 73 trial pits and 22 boreholes
- Assessment of the geotechnical properties of the near surface deposits to enable
- Provision of foundation recommendations
- Qualitative assessment of contamination risks, with respect to potential receptors
- Provision of recommendations with respect to site preparatory and remedial works

IDG reviewed an existing site investigation report that has not been provided to E3P. The report was completed by ESI Environmental Consultants (ESI) and titled 'Due Diligence Assessment: Bridgewater Site, Ellesmere Port', Report Ref. 60331R1D1. The report is summarised by IDG but as the findings were purely environmental, the data was utilised mainly as a factual assessment of site conditions. The ESI report is reported to refer to operations undertaken by the paper mill while it was still operational, and a number of these features are identified as Potential Source Areas (PSA). These PSA were summarised by IDG on their drawing 3653-G-D005 ESI PSAs & IDG Proposed Exploratory Boreholes. Tan excerpt of this drawing is present as Figure 4.2.

FIGURE 4.2 DRAWING 3653-G-D005 ESI PSA'S & IDG PROPOSED EXPLORATORY BOREHOLES (PSA MARKED IN PURPLE)



Historical maps were obtained and reviewed by IDG which indicate that between 1872 and 1873, prior to the development of the paper mill, the site mainly comprised agricultural land with two ponds adjacent to the northeast boundary, two ponds in the central area, two ponds in the south.

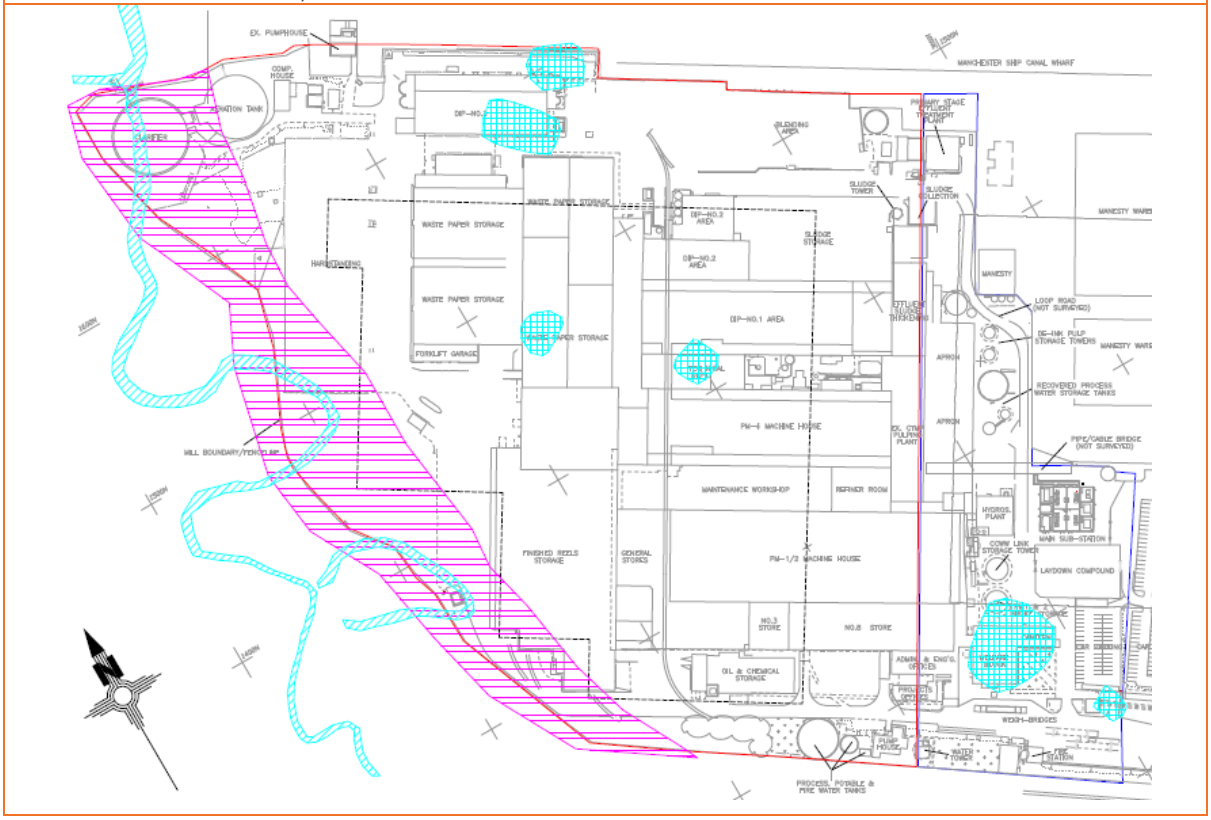
Rivacre Brook is stated as meandering northward along the western boundary to a sluice at the most northerly point of the site but that by 1898 this has been diverted to the west of the site and the former channel backfilled.

By 1938 IDG state that the paper mill has been constructed and that by 1957 those works had been extended with numerous tanks, railway lines cranes, engine shed, pumping station and coal conveyor. It is also stated by IDG that at this time the levels at the western boundary may have been levelled where the site borders Rivacre Brook.

From 1965 to 1989 the IDG report indicates many operational changes in the paper mill layout and that by 2011 buildings and tank in central northeast are no longer present.

The former course of Rivacre Brook and the extent of the raised land along the western boundary and location of former ponds are shown in IDG drawing 3653-G-D003 an excerpt of which is presented in Figure 4.3.

FIGURE 4.3 IDG DRAWING 3653-G-D006 – LAND RAISED AREAS, FORMER COURSE OF THE RIVACRE BROOK, AND FORMER POND LOCATIONS

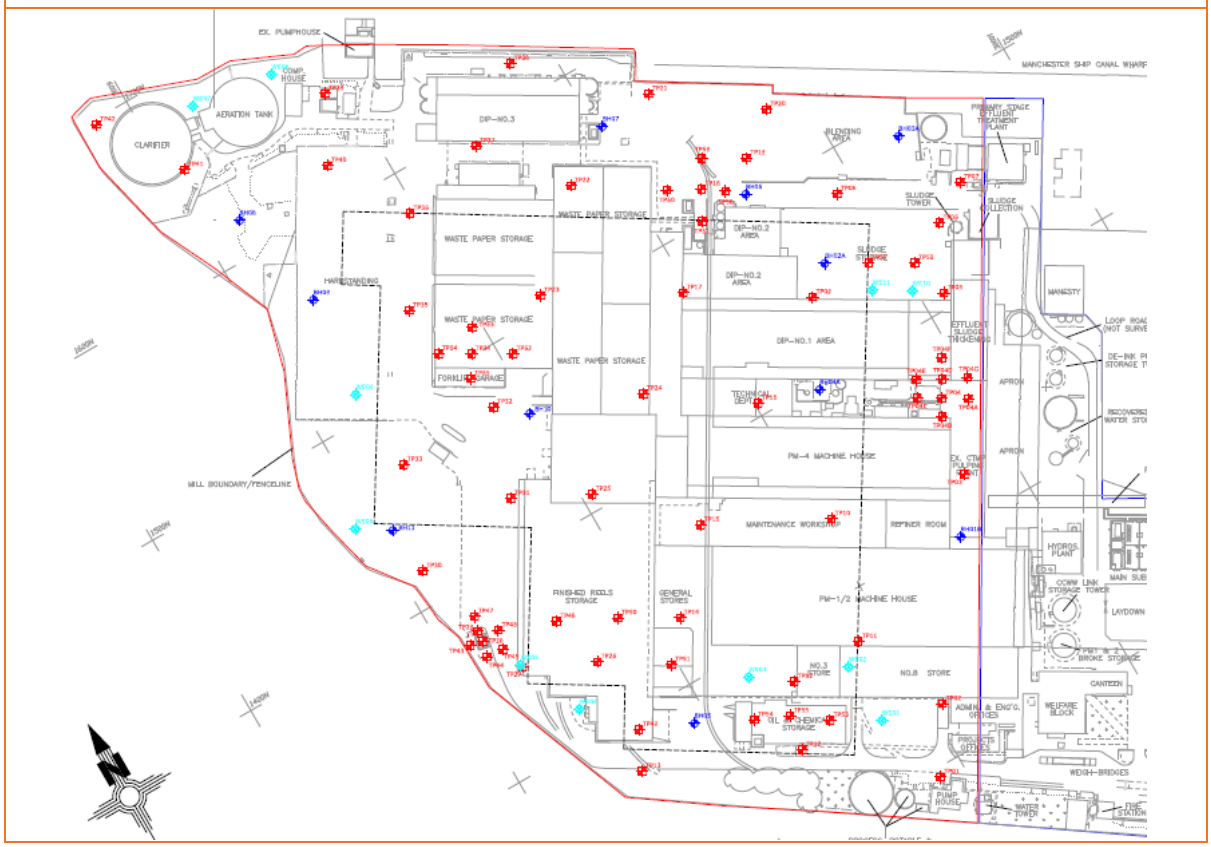


The IDG site investigation was completed between the 2nd April 2012 and 20th April 2012 and appear to have been completed in two phases. The first phase appears to comprise general site coverage with a second phase completed the delineate observed areas of concern in particular:

- TP04A – TP04F delineation of indigo stained Made Ground encountered in TP04
- TP43 – TP47 delineation of hydrocarbon impacted material encountered in TP28 and TP29
- TP48 – TP51 delineation of thick Made Ground encountered in TP26, TP27 and WS05
- TP52 – TP54 Further investigation of former oil & chemical storage area
- TP55 & TP56 Further investigation of former oil heating plant and storage area
- TP58 – TP61 delineation of hydrocarbon impacted material encountered in TP18
- TP62 – TP65 delineation of hydrocarbon impacted material encountered in TP34

The exploration location plan for these works is presented in on IDG Drawing 3653-G-D006 Phase 1 Exploratory Hole Location Plan. An excerpt from this plan is presented as Figure 4.4.

FIGURE 4.4 IDG DRAWING 3653-G-D006 PHASE 1 EXPLORATORY HOLE LOCATION PLAN



IDG report that concrete hardstanding was encountered across the majority of the site's surface area and recorded thicknesses ranging from 0.1 m to 0.7 m. The concrete hardstanding was reported to steel reinforcement ranging between 5 mm diameter up to 45 mm diameter.

Made Ground of thicknesses are reported as ranging between 0.2 m (TP02, TP24, WS01, BH01B) up to 9.4 m (BH11) and several Made Ground types are reported to have been encountered with IDG summarising the findings as follows:

- Sub-base (hardcore) – maximum thickness of 1.5 m (beneath hardstanding)
- Granular Made Ground – maximum thickness of 2.0 m (beneath entire site)
- Re-worked Glacial Till – maximum thickness of 2.7 m (southwest and northeast)
- Re-worked alluvium – maximum thickness of 5.5 m (southwest)
- Cohesive Made Ground – maximum thickness of 1.1 m (east)
- Ash and clinker – maximum thickness of 6.45 m (southwest)
- Ship canal arisings – maximum thickness of 4.5 m (northwest)
- Paper waste – maximum thickness of 1.0 m (western boundary)
- Relict top-soil – maximum thickness of 0.7 m (west of site)

IDG observed hydrocarbon odours and staining and oily water ingress throughout the site at the boundary between the Made Ground and Glacial Till and within the sub-base beneath the concrete hardstanding. IDG also report that they encountered a small pocket of indigo stained Made Ground and Glacial Till in TP04, which extended to a depth of 1.2 m bgl. Anecdotal evidence obtained by IDG indicated that TP04 was located in the former dye kitchen area of PM4 Machine House. Delineation trial pits TP04A-TP04G were undertaken and proved the extent of this material.

Several of the IDG trial pits and cable percussive boreholes encountered concrete obstructions to a maximum depth of 2.4 m bgl. The exploratory hole locations where below ground obstructions were encountered are shown on Drawing No. 3653-G-D008; an excerpt of which is presented as Figure 4.5

FIGURE 4.5 IDG DRAWING 3653-G-D006 PHASE 1 EXPLORATORY HOLE LOCATION PLAN

Superficial deposits were encountered in the majority of exploratory hole locations and generally comprised Glacial Till. In addition to the Glacial Till, Alluvium was encountered in BH11 and TP30 close to of the site's western boundary and Pond Deposits were encountered in TP38 on the site's eastern boundary with the Manchester Ship Canal.

Pond deposits comprising grey slightly gravelly, very sandy silty clay and silty clay were encountered in TP38 (north of the site) from 1.0m to 4.1m, with a band of peat noted between 2.3 m and 2.7 m bgl. The base of pond deposits was reportedly not proven.

The Chester Pebble Beds Formation was encountered in ten cable percussive boreholes at depths ranging from 5.2 m (BH06) in the east of the site to 15.5 m (BH09) in the northwest of the site.

Groundwater monitoring completed by IDG recorded perched groundwater in the Made Ground between 0.16 m bgl and 4.65 m bgl. Monitoring in Glacial Till recorded groundwater levels ranging between 0.95 m bgl and 4.75 m bgl with groundwater in the Chester Formation recorded between 10.81 m bgl and 11.58 m bgl.

IDG ENVIRONMENTAL ASSESSMENT

Selected soil samples were tested by IDG for a range of relevant determinands and the results are summarised as follows:

- *No elevated concentrations of inorganic parameters have been identified from the laboratory testing.*

- *No elevated concentrations of PAHs have been identified from the laboratory testing.*

- *The concentrations of petroleum hydrocarbons detected at TP11 may pose a risk to end users of the development. It is considered that the concentrations of petroleum hydrocarbons detected at exploratory hole locations; BH02A, TP28, TP29, TP43E, TP56, TP61 and TP65 do not pose a risk to end users of the development.*

- *No elevated concentrations of phenols have been identified from the laboratory testing.*

- *Three samples (BH02A, BH04A and TP16) recorded concentrations of PCBs above the laboratory's test method limit of detection, with a maximum concentration of 0.16mg/kg recorded in TP16. This concentration is not considered significant, given that the site is to be surfaced with concrete, effectively eliminating any potential contact with end users.*

- Chemical analysis of soil samples recorded the following maximum VOC concentrations.

    - *Trichlorofluoromethane - 0.909 mg/kg*
    - *Carbon Disulphide - 0.427 mg/kg*
    - *cis-1-2-Dichloroethene - 0.021 mg/kg*
    - *Trichloroethene - 0.031 mg/kg*
    - *Isopropylbenzene - 0.56 mg/kg*
    - *Propylbenzene - 1.51 mg/kg*
    - *1.3.5-Trimethylbenzene - 3.97 mg/kg*
    - *1.2.4-Trimethylbenzene - 16.9 mg/kg*
    - *sec-Butylbenzene - 0.114 mg/kg*
    - *4-Isopropylbenzene - 0.102 mg/kg*

- *No elevated VOC concentrations have been identified from the laboratory testing which are in excess of the published LQM or CLAIRE Commercial end use GACs. IDG go on to note that there was published screening value for 1.3.5 trimethylbenzene and sec-butylbenzene.*

- Chemical analysis of soil samples recorded the following maximum SVOC concentrations.

    - *Dibenzofuran - 1.56 mg/kg*
    - *Carbazole - 0.21 mg/kg*
    - *bis(2ethylhexyl)phthalate - 3.15 mg/kg*
    - *Azobenzene - 0.14 mg/kg*
    - *3-Nitroaniline - 0.27 mg/kg*
    - *2-Nitrophenol - 0.24 mg/kg*
    - *2,4-Dinitrotoluene - 1.78 mg/kg*
    - *2-Methylnaphthalene - 20.7 mg/kg*

- *No elevated SVOC concentrations have been identified from the laboratory testing which are in excess of the published CL:AIRE Commercial end use GACs.*

- *It is noted the CL:AIRE document states that carbazole and 2-methylnaphthalene were researched although insufficient data was available to derive a GAC. IDG are unable to locate any data regarding assessment criteria for dibenzofuran, azobenzene, 3-nitroaniline and 2-nitrophenol.*

- *Asbestos fibres were identified in seven of the fourteen Made Ground samples screened. Quantification of the samples identified all asbestos as being <0.1% apart from one sample in TP04F – 04m where 0.45% crocidolite debris was recorded.*

- Groundwater analysis completed IDG appears to have been completed on the basis of samples collected from perched groundwater, shallow groundwater and deep groundwater. Some of this testing was completed on samples collected from within trial pits. These results have not been considered in this report as they are likely to be misleading due to the presence of suspended solid.

- Ten samples of perched groundwater were obtained from across the site and the results identified the following maximum concentrations and exceedances of the Environmental Quality Standard (EQS).

    - *Arsenic - 41.8 µg/l (two exceedances of EQS)*
    - *Cadmium - 0.258 µg/l (one exceedance of EQS)*
    - *Chromium VI - <150 µg/l (one at LOD)*
    - *Copper - 12.2 µg/l (three exceedances of EQS)*
    - *Nickel - 568 µg/l (seven exceedances of EQS)*
    - *Zinc - 254 µg/l (two exceedances of EQS)*
    - *Phenol - 30 µg/l (nine exceedances of EQS with seven at test LOD)*
    - *Benzo(a)pyrene - 2.13 µg/l (seven exceedances of EQS)*
    - *Anthracene - 3.13 µg/l (four exceedances of EQS)*
    - *Fluoranthene - 6.15 µg/l (eight exceedances of EQS)*
    - *Benzo(b,k)fluoranthene - 4.72 µg/l (ten exceedances of EQS with one at test LOD)*
    - *Benzo(g,h,i)perylene & indeno(1,2,3-cd)pyrene - 3.32 µg/l (ten exceedances of EQS)*
    - *Naphthalene - 5.95 µg/l (one exceedance of EQS)*

- Two samples of shallow groundwater were obtained from the site and this identified the following maximum concentrations and exceedances of the EQS values.

    - *Cadmium -1.36 µg/l (one exceedance of EQS)*
    - *Copper - 73.8 µg/l (one exceedance of EQS)*
    - *Lead - 24.2 µg/l (one exceedance of EQS)*
    - *Nickel - 110 µg/l (one exceedance of EQS)*
    - *Zinc - 305 µg/l (one exceedance of EQS)*
    - *Phenol - <16 2 µg/l (both at test LOD)*
    - *Benzo(a)pyrene - 0.228 µg/l (one exceedance of EQS)*
    - *Fluoranthene - 0.211 µg/l (one exceedance of EQS)*
    - *Benzo(b,k)fluoranthene - 0.455 µg/l (two exceedances of EQS)*
    - *Benzo(g,h,i)perylene & indeno(1,2,3-cd)pyrene - 0.316 µg/l (two exceedances of EQS)*

- *In addition, a concentration of dissolved TPH of 1,310 µg/l was detected in the shallow groundwater obtained from BH10 in the west of the site in the vicinity of the former location of the forklift garage. Speciated TPH results show that the TPH comprised mainly heavier end hydrocarbons with 82 µg/l GRO (C6–C12), 35 µg/l of DRO (C16-C21) and 1,187 µg/l of LRO (C21-C35) recorded.*

- Two samples of deep groundwater from within the principal aquifer were obtained from the site and this identified the following maximum concentrations and exceedances of the EQS values.

    - *Chloride – 467 µg/l (one exceedance of EQS)*
    - *Sulphate - 226 µg/l (one exceedance of EQS)*
    - *Phenol - 2 µg/l (two at test LOD*
    - *Benzo(a)pyrene 0.105 µg/l (one exceedance of EQS)*

- *In addition, a dissolved TPH concentration of 344 µg/l was detected in the deep groundwater in BH09 in the north of the site. Speciated TPH results show that the TPH comprised mainly heavier end hydrocarbons as <10 µg/l detected in each GRO banding (C6-C12), 12 µg/l of DRO (C16-C21) and 331 µg/l of LRO (C21-C35) were recorded.*

E3P has reviewed the laboratory groundwater analysis obtained by IDG and this has been compared with the Tier 1 screening values currently used. This comparison indicates that the groundwater exceeded Tier I EQS screening values for both aromatic and aliphatic total petroleum hydrocarbon C16-C21 and C21-C35 in monitoring wells BH2, BH10 and BH11. There was no hydrocarbon exceedance were recorded in BH08 and BH09 which are located at the lowest point of the site.

Two samples of surface water were obtained from Riveracre Brook in upstream and downstream locations. This analysis recorded elevated concentrations of copper in both samples but the higher concentrations were recorded upstream. No elevated organic determinands were recorded in either sample though it is noted by IDG laboratory test method limit of detection for phenol, benzo(b,k)fluoranthene, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene exceed their respective EQS values.

Ground gas monitoring was undertaken by IDG and their assessment was made on the basis of four monitoring visits though a full gas assessment was not completed at the time of issue. The findings as reported are presented below.

- *Methane has been detected in twelve of the monitoring wells, with a maximum concentration of 3.2% recorded in BH11, on the site's western boundary and in proximity to the adjacent Rivacre Valley landfill. The response zone of BH11 is situated within Reworked Alluvium.*

- *Carbon dioxide has been recorded in fourteen of the monitoring wells, with a maximum concentration of 20.1% recorded in BH08. The response zone of BH08 is situated within Ship Canal Arisings and Reworked Alluvium.*

- *Positive gas flows have been detected in seven monitoring wells, with a maximum flow of 7.2l/h recorded in BH06. The response zone of BH06 is situated within the Chester Pebble Beds Formation and may be indicative of pumping effects due to tidal influence on water levels in the solid strata.*

- *Gas monitoring data for 2011 and early 2012 received from Chester West Council in respect of the Rivacre Valley landfill records elevated concentrations of methane (70.7%) and carbon dioxide (11.6%) at monitoring wells BA7 and BS7 in the southeast corner of the landfill. It is therefore considered the concentrations of methane and carbon dioxide detected at IDG monitoring wells close to the western boundary of the site are probably associated with hazardous gas migrating from the Rivacre Valley landfill.*

IDG GEOTECHNICAL ASSESSMENT

Geotechnical assessment completed by IDG included in-situ testing and laboratory testing. The in-situ testing confirmed that the Glacial Till ranged in strength between firm to very stiff with SPT N values ranging between 6 and 50 giving a Cu of between 60 to 450 kN/m^2. These results would indicate an Allowable Bearing Pressure of between 138 and > 500 kN/m^2. The results of the triaxial tests show that the Glacial Till recorded undrained shear strengths in the range of 60kPa to 121kPa, indicative of firm to high shear strengths.

In-situ testing of the Alluvium (albeit in only two locations) indicated that they SPT N values ranged between 7 and 11 giving a Cu of between 70 and 110 kN/m^2. While this is indicated as being soft to firm by IDG, these values would appear to be representative of firm to stiff, medium to high strength clay with an ABP of between approximately 161 and 253 kN/m^2.

Atterberg limits tests completed on samples of all the cohesive materials encountered determined that all material was of low volume change potential.

IDG determined that sub-surface concrete should be Design Sulphate Class DS-2, with the site allocated an ACEC Classification of AC-2.

Compaction tests indicated that the in-situ moisture content of the Made Ground types and the Glacial Till is generally higher than the optimum moisture content range to achieve 95% maximum dry density (MDD).

Based on the testing results, IDG considered the Made Ground types and the Glacial Till to be suitable for re-engineering but indicated that a degree of pre-treatment to control moisture content would likely be required as the soils are likely to be sensitive to moisture content.

5. INITIAL CONCEPTUAL SITE MODEL

In accordance with EA LCRM (2019) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), E3P has developed an initial conceptual site model (CSM) to identify potential contamination sources, migration pathways and receptors within the study area. This is summarised in Table 5.1.

ON-SITE SOURCES OF CONTAMINATION

The following potential on-site sources of contamination have been identified:

- Localised Total Petroleum Hydrocarbon
- Asbestos containing material
- Site-specific compounds – epichlorohydrin, acrylamide

OFF-SITE SOURCES OF CONTAMINATION

The following potential off-site source of contamination have been identified:

- Landfill gas

TABLE 5.1 INITIAL CONCEPTUAL SITE MODEL

SOURCE	PATHWAY	RECEPTOR
Human Health		
Petroleum hydrocarbon	Dermal Contact and Ingestion.	Construction Workers. Commercial End-Users
Discussion: Previous site operations included the storage and use of oils and previous site investigation has identified visual and olfactory evidence of impact within the Made Ground. Assessment of the hydrocarbon impact identified that it was predominantly heavy end and based on commercial use, the impact would pose a low risk due to an absence of a plausible contaminant pathway.		
Site specific compounds epichlorohydrin, acrylamide	Dermal Contact and Ingestion.	Construction Workers. Commercial End-Users
Discussion: Previous environmental audit of the paper mill while it was operational identified a number of site-specific compounds utilise in the manufacturing process. These compounds were likely to distributed around the site through processing and effluent management but given that the site was largely hard-standing and absence of any underground storage tanks their presence in the sub-surface is considered unlikely. Previous investigation has not included any testing for these compounds and although likely a low risk further assessment is considered necessary.		
Asbestos-Containing Materials (ACMs) within Made Ground	Fibre/Dust Inhalation.	Construction Workers. Commercial End-Users. Third-Party Property.
Discussion: Suspected ACM is present in at least one of the remaining structures on-site and previous testing has identified fibres and debris is present within the Made Ground. The testing undertaken to date did not include quantification down to 0.01% v/v. It is considered that further assessment will be required to determine what additional control measures may be needed during any future remediation/enabling works in order to prevent the release of fibres. The presence of fibres within the sub-surface post development is considered likely to be low provided that the enabling works are completed in line with best practice.		

SOURCE	PATHWAY	RECEPTOR
Hazardous Ground Gases		
Methane and carbon dioxide associated with possible on-site fill material and adjacent landfill	Inhalation. Accumulation.	Construction Workers. Commercial End-Users.
Discussion: Made Ground has been encountered across the site but these are generally thicker in the west where site levels appear to have been increased. While Made Ground material generally comprises mainly inert materials heavy end hydrocarbon impact has been identified, the degradation of which can give rise to locally elevated ground gas levels. Gas monitoring summarised in previous site investigation reports appears to indicate that elevated ground gases are only present in the west and that these may be associated with an off-site former landfill beyond Rivacre Brook. If present ground gasses can accumulate within deep excavations and with sub-structures post development. Further assessment is likely to be needed, particularly post any remediation and enabling works, as ground conditions will be significantly altered.		
Controlled Waters		
Petroleum hydrocarbon and site-specific compounds	Vertical/Lateral Migration.	Principal Aquifer Rivacre Brook
Discussion: As discussed above, the previous use of the site as a paper mill required the storage and use of hydrocarbons and site-specific manufacturing chemicals though the previous investigation has not identified any significant impact the adjacent brook or to the underlying principal aquifer. Furthermore, there is anecdotal information that the local principal aquifer is impacted through saline water intrusion. While the majority of site processes were completed above ground over concrete hardstanding, concrete sub-surface effluent treatment sumps and pipes have been identified and are anticipated across the site. Spillages and/or leakages of these compounds may have resulted in the impact to the sub-surface which may then have migrated laterally to adjacent watercourses or vertically to the underlying principal aquifer. Groundwater analysis has identified slightly elevated concentrations of metals, TPH C16-C21 and C21-C35 through the central sector of the site.		
Buildings and Infrastructure		
pH and Sulphate	Corrosion of Concrete.	Foundations/Concrete.
Discussion: Caustic chemicals are known to have been stored on-site associated with the site's water softening system. The previous assessment has indicated that ground conditions require sub-surface concrete to be Design Sulphate Class DS-2, with the site allocated an ACEC Classification of AC-2.		
Ecology		
None Identified	Lateral Migration.	Rivacre Book Mersey Estuary
Discussion: The site is likely to be of limited ecological value with any potential risk to off-site receptors controlled by the potential for contamination to migrate via lateral migration of groundwater. Previous controlled water assessment has not identified any significant impact.		

6. GROUND INVESTIGATION

6.1. GENERAL OVERVIEW

A ground investigation has been designed based on the findings of the previous investigations with exploratory holes advanced to fill in gaps in spatial coverage and permit additional sampling and analysis. The investigation has also been used to collect geotechnical information to assist in the design and construction of the proposed development.

Exploratory fieldwork was completed between 1 October 2020 and 14 October 20202. The works are summarised in Table 6.1.

TABLE 6.1 SUMMARY OF FIELDWORK

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH RANGE (m bgl)	MONITORING WELLS RESPONSE ZONE (m bgl)
General ground conditions in area of Paper Machine House 1 / 2 and Stores– presence of sub-structures	TP101-TP109	Trial Pit	0.25-2.6	NA
Waste material stockpiles	TP110-TP115	Trial Pit	0.5-5.0	NA
Western boundary – thick Made Ground for Hardstanding	TP110-TP113	Trial Pit	0.5-3.7	NA
General ground conditions in area of paper storage DIP Area No 1 and 2– presence of sub-structures	TP115-TP137	Trial Pit	0.2-5.0	NA
General ground conditions in area of former Blending Area	TP138-TP142	Trial Pit	0.8-2.4	NA
General ground conditions in area of former DIP No 3	TP143-TP149	Trial Pit	1.8-2.2	NA
Former ponds	TTP01, TP144 TP145, TP146 TP130, TP127, TP128 TP123, TP123Aa ATP123b	Trial Pit	1.2-2.0	NA
Geotechnical assessment and environmental monitoring of principal aquifer	CP101	Borehole	13.3	8.3-15.0
Geotechnical assessment and environmental monitoring in shallow deposits	CP102	Borehole	Abandoned/ Obstruction	
Geotechnical assessment and environmental monitoring in shallow deposits	CP103	Borehole	5.5	1.8-2.8
Geotechnical assessment and environmental monitoring in shallow deposits	CP104	Borehole	5.6	0.8-1.8

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH RANGE (m bgl)	MONITORING WELLS RESPONSE ZONE (m bgl)
Geotechnical assessment and environmental monitoring of principal aquifer	CP105	Borehole	12	7.0-12.0
Geotechnical assessment and environmental monitoring in shallow deposits	CP106	Borehole	6.1	0.8-2.8
Geotechnical assessment and environmental monitoring in shallow deposits	CP107	Borehole	8.2	0.8-2.8
Geotechnical assessment and environmental monitoring in shallow deposits	CP108	Borehole	Abandoned/ Obstruction	
Geotechnical assessment and environmental monitoring in shallow deposits	CP109	Borehole	Abandoned/ Obstruction	
Geotechnical assessment and environmental monitoring of principal aquifer (Well replaced in January 2021)	CP110	Borehole	15.00	9.0-15.0

Mechanically excavated trial pits were advanced to investigate ground conditions and to retrieve environmental samples. The locations were spatially distributed to provide additional site coverage from earlier phases of site investigation.

The cable percussion boreholes were positioned to provide information on deeper ground conditions within the footprint of Units 1 and 2. The borehole locations were utilised to provide environmental monitoring wells within both shallow and deep bedrock strata. The deep monitoring positions were placed across the site within upgradient and downgradient positions to assist in controlled waters assessment.

The sampling locations are illustrated in Drawing 14-035-005 (Appendix III). The ground conditions encountered are indicated on the logs, which are provided in Appendix V.

Return visits were made to monitor installations for groundwater level and gas concentrations. In addition, selected wells were purged and samples of groundwater recovered for chemical analysis.

6.2. IN-SITU STANDARD PENETRATION TESTING (SPT)

In-situ geotechnical testing was conducted using the standard penetration test (SPT) and, where the ground is granular, a 60° cone (SPT(C)) was used instead of the sampling tube. The results are shown in the borehole logs in Appendix V and presented in Table 7.6 and discussed in Section 9.

6.3. LABORATORY ANALYSIS

Selected soil samples were submitted for a range of chemical analysis comprising:

- Metals;
- Sulphide;
- Cyanide;

- Phenols;
- Total and speciated polycyclic aromatic hydrocarbons (PAHs);
- Semi Volatile Organic Compounds (SVOC);
- Volatile Organic Compounds (VOC);
- Asbestos identification and quantification; and,
- Speciated and banded total petroleum hydrocarbon (TPH).
- Acrylamide
- Epichlorohydrin

I2 Analytical undertook the analytical work and the testing results are included in Appendix V and discussed in Section 9.

Selected samples were submitted to PSL Laboratory where the following geotechnical tests were undertaken:

- Atterberg limits determinations; and
- Single-stage triaxial tests.

Laboratory analysis sheets are included in Appendix IX and are summarised in Section 10.

7. GROUND AND GROUNDWATER CONDITIONS

7.1. SUMMARY OF GROUND CONDITIONS

The ground investigation generally confirms the published geology and identifies the strata set out in Table 7.1.

TABLE 7.1 SUMMARY OF STRATA

HOLE	DEPTH TO STRATUM (m bgl)				
	HARDSTAND/ SUBSTRUCTURES	MADE GROUND	CLAY	SAND	BED ROCK
TP101	0.0-0.15	0.15-0.3	0.3-0.5	-	-
TP102	0.0-0.15	0.15-0.30	0.3-2.4	-	-
TP103	0.0-0.15	0.15-0.25	0.25-2.35	-	-
TP104	0.0-0.15 1.8-2.00	0.15-1.8	-	-	-
TP105	0.0-.015	0.15-0.4	0.4-2.4	-	-
TP106	0.0-0.15	0.15-2.6	-	-	-
TP107	0.0-0.15	0.15-0.5	0.5-2.9	-	-
TP108	Abandoned	-	-	-	-
TP109	0.0-0.25	-	-	-	-
TP109a	-	0.0-2.0	2.0-2.2	-	-
TP110	1.3-1.4	0.0-1.3 1.4-3.7	-	-	-
TP110a	-	0.0-1.8	1.8-2.3	-	-
TP111	-	0.0-3.5	-	-	-
TP112	-	0.0-0.5	-	-	-
TP113	-	0.0-3.2	-	-	-
TP114	Abandoned	-	-	-	-
TP115	-	0.0-5.0	-	-	-
TP116	-	0.0-1.1	1.1-2.1	-	-
TP117	0.0-0.3	0.3-0.6	0.6-1.8	-	-
TP118	0.0-0.5	-	-	-	-
TP119	0.0-0.2	0.2-0.5	0.5-2.0	-	-
TP120	-	-	-	-	-
TP121	0.0-0.3	0.3-1.2	-	-	-
TP121a	0.0-0.2	0.2-0.9	-	-	-
TP121b	-	0.65-1.4	1.4-2.1	-	-
TP122	0.0-0.2	0.2-0.8	0.5-1.45	-	-
TP123	0.0-0.2	0.2-1.2	-	-	-
TP123a	0.0-0.7	-	-	-	-
TP123b	0.0-1.0	-	-	-	-

HOLE	DEPTH TO STRATUM (m bgl)				
	HARDSTAND/ SUBSTRUCTURES	MADE GROUND	CLAY	SAND	BED ROCK
TP124	0.0-0.2	-	-	-	-
TP124a	0.0-0.2	0.2-2.0		-	-
TP124b	0.0-0.2	0.2-0.9	0.9-1.9	-	-
TP124c	0.0-0.45	-	0.45-2.0	-	-
TP125	0.0-0.3	0.3-0.5	0.5-2.0	-	-
TP126	0.0-0.2	0.2-0.35	0.35-1.3	-	-
TP127	0.0-0.2	0.2-2.0	-	-	-
TP128	0.0-0.15	0.15-1.3	-	-	-
TP129	Abandoned	-	-	-	-
TP130	0.0-0.25 0.8-1.4	0.25-0.8	1.4-1.8	-	-
TP131	0.0-0.25	0.25-0.4	-	-	-
TP132	Abandoned	-	-	-	-
TP133	0.0-0.25	-	-	-	-
TP134	0.0-0.2	0.2-0.7	0.7-2.0	-	-
TP135	0.0-0.5	0.5-0.8	0.8-1.8	-	-
TP136	0.0-0.5	0.5-1.2	1.2-2.0	-	-
TP137	0.0-0.2 0.2-2.0(void)	-	-	-	-
TP137a	- 0.1-0.3	0.0-0.1	0.8-2.0	-	-
TP138	0.0-0.7	-	-	-	-
TP138a	0.0-0.4	0.4-0.8	0.8-2.0	-	-
TP139	-	0.0-0.8		-	-
TP139a	-	0.0-0.8	0.8-2.0	-	-
TP140	-	0.0-2.4		-	-
TP141	0.0-0.2	0.2-1.3	1.3-2.0	-	-
TP142	- 0.8-0.9	0.0-0.8 -	-	-	-
TP143	0.0-0.2	-	0.6-1.8	-	-
TP144	0.0-0.3	0.3-0.75	0.75-1.8	-	-
TP145	0.0-0.2	0.2-1.1	1.1-2.0	-	-
TP146	0.0-0.2	0.2-0.9	0.9-2.0	-	-
TP147	0.0-0.1	0.1-1.4	1.4-2.2	-	-
TP148	0.0-0.1	0.1-1.3	1.3-2.0	-	-
TP149	0.0-0.25	0.25-1.3	1.3-1.9	-	-
TP150	Abandoned	-	-	-	-
TP151	Abandoned	-	-	-	-

HOLE	DEPTH TO STRATUM (m bgl)				
	HARDSTAND/ SUBSTRUCTURES	MADE GROUND	CLAY	SAND	BED ROCK
TP152	0.0-0.25	0.25-1.0	1.0-2.0	-	-
TP153		0.0-1.0	1.0-2.0	-	-
TP154	0.0-0.15	0.15-0.5	0.5-2.2	-	-
TP201	0.0-0.6	0.6-1.0	1.0-2.5	-	-
TP202	0.0-0.3	0.3-0.65	0.65-1.7	-	-
TP203	0.0-0.2	0.2-0.8	0.8-1.5	-	-
TP204	0.0-0.3	0.3-0.7	0.7-1.8	-	-
TP205	0.0-0.2	-	-	-	-
TP205a	0.0-0.2	0.2-2.8	-	-	-
TP206	-	0.0-0.65	0.65-1.7	-	-
TP207	0.0-0.23	0.23-0.8	0.8-2.0	-	-
TP208	0.0-0.15	0.15-1.2	1.2-1.8	-	-
TP301	0.0-0.2	0.2-0.6	0.6-2.0	-	-
TP302	0.0-0.4 0.8-0.9	0.4-0.8	0.9-2.0	-	-
TP303	-	0.0-1.2	1.2-2.1	-	-
TTP01	0.0-0.3	0.3-0.75	0.75-2.0	-	-
CP101	0.0-0.5	0.5-0.7	0.7-8.3	-	8.3-13.0
CP102	0.0-0.3	0.3-0.6	-	-	-
CP103	0.0-0.4	0.4-0.8	0.8-5.5	-	5.5
CP104	0.0-0.3	0.3-1.4	1.4-5.6	-	5.6
CP105	-	0.0-0.25	0.25-7.0	-	7.0-12.0
CP106	0.0-0.3	0.3-0.8	0.8-6.1	-	6.1
CP107	0.0-0.3	0.3-0.5	0.5-8.2	-	8.2
CP108	-	0.0-1.2	-	-	-
CP109	- 0.4-0.5	0.0-0.4	-	-	-
CP110	0.0-0.4	0.4-0.8	0.8-6.6 7.0-8.9	6.6-7.0	8.9-13.0

7.2. HARDSTANDING AND SUB-STRUCTURES

Due to the targeted nature of the side investigation, hardstanding was recorded in the majority of the exploration locations. In the main, hardstanding comprises reinforced concrete that was proven to have a typical depth of 0.15 m to 0.30 m thickness. In some localised areas, such as TP124c that slab was observed to be thicker at 0.45 m.

In addition to surface concrete slabs, secondary slabs were also recorded in TP130 at 0.8-1.4 m bgl, TP302 at 0.8-0.9 m bgl and a concrete-lined void was recorded in TP137 between 0.2-2.0 m bgl. In TP137a, TP142, CP109 it was apparent that slabs had been buried beneath a thin (Ca.0.2 m) layer of Made Ground.

7.3. MADE GROUND

Made Ground was recorded in all but one location where the overlying concrete hardstanding was penetrated and was proven to an average depth of approximately 0.7 m bgl. Locally thicker (>2.5 m) Made Ground was recorded in TP106 (2.6 m bgl), TP110 (3.7 m bgl), TP111 (3.5 m bgl), TP113 (3.2 m bgl) and TP115 (5.0 m bgl). TP110, TP111 and TP113 and TP115 were recorded in the southwest of the site and it should be noted that these locations were formed within a raised stockpile area.

Made Ground is predominantly granular at the site, comprising variable grey to brown locally clayey, silty and sandy gravel. The gravel constituent is also variable across the site being of fine to coarse, angular to sub-angular mixed natural lithologies, concrete, brick, plastic, ash, slag and clinker.

A number of former ponds are identified on historical maps in the north and central sector of the site. These features were targeted as part of the E3P investigation.

- In the case of the former pond targeted with TP130, TP127 and TP128 relatively deep relict substructures were identified in TP130 to 1.40 m bgl and the Made Ground strata in TP 127 and TP128 was not fully penetrated. In TP127 the Made Ground comprised gravel of brick while in TP 128 and a soft gravelly clay that is interpreted of reworked natural was encountered. There is no evidence of the soft clay Made Ground further to the southeast in TP126 and north in TP134 which provides some evidence that it is not laterally extensive.

- In the case of the ponds targeted withTPP01, TP144, TP145, TP146 and TP147 relatively thin Made Ground (0.75 m to 1.10 m bgl) was encountered, and this overlay natural glacial till CLAY that has a shear strength ranging between 92 and 120 kPa.

- Additional trial pits were excavated in the south-east of the site (TP201 to TP206) where a third unit (Unit 3) is proposed. This sector of the site is also identified as being an area that may have historically been a pond. Made Ground was proven to depths of between 0.65 m and 2.80 m bgl. The full extent of the Made Ground was not determined in TP205a. The Made Ground in the south-east is typically granular comprising grey slightly sandy very clayey gravel with metal sub-structures and relict drainage also recorded.

In TP110, TP111, TP113 and TP115, were excavated in the area marked by stockpiles. This area was identified as historically being a sludge bed. The IDG report recorded the Made Ground in this area as predominantly ash and clinker to a depth to 9.4 m bgl (BH11) and reviewing the elevation data on the IDG logs suggests that at the time of their investigation the ground was at the same elevation as the subject site. The ash and clinker material was recorded by E3P at depth in TP110, TP110a with overlying material consisting of clayey gravel with the gravel comprising fine to coarse gravel of brick, concrete, sandstone, mudstone, with occasion wood, rebar, plastic and metal. This material looked relatively consistent and may have been subject to previous processing or formed as part of the site demolition. The Made Ground in this area was proven to a maximum depth of 5.0 m within TP115. Given that the area now contains stockpile that is ca.1-2 m higher than the surrounding it is possible that the Made Ground in this area is now greater than 9.4 m thick.

The IDG report identified further deep Made Ground in the area of their Trial Pits TP28, TP29, TP43, TP44, TP45, TP46, TP47. This was interpreted as being part of a wider area of deep Made Ground extending from the north and to the south (see Figure 5.3). However, E3P Trial Pits TP109a and TP110a to the north confirm that Made Ground is present to depths of 1.8 m and 2.0 m bgl while trial pits TP302 and TP302, to the south, confirm Made Ground to depths of between 0.9 m and 1.2 m bgl. This suggests that there are pockets of deeper Made Ground in the western sector of the site.

Around these stockpiles are further quantities of suspected domestic landfill materials that comprise predominantly plastic and organic materials. These materials have a notable organic odour and appear to have been placed over earlier construction/demolition stockpiles.

The previous ground investigation identified relic topsoil in the area of deep Made Ground in the west of the site from 0.4-1.0 m bgl (IDG-TP30) and 0.0-0.7 m bgl (IDG-TP33). This stratum was described as grey clayey silty sand with abundant roots and rootlets.

In some cases, the Made Ground is recorded as an MOT sub-base to the hardstanding.

A Depth of Made Ground Plan is presented as Drawing 14-035-005 in Appendix III. This drawing includes data from the previous IDG and E3P ground investigations.

7.4. DRIFT DEPOSITS

The drift stratum predominantly comprises firm to stiff, medium strength to high strength CLAY and this was recorded in all locations were the Made Ground or surface concrete could be penetrated. The full thickness of the CLAY was only proven in the Cable Percussion boreholes and it was proven to between 5.5 m bgl and 8.9 m bgl with a thickness ranging between 4.2 m (CP104) and 8.1 m (CP110).

Where it was possible to expose the natural strata within the area of the former ponds, the underlying clay was found to have a Cu ranging between 92 kPa and 120 kPa.

7.5. SOLID GEOLOGY

SANDSTONE was recorded in all of the cable percussion boreholes beneath the drift. The SANDSTONE was drilled using a rotary open technique in order to facilitate the installation of deeper monitoring wells. No rock strength data was obtained as part of this phase of work. A Depth to Rock Head Plan is presented as Drawing 14-035-006 in Appendix III.

7.6. GROUNDWATER

Groundwater strikes were encountered as seepages. The depth of the seepages are shown on the exploratory hole records in Appendix IV and are summarised in Table 7.2.

TABLE 7.2 SUMMARY GROUNDWATER STRIKES

LOCATION	DEPTH TO STRIKE (m)	NOTES
TP117	0.6	Slow ingress
TP121	1.2	Rapid ingress
TP136	1.2	Slow ingress
TP142	0.5	Slow ingress (sheen)
TP145	0.4	Slow ingress
TP152	1.2	Slow ingress
TP154	0.5	Slow ingress

Groundwater monitoring has been completed to determine a groundwater flow. This has been completed using groundwater depths collected on the 21 January 2021 and using topographical information from the Survey Operations Topographical Survey completed in January 2021.

The data has been split into shallow and deep monitoring wells indicates that the shallow perched groundwater is perched and not in continuity with Sandstone aquifer. Furthermore, the perched groundwater does not appear to be in continuity with Rivacre Brook which is ca. 3-4m below site level.

Assessment of water table elevation indicates that groundwater flow within the principal aquifer is to the northeast at an approximate gradient of 0.06.

The data is summarised in Table 7.3.

TABLE 7.3 SUMMARY OF GROUNDWATER MONITORING

LOCATION	DEPTH TO WATER (m bgl)	TOC ELEVATION (m AOD)	WATER TABLE ELEVATION (m AOD)
Shallow			
CP103	1.50	13.72	12.22
CP104	0.50	14.02	13.52
CP106	0.30	14.04	13.74
CP107	0.35	14.69	14.34
Deep			
CP101	8.20	15.39	7.19
CP105	10.00	14.84	4.84
CP110	7.60	14.31	6.71

7.7. VISUAL AND OLFACTORY EVIDENCE OF CONTAMINATION

Visual and olfactory evidence of potential contamination has been identified during the site investigation and these are summarised in Table 7.4.

TABLE 7.4 SUMMARY VISUAL AND OLFACTORY EVIDENCE OF CONTAMINATION

LOCATION	DEPTH (m)	STRATUM	NOTES
TP102	0.3	Made Ground	Drain water ingress – slight sheen
TP109a	0.1	Made Ground	Hydrocarbon odours
TP110	0.4	Made Ground	Organic odours
TP110a	1.2	Made Ground	Hydrocarbon staining and sheen
TP130	0.8	Made Ground	Two relict drains containing emulsified oil
TP142	0.5	Made Ground	Hydrocarbon sheen
TP301	0.2	Made Ground	Hydrocarbon odours

7.8. SOIL CONSISTENCY

Undrained shear strength values were measured using both field hand shear vane tests and laboratory undrained triaxial tests from within selected cable percussion boreholes. Laboratory undrained shear strength in triaxial compression analysis is summarised in Table 7.5 and the results of the field tests are presented in Table 7.6. The results indicate the clay soils to vary between stiff and very stiff.

TABLE 7.5 SUMMARY OF UNDRAINED SHEAR STRENGTH TEST RESULTS

LOCATION	SAMPLE DEPTH (m)	LAB DESCRIPTION	UNDRAINED SHEAR STRENGTH (kN/m^2)	CONSISTENCY
CP101	6.5-6.95	Stiff brown slightly gravelly sandy CLAY.	93	Stiff
CP105	6.5-6.95	Stiff brown slightly gravelly very sandy CLAY	97	Stiff
CP107	6.5-6.95	Very stiff brown slightly gravelly very sandy CLAY.	211	Very Stiff
CP110	6.5-6.95	Firm brown slightly gravelly very sandy CLAY.	68	Firm

TABLE 7.6 SUMMARY OF HAND SHEAR VANE TESTS

LOCATION	DEPTH (m)	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP116	1.8	96	220
TP116	2.0	96	220
TP117	0.8	80	180
TP121a	1.9	100	230
TP121b	1.9	100	230
TP124b	1.8	118	270
TP124c	2.0	104	230
TP125	1.9	96	220
TP125	2.0	96	220
TP135	1.5	84	230
TP135	1.5	84	230
TP136	1.5	114	260
TP138a	1.9	86	200
TP139a	2.0	90	200
TP143	1.6	116	266
TP145	1.9	120	280
TP146	1.7	92	210
TP147	2.0	110	250
TP148	1.9	120	280
TP153	1.6	110	250
TP154	1.3	74	170
TP201	1.3	30	69
TP202	1.5	90	210
TP204	1.0	120	280
TP206	1.5	68	160
TP207	0.85	80	180
TP208	1.3	96	220
TP301	2.0	108	250
TP302	2.0	112	260
TP303	1.9	102	230
TPP01	1.0	120	280
TP116	2.0	96	220
TP116	1.8	96	220
TP117	0.8	80	180
TP121a	1.9	100	230
TP121b	1.9	100	230

LOCATION	DEPTH (m)	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP124b	1.8	118	270
TP124c	2.0	104	240
TP125	1.9	96	220
TP125	2.0	96	220
TP135	1.5	84	190
TP135	1.5	84	190
TP136	1.5	114	260
TP138a	1.9	86	200
TP139a	2.0	90	200
TP143	1.6	116	270
TP145	1.9	120	280
TP146	1.7	92	210
TP147	2.0	110	250
TP148	1.9	120	280
TP153	1.6	110	250
TP154	1.3	74	170
TP201	1.3	30	70
TP202	1.5	90	200
TP204	1.0	120	280
TP206	1.5	68	160
TP207	0.85	80	180
TP208	1.3	96	220
TP301	2.0	108	250
TP302	2.0	112	260
TP303	1.9	102	230
TPP01	1.0	120	280

Results of the standard penetration tests, including undrained shear strengths derived from SPTs are included in Table 7.8.

7.8.1. SIDE STABILITY AND EASE OF EXCAVATION

The majority of the trial pits were targeted to areas that were known to be surfaced with hardstanding and as discussed in Section 7.2 and in some areas multiple slabs have been identified in areas. In addition to horizontal concrete slabs, numerous vertical obstructions in the form of concrete and brick have been identified and these are summarised in Table 7.7 and the logs in Appendix V. The structures were not fully exposed during the site investigation and should be considered alongside the findings of the IDG site investigation findings summarised in Section 5.

The trial pits were generally stable, though localised pockets of Made Ground are likely to be present where instability will be present.

TABLE 7.7 OBSTRUCTION OBSERVATIONS

LOCATION	NOTES
TP101	Brick wall from surface to 1.20m bgl Concrete foundations are 250-300mm thick
TP107	Mass concrete foundation found at depths of 0.60m-1.90m bgl
TP118	Drain at 0.70m bgl
TP119	Two concrete obstructions at 0.60m bgl and 1.20m bgl
TP121a	Concrete obstruction at 0.90m bgl
TP122	Drain 225mm diameter. Putrid odour
TP123	Mass concrete at base of TP (1.2m). Reinforced concrete – not fully exposed.
TP123	Mass concrete at base of TP (1.2m). Reinforced concrete – not fully exposed.
TP123a	Concrete obstruction at 0.70m bgl.
TP123b	Three concrete obstructions at 0.30m bgl, 0.60m bgl and 1.00m bgl
TP124a	Infilled pit- Concrete formed staining on walls – not fully exposed
TP130	Large foundation pad 0.8-1.4m - not fully exposed
TP131	Stepped concrete structure 0.0-0.25m - not fully exposed
TP137	Relict concrete pit infilled during backfill with surplus site won material
TP207	Metal girder running across TP. Drain at 0.60m bgl

TABLE 7.8 STANDARD/CONE PENETRATION TEST RESULTS

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
CP101	1.2	MADE GROUND	12	11.77	N/A	Medium strength	Stiff	58.87	121
	2	GRAVELLY CLAY	17	15.53	N/A	High strength	Very Stiff	77.65	159
	3	GRAVELLY CLAY	18	15.65	N/A	High strength	Very Stiff	78.27	160
	4	GRAVELLY CLAY	17	14.36	N/A	Medium strength	Stiff	71.81	147
	5	GRAVELLY CLAY	23	19.08	N/A	High strength	Very Stiff	95.41	196
	8	GRAVELLY CLAY	44	35.62	N/A	Very high strength	Very Stiff	178.08	366
	9.1	SANDSTONE	50	40.33	Dense	N/A	N/A	N/A	403
CP103	2	GRAVELLY CLAY	18	16.44	N/A	High strength	Very Stiff	82.22	169
	3	GRAVELLY CLAY	19	16.52	N/A	High strength	Very Stiff	82.62	169
	4	GRAVELLY CLAY	20	16.90	N/A	High strength	Very Stiff	84.49	173
	5	GRAVELLY CLAY	34	28.21	N/A	High strength	Very Stiff	141.04	289
	5.8	SANDSTONE	50	41.08	Dense	N/A	N/A	N/A	410

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
CP104	1.2	MADE GROUND	50	49.06	Dense	N/A	N/A	N/A	490
	2.0	GRAVELLY CLAY	10	9.14	N/A	Medium strength	Stiff	45.68	93
	3.0	GRAVELLY CLAY	15	13.04	N/A	Medium strength	Stiff	65.22	134
	4.0	GRAVELLY CLAY	12	10.14	N/A	Medium strength	Stiff	50.69	104
	5.0	GRAVELLY CLAY	19	15.76	N/A	High strength	Very Stiff	78.81	162
	6	SANDSTONE	50	40.99	Dense	N/A	N/A	N/A	409
CP105	1.2	GRAVELLY CLAY	10	9.81	N/A	Medium strength	Stiff	49.06	100
	2	GRAVELLY CLAY	16	14.62	N/A	Medium strength	Stiff	73.08	150
	3	GRAVELLY CLAY	13	11.31	N/A	Medium strength	Stiff	56.53	116
	4	GRAVELLY CLAY	16	13.52	N/A	Medium strength	Stiff	67.59	138
	5	GRAVELLY CLAY	30	24.89	N/A	High strength	Very Stiff	124.44	255
	7.4	SANDSTONE	50	40.59	Dense	N/A	N/A	N/A	405

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
CP107	1.2	GRAVELLY CLAY	14	13.74	N/A	Medium strength	Stiff	68.69	141
	2	GRAVELLY CLAY	16	14.62	N/A	Medium strength	Stiff	73.08	150
	3	GRAVELLY CLAY	16	13.91	N/A	Medium strength	Stiff	69.57	143
	4	GRAVELLY CLAY	14	11.83	N/A	Medium strength	Stiff	59.14	121
	5	GRAVELLY CLAY	20	16.59	N/A	High strength	Very Stiff	82.96	170
	8	GRAVELLY CLAY	50	40.47	N/A	Very high strength	Very Stiff	202.37	416
	8.6	SANDSTONE	50	40.39	Dense	N/A	N/A	N/A	403
CP110	1.2	GRAVELLY CLAY	8	7.85	N/A	Low strength	Firm	39.25	80
	2	GRAVELLY CLAY	16	14.62	N/A	Medium strength	Stiff	73.08	150
	3	GRAVELLY CLAY	18	15.65	N/A	High strength	Very Stiff	78.27	160
	4	GRAVELLY CLAY	17	14.36	N/A	Medium strength	Stiff	71.81	147
	5	GRAVELLY CLAY	24	19.91	N/A	High strength	Very Stiff	99.55	204

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
CP110	8	GRAVELLY CLAY	27	21.86	N/A	High strength	Very Stiff	109.28	224
	9.2	SANDSTONE	50	40.32	Dense	N/A	N/A	N/A	403

NOTES

* The Allowable Bearing Pressure (ABP) should be considered indicative.

7.9. SOIL PLASTICITY

The Atterberg limits determinations, summarised in Table 7.9, show the clay to be of predominantly low plasticity with discrete areas of moderate and very high plasticity clay.

TABLE 7.9 SUMMARY OF PLASTICITY INDEX TEST RESULTS

LOCATION	DEPTH (m)	NATURAL MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	PASSING 425 µm SIEVE (%)	MODIFIED PLASTICITY INDEX
TP141	1.8	21	20	35	15	94	14.0
TP102	1.0	16	17	26	9	93	8.3
TP154	2.0	16	18	28	10	93	9.3
TP302	1.5	16	15	28	13	93	12.0
TP116	1.7	30	22	38	16	93	14.8
TP145	1.7	132	67	171	104	100	104
TP149	1.5	16	14	29	15	93	13.9
TP201	2.1	28	18	32	14	94	13.1
TP101	1.5	14	18	30	12	94	11.2
TP204	1.2	22	18	31	13	93	12.0
TP107	1.35	15	17	32	15	96	14.4
TP153	1.7	22	20	34	14	96	13.4
TP117	0.9	21	15	26	11	93	10.2
TP147	1.9	28	23	47	24	94	22.5
TP202	1.6	17	14	24	10	93	9.3

The results of the Atterberg limits testing confirmed that the soils would be deemed to be of predominantly “Low Volume Change Potential” with one “Medium Volume Change Potential” (TP147) in accordance with the classification system utilised by the LABC/NHBC industry guidance.

The results obtained from TP145 show the sample to be “High Volume Change Potential” and this is due to the clay having a high organic content. This location is close to the area where a pond is identified on historical maps.

7.10. CONSOLIDATION

Four undisturbed samples of Glacial Till were submitted for oedometer analysis. The results are provided in Table 7.10.

TABLE 7.10 OEDOMETER CONSOLIDATION RESULTS

LOCATION	DEPTH (m)	SAMPLE TYPE	MOISTURE CONTENT (%)	OEDOMETER CONSOLIDATION		
				PRESSURE RANGE (kPa)	Mv (m^2/MN)	Cv (m^2/year)
CP101	6.5	U100	11	0-65	0.308	2.155
				65-130	0.184	1.353
				130-260	0.109	0.808
				260-520	0.067	0.715
				520-65	0.023	0.803
CP105	6.5	U100	12	0-65	0.190	7.671
				65-130	0.127	1.232
				130-260	0.091	1.020
				260-520	0.067	1.046
				520-65	0.026	1.141
CP107	6.5	U100	11	0-65	0.360	0.381
				65-130	0.1814	0.422
				130-260	0.124	0.453
				260-520	0.075	0.466
				520-65	0.027	1.202
CP110	6.5	U100	13	0-65	0.255	1.556
				65-130	0.129	0.644
				130-260	0.084	0.699
				260-520	0.056	0.788
				520-65	0.013	1.269

When considered at over-burden pressure with an additional load of 260 kPa the coefficient of volume compressibility (Mv) ranged from 0.091 m^2/MN up to 0.18m^2/MN. The material is considered to be low to medium compressibility.

The rate at which settlement is likely to occur is determined by the coefficient of consolidation (Cv). As shown in Table 7.10, the coefficient ranges from 0.453 m^2/yr to 1.020 m^2/yr.

7.11. GROUND GAS

A ground gas assessment has been completed in accordance with guidance provided within CIRIA 665 – *Assessing risk posed by hazardous ground gases to buildings*.

7.11.1. INVESTIGATION RATIONALE

The ICSM has identified that the underlying Made Ground/adjacent landfill/backfilled may represent a potential source of ground gas generation with previous investigation confirming only localised elevated gas readings in the west of the site. Based on the identification of these sources, E3P has determined that the site represents a low ground gas source generation potential.

The wells in this instance have been targeted to the proposed footprint of Units 1 and 2 in the west of the site, locations were severely constrained by site activities and underground obstruction. However, it should be considered that further gas monitoring may be required post remediation and enabling works as the ground conditions are likely to be significantly different. What is more, a number of the borehole locations were abandoned due to obstructions and surround site uses and at least one well was damaged by site activities post completion.

7.11.2. MONITORING METHODOLOGY

Concentrations of methane (CH_4), carbon dioxide (CO_2) and oxygen (O_2) were measured using a calibrated infra-red gas analyser (GFM435) with gas flow rates were measured using an integrated flow meter.

Gas measurements were recorded for a minimum of 60 seconds at each location, at which point the maximum concentration of CH_4 and CO_2, together with the lowest concentration of O_2 were recorded. The results of the ground gas monitoring are presented in Table 7.11.

TABLE 7.11 SUMMARY OF GROUND GAS MONITORING RESULTS

WELL	DATE	CH_4 INITIAL (%V/V)	CH_4 STEADY (%V/V)	CH_4 GSV (l/hr)	CO_2 INITIAL (%V/V)	CO_2 STEADY (%V/V)	CO_2 GSV (l/hr)	O_2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
CP101	05/11/20	0.1	0.1	0.0001	0.8	0.1	0.0001	20.7	1039	Rising	0.1	9.1-15.0	10.25	9.95
	10/11/20	0.1	0.1	0.0001	0.8	0.1	0.0001	20.5	1022	Static	0.1		10.25	9.63
	30/11/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1		10.25	9.97
	9/12/2-	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	979	Falling	0.1		10.25	9.94
CP103	5/11/20	0.1	0.1	0.0001	2.1	2.1	0.0021	15.7	1039	Rising	0.1	1.8-2.8	2.90	2.72
	10/11/20	0.1	0.1	0.0001	2.6	2.6	0.0026	14.3	1022	Static	0.1		2.90	2.68
	30/11/20	0.1	0.1	0.0001	2.2	2.2	0.0022	15.5	1021	Falling	0.1		2.90	2.65
	9/12/20	0.1	0.1	0.0001	2.1	2.1	0.0021	15.1	979	Falling	0.1		2.90	2.63
CP104	05/11/20	0.1	0.1	0.0076	0.2	0.1	0.0076	19.3	1039	Rising	7.6	0.8-1.8	1.90	0.75
	10/11/20	0.1	0.1	0.0032	0.2	0.2	0.0064	19.1	1022	Static	3.2		1.90	0.75
	30/11/20	0.1	0.1	0.0001	0.2	0.1	0.0001	20.1	1021	Falling	0.1		1.90	0.71
	9/12/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	979	Falling	0.1		1.90	0.69
CP105	5/11/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1039	Rising	0.1	7.0-12.0	13.25	10.20
	10/11/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1022	Static	0.1		13.25	10.41
	30/11/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1		13.25	10.21
	9/12/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	979	Falling	0.1		13.25	10.19
CP106	5/11/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1039	Rising	0.1	0.8-2.8	2.70	0.44
	10/11/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1021	Static	0.1		2.70	0.41
	30/11/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1		2.70	0.39
	9/12/20	0.1	0.1	0.0001	0.1	0.1	0.001	20.6	979	Falling	0.1		2.70	0.38

WELL	DATE	CH_4 INITIAL (%V/V)	CH_4 STEADY (%V/V)	CH_4 GSV (l/hr)	CO_2 INITIAL (%V/V)	CO_2 STEADY (%V/V)	CO_2 GSV (l/hr)	O_2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
CP107	5/11/20	Well Damaged										0.8-2.8		
	10/11/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.9	1021	Static	0.1		2.60	0.78
	30/11/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1		2.60	0.77
	9/12/20	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	979	Falling	0.1		2.60	0.76
CP110	Well Replaced Jan-21											13.0-15.00	15.00	7.60

8. TIER I QUALITATIVE CONTAMINATED LAND RISK ASSESSMENT

E3P has undertaken a Tier 1 qualitative risk assessment to determine if any potential contaminants within the underlying soils and groundwater pose an unacceptable level of risk to the identified receptors.

8.1. HUMAN HEALTH RISK ASSESSMENT

At Tier 1 stage, the long-term (chronic) human health toxicity of the soil has been assessed by comparing the on-site concentrations of organic and inorganic compounds with reference values published in LQM/CIEH S4UL (S4UL3267). Where determinands are not provided within the LQM publication, reference is made to Atkins ATRISK values and CL:AIRE Generic Assessment Criteria.

The results of this comparison have been summarised within Table 8.1.

TABLE 8.1 SUMMARY OF INORGANIC AND HYDROCARBON TOXICITY ASSESSMENT FOR A COMMERCIAL END USE

DETERMINAND	UNITS	GAC	N	MC	LOC. OF EX	PATH WAY	ASSESSMENT
Arsenic	mg/kg	640	47	38	-	1	No Further Assessment
Cadmium	mg/kg	190	47	2.6	-	1	No Further Assessment
Chromium (VI)	mg/kg	33	47	4	-	1	No Further Assessment
Lead	mg/kg	1100	47	460	-	1	Further Assessment
Mercury	mg/kg	58	47	2.3	-	2	No Further Assessment
Nickel	mg/kg	980	47	92	-	1	No Further Assessment
Selenium	mg/kg	12000	47	1	-	1	No Further Assessment
Copper	mg/kg	68000	47	260	-	1	No Further Assessment
Zinc	mg/kg	730000	47	690	-	1	No Further Assessment
Barium***	mg/kg	22000	47	690	-	1	No Further Assessment
Boron***	mg/kg	240000	47	3.7	-	1	No Further Assessment
Vanadium***	mg/kg	9000	47	560	-	4	No Further Assessment
Cyanide - Total	mg/kg	791	47	4	-	1	No Further Assessment
Asbestos	Fibres	NFD	22	Amosite-0.007 Amosite-0.005	TP112-0.35 TP113-2.50	4	**Further Assessment**
Naphthalene	mg/kg	190	45	6.9	-	3	No Further Assessment
Acenaphthylene	mg/kg	83000	45	0.05	-	2	No Further Assessment
Acenaphthene	mg/kg	84000	45	31	-	1	No Further Assessment
Fluorene	mg/kg	63000	45	35	-	1	No Further Assessment
Phenanthrene	mg/kg	22000	45	110	-	2	No Further Assessment
Anthracene	mg/kg	520000	45	52	-	2	No Further Assessment
Fluoranthene	mg/kg	23000	45	110	-	2	No Further Assessment
Pyrene	mg/kg	54000	45	100	-	2	No Further Assessment
Benzo(a)Anthracene	mg/kg	170	45	0.27	-	2	No Further Assessment
Chrysene	mg/kg	350	45	56	-	2	No Further Assessment
Benzo(b)Fluoranthene	mg/kg	44	45	66	TP301-0.3m	2	**Further Assessment**
Benzo(k)Fluoranthene	mg/kg	1200	45	39	-	2	No Further Assessment
Benzo(a)Pyrene	mg/kg	35	45	62	TP301-0.3m	2	**Further Assessment**
Indeno(123-cd)Pyrene	mg/kg	500	45	29	-	2	No Further Assessment
Dibenzo(a,h)Anthracene	mg/kg	3.5	45	8.3	TP301-0.3m	2	**Further Assessment**
Benzo(ghi)Perylene	mg/kg	3900	45	31	-	2	No Further Assessment
TPH C5-C6 (aliphatic)	mg/kg	3200	13	0.001	-	3	No Further Assessment
TPH C6-C8 (aliphatic)	mg/kg	7800	13	0.001	-	3	No Further Assessment
TPH C8-C10 (aliphatic)	mg/kg	2000	13	0.001	-	3	No Further Assessment
TPH C10-C12 (aliphatic)	mg/kg	9700	13	11	-	3	No Further Assessment
TPH C12-C16 (aliphatic)	mg/kg	59000	13	200	-	1	No Further Assessment
TPH C16-C21 (aliphatic)	mg/kg	1600000	13	400	-	1	No Further Assessment
TPH C21-C35 (aliphatic)	mg/kg	1600000	13	3600	-		No Further Assessment
TPH C5-C7 (aromatic)	mg/kg	26000	13	0.001	-	1	No Further Assessment
TPH C7-C8 (aromatic)	mg/kg	56000	13	0.001	-	3	No Further Assessment
TPH C8-C10 (aromatic)	mg/kg	3500	13	0.001	-	3	No Further Assessment
TPH C10-C12 (aromatic)	mg/kg	16000	13	28	-	3	No Further Assessment
TPH C12-C16 (aromatic)	mg/kg	36000	13	400	-	3	No Further Assessment
TPH C16-C21 (aromatic)	mg/kg	28000	13	1300	-	1	No Further Assessment
TPH C21-C35 (aromatic)	mg/kg	28000	13	2200	-	1	No Further Assessment
TPH C5-C6 (aliphatic)*	mg/kg	3200	45	1	-	3	No Further Assessment
TPH C6-C8 (aliphatic)*	mg/kg	7800	45	0.1	-	3	No Further Assessment
TPH C8-C10 (aliphatic)*	mg/kg	2000	45	0.3	-	3	No Further Assessment
TPH C10-C12 (aromatic)*	mg/kg	16000	45	12	-	3	No Further Assessment
TPH C12-C16 (aromatic)*	mg/kg	36000	45	60	-	3	No Further Assessment
TPH C16-C21 (aromatic)*	mg/kg	28000	45	230	-	1	No Further Assessment
TPH C21-C35 (aromatic)*	mg/kg	28000	45	5600	-	1	No Further Assessment
VOC							
Ethylbenzene***	mg/kg	7660	22	0.011	-	3	No Further Assessment
1,3,5 trimethylbenzene***	mg/kg	165	22	0.002	-	3	No Further Assessment

DETERMINAND	UNITS	GAC	N	MC	LOC. OF EX	PATH WAY	ASSESSMENT
1,2,4 trimethylbenzene***	mg/kg	165	22	0.0054	-	3	No Further Assessment
Xylene***	mg/kg	2720	22	0.064	-	3	No Further Assessment
SVOC**							
2 methylnaphthalene	mg/kg	9000	22	6.1	TP301-0.3m	2	No Further Assessment
Dibenzofuran	mg/kg	3500	22	21	TP301-0.3m	2	No Further Assessment
Carbazole	mg/kg	NA	22	12	TP301-0.3m	2	No Further Assessment
Anthraquinone	mg/kg	4900	22	7.3	TP301-0.3m	2	No Further Assessment

Notes
Main exposure pathways: 1 = soil ingestion, 2 = dermal contact and ingestion, 3 = vapour inhalation (indoor), 4 = dust inhalation.
Abbreviations: GAC = general assessment criteria, n = number of samples, MC = maximum concentration; Loc of Ex = location of exceedance; NFD = no fibres detected.
* The Tier 1 GAC for the hydrocarbon fraction is derived from the CIEH assessment for petroleum hydrocarbons criteria working group (CWG) for both aliphatic and aromatic compounds. E3P has utilised the Tier 1 values for aliphatic compounds for the volatile and semi-volatile fractions (C_5-C_{12}) and the Tier 1 values for aromatic compound for the non-volatile fractions (C_{12}-C_{35}). The comparison of total (aliphatic/aromatic) compounds to an individual fraction is considered to be a conservative approach and satisfactory for the protection of human health.
** CLAIRE Soil Generic Assessment Criteria for Human Health Risk Assessment
***Atkins ATRISK Value at 1%SOM
****USEPA Risk Management Level -Industrial Soil

Referring to Table 8.1, the results of this direct comparison indicates that the data exceeds the screening criteria for a commercial end-use for the following determinands:

- Asbestos
- Benzo(b)Fluoranthene
- Benzo(k)Fluoranthene
- Dibenzo(a,h)anthracene

Asbestos in the form of loose chrysotile fibres has been identified in the granular Made Ground with the soil stockpiles in the west of the site.

No significant concentrations of VOCs were identified in the soils submitted for chemical analysis.

A number of SVOC compounds have been identified within TP301 at the south-western boundary. However, there are no UK Tier 1 screening values for these compounds. In the absence of any definitive UK guidance, E3P has utilised USEPA levels for remediation of industrial soils and this has not identified any elevated concentrations.

TPH analysis of soils that were identified to have visual and olfactory evidence of hydrocarbon impact has not identified any TPH concentrations above commercial screening values. Additionally, where samples have then been taken from soils beneath the identified impact soils, no significantly elevated concentrations have been recorded, indicating limited vertical migration. This is a similar conclusion that drawn within the IDG ground investigation report.

Selected Made Ground samples were also tested for two specific marker compounds, Acrylamide and epichlorohydrin, that were identified to have been used specifically by the paper mill in the de-inking process. No concentrations above the limit of detection were recorded.

The findings are in line with those identified within the IDG site investigation report and confirm similar sub-surface conditions.

In relation to these exceedances, the following can be determined:

- The main exposure pathways based on the Tier I exceedances are:
  - Soil ingestion;

- Dermal contact and ingestion;
- Fibre/dust inhalation.

HUMAN HEALTH RISK ASSESSMENT AND MITIGATION

The identified elevated concentrations have primary exposure pathways related to dermal contact and ingestion of soils and inhalation of particulate.

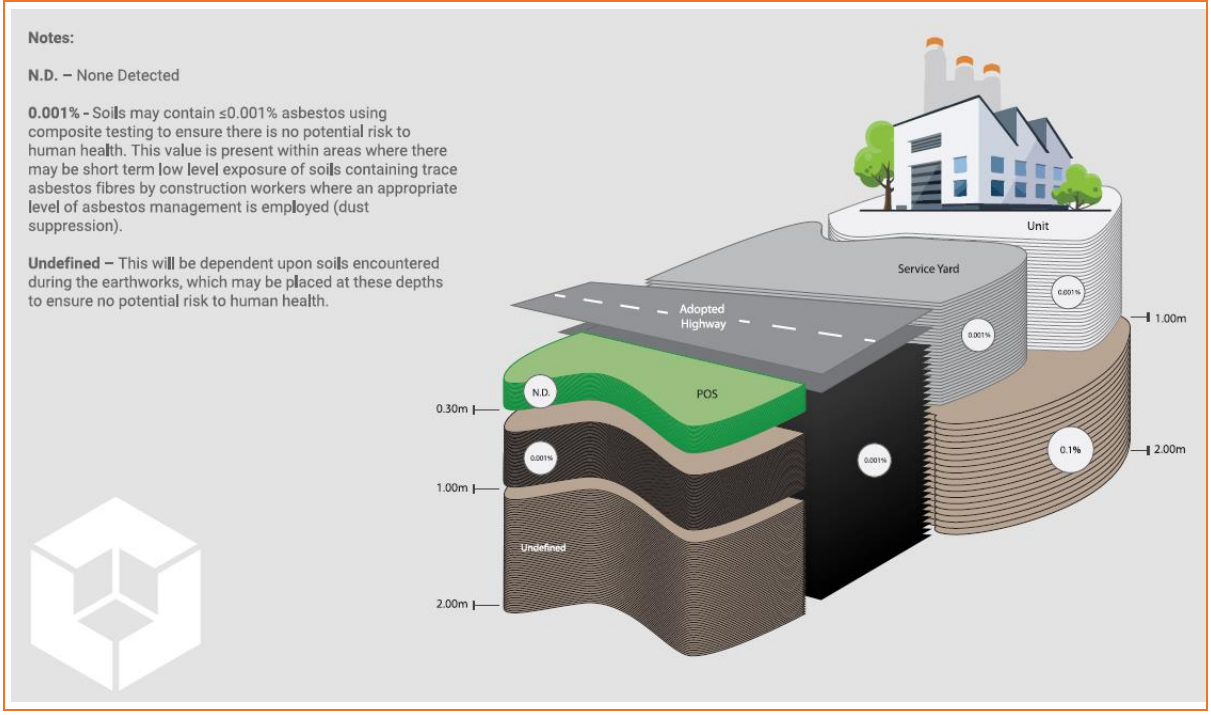
In the case of the slightly elevated PAHs this area will need to be further delineated as part of the enabling works once sub-structures have been removed but in consideration of the wider testing results and those of IDG historically, the impact is not considered likely to be a significant constraint for future commercial development as there are likely to be no viable contaminant pathways.

Where landscaped areas are present, these may require the provision of a suitable clean cover system, the specification and design of which will be agreed as part of remediation and enabling works strategy.

Asbestos in the form of amosite fibres has also been identified within Made Ground soils in the west of the site (TP112 and TP113). No bulk asbestos fragments were observed during the site investigation. The material may be reused on-site provided that they can be managed according to the asbestos risk mitigation conceptual site model shown in Figure 8.1. Should these soils be surplus to requirement, they will need to be assessed using *Guidance on the classification and assessment of waste (1st Edition v1.1) Technical Guidance WM3.* Based on the asbestos concentrations recorded in this material it would not be classified as Hazardous Waste.

Care would need to be taken to ensure that the domestic waste material, also stored in this area, is carefully segregated. This material cannot be utilised within the proposed development and while it may not specifically have any hazardous properties it would attract a higher rate of landfill tax (currently at £94.15 per tonne). Exact volumes of this material cannot be established without a full 3D topographic survey but based on visual assessment and assuming an average thickness of 1.5 m and bulk density of 160 kg/m^{3,} it is estimated that at least 60 tonnes may be present.

FIGURE 8.1 ASBESTOS RISK MITIGATION CONCEPTUAL SITE MODEL



Chemical analysis of the natural clay drift deposits has identified these soils to be acceptable for use as subsoil within any proposed landscaped areas; however, further chemical validation samples will be required to confirm this. There are no suitable sources of topsoil available on the site.

8.2. CONTROLLED WATERS RISK ASSESSMENT

The site sensitivity with respect to controlled waters is summarised within Table 8.2.

TABLE 8.2 CONTROLLED WATERS SENSITIVITY PROFILE

RISK PROFILE	DISCUSSION	SENSITIVITY RATING
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	The site is not located within a groundwater source protection zone or drinking water safeguarding zone	**Low**
Distance to the Closest Groundwater Abstraction Point	The closest identified potable water abstraction is located approximately 3.5 km to the west.	**Low**
Aquifer Classification in Superficial Drift Deposits	The underlying Glacial Till is identified as being an undifferentiated aquifer. A small extent of Alluvium associated with Rivacre Brook is present at the western site boundary. While this is not likely to be important for groundwater abstraction purposes due to its limited extent, it may be important for baseflow to the brook.	**Low/Moderate**
Aquifer Classification in Bedrock	Principal aquifer	**High**
Is the Site Underlain by Low-Permeability Drift to Depths in Excess of 10 m?	The Glacial Till was proven to range between 5.2 m in the east to a maximum thickness of 15.5 m in the west during the IDG ground investigation and between 4.2 m and 8.1 m thick during the E3P ground investigation. The Alluvium in the west was proven to depths ranging between 3.1 m and 9.4 m. Both the Glacial Till and Alluvium are described as being cohesive deposits and are therefore likely to be low permeability.	**Low**
Is the Site Located Within 50 m of a Surface Watercourse?	The closest watercourse if Rivacre Brook ca.15 m to the west; with the Manchester Ship Canal and River Mersey approximately 20 m and 200 m to the north respectively. All of these watercourses are classified as moderate quality.	**High**
SUMMARY The ICSM developed within the context of the site setting has only identified two potentially viable pollutant pathways which would be the downward migration of potentially mobile phase-soluble contaminants towards the underlying principal aquifer and lateral migration toward Rivacre Brook. Given the site's location with respect to the River Mersey and the likelihood that regional groundwater within the principal aquifer will flow north away from any identified potable groundwater abstractions, and the anecdotal evidence that the aquifer is impacted with saline water ingress, the principal aquifer pathway-receptor linkage is not considered significant.		

Groundwater may provide baseflow to Rivacre Brook and the River Mersey, though given that the site is elevated above the brook, perched groundwater within the Made Ground is not considered to be significant in this regard. A review of the exploration logs from both the IDG and E3P investigations shows that the alluvial deposits associated with Rivacre Brook and which may therefore be in hydraulic continuity with the watercourse, do not extend significantly beyond the western boundary.

Notwithstanding, at this stage, and in the absence of EA information on potential tidal influence, E3P has assessed controlled waters risk using the most conservative freshwater EQS values.

To further refine the ICSM, E3P has undertaken an initial qualitative assessment of the soil data analysis to assess the potential for a source of separate-phase or dissolved-phase contamination originating from either a defined on-site source or from impacted soils. This assessment is summarised in Table 8.3.

TABLE 8.3 QUALITATIVE RISK TO CONTROLLED WATERS FROM SOIL ANALYTICAL RESULTS

DETERMINAND	COMMENT	RISK
BTEX > 1 mg/kg	The soil data analysis has identified low concentrations of ethylbenzene (xylene (0.064 mg/kg), 1,3,5 trimethylbenzene (0.002 mg/kg) 1,2,4 trimethylbenzene (0.0054 mg/kg). These concentrations were all recorded in TP205 – 2.20 m.	Medium
Total VOC > 1 mg/kg		
Total SVOC > 1 mg/kg	2 methylnaphthalene (6.1 mg/kg), Dibenzofuran (21 mg/kg), Carbazole (12 mg/kg), Anthraquinone (7.3 mg/kg) are identified above the LOD. These concentrations were identified in TP301-0.3 m).	Low
C5-C10 > 5 mg/kg	All concentrations are below the laboratory LOD.	Low
C10-C12 > 10 mg/kg	Concentrations greater than 10 mg/kg have been recorded in TP301(40 mg/kg) and TP121 (12 mg/kg).	Low
C12-C16 > 50 mg/kg	Concentrations greater than 50 mg/kg have been identified in TPTP110a (490 mg/kg), TP301 (1397 mg/kg), TP121 (60 mg/kg).	Medium
Phenols > 2 mg/kg	All concentrations are below the laboratory LOD.	Low
Naphthalene > 2 mg/kg	Naphthalene has been not identified at concentrations greater than 2 mg/kg.	Low
Total PAH > 10 mg/kg	Concentrations of low-solubility PAH compounds greater than 10 mg/kg have not been detected in the soil analysis.	Low
PCB > 1 mg/kg	No potential sources of PCB have been identified with the electrical sub-station for the former mill located off-site.	Low
Heavy metals > 500 mg/kg	Concentrations of zinc, barium, vanadium have been recorded at concentrations greater than 500 mg/kg.	Medium

As the predominant migration pathway has been assessed as towards the Rivacre Brook, The Tier I assessment has included a comparison of leachate analysis from samples of the Made Ground and groundwater samples from monitoring wells to drinking water standards and environmental quality standards (EQS).

These are presented in Table 8.4 overleaf.

TABLE 8.4 COMPARISON OF GROUNDWATER ANALYSIS WITH TIER 1 SCREENING LEVELS

DETERMINAND	UNIT	EQS SCREENING VALUE[1, 2, 3] AA (Freshwater)	DWS[3,4,5]	N L	N GW	MC L	LOC. OF EX (Leachate)	MC GW	LOC. OF EX (G/W)	ASSESSMENT
Arsenic	µg/l	50	10	7	5	11	TP116	11.9	CP106	Exceedance-DWS
Cadmium	µg/l	0.08-0.25	5	7	5	0.08	N/A	0.17	CP106	Exceedance EQS
Chromium (VI)	µg/l	3.4	–	7	5	<5	N/A	<5	N/A	No exceedance
Chromium (III)	µg/l	4.7	50	7	5	9.5	TP116	3.2	N/A	Exceedance-EQS
Copper	µg/l	1	2000	7	5	17 16 4.7 11 85 66 28	TP110a TP122 TP140 TP142 TP117 TP116 TP205	15 6.9 8.1 39 190	CP101 CP104 CP105 CP106 CP107	Exceedance-EQS
Total Cyanide	µg/l	1	50	7	5	<1	N/A	16 2.4 2.3 52	CP104 CP105 CP106 CP107	Exceedance-EQS
Lead	µg/l	1.2	10	7	5	3.0 2.7 4.7 2.5 4.2 3.7	TP110a TP122 TP142 TP117 TP116 TP205	1.2	N/A	Exceedance-EQS
Mercury	µg/l	–	1.0	7	5	<1	N/A	0.07	NA	No Exceedance
Nickel	µg/l	4	20	7	5	6.2 12 140 12 13 5.9	TP110a TP122 TP142 TP117 TP116 TP205	220 7.6 38 17 16	CP101 CP104 CP105 CP106 CP107	Exceedance-EQS Exceedance-DWS
Selenium	µg/l	–	10	7	5	7	N/A	26 42	CP101 CP106	No Exceedance
Zinc	µg/l	10.9	–	7	5	21 17 9.8 53 96 39 40	TP110a TP122 TP140 TP142 TP117 TP116 TP205	4.3	N/A	Exceedance-EQS
Barium	µg/l	-	700	-	5	-	-	11.9	N/A	No Exceednace
Phenol	µg/l	7.7	–	7	5	9.9	TP117	14	CP107	No Exceedance
PAH										
Naphthalene	µg/l	2	10*	7	5	<0.01	N/A	<0.01	N/A	No Exceedance
Anthracene	µg/l	0.1		7	5	<0.01	N/A	<0.01	N/A	No Exceedance
Benzo[b]fluoranthene	µg/l	0.00017*		7	5	<0.01	N/A	<0.01	N/A	No Exceedance
Benzo[k]fluoranthene	µg/l	0.00017*		7	5	<0.01	N/A	<0.01	N/A	No Exceedance
Benzo(a)pyrene	µg/l	0.00017*		7	5	<0.01	N/A	<0.01	N/A	No Exceedance
Indeno(123-cd)pyrene	µg/l	0.00017*		7	5	<0.01	N/A	<0.01	N/A	No Exceedance

DETERMINAND	UNIT	EQS SCREENING VALUE[1, 2, 3] AA (Freshwater)	DWS[3,4,5]	N		MC L	LOC. OF EX (Leachate)	MC GW	LOC. OF EX (G/W)	ASSESSMENT
				L	GW					
Benzo(ghi)pyrene	µg/l	0.00017*		7	5	<0.01	N/A	<0.01	N/A	No Exceedance
Fluoranthene	µg/l	0.0063		7	5	<0.01	N/A	<0.01	N/A	No Exceedance
TPH-Aromatic										
TPH C5-C6 (benzene)	µg/l	10	1	7	5	<0.1	N/A	<10	N/A	No Exceedance
TPH C6-C8 (toluene)	µg/l	74	700	7	5	<0.1	N/A	<10	N/A	No Exceedance
TPH C8-C10 (ethylbenzene)	µg/l	20	300	7	5	<0.1	N/A	<10	N/A	No Exceedance
TPH C10-C12 (xylene)	µg/l	30	500	7	5	<0.1	N/A	<10	N/A	No Exceedance
TPH C12-C16	µg/l	2	90[5]	7	5	<10	N/A	<10	N/A	No Exceedance
TPH C16-C35	µg/l	50#	90[5]	7	5	<10	N/A	<10	N/A	No Exceedance
TPH Aliphatic[5]										
TPH C5-C6	µg/l	–	15000	7	5	<10	N/A	<1.0	N/A	No Exceedance
TPH C6-C8	µg/l	–	15000	7	5	<10	N/A	<1.0	N/A	No Exceedance
TPH C8-C10	µg/l	–	300	7	5	<10	N/A	<1.0	N/A	No Exceedance
TPH C10-C12	µg/l	–	300	7	5	<10	N/A	<1.0	N/A	No Exceedance
TPH C12-C16	µg/l	–	300	7	5	<10	N/A	<1.0	N/A	No Exceedance
TPH C16-C21	µg/l	–	300**	7	5	<10	N/A	<1.0	N/A	No Exceedance
TPH C21-C35	µg/l	–	300**	7	5	<10	N/A	<1.0	N/A	No Exceedance
VOC										
Trichloromethane	µg/l	50[6]	3	-	-	-	-	7.7	CP101	Exceedance DWS
1,1,1-Trichloroethane	µg/l	100[6]	-	-	-	-	-	4.1	CP107	No Exceedance
Trichloroethene	µg/l	5[6]	10	-	-	-	-	5.5	CP105	Exceedance EQS

Notes
Solubility <0.01µg/l
AA – Annual Average
* Polyaromatic hydrocarbons (PAH) - Benzo(a)pyrene (BaP), Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)-perylene and Indeno(1,2,3-cd)-pyrene. Benzo(a)pyrene can be considered as a marker for the other PAHs, hence only benzo(a)pyrene needs to be monitored for comparison with the biota EQS or the corresponding AA-EQS in water
** There are no WHO Guideline Values for aliphatic fractions C16-C21 and C21-C35, therefore the guideline value for aliphatic fractions inclusive of C8-C16 (300µg/l) has been applied.
1. The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations (2015)
2. Directive establishing a framework for Community action in the field of water policy (Water Framework Directive)
3. Council Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Dangerous Substances Directive) - List II substances
4. Council Directive on the quality of water intended for human consumption (Drinking Water Directive)
5. WHO Guidelines for Drinking Water Quality. Fourth edition (2011)
6. UK Technical Advisory Group on the Water Framework Directive "Concentrations in groundwater below which the danger of deterioration in the quality of the receiving groundwater is avoided (annual average)"

CONTROLLED WATER RISK ASSESSMENT AND MITIGATION

Leachate analysis completed on selected Made Ground samples identifies exceedances of the following:

- Arsenic
- Chromium
- Copper
- Lead

- Nickel
- Zinc

Groundwater analysis identified exceedance of the following:

- Arsenic
- Cadmium
- Copper
- Cyanide
- Nickel
- Selenium
- Trichloromethane (November 2020)
- 1,1,1-Trichloroethane (November 2020)
- Trichloroethene (November 2020)

The findings of the analysis are similar to those identified by IDG with respect to inorganic heavy metals and a more detailed review of the E3P data indicates that arsenic only marginally exceeds the drinking water standard where elevated concentrations have been recorded. Given the site's location and environmental setting, this marginal exceedance is not considered to be a significant risk.

Copper and nickel are recorded as being elevated above EQS values in both leachate analysis and groundwater analysis. Nickel in the groundwater analysis is present at higher concentrations in the deep monitoring wells (CP101 and CP105). The higher concentrations of nickel in the deeper wells may be representative of background concentrations in the Sandstone aquifer as there is no evidence to suggest a source within the Made Ground or shallow perched groundwater and levelling data indicates that there is no vertical migration pathway.

Lead and zinc concentrations are recorded as being elevated within leachate testing but not within groundwater analysis. The results would appear to show that these determinands are not mobile at the site and only reflect the leachate test.

Phenol has been recorded above its EQS value within leachate analysis from the Made Ground TP117 and in the shallow groundwater sample from CP107 which is located in close proximity. No further elevated leachate or groundwater concentrations for phenol were recorded within soil, leachate or groundwater analysis suggesting this is localised area and does not pose a significant risk to controlled waters.

Cyanide has been identified in four of groundwater samples though only slightly elevated concentrations were recorded in CP105 and CP106 with concentrations lower than the limit of detection in CP101. The highest concentration (52 µg/l) was recorded in CP107 which also has the highest pH of 10.2 which may be helping to mobilise it, though there are no elevated soil concentrations from adjacent trial pits and no discernible pattern to suggest that the impact is site-wide or migrating laterally.

No elevated concentrations of PAH, TPH or Semi Volatile Organic Compounds (SVOC) have been recorded within any of leachate or groundwater samples tested.

Volatile Organic Compound (VOC) analysis undertaken on groundwater samples recorded slightly elevated concentrations of trichloroethene within CP101, CP104, CP105 and CP106. Only the highest recorded concentration of 5.5 µg/l, recorded within the deep groundwater at CP105. It is also noted that soil analysis (Table 8.3) records slightly elevated concentrations of VOC compounds within TP205 which is located to the south-east of the site (proposed Unit 3).

To undertake a further assessment, additional groundwater sampling was undertaken 25 January 2021 including from CP110 in the north, was re-drilled and installed into the principal aquifer.

The groundwater analysis from January 2021 did not record any elevated concentrations with all results being below the laboratory method limit of detection. The absence of any elevated concentrations indicates a low risk to controlled waters from VOC.

8.3. GROUND GAS

The potential impact on the development from ground gases has been assessed with reference to standards and guidelines published in CIRIA Report 665 – *Assessing risks posed by hazardous ground gases to buildings* (2007). However, it is recommended that the full ground gas assessment and recommended protection measures are agreed with the local authority prior to their adoption on site. Furthermore, all protection measures adopted should be validated by a suitably qualified engineer.

CIRIA C665 and NHBC Report No 10627-R01 provide assessments for carbon dioxide and methane based upon gas screening values (GSVs) utilising flow rates and concentrations. The site-based GSVs for steady state methane and carbon dioxide are based upon the following equation:

$$GSV = \frac{concentration\ (by\ vol)}{100} \times flowrate\ (1\ /\ hr)$$

The GSVs within CIRA C665 are based upon all buildings other than standard residential houses. The thresholds for GSVs based upon CIRIA guidance are provided within Table 8.5.

TABLE 8.5 RESIDENTIAL THRESHOLDS FOR GAS SCREENING VALUES (GSV) IN ACCORDANCE WITH CIRIA C665 – COMMERCIAL END USE

CIRIA – NO SUBFLOOR VOID	
CLASSIFICATION	**GSV (METHANE AND CARBON DIOXIDE)**
CS1	< 0.07
CS2	< 0.70
CS3	< 3.5
CS4	< 15
CS5	< 70
CS6	> 70

8.3.1. SOURCES OF GROUND GAS

The Phase I report and subsequent ground investigation has identified the following potential sources of ground gas:

- Made Ground.
- Gas monitoring summarised in previous site investigation reports appear to indicate that elevated ground gases are only present in the west and that these may be associated with an off-site former landfill beyond Rivacre Brook. No elevated readings were recorded across the remainder of the site.

8.3.2. GROUNDWATER

Monitoring wells WS101, WS103 and WS106 were flooded on three occasions and cannot therefore be included within the gas assessment.

8.3.3. GAS FLOW

During the monitoring positive flow was noted in CP104 on both monitoring occasions. The measure of positive flow is likely the result of groundwater fluctuations and flooding of the well causing compression as opposed to gas generation as the highest flows are recorded during periods of high groundwater levels.

8.3.4. GAS CONCENTRATIONS

No elevated methane concentrations have been recorded and the highest carbon dioxide concentrations have been recorded at 2.6 l/hr v/v. These carbon dioxide values are lower that than 5% v/v threshold and are associated with slightly depleted oxygen values of between 14.4% v/v and 15.7% v/v.

8.3.5. GAS ASSESSMENT

The full gas assessment is yet to be completed but in accordance with the methodology outlined with the CIRIA publication C665, E3P have utilised the results of the ground gas monitoring surveys to calculate a tentative gas screening value (GSV). The GSVs for the monitoring positions are summarised in Table 8.6.

TABLE 8.6 GAS RISK PROFILE AND LOCATION

LOCATION	MAX CH_4 (% v/v)	GSV (l/hr)	MAX CO_2 (% v/v)	GSV (l/hr)	CLASSIFICATION
CP101	0.1	0.0001	0.1	0.0001	CS1
CP103	0.1	0.0001	2.6	0.0026	CS1
CP104	0.1	0.0076	0.1	0.0076	CS1
CP105	0.1	0.0001	0.1	0.0001	CS1
CP106	0.1	0.0001	0.1	0.0001	CS1
CP107	0.1	0.0001	0.1	0.0001	CS1

The GSV has been compared to the criteria outlined with CIRIA C665 to determine the level of risk to the proposed development and to ensure the appropriate remedial options are incorporated into any future building design in this area.

Preliminary ground gas monitoring suggests that the site can be predominantly classified as CS1 and this indicates that gas mitigation will not be required.

8.4. POTABLE WATER SUPPLY

This section provides a summary of the site investigation data with reference to the selection of potable water supply pipework. The assessment is made with reference to the UK Water Industry Research (UKWIR) publication "*Guidance on the Selection of Water Supply Pipes to be used in Brownfield Sites*"

TABLE 8.7 PIPELINE SELECTION PE THRESHOLD CONCENTRATIONS

CONTAMINANT GROUP	PE-THRESHOLD (mg/kg)	CONCENTRATIONS AT CURRENT PIPELINE DEPTH (mg/kg)
Total VOC	0.5	<1.0
Total BTEX And MTBE	0.1	<1.0
Total SVOCs (Excluding PAH and those substances marked with an *)	2	110
EC5-EC10 Aliphatic and Aromatic Hydrocarbons	2	<0.01
EC10-EC16- Aliphatic and Aromatic Hydrocarbons	10	723
EC16-EC40 Aliphatic and Aromatic Hydrocarbons	500	5900
Phenols (From SVOC Analysis)*	2	<0.3

CONTAMINANT GROUP	PE-THRESHOLD (mg/kg)	CONCENTRATIONS AT CURRENT PIPELINE DEPTH (mg/kg)
Cresols and Chlorinated Phenols (From SVOC Analysis)	2	<0.3
Ethers*	0.5	NA
Nitrobenzene*	0.5	NA
Ketones*	0.5	NA
Aldehydes*	0.5	NA
Amines	Fail	NA
Other Consideration		
Are there any exceedances of the PE threshold outside of the pipeline depth?	Yes	
Is free product present in soil and groundwater?	None	
Could hydrocarbon impact at greater depth than current pipeline depth be mobilised by rising groundwater levels?	Unlikely, groundwater has been identified at the base of the Made Ground and post development infiltration will be limited suggesting that groundwater will unlikely fluctuate significantly.	
Will soils impacted with above determinands likely be utilised elsewhere on site?	Yes	
Will soils be imported to site as part of any future earth works	Currently unknown, however, it is unlikely soils will be required to be imported to site.	

Notes - Pipe line depth normally between 0.75m–1.35m

Based on the assessment of current site conditions it is likely that **barrier pipe** will be required at the proposed development. UKWIR Assessment of ground conditions post remediation is recommended.

8.5. CONCEPTUAL SITE MODEL

Following the completion of the intrusive site investigation, chemical analysis and risk assessment, the conceptual model shown in Table 8.8 has been prepared for the site and is shown graphically in Drawing 14-035-010 in Appendix III.

TABLE 8.8 CONCEPTUAL MODEL

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL1 PL2	Heavy Metals, Polycyclic Aromatic Hydrocarbon (PAH)	Dermal contact. Dermal contact and ingestion.	Construction Workers Future Site Users	Likely	Low	LOW
Discussion: Based on the current and proposed future use of the site as hard-cover commercial and industrial end uses, the levels of heavy metals recorded in the Made Ground are not considered likely to be a significant risk. **Recommendation:** At present, no specific mitigation measures are considered necessary. This may need to be re-evaluated depending on if the proposed scheme is to include areas of landscaping as there may be a requirement to provide a suitable cover system to landscaped areas will prevent exposure to future site users. Construction works completed with PPE and provision of welfare.						
PL3	Asbestos Containing Material (ACM) in Made Ground	Inhalation of dust.	Future site users. Off-site land users.	Likely	High	LOW
Assessment: Asbestos fibres have been recorded within the stockpile material in the west of the site up to a maximum concentration of 0.007 %v/v. Based on the current use of the site, these concentrations are not considered likely to pose a risk to site operatives but additional dust control measures will be required if these materials are to excavated/moved as part of any future enabling works. **Recommendation:** Any asbestos impacted Made Ground will need to be managed in accordance with the asbestos conceptual site model presented in this report with the impacted material placed at depth.						

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL4	Volatile Hydrocarbons and Volatile Organic Compounds	Inhalation of vapours. Migration through permeable strata and preferential pathways.	Future site users. Off-site receptors.	Likely	Low	Low
Assessment: Visual and olfactory evidence of hydrocarbon impact has been recorded in the Made Ground but testing of these soils has not identified any elevated concentrations that would indicate a risk to current site operatives or for proposed commercial end-use. **Recommendation:** A watching brief is required during any future remediation and enabling works and any impacted soils should be carefully assessed and managed in accordance with a regulator approved remediation and enabling works strategy. Based on the data obtained to date and on the basis of a continued commercial and industrial end-use, there would not appear to be any specific requirement to undertake remediation works.						
PL4	Methane, carbon dioxide	Inhalation of gas. Migration through permeable strata and preferential pathways. Explosion in confined spaces.	Future site users. Buildings. Off-site land users.	Low likelihood	Low	Low
Assessment: Previous ground gas assessment and the results obtained to date indicate that there is a low risk associated with ground gas. Previous assessment indicated a possible off-site source to the west associated with a former landfill site. However, the Rivacre Brook will likely present a hydraulic barrier to leachate migration and the fact that the site is underlain by likely low permeability Glacial Till, it is considered unlikely that off-site ground gases will significantly impact upon the proposed development. On-site monitoring by E3P across the remainder of the site has not identified any significantly elevated ground gas concentrations with results from both phases of ground gas assessment indicating a site characterisation of CS1. **Recommendation:** CS1 conditions would not require the installation of additional ground gas mitigation measures.						

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL5	Petroleum Hydrocarbons and Volatile Organic Compounds	Vertical Migration Lateral Migration	Groundwater (Principal Aquifer) Surface water (Rivacre Brook)	Likely	Low/ Moderate	**Low**
Assessment: No significant hydrocarbon impact has been recorded within the shallow or deep groundwater samples analysed or within leachate testing completed on selected Made Ground samples. Slightly elevated concentrations of volatile organic compounds (TCE) have been recorded in the first round on groundwater monitoring but subsequent testing has recorded all concentration below LOD. **Recommendation:** No further assessment is considered necessary at this stage but a programme of monitoring on Rivacre Brook and the Manchester Ship Canal is recommended as part of a future remediation works. As the scheme is likely to found on improved Made Ground through Vibro Stone Columns, there is not considered to be any risk of creating preferential pathways to the underlying principal aquifer.						
PL6	Sulphate	Sulphate attack on concrete.	Building structure.	Likely	Low	**Low**
Assessment: Sub-surface concrete should be Design Sulphate Class DS-2, with the site allocated an ACEC Classification of AC-2. **Recommendation:** N/A						
PL7	Petroleum Hydrocarbons	Ingestion of tainted water supply.	Future site users. Water pipes.	Likely	Moderate	**Low**
Assessment: Assessment of soils has identified that hydrocarbon concentrations in localised areas of the site are elevated above the threshold for PE pipework for potable water supply infrastructure. **Recommendation:** Given that hydrocarbon impact has been identified it is recommended that Barrier Pipe be utilised within all potable water supply infrastructure at the site.						

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL8	Phytotoxic contaminants (Made Ground)	Direct Contact (plant uptake).	Flora.	Likely	Low	**Low**

Assessment:
Elevated concentrations of potentially phytotoxic metals (copper, nickel and zinc) have been identified within the Made Ground. These determinands do not pose a significant risk to current flora as there is no formal planting.

Recommendation:
Should the proposed development include landscaped areas, then an appropriate cover system will likely be required including an appropriate depth of growing medium.

Main exposure pathways:
PL1 = soil ingestion, PL2 = dermal contact and ingestion, PL3 = dust inhalation; PL4 = Vapour/Gas Inhalation; PL5 = Vertical / Lateral Migration; PL6 = Corrosion of concrete; PL7=Tainting of water supply; PL8 = Uptake by plants

9. GEOTECHNICAL ASSESSMENT

9.1. PROPOSED DEVELOPMENT

E3P understand that Firethorn Developments are proposing the redevelopment of the site and that it will comprise three industrial warehouses with associated areas of hardstanding and utility infrastructure. Drawing 14-035-002 (Appendix III) identifies the proposed development layout.

9.2. SUMMARY OF GROUND CONDITIONS

HARDSTANDING AND SUB-STRUCTURES

Due to the targeted nature of the site investigation, hardstanding was recorded in the majority of the exploration locations. In the main, hardstanding comprises reinforced concrete that was proven to have a typical depth of 0.15 m to 0.30 m thickness. In some localised areas, such as TP124c that slab was thicker at 0.45 m.

In addition to surface concrete slabs, secondary slabs were also recorded in TP130 at 0.8-1.4 m bgl, TP302 at 0.8-0.9 m bgl and a concrete-lined void was recorded in TP137 between 0.2-2.0 m bgl. In TP137a, TP142, CP109 it was apparent that slabs had been buried beneath a thin (Ca.0.2 m) layer of Made Ground.

MADE GROUND

Made Ground was recorded in all but one location where the overlying concrete hardstanding was penetrated and was proven to an average depth of approximately 0.7 m bgl. Locally thicker (>2.5 m) Made Ground was recorded in TP106 (2.6 m bgl), TP110 (3.7 m bgl), TP111 (3.5 m bgl), TP113 (3.2 m bgl) and TP115 (5.0 m bgl).

TP110, TP111 and TP113 and TP115 were recorded in the southwest of the site and it should be noted that these locations were formed within a raised stockpile area.

Made Ground is predominantly granular at the site, comprising variable grey to brown locally clayey, silty and sandy gravel. The gravel constituent is also variable across the site being of fine to coarse, angular to sub-angular mixed natural lithologies, concrete, brick, plastic, ash, slag and clinker.

A number of former ponds are identified on historical maps in the north and central sector of the site. These features were targeted as part of the E3P investigation.

- In the case of the former pond targeted with TP127, TP128 and TP130 relatively deep relict substructures were identified in TP130 to 1.40 m bgl and the Made Ground strata in TP 127 and TP128 was not fully penetrated. In TP127 the Made Ground comprised gravel of brick while in TP 128 and a soft gravelly clay that is interpreted of reworked natural was encountered. There is no evidence of the soft clay Made Ground further to the southeast in TP126 and north in TP134 which provides some evidence that the pond was not laterally extensive.

- In the case of the ponds targeted withTPP01, TP144, TP145 and TP146 relatively thin Made Ground (0.75 m to 1.10m bgl) was encountered, and this overlay natural glacial till CLAY that has a shear strength ranging between 92 and 120 kPa.

- Additional trial pits were excavated in the south-east of the site (TP201 to TP206) where a third unit (Unit 3) is proposed. This sector of the site is also identified as being an area that may have historically been a pond. Made Ground was proven to depths of between 0.65 m and 2.80 m bgl. The full extent of the Made Ground was not determined in TP205a. The Made Ground in the south-east is typically granular comprising grey slightly sandy very clayey gravel with metal sub-structures and relict drainage also recorded.

In TP110, TP111, TP113 and TP115, were excavated in the area marked by stockpiles. This area was identified as historically being a sludge bed. The IDG report recorded the Made Ground in this area as predominantly ash and clinker to a depth to 9.4 m bgl (BH11) and reviewing the elevation data on the IDG logs suggests that at the time of their investigation the ground was at the same elevation as the subject site. The ash and clinker material was recorded by E3P at depth in TP110, TP110a with overlying material consisting of clayey gravel with the gravel comprising fine to coarse gravel of brick, concrete, sandstone, mudstone, with occasion wood, rebar, plastic and metal. This material looked relatively consistent and may have been subject to previous processing or formed as part of the site demolition. The Made Ground in these areas was proven to a maximum depth of 5.0 m within TP115. Given that the area now contains stockpile that is ca.1-2 m higher than the surrounding it is possible that the Made Ground in this area is now greater than 9.4 m thick.

The IDG report identified further deep Made Ground in the area of their Trial Pits TP28, TP29, TP43, TP44, TP45, TP46, TP47. This was interpreted as being part of a wider area of deep Made Ground extending from the north and to the south (see Figure 5.3). However, E3P Trial Pits TP109a and TP110a to the north confirm that Made Ground is present to depths of 1.8 m and 2.0 m bgl while trial pits TP302 and TP302, to the south, confirm Made Ground to depths of between 0.9 m and 1.2 m bgl. This suggests that there are pockets of deeper Made Ground in the western sector of the site.

Around these stockpiles are further quantities of suspected domestic landfill materials that comprise predominantly plastic and organic materials. These materials have a notable organic odour and appear to have been placed over earlier construction/demolition stockpiles.

The previous ground investigation identified relic topsoil in the area of deep Made Ground in the west of the site from 0.4-1.0 m bgl (IDG-TP30) and 0.0-0.7 m bgl (IDG-TP33). This stratum was described as grey clayey silty sand with abundant roots and rootlets.

In some cases, the Made Ground is recorded as an MOT sub-base to the hardstanding.

DRIFT DEPOSITS

The drift stratum predominantly comprises firm to stiff, medium strength to high strength CLAY and this was recorded in all locations were the Made Ground or surface concrete could be penetrated. The full thickness of the CLAY was only proven in the Cable Percussion boreholes and it was proven to between 5.65 m bgl and 8.9 m bgl with a thickness ranging between 4.2 m (CP104) and 8.1 m (CP110).

Where it was possible to expose the natural strata within the area of the former ponds, the underlying clay was found to have a Cu ranging between 92 and 120 kPa.

SOLID GEOLOGY

SANDSTONE was recorded in all of the cable percussion boreholes beneath the drift between depths of 5.5 m bgl and 8.9 m bgl.

GROUNDWATER

Groundwater strikes were encountered as seepages between 0.4 m and 1.2 m bgl.

9.3. SITE PREPARATION

The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the *Manual of Contract Documents for Highway Works (MCHW)*. This should include the following:

- Roots present below the footprint of proposed structures and infrastructure should be grubbed out and the resulting void infilled with suitable compacted engineered fill.
- Demolition of all existing buildings and removal of all concrete hardstanding.
- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill.
- Buried structures and old foundations have been encountered on site. These should be excavated from below the proposed development footprint with the resulting void backfilled.

9.4. FOUNDATION CONDITIONS AND ASSESSMENT OF POTENTIAL BEARING CAPACITIES

In due consideration of the identified ground conditions, in-situ and laboratory geotechnical testing, E3P has undertaken an assessment of the net safe allowable bearing pressure (ABP) within the underlying natural stratum to assist in the detailed design of foundations and infrastructure and determine the target founding stratum. The results of this assessment are summarised in Table 9.1

TABLE 9.1 SUMMARY OF ABP

COHESIVE SOILS			
Description	**Depth (range m bgl)**	**Undrained Shear Strength (Cu) (kN/m^2)**	**Allowable Bearing Pressure (kN/m^2)**
Firm to Very Stiff Gravelly CLAY	1.2-2.0	39-73	80-150
Stiff to Very Stiff Gravelly CLAY	2.0-3.0	45-82	93-169
Stiff to Very Stiff Gravelly CLAY	3.0-4.0	50-84	104-173

Based on the assessment of the relative undrained shear strength, relative in-situ densities and corresponding safe net allowable bearing pressure, the suitable target founding stratum has been identified as the underlying stiff to very stiff CLAY.

However, prior to the detailed design of suitable foundations solutions, a programme of remediation and enabling works will be required to remove the extensive buried obstructions and cut/fill the site to provide suitable development platform levels.

Therefore, upon completion of these enabling works, the Made Ground is likely to be present at varying depths and as such, it is likely that the most cost-effective option for the majority of the site would be to re-engineer the Made Ground using vibro-stone columns (VSCs) to support pad foundation.

E3P has prepared a ground improvement design risk matrix, summarised in Table 9.2, to ensure that the ground conditions have been proven by the intrusive site investigation are satisfactory to facilitate the appropriate stabilisation.

TABLE 9.2 GROUND IMPROVEMENT DESIGN RISK MATRIX

RISK ITEM	COMMENT	PASS/FAIL
Soft clays with an undrained shear strength less than 30 kN/m^2	CLAY soils are generally firm to stiff with Cu > 39 kN from 1.2 m bgl in all the borehole locations. Hand shear vanes indicate that shear strengths range from 80 kN from 0.8 m bgl.	**PASS**
Ground with peat layers close to foundation level or the base of the stone column, or where intermediate layers of peat are thicker than 200 mm, either as a single layer or the sum of the thicknesses of individual layers throughout the length of the stone column	IDG borehole (BH11) which was formed within the area of deep Made Ground in the west identified a layer of PEAT at its base. The PEAT was recorded to be 200 mm thick. Relic top-soil was identified within the same area within the shallow Made Ground (to 1.1 m bgl) and this may need to be delineated and removed as part of the enabling works	**PASS– on completion of enabling works**
Voided filled ground, e.g. old water tanks, pottery, glass bottles, concrete rubble or brick fill of unsuitable grading	The ground investigation and site inspection have identified a number of sub-surface sumps and areas of below ground structures. These areas will require excavation and backfilling with suitable material.	**PASS – on completion of enabling works**
Loose or non-engineered fill not previously subject to rising or fluctuating water levels saturation	See below	**-**
Filled ground still settling or expected to settle under its own weight or due to the effects of surcharging/upfilling where there is a high organic content or where decay is continuing	An area of deep Made Ground is present in the west of the site and which may extend beneath the south-westernmost corner of proposed Unit 1. The Made Ground is granular with previous assessment indicating an ABP of between 16 and 58 kN. Since the completion of the previous geotechnical borehole, the area appears to be used to stockpile demolition material and this, along with the time elapsed, may have resulted in some degree of self-weight settlement and surcharging. While further assessment will be required once access can be gained this material and the underlying natural strata are likely to be suitable for VSC.	**PASS (Unit 2 and 3) (Assessment Unit 1)**
Fill, containing degradable material where organic material forms more than 15% of fill by volume	None identified.	**PASS**
Clays with a plasticity index greater than 40%	TP145 has identified high plasticity CLAY. It is recommended to further delineate this area and if necessary, excavate the CLAY and backfill the void with suitably engineered material.	**PASS**
Highly sensitive soils liable to collapse or remoulding	None identified.	**PASS**
Cohesive soils with trees in influencing distance	Trees are present around the periphery of the site and modelling may be needed upon completion of an arboriculture survey. Foundations, including VSC may need to be locally deepened.	**PASS**

RISK ITEM	COMMENT	PASS/FAIL
Overall Risk Rating and Suitability for Vibratory Ground Improvement		**PASS**

It would be feasible to provide a piled foundation solution for Unit 1 which is currently shown to partially lie over an area of deep Made Ground. If this solution was to be adopted then it would need to be completed for the whole unit to avoid potential differential settlement.

A Depth to Founding Strata and Foundation Zoning Plan is included as Drawings 14-035-007 and Drawing 14-035-009 in Appendix III.

9.5. GROUND FLOOR SLABS

Following enabling works, the site will likely have a variable thickness of Made Ground, that may extend to significant depth in places. Given the structures that are proposed, it is considered that ground-bearing floor slabs will require settlement analysis and detailed design to accommodate the variability of the formation and account for differential settlement.

Given the depth of Made Ground and its loose/variable nature, it will be necessary to undertake some form of Ground Improvement work to ensure the total and differential settlement is within tolerable limits for the Uniformly Distributed Load of the floor slab and any external reinforced concrete yards/hardstanding.

It is considered that Ground Improvement by either High Energy Impact Compaction or Vibro Stone Columns would provide a viable engineering solution to ensure the required ABP for a ground bearing floor slab.

As an alternative to the above, a more traditional solution which comprises the excavation of the upper stratum of Made Ground prior to re-engineering and compaction as a structural upfill be considered. Limitations with this approach would be attributed to the inherent variability of the material, particularly in the west, and issues arising from fluctuations in moisture content, which are exaggerated during periods of seasonal variance with increased precipitation and reduced evaporation.

The deep Made Ground in the west will need additional consideration and will require specialist treatment due to the potential for differential settlement.

An approach to this area may include:

- Remove all slabs and founds, crush and process suitable materials;
- Undertake reduced level excavation to ~5.0m below current GL and instigate High Energy Impact Compaction or Rapid Impact Compaction to treat full depth of historical fill;
- Upfill excavation placing material (lime stabilised) as structural fill;
- Undertake HEIC across remainder of all slabs to ensure uniform settlement;
- Place capping using site won 6F2;
- Place MOT 1 sub-base.

The main risk items with this approach include the requirement to bench the excavation in and the potential generation of excess material that could require off-site disposal. An alternative would be to utilise VSC columns across the entire slab area to ensure uniform settlement. Given the depth of Made Ground across the remainder of the slab, columns may not be required to significant depth.

Where a ground-bearing floor slab is to be constructed within the conjectured zone of tree influence, the clay will need to be removed to ensure that any desiccated soil cannot swell and induce heave to the structure. Alternatively, it may be possible to design the structure to resist the influence of clay heave using exaggerated sub-base and additional reinforcement within the slab to be designed by the structural engineer.

Where it is necessary to undertake cut-and-fill works utilising site-derived cohesive soils, careful consideration must be given to seasonal climatic conditions, which will have a significant impact of moisture conditions and the ability to compact clay soils in the wetter winter months. It may be necessary to undertake an element of stabilisation works through the addition of lime to ensure the soils can be engineered to the required performance standards.

It would be possible to utilise soil stabilisation techniques that incorporate the addition of lime and OPC to construct a stiffened soil horizon with a CBR > 15% to constitute a sub-base replacement layer that could then be capped with Type 1 MOT. The use of soil stabilisation could be extended within the conjectured zone of tree influence to modify the structure of clay soils and negate the potential for volumetric instability.

9.6. HEAVE PRECAUTIONS

Given that the underlying clay is of predominantly low plasticity, heave precautions will not be required to the internal face of a foundation of external load-bearing walls (outside or within tree influence).

However, heave precautions will be required to the underside of floor slabs (where there is no 200 mm void) or ground beams within the modelled influencing distance of trees.

Where a ground-bearing floor slab is to be constructed within the conjectured zone of tree influence, the clay will need to be removed to ensure that any desiccated soil cannot swell and induce heave to the structure. Alternatively, it may be possible to design the structure to resist the influence of clay heave using exaggerated sub-base and additional reinforcement within the slab, to be designed by the structural engineer.

In the vicinity of TP145, very high plasticity CLAY is recorded due to the presence of organic material. It is recommended to undertake additional delineation in this area as part of enabling works to determine if the clay needs to be removed and void backfilled with suitable engineered material.
A summary of heave precautions is presented in Table 9.3.

TABLE 9.3 SUMMARY OF HEAVE PRECAUTIONS

		MINIMUM VOID DIMENSION FOR FOUNDATIONS, GROUND BEAMS AND SUSPENDED IN-SITU CONCRETE GROUND FLOORS		MINIMUM VOID DIMENSIONS UNDER PRECAST CONCRETE AND SUSPENDED TIMBER FLOORS
Plasticity Index of Soil	**Required Foundation Depth (m)**	**Thickness of Void Former Against Side of Foundation or Ground Beam (mm)**	**Thickness of Void Former on Underside of Edge Beam and Floor Slab (mm)**	**Void Dimension (mm)**
High Plasticity (> 40)	> 2.5	Engineer Design		Engineer Design
	2.0–2.5	35	150	300
	1.5–2.0	25	75	
Moderate Plasticity (20–40)	> 2.5	Engineer Design		Engineer Design
	2.0–2.5	25	100	250
	1.5–2.0	25	50	
Low Plasticity (< 20)	2.0–2.5	N/A	50	200
	> 2.0	No Special Precautions		

9.7. HIGHWAYS CONSTRUCTION

A programme of remediation and enabling works will be required to remediate the proposed road subgrade in accordance with the requirements of the Manual of Contract Documents for Highway Works Volume 1 Specification for Highway Works (Series 600-Earthworks) for a method compaction.

It is considered that the material can be re-engineered using method compaction to achieve a CBR in excess of 5% if works are completed in favourable climatic conditions.

9.8. DRAINAGE

The presence of substantial depths of Made Ground across some areas of the site may result in settlement. It is therefore recommended that drain runs are designed using steeper gradients and flexible joints to allow for some differential settlement.

Furthermore, the site is predominantly underlain by likely low-permeability gravelly CLAY. Therefore, the use of soakaway drainage will be limited, and as the lateral continuity of the Made Ground cannot be assured, it is not recommended that soakaways are utilised for disposal of surface water runoff.

If soakaway drainage is to be considered, full BRE 365 testing must be completed to inform the detailed design.

9.9. CONCRETE DURABILITY

IDG determined that sub-surface concrete should be Design Sulphate Class DS-2, with the site allocated an ACEC Classification of AC-2

9.10. EXCAVATIONS

Obstructions were identified in the near-surface, including former foundations and former floor slabs. It is anticipated that any obstructions will be grubbed out during the reduced-level dig for the substructure works.

However, due to the depth and variability of the Made Ground and likelihood of trench collapse, it is considered that all excavations are supported or battered back in accordance with the guidance contained in CIRIA R97.

If local pumping of groundwater is required during the advancement of excavations consideration should be given to the potential for localised hydrocarbon contamination to present. Measures will be required to control and/or remove the hydrocarbon impact to prevent it from causing cross-contamination.

TABLE 9.4 CIVIL ENGINEERING EXCAVATION RISK MATRIX

RISK ITEM	PRESENT	COMMENT
Running Sands	No	None identified.
Minor Water Ingress	No	Water ingress will require localised dewatering/sump pumping during the construction of site drainage infrastructure. Measure to control any hydrocarbon impact will be required. There are waterfilled concrete structures present in the north-east of the site.
Shallow Bedrock	No	Shallow bedrock has not been identified.

9.11. FURTHER WORKS

Based on the findings of the intrusive site investigation, the following additional works are recommended to be completed in due course:

- Further assessment of the ground conditions along the western boundary following removal of glass stockpiles.
- Delineation of the high plasticity CLAY identified in TP145.
- Settlement analysis for proposed ground floor slabs.
- Slope stability assessment.
- Remediation and Enabling Works Strategy incorporating a geotechnical earthworks strategy for infrastructure.

9.12. CONSTRUCTION ACTIVITY AND INSPECTION

The following activities and inspections should be incorporated into the site works:

- Due to the variability of the soils at the site, it is recommended that sufficient allowance is made for the inspection of formations and sub-formations to foundations and pavement construction.
- Excavations, where access is required, should be subject to a risk assessment from a competent person and, where appropriate, mitigation measures such as benching back the sides or use of support systems in accordance with CIRIA R97 should be utilised.
- It is considered that dewatering may be required, especially following periods of heavy rainfall. Removal of surface water and water within trenches should be possible with conventional sump pumping. Discharge of any water should be agreed with the relevant regulatory body and be undertaken under a trade effluent discharge, where required. Measures to remove silt and suspended solids may be required and consideration should be given to provision of space for settling tanks or an attenuation pond.
- Where access to confined spaces is required, appropriate mitigation measures should be addressed within the construction stage health and safety plan. Particular account should be taken of the gas results.
- The presence of potential contamination and mitigation measures should be addressed as part of the construction stage health and safety plan and should include measures to design out the risks, reduce their impact and, finally, to include the use of personnel protective equipment (PPE).

9.13. GEOTECHNICAL RISK REGISTER

A Development Constraints Plan is presented as Drawing 14-035-008 in Appendix III.

POTENTIAL ABNORMAL CONSTRAINT	LOCATION ON SITE	ESTIMATED AREA OF SITE AT RISK (%)	ASSESSMENT AND MITIGATION
Remediation of contaminated soils	On-site	10	Localised areas of hydrocarbon impact have been identified within both the IDG and E3P ground investigations. The impact has been localised to discreet areas and assessment indicates that these do not pose a risk based on a future commercial / industrial site use. Leachate and groundwater analysis indicates that the impact does not pose a risk to controlled waters.
Bedrock	N/A	N/A	Shallow bedrock has not been identified.
Obstructions	All	100	Hardstanding is present across the site with a significant number of exploration location identifying below ground relict structures. Site observation has also identified the presence of water-filled sumps and a number of above ground structures that will need to be demolished and subsequently investigated.
Artificially levelled and filled platforms	N/A	10	The western boundary of the site appears to have been levelled with significant thicknesses of Made Ground identified. In addition, the area also appears to have been raised through the addition of demolition material which now forms stockpiles ca.1-2 m in height.
Retaining walls	N/A	N/A	No retaining walls have been identified.
Trench collapse	N/A	N/A	Only localised areas of instability have been identified within the Made Ground.
Mature trees	Periphery	N/A	Arboriculture survey required to determine areas of potential tree influence from trees and bushes that are located at the southern and western site boundary.
Volume change potential clay	On site	100	The site is likely to be underlain by glacial till which has been assessed as being of low volume change potential. Additional analysis is also currently awaited.
Peat	Western Boundary	2	A 200 mm thick horizon of peat has been identified beneath the deep Made Ground at the western boundary.
Running sands	N/A	N/A	None identified.
Ground dissolution	N/A	N/A	Data searches indicate no hazard.

POTENTIAL ABNORMAL CONSTRAINT	LOCATION ON SITE	ESTIMATED AREA OF SITE AT RISK (%)	ASSESSMENT AND MITIGATION
Concrete design	On site	100	Design Sulphate Class DS-2, with the site allocated an ACEC Classification of AC-2
Low-permeability ground	On site	100	Soakaways unlikely to be effective in areas where low permeability cohesive deposits are present or where areas of potentially contaminated soil and groundwater are present.
Services/sensitive structures	Off-site	N/A	A review of online services has confirmed that there are no sensitive services within the site boundary. A high pressure gas main and 11 kV cable have been identified beyond the southern boundary.
Abnormal foundation solutions	On-site	100	Given that significant sub-structures have been identified and that there will be a requirement to remove these features in order to facilitate the construction of development platform, it is considered that it will be necessary to provide an engineered solution for both foundations and floor slab design.
Areas not investigated	Western sector	20	The western sector of the site is currently used by a glass recycling business and they are required to store large stockpiles of glass cullet. This prevented access to some proposed exploration locations and areas adjacent to the western boundary. The area of deep Made Ground is also inaccessible to drilling rigs due to stockpiles of demolition type material and dense vegetation. A number of the exploration locations were abandoned at shallow depth as they were not able to penetrate concrete sub-structures.
Surface water features	On-site	1	There is a below surface level sump structure located in the northeast of the site. This is likely to have been associated with the former paper mill's drainage.
Current ponds to be filled	N/A	N/A	None identified.
Historically infilled pond	On-site	5	A number of former ponds are identified on historical maps. Where these have been investigated, no organic materials have been identified, though in one location, none of the exploration locations could penetrate the Made Ground.
Quarry high wall	N/A	N/A	None identified.
Mining	N/A	N/A	None identified.
Slope	On-site	5	The western sector of the site is reported to have a slope down to the Rivacre Brook. The slope may need to be assessed if it is proposed to construct any structures at its crest.

10. CONCLUSIONS AND RECOMMENDATIONS

CONTAMINATED LAND ASSESSMENT

Human Health	Analysis of selected soil samples from across the site has not identified any significant areas of potential concern based on a proposed future commercial/industrial end use. A remediation and enabling works strategy will need to be developed to ensure the safe management of dust due to the presence of asbestos fibres and locally hydrocarbon impacted soil and perched groundwater. Once the site is complete, the presence of buildings and hardstanding will ensure that there is no viable contaminant pathway.
Controlled Waters	Slightly elevated concentrations metals and volatile organic compounds have been identified within both shallow and deep monitoring boreholes. Subsequent monitoring did not record any elevated concentrations. Monitoring of Rivacre Brook and the Manchester Ship Canal is recommended throughout any future remediation works but given that foundation structures for the proposed buildings will be shallow there is not likely to be the creation of any preferential pathways to the underlying principal aquifer. It is therefore considered that the site will represent a low risk to controlled waters.
Ground Gas	Assessment of previous and current results indicate that mitigation measure will not be required.
Potable Water	Barrier Pipe recommended.

GEOTECHNICAL ASSESSMENT

Based on the assessment of the relative undrained shear strength, relative in-situ densities and corresponding safe net allowable bearing pressure, the suitable target founding stratum has been identified as the underlying stiff to very stiff CLAY.

However, prior to the detailed design of suitable foundations solutions, a programme of remediation and enabling works will be required to remove the extensive buried obstructions and cut/fill the site to provide suitable development platform levels.

Therefore, upon completion of these enabling works, the Made Ground is likely to be present at varying depths and as such it is likely that the most cost-effective option for the majority of the site would be to re-engineer the Made Ground using vibro-stone columns (VSCs) to support pad foundation.

Following enabling works, the site will likely have a variable thickness of Made Ground, that may extend to significant depth in places. Given the structures that are proposed, it is considered that ground-bearing floor slabs will require settlement analysis and detailed design in order to accommodate the variability of the formation and account for differential settlement. Given the depth of Made Ground and its loose/variable nature, it will be necessary to undertake some form of Ground Improvement work to ensure the total and differential settlement is within tolerable limits for the Uniformly Distributed Load of the floor slab and any external reinforced concrete yards/hardstanding.

A programme of remediation and enabling works will be required to remediate the proposed road subgrade in accordance with the requirements of the Manual of Contract Documents for Highway Works Volume 1 Specification for Highway Works (Series 600-Earthworks) for a method compaction.

The site is predominantly underlain by likely low-permeability gravelly CLAY. Therefore, the use of soakaway drainage will be limited, and as the lateral continuity of the Made Ground cannot be assured, it is not recommended that soakaways are utilised for disposal of surface water runoff.

END OF REPORT

APPENDIX I
LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between E3P and the client as indicated in Section 1.3.

2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.

3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.

4. During the site walkover, reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover, no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.

5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.

6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.

7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and do not constitute or replace full and proper surveys.

8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

9. E3P cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by E3P is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by E3P in this connection without their explicit written agreement there to by E3P.

10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

APPENDIX II
GLOSSARY

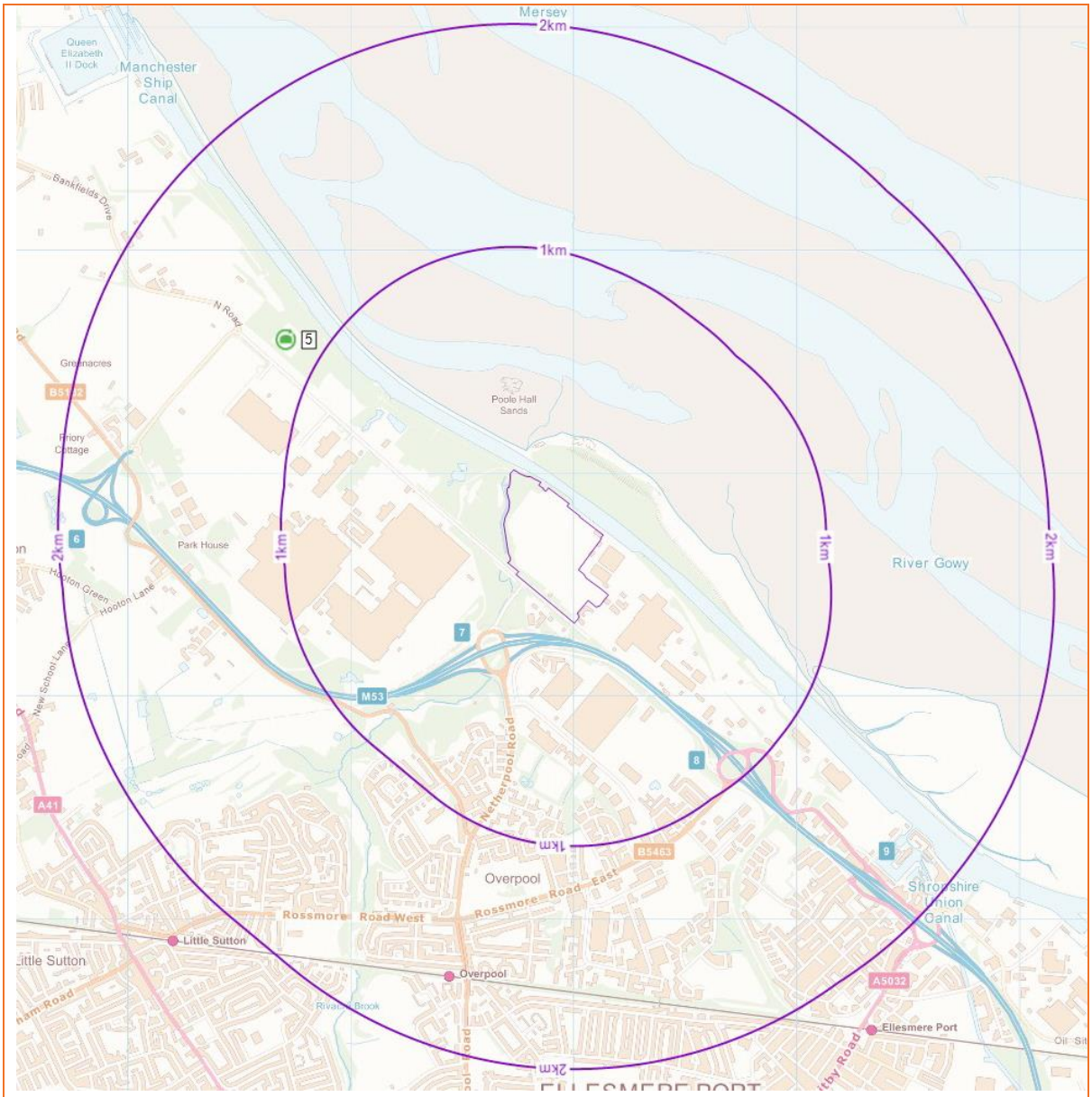
TERMS

ACM	Asbestos-containing material	**MMP**	Materials management plan
ADS	Acoustic design statement	**ND**	Not detected
AST	Above-ground storage tank	**NDP**	Nuclear density probe
BGS	British Geological Survey	**NMP**	Noise management plan
BSI	British Standards Institute	**NPSE**	Noise policy statement for England
BTEX	Benzene, toluene, ethylbenzene, xylenes	**NR**	Not recorded
CA	Coal Authority	**PAH**	Polycyclic aromatic hydrocarbon
CBR	California bearing ratio	**PCB**	Polychlorinated biphenyl
CIEH	Chartered Institute of Environmental Health	**PI**	Plasticity index
CIRIA	Construction Industry Research Association	**PID**	Photo ionisation detector
CLEA	Contaminated land exposure assessment	**POS**	Public open space
CML	Council of Mortgage Lenders	**PPE**	Personnel protective equipment
CoC	Contaminants of concern	**ProPG**	Professional practice guidance
CSM	Conceptual site model	**QA**	Quality assurance
DNAPL	Dense non-aqueous phase liquid (chlorinated solvents, PCB)	**SGV**	Soil guideline value
DWS	Drinking water standard	**SPH**	Separate-phase hydrocarbon
EA	Environment Agency	**SPT**	Standard penetration test
EQS	Environmental quality standard	**SVOC**	Semi-volatile organic compound
FFL	Finished floor level	**TPH**	Total and speciated petroleum hydrocarbon
GAC	General assessment criteria	**TPH CWG**	Total Petroleum Hydrocarbon (Criteria Working Group)
GL	Ground level	**UKWIR**	United Kingdom Water Infrastructure Risk
GSV	Gas screening value	**UST**	Underground storage tank
HCV	Health criteria value	**VCC**	Vibro-concrete column
ICSM	Initial conceptual site model	**VOC**	Volatile organic compound
LEL	Lower explosive limit	**VRSC**	Vibro-replacement stone columns
LMRL	Lower method reporting limit	**VSC**	Vibro-stone columns
LNAPL	Light non-aqueous phase liquid (petrol, diesel, kerosene)	**WHO**	World Health Organisation
MCV	Moisture condition value	**WRAP**	Waste and Resources Action Programme
MIBK	Methyl isobutyl ketone	**WTE**	Water table elevation
m	Metres	**ppm**	Parts per million

km	Kilometres	**mg/m^3**	Milligram per metre cubed
% v/v	Percent volume in air	**m bgl bgl**	Metres below ground level
mb	Millibars (atmospheric pressure)	**m bcl**	Metre below cover level
l/hr	Litres per hour	**mAOD**	Metres above ordnance datum (sea level)
µg/l	Micrograms per litre (parts per billion)	**kN/m^2**	Kilonewtons per metre squared
ppb	Parts per billion	**µm**	Micrometre
mg/kg	Milligrams per kilogram (parts per million)	**SSRT**	Site Specific Remediation Target
PSD	Particle Size Distribution	**DD**	Dry Density
CL:AIRE	Contaminated Land: Applications in Real Environments	**Mc**	Moisture Content
ρ	Bulk Density	**GPR**	Ground Penetrating Radar
NDP	Nuclear Density Probe	**FFL**	Finished Floor Level
LEL	Lower Explosive Limit	**UKWIR**	UK Water Industry Research
CIRIA	Construction Industry Research and Information Association	**LOD**	Limit of Detection

APPENDIX III
DRAWINGS

DRAWING 14-035-001 – SITE LOCATION PLAN



0 20 40 60 80 100m
Scale 1:2000

Existing Intake Pump House

Buildings to be retained

Manchester Ship Canal

Indicative attenuation pond location

Sprinkler tank + pumphouse by tenant

1 no. level access door

10 no. loading docks

42 no. trailer spaces

UNIT 01
GF WAREHOUSE = 23,112 m² / 248,775ft²
FF OFFICE = 578 m² / 6,221 ft²
SF OFFICE = 578 m² / 6,221 ft²
Driver Hubs = 80 m² / 861 ft²
Gatehouse = 21m² / 226 ft²

TOTAL GIA = 24,369 m² / 262,304 ft²

10 no. loading docks

1 no. level access door

282 no. car parking spaces inc. 14 no. accessible

Sprinkler tank + pumphouse by tenant

1 no. level access door

10 no. loading docks

53 no. trailer spaces

12 no. loading docks

10 no. loading docks

1 no. level access door

UNIT 02
GF WAREHOUSE = 33,792 m² / 363,734 ft²
FF OFFICE = 845 m² / 9,096 ft²
SF OFFICE = 845 m² / 9,096 ft²
Driver Hubs = 160 m² / 1,722 ft²
Gatehouse = 21m² / 226 ft²

TOTAL GIA = 35,663 m² / 383,874 ft²

379 no. car parking spaces inc. 19 no. accessible

Sprinkler tank + pumphouse by tenant

1 no. level access door

UNIT 03
GF WAREHOUSE = 8,960 m² /96,444 ft²
FF OFFICE = 448 m² / 4,822 ft²

TOTAL GIA = 9,408 m² / 101,266 ft²

10 no. loading docks

28 no. trailer spaces

1 no. level access door

106 no. car parking spaces inc. 6 no. accessible

North Road

Existing access utilised

Location for primary sub station if required

Potential access to Unit 3 from proposed access

Proposed signage location

Proposed new junction

Schedule of Accommodation

Unit	Ground Floor GIA	Office GIA	Gatehouse	Driver Hubs	TOTAL UNIT GIA	Car Parking (Accessible)	Parking Ratio (/m²)
Unit 1	23112m² / 248,775ft²	1,156m² / 12,442ft²	21m² / 226ft²	80m² / 861ft²	**24,369m² / 262,304ft²**	282 (14)	1:87
Unit 2	33,792m² / 363,734ft²	1,690m² / 18,192ft²	21m² / 226ft²	160m² / 1,722ft²	**35,663m² / 383,874t²**	379 (19)	1:95
Unit 3	8,960m² / 96,444ft²	448m² / 4,822ft²	-	-	**9,408m² / 101,266ft²**	106 (6)	1:89
TOTAL SITE GIA					**69,440m² / 747,444ft²**	767 (39)	

NOTES

AEWTP027C

- All dimensions and levels are to be checked on site.
- Any discrepancies are to be reported to the architect before any work commences
- This drawing shall not be scaled to ascertain any dimensions. Work to figured dimensions only.
- This drawing shall not be reproduced without express written permission from AEW.
- Title overlay drawings and ownership boundaries are produced using all reasonable endeavors. AEW cannot be responsible for the accuracy or scale discrepancy of base plans supplied to them.
- All works are to be undertaken in accordance with Building Regulations and the latest British Standards.
- All proprietary materials and products are to be used strictly in accordance with the manufacturers recommendations.

CDM 2015

Client notified of duties:

Principal Designer:

Unless noted below, all known hazards have been highlighted on the drawing:

Note

- Exact boundaries to be confirmed with reference to land registry plans and topographical survey.
- HGV circulation subject to tracking analysis.

Site Boundary
44.77 acres / 18.12 ha

Land retained by Peel Ports
31.50 acres / 12.75ha

LDO Boundary taken from Cheshire West and Chester
Drawing: North Road Industrial
Area - LDO Area
(DWG required for accuracy)

2-3m of made ground (Taken from SGI drawing ref C1442-SK01)

HSE Outer Zone (Information overlay from HSE Crosses Consultation Zone Ref C1442)

HSE Middle Zone (Information overlay from HSE Crosses Consultation Zone Ref C1442)

HSE Inner Zone (Information overlay from HSE Crosses Consultation Zone Ref C1442)

Rev	Date	Drawn by: -	Checked by: -
P4	05/11/20	KS	DOH
	Red line boundary updated. HSE constraint zones added. Layout amended to avoid existing buildings		
P3	29/10/20	KS	DOH
	Unit 2 access road amended to suit HGV tracking. Unit 3 proposed access point omitted and existing access utilised. Unit 01 yard altered to the north.		
P2	19/10/20	MB	DOH
	Unit sizes updated. Sprinkler tanks shown. Unit 03 entrance updated.		
P1	30/09/20	MB	AS
	Initial Issue		

Status: S2 — For Comment

drawing stage: **Stage 2 Concept Design**

client: **Firethorn Trust**

project: **Port Cheshire**
North Road
Ellesmere Port

drawing title: **Feasibility Site Plan**
Three Unit Scheme

date: 30/09/20 drawn: MB
scale@A2: 1:2000 checked: AS

Rev: **P4**

Job No: **11915-AEW-XX-XX-DR-A-0002**

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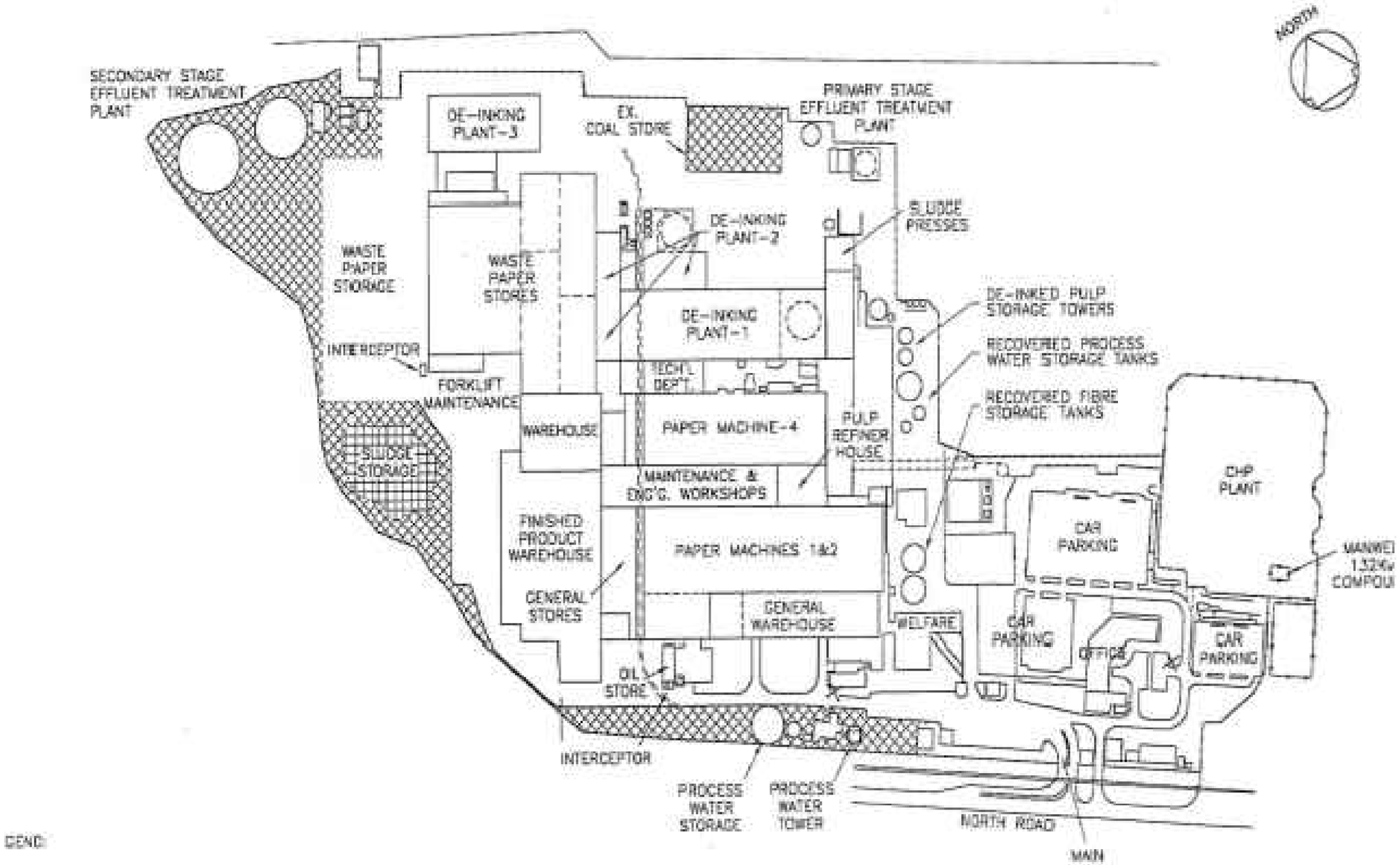

LEGEND

P1	REVA	02.02.2021	HM	AE
Phase	Issue	Date	Drawn	Checked

Notes:

Client: SGI

Job No: 14-035

Date: 04.02.2021

Drawing No: 003

Scale: NTS

Job Title: Bridgewater Paper Mill

Drawing Title: Historical Features Plan

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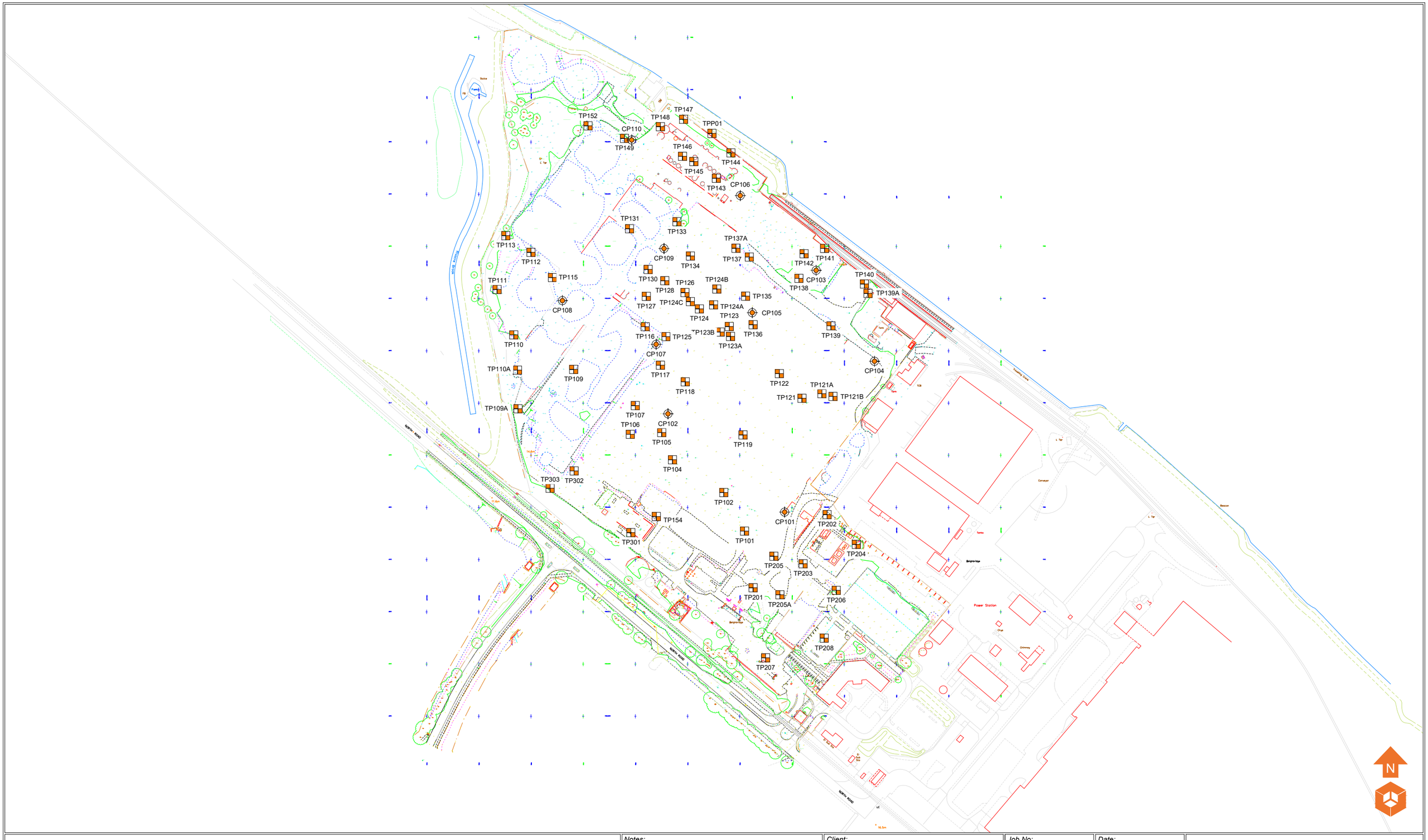

Location Symbols

- TP101 — Approximate Trial Pit Location
- CP101 — Approximate Cable Percussive Borehole Location

Notes:

Client: SGI

Job No: 14-035

Date: 04.02.2021

Drawing No: 004

Scale: NTS

Phase	Issue	Date	Drawn	Checked
P1	REVC	04.02.2021	HM	AE
P1	REVB	29.01.2021	HM	AE
P1	REVA	16.11.2020	HM	AE

Job Title: Bridgewater Paper Mill

Drawing Title: Exploratory Hole Location Plan

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Location Symbols

- Approximate Trial Pit Location
- Approximate Cable Percussive Borehole Location
- Approximate Trial Pit Location (ID April 2012)
- Approximate Cable Percussive Borehole Location (ID April 2012)
- Approximate Window Sample Location (ID April 2012)
- Full Extent of Made Ground Not Identified

Made Ground Depth (m)

- Depth of Made Ground 0.00 - 0.29m
- Depth of Made Ground 0.30 - 0.59m
- Depth of Made Ground 0.60 - 0.89m
- Depth of Made Ground 0.90 - 1.19m
- Depth of Made Ground 1.20 - 1.49m
- Depth of Made Ground 1.50 - 1.79m
- Depth of Made Ground 1.80 - 2.09m
- Depth of Made Ground 2.10 - 2.39m
- Depth of Made Ground >2.40m

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVC	04.02.2021	HM	AE
P1	REVB	17.11.2020	HM	AE
P1	REVA	16.11.2020	HM	AE

Client: SGI

Job No: 14-035

Date: 04.02.2021

Drawing No: 005

Scale: NTS

Job Title: Bridgewater Paper Mill

Drawing Title: Depth of Made Ground Plan

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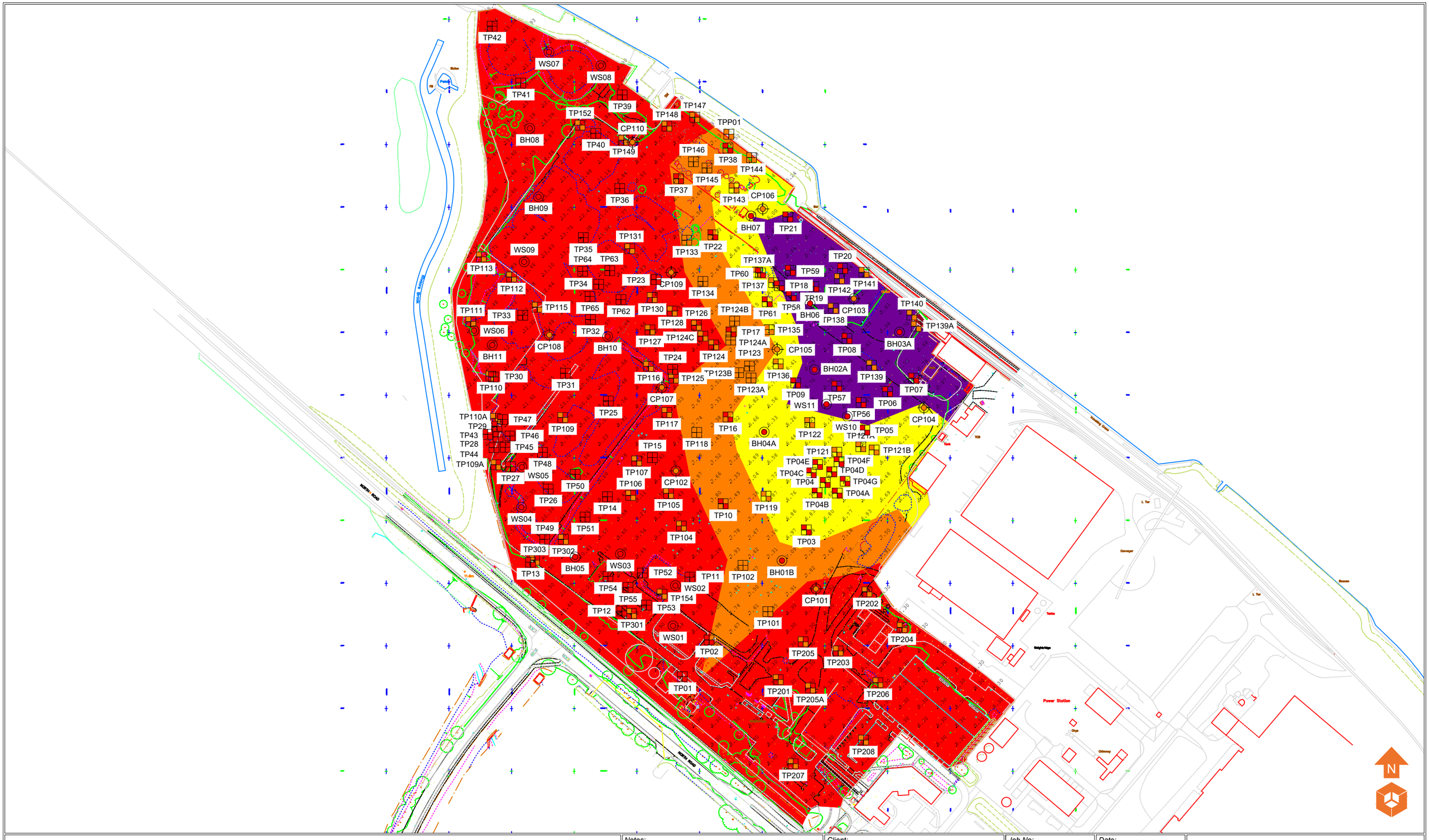

Location Symbols

- Approximate Trial Pit Location
- Approximate Cable Percussive Borehole Location
- Approximate Trial Pit Location (ID April 2012)
- Approximate Cable Percussive Borehole Location (ID April 2012)
- Approximate Window Sample Location (ID April 2012)

Bedrock Depth (m)

- Depth to Bedrock 0.00 - 0.99m
- Depth to Bedrock 1.00 - 1.99m
- Depth to Bedrock 2.00 - 2.99m
- Depth to Bedrock 3.00 - 3.99m
- Depth to Bedrock 4.00 - 4.99m
- Depth to Bedrock 5.00 - 5.99m
- Depth to Bedrock 6.00 - 6.99m
- Depth to Bedrock 7.00 - 7.99m
- Depth to Bedrock >8.00m

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVA	04.02.2021	HM	AE

Client: SGI

Job No: 14-035

Date: 04.02.2021

Drawing No: 006

Scale: NTS

Job Title: Bridgewater Paper Mill

Drawing Title: Depth to Bedrock Plan

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Location Symbols

- Approximate Trial Pit Location
- Approximate Cable Percussive Borehole Location

Development Constraints

- Visual Olfactory Evidence of Contamination
- Substructure
- ACM Fibres in Made Ground
- Approximate Area of Historical Ponds
- Low Level VOC
- Existing Stockpiles
- Deep Made Ground

Notes:

Client: SGI

Job No: 14-035

Date: 04.02.2021

Drawing No: 008

Scale: NTS

P1	REVA	04.02.2021	HM	AE
Phase	Issue	Date	Drawn	Checked

Job Title: Bridgewater Paper Mill

Drawing Title: Development Constraints Plan

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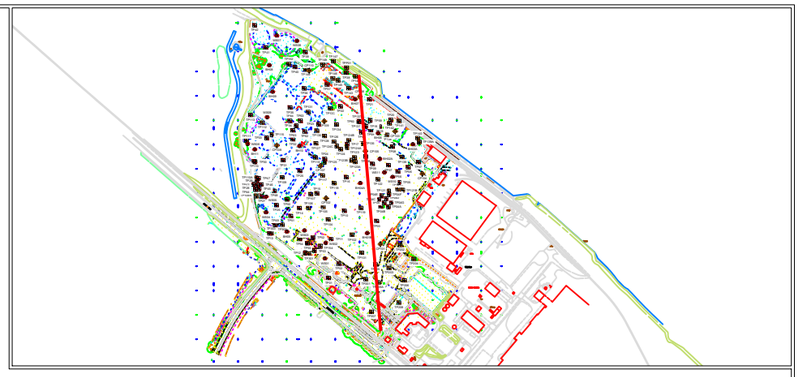
ID	SOURCE	RECEPTOR	POTENTIAL PATHWAY
	HUMAN HEALTH		
1	ACM	Construction Workers / End User	Inhalation
2	Htdrocarbon		Dermal Contact
3	Ground Gas		Inhalation / Accumulation
4	Hydrocarbon	Principal Aquifer	Vertical Migration
5	Hydrocarbon	Rivacre Brook	Lateral Migration



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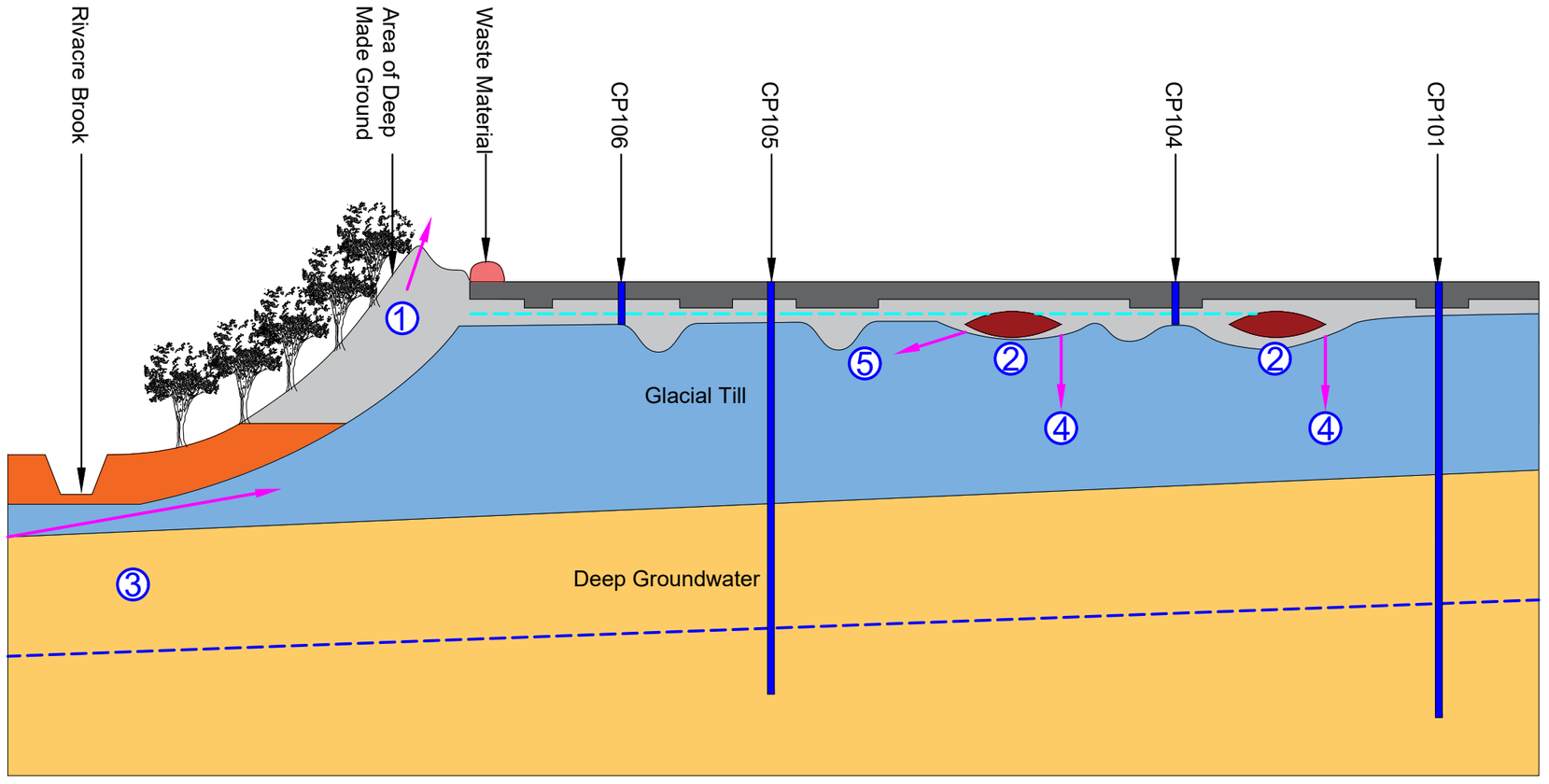

Geological Features

- Deep Groundwater
- Shallow Groundwater
- Made Ground (Obstructions)
- Glacial Till
- Alluvium
- Waste Material
- Existing Hardstanding

Notes:

P1	REVA	17.11.2020	HM	AE
Phase	Issue	Date	Drawn	Checked

Client: SGI

Job No: 14-035

Date: 17.11.2020

Drawing No: 010

Scale: NTS

Job Title: Bridgewater Paper Mill

Drawing Title: Conceptual Site Model

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APPENDIX IV
PHOTOGRAPHS

PLATE 1 VIEW LOOKING EAST

PLATE 2 VIEW OF WATER FILLED PIT IN NORTHEAST

PLATE 3 VIEW OF RAILHEAD TO THE NORTH

PLATE 4 DEMOLITION WASTE STOCKPILES IN WEST

PLATE 5 DOMESTIC WASTES STOCKPILES

PLATE 6 TP119 – SUB-STRUCTURE

PLATE 7 TP137 – REINFORCED CONCRETE

PLATE 8 TP143	PLATE 9 TP144
	

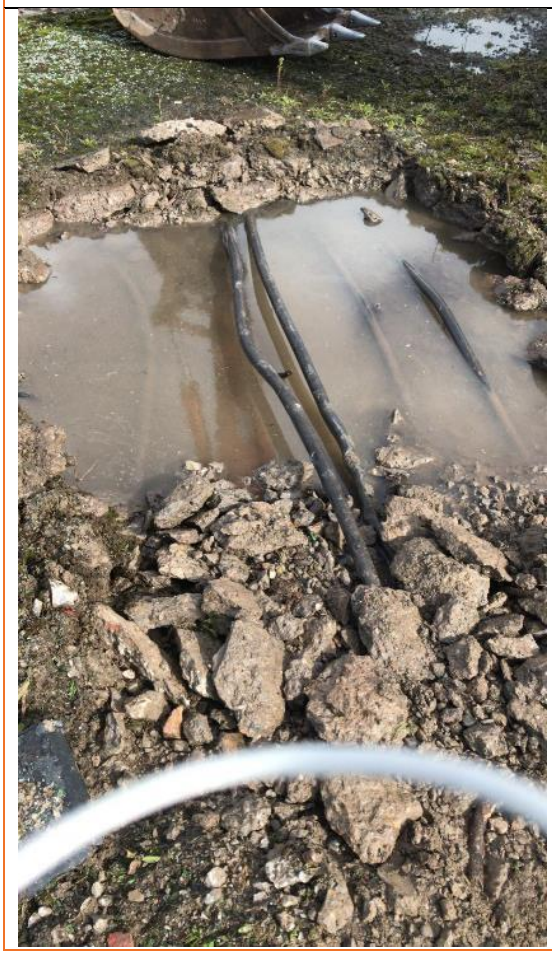
PLATE 10 TP205	PLATE 11 TP205A
	

PLATE 12 TP301	PLATE 13 TP302
	

APPENDIX V
EXPLORATORY LOGS

Trial Pit Log

TrialPit No: TP101
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.20 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15			MADE GROUND: Reinforced concrete.
				0.30			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	0.40	ES					Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
	1.50	B					
				2.20			End of Pit at 2.20m

Remarks: 1. Brick wall from surface to 1.20m bgl 2. Concrete foundations are 250-300mm thick

Stability: Stable

Trial Pit Log

TrialPit No: TP102
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.40 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15			MADE GROUND: Reinforced concrete.
				0.30			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	0.40	ES					Firm to very stiff, brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
	1.00	B					
				2.40			End of Pit at 2.40m

Remarks: 1. Drain running water into TP 2. Drain water has hydrocarbon sheen.

Stability: Stable

Trial Pit Log

TrialPit No: TP103
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 2.35	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15			MADE GROUND: Reinforced concrete.
				0.25			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	1.20	ES					Firm to very stiff, brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
				2.35			End of Pit at 2.35m

Remarks: 1. Natural clay with occasional sand pockets

Stability: Stable

Trial Pit Log

TrialPit No: TP104
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.00 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15			MADE GROUND: Reinforced concrete.
							MADE GROUND: Grey gravel with frequent cobbles and boulders.
				1.80			MADE GROUND: Reinforced Concrete.
				2.00			End of Pit at 2.00m

Remarks: 1. TP location has uncovered a concrete pit with reinforced walls and steps, found on eastern edge of TP

Stability: Stable

Trial Pit Log

TrialPit No: TP105
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.40 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15			MADE GROUND: Reinforced concrete.
				0.40			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	0.60	ES					Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to sub-rounded of mixed natural lithologies.
				2.40			End of Pit at 2.40m

Remarks: 1. Mass concrete pad

Stability: Stable

Trial Pit Log

TrialPit No: TP107
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 2.90	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15			MADE GROUND: Reinforced concrete.
	0.35	ES		0.50			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	1.35	B		2.90			Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
							End of Pit at 2.90m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP109
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 0.25	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND: Reinforced concrete.
							End of Pit at 0.25m

Remarks: 1. Former lorry storage area, concrete is very thick and durable- unable to penetrate.

Stability: Stable

Trial Pit Log

TrialPit No: TP109a
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 09/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.20 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	1.50	ES					MADE GROUND: Black, sandy, very ashy GRAVEL. Gravel is angular to subangular, fine to coarse of brick, concrete and mixed natural lithologies.
	2.05	ES		2.00			Stiff to firm reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
				2.20			End of Pit at 2.20m

Remarks: 1. Hydrocarbon odour in made ground.

Stability: Stable

Trial Pit Log

TrialPit No: TP110
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 3.70	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.40			MADE GROUND: Reddish brown, slightly clayey GRAVEL. Gravel is fine to coarse, angular to subangular of brick and concrete.
				1.30			MADE GROUND: Black, slightly clayey GRAVEL. Gravel is fine to coarse, angular to subangular of concrete and plastic.
				1.40			MADE GROUND: Reinforced concrete.
	2.40	ES					MADE GROUND: Black, slightly clayey, ashy GRAVEL. Gravel is fine to coarse, angular to subangular of slag and clinker.
	3.00	B					
				3.70			End of Pit at 3.70m

Remarks: 1. Natural stratum not encountered 2. Organic material from 0.40m-0.60m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP110a
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.30 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.60			MADE GROUND: Brown, silty, gravelly CLAY. Gravel is fine to coarse, angular to subangular of mixed natural lithologies.
				1.20			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	1.30	ES		1.80			MADE GROUND: Black, slightly clayey, ashy GRAVEL. Gravel is fine to coarse, angular to subangular of slag and clinker.
				2.30			Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
							End of Pit at 2.30m

Remarks: 1. Strong hydrocarbon odours and staining throughout the Made Ground.

Stability: Stable

Trial Pit Log

TrialPit No: TP111
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 3.50	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	2.00	ES		3.50			MADE GROUND: Brown, slightly sandy GRAVEL. Gravel is fine to coarse, angular to subangular of brick, concrete and frequent cobbles of brick.
							End of Pit at 3.50m

1
2
3
4
5

Remarks: 1. Large rubble stockpile with cobble sized brick and concrete 2. Possible processed material (class 1)

Stability: Stable

Trial Pit Log

TrialPit No: TP112
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 0.50	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.50			MADE GROUND: Brownish grey, slightly sandy GRAVEL. Gravel is fine to coarse, angular to subangular of concrete.
							End of Pit at 0.50m

1
2
3
4
5

Remarks: 1. Very hard rubble overlying concrete slab.

Stability: Stable

Trial Pit Log

TrialPit No: TP113
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 3.20	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	2.50	ES					MADE GROUND: Brownish red, slightly clayey GRAVEL. Gravel is fine to coarse, angular to subangular of brick, concrete, sandstone, mudstone, wood, rebar, ceramics and occasional plastic (demolition rubble).
				3.20			End of Pit at 3.20m

Remarks: 1. Rubble stockpile

Stability: Stable

Trial Pit Log

TrialPit No: TP115
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 5.00	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Brownish grey, slightly clayey GRAVEL. Gravel is fine to coarse, angular to subangular of brick, concrete, rebar, ceramic and metal.
				2.40			MADE GROUND: Greyish, blackish brown, slightly silty, sandy, gravelly CLAY. Gravel is fine to coarse, angular to subangular of brick and plastic.
	3.00 3.00	B ES					
				5.00			End of Pit at 5.00m

Remarks: 1. Processed rubble overlying silty clayey gravels (reworked)

Stability: Stable

Trial Pit Log

TrialPit No: TP116
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.10	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
							MADE GROUND: Reinforced concrete.
				0.30			
	0.60	ES					MADE GROUND: Soft consistancy, reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				1.10			
	1.50	ES					Stiff to firm reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.70	B					
	1.80	HVP	96				
	2.00	HVP	96				
				2.10			End of Pit at 2.10m

Remarks: 1. TP excavated fruther due to concrete obstruction at 0.50m bgl 2. Water ingress at 0.45m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP117
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 1.80	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
							MADE GROUND: Reinforced concrete.
				0.30			MADE GROUND: Orange brown fine to coarse gravel. Gravel is angular to sub-angular of brick,
				0.60			Stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	0.80	HVP	80				
	0.90	B					
	1.00	ES					
				1.80			End of Pit at 1.80m

Remarks: 1. Water ingress at 0.60m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP118
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 0.50	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.50			MADE GROUND: Reinforced concrete.
							End of Pit at 0.50m

1
2
3
4
5

Remarks: 1. Drain at 0.70m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP119
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
				0.50			MADE GROUND: Brick rubble.
				2.00			Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
							End of Pit at 2.00m

Remarks: 1. Two concrete structures at 0.60m bgl and 1.20m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP121
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 1.20 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Reinforced concrete.
				0.30			MADE GROUND: Grey GRAVEL with frequent cobbles and boulders. Gravel is rounded, coarse of concrete, brick, metal and plastic.
				1.20			End of Pit at 1.20m

Remarks: 1. Severe water ingress 2. Concrete walls and base are reinforced

Stability: Stable

Trial Pit Log

TrialPit No: TP121a
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 0.90	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
							MADE GROUND: Grey, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of cobbles of brick, concrete, cermaic and mixed natural lithologies.
	1.90	HVP	100	0.90			End of Pit at 0.90m

Remarks: 1. Concrete structure at 0.90m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP121b
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 08/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.10 (2.00 × 0.60)	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.40	ES		0.65			MADE GROUND: Brown, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies, concrete and brick. (TOPSOIL)
	0.70 0.80	ES B					MADE GROUND: Grey, sandy, clayey GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and concrete.
	1.30	ES		1.20 1.40			MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	1.90 1.90	ES HVP	100	2.10			Firm to stiff consistency, reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
							End of Pit at 2.10m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP122
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 1.45	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
				0.80			MADE GROUND: Soft consistancy, reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	0.90	ES					Firm to very stiff consistancy, brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
				1.45			End of Pit at 1.45m

Remarks: 1. Drain encountered 225mm diameter 2. Strong organic odour.

Stability: Stable

Trial Pit Log

TrialPit No: TP123
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 1.20 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
	0.60	ES					MADE GROUND: Soft consistancy, reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				1.20			End of Pit at 1.20m

Remarks: Reinforced concrete at base of TP.

Stability: Stable

Trial Pit Log

TrialPit No: TP123a
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: -	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments		Depth 0.70	Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.70			MADE GROUND: Reinforced concrete.
							End of Pit at 0.70m

1
2
3
4
5

Remarks: 1. Concrete obtruction at 0.70m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP123b
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 08/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 1.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				1.00			MADE GROUND: Reinforced concrete.
							End of Pit at 1.00m

Remarks: 1. Three concrete obstructions at 0.30m bgl, 0.60m bgl and 1.00m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP124
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 0.20	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
							End of Pit at 0.20m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP124a
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.00 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
	1.80	ES					MADE GROUND: Greyish brown, slightly clayey GRAVEL. Gravel is fine to coarse, angular to subangular of concrete, brick, plastic, glass, metal and organic material.
				2.00			End of Pit at 2.00m

Remarks: 1. Reinforced concrete pit. Not fully exposed. Staining on walls.

Stability: Stable

Trial Pit Log

TrialPit No: TP124b
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 08/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 1.90	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.30	ES		0.20			MADE GROUND: Brown, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies, concrete and brick. (TOPSOIL)
							MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	1.00	ES		0.90			Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.80	HVP	118	1.90			End of Pit at 1.90m

Remarks: 1. Odour originaitng from pit 2. Edge of concrete base at 0.60m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP124c
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Reinforced concrete.
				0.45			Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.00	ES					
	2.00	HVP	104	2.00			End of Pit at 2.00m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP125
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Reinforced concrete.
				0.30			MADE GROUND: Soft consistancy reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				0.50			Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.00	ES					
	1.50	B					
	1.90	HVP	96				
	2.00	HVP	96	2.00			End of Pit at 2.00m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP126
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 1.30 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
				0.35			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	0.50	ES					Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
	1.00	B					
				1.30			End of Pit at 1.30m

Remarks: 1. Natural strata underneath concrete slab

Stability: Stable

Trial Pit Log

TrialPit No: TP127
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.00 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
							MADE GROUND: Orange brown fine to coarse gravel. Gravel is angular to subangular of brick.
				2.00			End of Pit at 2.00m

Remarks: 1. Brick rubble from 0.20m bgl to 2.00m bgl 2. TP abandonded due to instability and flooding

Stability: Stable

Trial Pit Log

TrialPit No: TP128
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 1.30	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15			MADE GROUND: Reinforced concrete.
	0.40	ES					MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				1.30			End of Pit at 1.30m

Remarks: 1. Stable no ingress of water

Stability: Stable

Trial Pit Log

TrialPit No: TP130
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 1.80	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND: Reinforced concrete.
	0.80	ES		0.80			MADE GROUND: Firm to stiff consistancy, brown, slightly silty, slightly gravelly CLAY. Gravel is angular to subangular, fine to coarse of slag and clinker.
				1.40			MADE GROUND: Reinforced concrete.
				1.80			Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
							End of Pit at 1.80m

Remarks: 1. Two drains coated in emulsified oil. 2. Reinforced concrete at 0.80 to 1.40m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP131
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 0.40	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Reinforced concrete.
				0.25			MADE GROUND: Light brown, slightly clayey, silty SAND.
				0.40			End of Pit at 0.40m

Remarks: 1. Three stepped concrete mass

Stability: Stable

Trial Pit Log

TrialPit No: TP133
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 0.25	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND: Reinforced concrete.
							End of Pit at 0.25m

Remarks: 1. Concrete slab at 0.25m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP134
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.00 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
				0.40			MADE GROUND: Black, slightly clayey, silty SAND.
				0.70			MADE GROUND: Light brown, slightly clayey, silty SAND.
				2.00			Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
							End of Pit at 2.00m

Remarks: 1. Stable no ingress of water

Stability: Stable

Trial Pit Log

TrialPit No: TP135
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 1.80	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.30	ES		0.50			MADE GROUND: Reinforced concrete.
	0.65	ES		0.80			MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	0.90	ES					Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.50 1.50	B HVP	84	1.80			End of Pit at 1.80m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP136
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 06/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Brown, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies, concrete and brick. (TOPSOIL)
				0.50			MADE GROUND: Reinforced concrete.
	1.00 1.00 1.00	B ES		0.90			MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	1.50 1.50	ES HVP	114	1.20			Stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
				2.00			End of Pit at 2.00m

Remarks: 1. Water ingress at 1.20m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP137
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.00 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
							VOID: Cast concrete.
				2.00			End of Pit at 2.00m

Remarks: 1. Relict concrete pit infilled during backfill with surplus site won material

Stability: Stable

Trial Pit Log

TrialPit No: TP137a
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 0.30 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			MADE GROUND: Brown, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies, concrete and brick. (TOPSOIL)
				0.30			MADE GROUND: Reinforced concrete.
							End of Pit at 0.30m

Remarks: 1. Concrete layer at 0.10m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP138
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 08/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 0.70	Scale 1:24
Client: Firethorn Investments			Logged

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.70			MADE GROUND: Reinforced concrete.
							End of Pit at 0.70m

1
2
3
4
5

Remarks: 1. Concrete obstruction at 1.00m bgl

Stability:

Trial Pit Log

TrialPit No: TP138a
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 08/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.40			MADE GROUND: Reinforced concrete.
	0.50	ES					MADE GROUND: Grey, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.00	ES		0.80			Stiff to firm reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.90	HVP	86	2.00			End of Pit at 2.00m

Remarks: 1. Drain at 0.50m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP139
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 06/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 0.80	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reddish grey, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of brick, concrete and mixed natural lithologies.
	0.50	ES					MADE GROUND: Grey, sandy, slightly silty GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
				0.80			End of Pit at 0.80m

Remarks: 1. Concrete obstruction at 0.80m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP139a
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 08/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Brown, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies, concrete and brick. (TOPSOIL)
	0.30	ES		0.40			MADE GROUND: Blackish brown, sandy, clayey GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and brick.
	0.50	ES					MADE GROUND: Soft consistancy, reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	0.75	B		0.80			
	1.00	ES					Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.90	B					
	2.00	HVP	90	2.00			End of Pit at 2.00m

1
2
3
4
5

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP140
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.40 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Black, slightly clayey GRAVEL. Gravel is fine to coarse, angular to subangular of concrete.
				0.60			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	1.50	ES					
	2.00	B					
				2.40			End of Pit at 2.40m

1
2
3
4
5

Remarks: 1. Water holding at 2.00m bgl 2. Large amount of rail ballasts

Stability: Stable

Trial Pit Log

TrialPit No: TP141
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.00 (2.00 × 0.60)	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
				0.50			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	0.70	ES					MADE GROUND: Black, slightly clayey, ashy GRAVEL. Gravel is fine to coarse, angular to subangular of slag and clinker.
				1.30			Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
	1.80	B					
				2.00			End of Pit at 2.00m

Remarks: 1. Perched water from 0.50m bgl 2. Coal ash deposits

Stability: Stable

Trial Pit Log

TrialPit No: TP142
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 0.90	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.60	ES		0.80			MADE GROUND: Black, slightly clayey GRAVEL. Gravel is angular to subangular, fine to coarse of brick, wood and rebar.
				0.90			MADE GROUND: Reinforced concrete.
							End of Pit at 0.90m

Remarks: 1. Water ingress at 0.50m bgl- hydrocarbon sheen.

Stability: Stable

Trial Pit Log

TrialPit No: TP143
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 06/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 1.80	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
	0.30	ES		0.40			MADE GROUND: Reddish brown, sandy, very clayey GRAVEL. Gravel is angular to subangular, fine to coarse of brick, clay noddules and mixed natural lithologies.
	0.50	ES		0.60			MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	1.00	ES					Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.60	HVP	116	1.80			End of Pit at 1.80m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP144
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 06/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 1.80	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			MADE GROUND: Reinforced concrete.
	0.40	ES		0.75			MADE GROUND: Red, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of brick and mixed natural lithologies.
	1.00	ES		1.80			Stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
							End of Pit at 1.80m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP145
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 06/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
	0.25	ES					MADE GROUND: Reddish brown, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of brick and mixed natural lithologies.
	0.50	ES		0.40			MADE GROUND: Soft reddish brown, sandy, silty, gravelly clay. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				1.10			Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.50	ES					
	1.70	B					
	1.90	HVP	120				
				2.00			End of Pit at 2.00m

Remarks: 1. Water ingress at 0.40m

Stability: Stable

Trial Pit Log

TrialPit No: TP146
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 06/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
	0.60	ES		0.70			MADE GROUND: Reddish brown, sandy, very clayey GRAVEL. Gravel is angular to subangular, fine to coarse of brick, clay noddules and mixed natural lithologies.
	0.85	ES		0.90			MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	1.30	ES					Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.70	HVP	92	2.00			End of Pit at 2.00m

Remarks: 1. Adjacent to tank bunds 2. Odour from pit

Stability: Stable

Trial Pit Log

TrialPit No: TP147
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.20	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			MADE GROUND: Reinforced concrete.
	0.50	ES					MADE GROUND: Soft reddish brown, sandy, silty, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	1.30	ES		1.40			Stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.90	B					
	2.00	ES					
	2.00	HVP	110	2.20			End of Pit at 2.20m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP148
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.00 (2.00 × 0.60)	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			MADE GROUND: Reinforced concrete.
	0.50	ES					MADE GROUND: Greyish yellow, slightly silty, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of concrete.
				0.80			
	1.00	ES					MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				1.30			Stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.90 1.90	ES HVP	120	2.00			End of Pit at 2.00m

Remarks: 1. Located close to tank bund.

Stability: Stable

Trial Pit Log

TrialPit No: TP149
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 1.90	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND: Reinforced concrete.
				0.55			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone and sandstone.
	0.75	ES					MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	1.50	B		1.30			Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
				1.90			End of Pit at 1.90m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP152
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.00			MADE GROUND: Reinforced concrete.
				0.25			MADE GROUND: Greyish brown, slightly clayey GRAVEL. Gravel is fine to coarse, angular to subangular of sandstone.
				0.40			MADE GROUND: Red, slightly clayey, silty SAND. (Reworked natural).
	1.00	ES		1.00			Firm to very stiff brown, slightly silty, gravelly CLAY. Gravel is fine to coarse, angular to subrounded of mixed natural lithologies.
				2.00			End of Pit at 2.00m

Remarks: 1. Water ingress at 1.20m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP153
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 06/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Greyish black, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of brick and mixed natural lithologies.
				0.50			MADE GROUND: Grey, sandy, silty GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	0.60	ES					MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				1.00			Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.50	ES					
	1.60	HVP	110				
	1.70	B					
				2.00			End of Pit at 2.00m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP154
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.20	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.15			MADE GROUND: Reinforced concrete.
	0.40	ES		0.50			MADE GROUND: Grey, sandy, clayey GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and concrete.
	1.30	HVP	74				Stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.60	ES					
	2.00	B					
				2.20			End of Pit at 2.20m

Remarks: 1. Water at 0.50m bgl 2. Redundant wire at 0.15m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP201
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 2.50	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Reinforced concrete.
				0.60			
	0.80	ES					MADE GROUND: Grey, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies with cobbles of brick and concrete.
				1.00			
	1.30	HVP	30				Soft grey, sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies
	2.00	ES					
	2.10	B					
				2.50			End of Pit at 2.50m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP202
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 1.70	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Reinforced concrete.
				0.30			
							MADE GROUND: Grey, sandy, silty GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	0.50	ES		0.65			
							Stiff consistancy, reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.00	ES					
	1.50	HVP	90				
	1.60	B					
				1.70			End of Pit at 1.70m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP203
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 1.50	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
	0.40	B					MADE GROUND: Blackish grey, sandy, clayey GRAVEL. Gravel is angular to subangular, fine to medium of mixed natural lithologies.
	0.50	ES					
				0.80			Stiff sandy, gravelly CLAY. Gravel is rounded to subangular, fine to coarse of mixed natural lithologies.
	1.20	ES					
				1.50			End of Pit at 1.50m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP204
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60, Depth 1.80	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			MADE GROUND: Reinforced concrete.
	0.60	ES		0.50			MADE GROUND: Grey, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and limestone.
	1.00	ES		0.70			MADE GROUND: Black, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.00	HVP	120				Stiff sandy, gravelly CLAY. Gravel is rounded to subangular, fine to coarse of mixed natural lithologies.
	1.20	B		1.80			End of Pit at 1.80m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP205
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 07/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 × 0.60 Depth 0.20	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
							End of Pit at 0.20m

Remarks: 1. Reinforced concrete with rebar 2. TP abandoned

Stability: Stable

Trial Pit Log

TrialPit No: TP205a
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 09/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.80	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
	0.30	ES		0.40			MADE GROUND: Greyish black, sandy, silty GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies, brick and concrete.
	0.50	ES					MADE GROUND: Grey, slightly sandy, very clayey GRAVEL. Gravel is angular to subangular, medium to coarse of mixed natural lithologies and brick.
	2.20	ES		2.00			MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				2.80			End of Pit at 2.80m

Remarks: 1. TP abandoned due to instability.

Stability: Stable

Trial Pit Log

TrialPit No: TP206
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 1.70 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10			MADE GROUND: Brown, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies, concrete and brick. (TOPSOIL)
	0.40	B					MADE GROUND: Grey, sandy, silty GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	0.50	ES					
				0.65			Stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural litholgies.
	1.20	ES					
	1.50	HVP	68				
				1.70			End of Pit at 1.70m

Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP207
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.23			MADE GROUND: Reinforced concrete.
	0.60	ES					MADE GROUND: Grey, sandy, clayey GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and concrete.
	0.85	HVP	80	0.80			Firm to stiff sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
				2.00			End of Pit at 2.00m

Remarks: 1. Metal gurder running across TP 2. Drain at 0.60m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP208
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 05/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 1.80	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.20	ES		0.15			MADE GROUND: Tarmac.
							MADE GROUND: Greyish black, sandy, silty, clayey GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and brick.
				0.75			
	0.90	ES					MADE GROUND: Reddish brown, sandy, very clayey GRAVEL. Gravel is angular to subangular, fine to coarse of brick, clay noddules and mixed natural lithologies.
	1.00	B					
				1.20			
	1.30	HVP	96				Stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.50	ES					
				1.80			End of Pit at 1.80m

Remarks: 1. Concrete obstruction at 1.20m bgl 2. Odour originating from TP

Stability: Stable

Trial Pit Log

TrialPit No: TP301
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 09/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Reinforced concrete.
	0.30	ES					MADE GROUND: Black, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
				0.60			Firm to stiff reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	0.90	ES					
	2.00	HVP	108	2.00			End of Pit at 2.00m

Remarks: 1. Strong hydrocarbon odour 0.20m-0.60m bgl

Stability: Stable

Trial Pit Log

TrialPit No: TP302
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 09/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.00 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Reinforced concrete.
	0.50	ES		0.40			MADE GROUND: Grey, sandy GRAVEL. Gravel is angular to subangular, fine to coarse of brick and mixed natural lithologies.
				0.80			MADE GROUND: Tarmac.
	1.00	ES		0.90			Stiff to firm, reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.50	B					
	2.00	HVP	112	2.00			End of Pit at 2.00m

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Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TP303
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 09/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.10 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.50 0.60	ES B					MADE GROUND: Black, sandy, very ashy GRAVEL. Gravel is angular to subangular, fine to coarse of brick, concrete and mixed natural lithologies.
				1.00			MADE GROUND: Soft consistancy, reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				1.20			Stiff to firm consistancy, reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.90 1.90	ES HVP	102				
				2.10			End of Pit at 2.10m

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Remarks:

Stability: Stable

Trial Pit Log

TrialPit No: TPP01
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 06/10/2020
Location: Ellesmere Port		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:24
Client: Firethorn Investments			Logged J Craig

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.25	ES		0.30			MADE GROUND: Concrete slab with rebar.
	0.50 0.60	ES					MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
	0.80	B		0.75			Stiff to firm reddish brown, very sandy, gravelly CLAY. Gravel is angular to subangular, fine to coarse of mixed natural lithologies.
	1.00 1.00	ES HVP	120				
				2.00			End of Pit at 2.00m

Remarks:

Stability: Stable

Borehole Log

Borehole No. **CP101**

Sheet 1 of 2

Project Name:	Bridgewater Paper Mill	Project No. 14035	Co-ords:
Location:	Ellesmere Port		Level:
Client:	Firethorn Investments		Dates: 07/10/2020

Hole Type: CP

Scale: 1:50

Logged By: J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Concrete
		0.80	B		0.70			Stiff to very stiff red brown sandy CLAY.
		1.20	SPT	N=12 (1,2/2,3,3,4)				
		2.00	SPT	N=17 (2,3/4,4,4,5)				
		3.00	SPT	N=18 (3,3/3,5,5,5)				
		4.00	SPT	N=16 (3,3/3,4,4,5)				
		5.00	SPT	N=23 (3,3/4,5,6,8)				
		7.00	B					
		8.00	SPT	N=44 (4,7/8,9,12,15)				
		8.30	B		8.30			Red SANDSTONE.
		9.10	SPT	50 (25 for 30mm/50 for 75mm)				

Remarks

Rotary follow on to 14.10m bgl.

Borehole Log

Borehole No. **CP101**

Sheet 2 of 2

Project Name:	Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location:	Ellesmere Port		Level:	Scale 1:50
Client:	Firethorn Investments		Dates: 07/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Red SANDSTONE.
					14.10			End of Borehole at 14.10m

Remarks

Rotary follow on to 14.10m bgl.

Borehole Log

Borehole No. **CP102**

Sheet 1 of 1

Project Name:	Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location:	Ellesmere Port		Level:	Scale 1:50
Client:	Firethorn Investments		Dates: 13/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
	0.20				0.30			MADE GROUND: Concrete
					0.60			MADE GROUND: Hardcore
								End of Borehole at 0.60m

Remarks
Complete

Borehole Log

Borehole No. **CP103**

Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location: Ellesmere Port		Level:	Scale 1:50
Client: Firethorn Investments		Dates: 12/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Clay and concrete.
		2.00	B		2.00			
		2.00	SPT	N=18 (1,3/4,6,4,4)				Stiff to very stiff brown sandy CLAY.
		3.00	SPT	N=19 (3,4/4,5,5,5)				
		4.00	SPT	N=20 (3,3/4,5,5,6)				
		5.00	SPT	N=34 (4,6/7,9,9,9)				
					5.50			SANDSTONE.
		5.80	SPT	50 (25 for 70mm/50 for 15mm)	5.80			End of Borehole at 5.80m

Remarks
Complete

Borehole Log

Borehole No. **CP104**

Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location: Ellesmere Port		Level:	Scale 1:50
Client: Firethorn Investments		Dates: 13/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30			MADE GROUND: Concrete and rebar
					0.70			MADE GROUND: Hardcore.
		0.80	B					Soft black CLAY.
		1.20	B					
		1.20	SPT	N=8 (1,1/2,1,2,3)	1.40			Stiff to very stiff very sandy CLAY.
		2.00	SPT	N=10 (1,2/2,3,2,3)				
		3.00	SPT	N=15 (2,2/3,4,4,4)				
		4.00	SPT	N=12 (1,2/2,3,3,4)				
		5.00	SPT	N=19 (2,2/3,4,6,6)				
					5.60			SANDSTONE.
		6.00	SPT	50 (25 for 25mm/50 for 30mm)	6.00			End of Borehole at 6.00m

Remarks
Complete

Borehole Log

Borehole No. **CP105**

Sheet 1 of 1

Project Name:	Bridgewater Paper Mill	Project No. 14035	Co-ords:
Location:	Ellesmere Port		Level:
Client:	Firethorn Investments		Dates: 08/10/2020

Hole Type: CP

Scale: 1:50

Logged By: J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50 0.50	B SPT	50 (25 for 0mm/50 for 0mm)	0.60			MADE GROUND: Reworked concrete
					1.20			MADE GROUND: concrete (Hydrocarbons at 0.7m bgl)
								End of Borehole at 1.20m

Remarks

Complete

Borehole Log

Borehole No. **CP105A**

Sheet 1 of 2

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location: Ellesmere Port		Level:	Scale 1:50
Client: Firethorn Investments		Dates: 08/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.25			MADE GROUND: Reworked concrete
		0.50	B					Stiff to very stiff brown sandy gravelly CLAY.
		1.20	SPT	N=10 (1,1/2,2,2,4)				
		2.00	SPT	N=16 (1,2/3,4,4,5)				
		3.00	SPT	N=13 (2,2/3,3,3,4)				
		4.00	SPT	N=16 (2,3/3,4,4,5)				
		4.50	B					
		5.00	SPT	N=30 (3,5/6,6,8,10)				
		6.50	U	Ublow=200				
		6.95	D		7.00			SANDSTONE.
		7.40	SPT	50 (25 for 10mm/50 for 20mm)				

Remarks

Rotary follow on to 12.00m bgl.

Borehole Log

Borehole No. **CP105A**

Sheet 2 of 2

Project Name:	Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location:	Ellesmere Port		Level:	Scale 1:50
Client:	Firethorn Investments		Dates: 08/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								SANDSTONE.
					12.00			End of Borehole at 12.00m

Remarks

Rotary follow on to 12.00m bgl.

Borehole Log

Borehole No. **CP106**

Sheet 1 of 1

Project Name:	Bridgewater Paper Mill	Project No. 14035	Co-ords:
Location:	Ellesmere Port		Level:
Client:	Firethorn Investments		Dates: 12/10/2020

Hole Type: CP

Scale: 1:50

Logged By: J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30			MADE GROUND: Reinforced Concrete.
					0.50			MADE GROUND: Hardcore.
		0.80	B		0.80			Black brown gravelly CLAY.
		1.20	SPT	N=6 (1,2/1,2,1,2)				Firm brown sandy gravelly CLAY.
		2.00	SPT	N=8 (1,1/1,2,2,3)				
		3.00	SPT	N=19 (3,3/4,4,5,6)	3.00			Very stiff sandy gravelly CLAY.
		4.00	B					
		4.00	SPT	N=19 (3,3/4,5,5,5)				
		5.00	SPT	N=20 (3,4/4,5,5,6)				
					6.10			SANDSTONE.
		6.40	SPT	50 (25 for 60mm/50 for 50mm)	6.40			End of Borehole at 6.40m

Remarks

Complete

Borehole Log

Borehole No. **CP107**

Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location: Ellesmere Port		Level:	Scale 1:50
Client: Firethorn Investments		Dates: 14/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30			MADE GROUND: Concrete.
		0.50	B		0.50			MADE GROUND: Hardcore.
								Stiff to very stiff brown sandy CLAY.
		1.20	SPT	N=14 (1,3/3,3,4,4)				
		2.00	SPT	N=16 (2,2/4,4,4,4)				
		3.00	SPT	N=16 (2,3/3,4,4,5)				
		4.00	SPT	N=14 (3,3/3,4,3,4)				
		5.00	SPT	N=20 (3,3/4,5,5,6)				
		6.50	U	Ublow=120				
		8.00	SPT	50 (4,8/50 for 40mm)				
					8.20			SANDSTONE.
		8.60	SPT	50 (25 for 10mm/50 for 15mm)	8.60			End of Borehole at 8.60m

1 2 3 4 5 6 7 8 9 10

Remarks
Complete

Borehole Log

Borehole No. **CP108**

Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location: Ellesmere Port		Level:	Scale 1:50
Client: Firethorn Investments		Dates: 15/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	B					MADE GROUND: Clay gravel brick and concrete fill
		1.20	SPT	50 (25 for 0mm/50 for 0mm)	1.20			End of Borehole at 1.20m

Remarks
Complete

Borehole Log

Borehole No. **CP109**

Sheet 1 of 1

Project Name:	Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location:	Ellesmere Port		Level:	Scale 1:50
Client:	Firethorn Investments		Dates: 14/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
	0.40				0.50			MADE GROUND: Brown sandy clay with gravel and brick.
								End of Borehole at 0.50m

Remarks
Complete

Borehole Log

Borehole No. **CP110**

Sheet 1 of 2

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location: Ellesmere Port		Level:	Scale 1:50
Client: Firethorn Investments		Dates: 09/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.40			MADE GROUND: Reinforced Concrete.
		0.80	B		0.80			MADE GROUND: Hardcore and concrete.
		1.20	SPT	N=8 (1,1/2,2,2,2)				Firm brown sandy gravelly CLAY.
		2.00	SPT	N=16 (2,3/3,4,4,5)	2.00			Very stiff brown sandy gravelly CLAY.
		3.00	SPT	N=18 (2,3/3,4,5,6)				
		4.00 4.00	B SPT	N=17 (2,3/3,4,4,6)				
		5.00	SPT	N=24 (3,4/5,7,6,6)				
	▼ 6.60	6.50	U	Ublow=80	6.60			SAND.
					7.00			Very stiff brown sandy gravelly CLAY.
		8.00	SPT	N=21 (4,5/6,6,7,2)				
		9.20	SPT	50 (25 for 10mm/50 for 20mm)	8.90			SANDSTONE.

Remarks

Rotary follow on to 13.90m bgl.

Borehole Log

Borehole No. **CP110**

Sheet 2 of 2

Project Name:	Bridgewater Paper Mill	Project No. 14035	Co-ords:	Hole Type CP
Location:	Ellesmere Port		Level:	Scale 1:50
Client:	Firethorn Investments		Dates: 09/10/2020	Logged By J. Craig

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								SANDSTONE.
					13.90			End of Borehole at 13.90m

11 12 13 14 15 16 17 18 19 20

Remarks

Rotary follow on to 13.90m bgl.

Trial Pit Log

TrialPit No: TP106
Sheet 1 of 1

Project Name: Bridgewater Paper Mill	Project No. 14035	Co-ords: - Level:	Date 01/10/2020
Location: Ellesmere Port		Dimensions (m): Depth 2.60 — 2.00 × 0.60	Scale 1:24
Client: Firethorn Investments			Logged M Whittaker

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15			MADE GROUND: Reinforced concrete.
				0.25			MADE GROUND: Grey GRAVEL. Gravel is fine to coarse, angular to subangular of limestone. (Limestone MOT)
	0.80	ES					MADE GROUND: Soft reddish brown, sandy, silty gravelly CLAY. Gravel is angular to sub-angular, fine to coarse of mixed natural lithologies and clinker. (Reworked natural)
				2.60			End of Pit at 2.60m

Remarks: 1. Concrete boulder at 1.00m bgl

Stability: Stable

APPENDIX VI
CHEMICAL TESTING RESULTS

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Analytical Report Number : 20-35228

Project / Site name:	Bridgewater Paper Mill	**Samples received on:**	05/10/2020
Your job number:	14-035	**Samples instructed on/ Analysis started on:**	12/10/2020
Your order number:	14-035-MW-TBC	**Analysis completed by:**	29/10/2020
Report Issue Number:	1	**Report issued on:**	30/10/2020
Samples Analysed:	7 leachate samples - 58 soil samples		

[redacted]

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648655	1648656	1648657	1648658
Sample Reference				TP101	TP102	TP103	TP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.40	1.20	0.80
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	10	5.7	17
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	6.4	6.9	7.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	110	99	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.52	0.63	0.71	0.93
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2	0.4	0.2	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.3	< 0.2	0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648655	1648656	1648657	1648658
Sample Reference				TP101	TP102	TP103	TP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.40	1.20	0.80
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	25	15	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	49	140	9.2	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	24	28	31
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	24	28	36
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	580	210	40	61
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	-	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	25
TPH (C16 - C21)	mg/kg	1	MCERTS	2	28	4	150
TPH (C21 - C35)	mg/kg	1	MCERTS	64	720	47	5600
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	430	14	920
TPH Total C5 - C40	mg/kg	10	MCERTS	68	1200	67	6700
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648655	1648656	1648657	1648658
Sample Reference				TP101	TP102	TP103	TP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.40	1.20	0.80
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648655	1648656	1648657	1648658
Sample Reference				TP101	TP102	TP103	TP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.40	1.20	0.80
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648655	1648656	1648657	1648658
Sample Reference				TP101	TP102	TP103	TP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.40	1.20	0.80
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648659	1648660	1648661	1648662
Sample Reference				TP107	TP110	TP110a	TP112
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.35	2.40	1.30	0.35
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	3.7	13	17	10
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Amosite
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	0.007
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	0.007
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	4	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	2.9	1.2	1.4
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	-	-
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.5	30	8.2	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	310	240	460
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.65	1.6	3	0.54
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	2.2	3.3	3.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	2.1	0.3	0.6
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648659	1648660	1648661	1648662
Sample Reference				TP107	TP110	TP110a	TP112
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.35	2.40	1.30	0.35
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	260	20	42
Lead (aqua regia extractable)	mg/kg	1	MCERTS	67	290	20	160
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.6	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	52	23	32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	25	42	30	25
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	89	690	52	600
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	9.6	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	200	25
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	400	150
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	110	3600
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	23	1300
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	710	3800
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	3.9	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	120	4
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	290	27
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	130	730
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	12	100
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	540	760
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	1300	6000
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	-	-
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	-	-
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	7.5	-	-
TPH (C16 - C21)	mg/kg	1	MCERTS	45	35	-	-
TPH (C21 - C35)	mg/kg	1	MCERTS	190	110	-	-
TPH (C35 - C40)	mg/kg	10	MCERTS	53	28	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	290	180	-	-
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648659	1648660	1648661	1648662
Sample Reference				TP107	TP110	TP110a	TP112
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.35	2.40	1.30	0.35
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648659	1648660	1648661	1648662
Sample Reference				TP107	TP110	TP110a	TP112
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.35	2.40	1.30	0.35
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
SVOCs							
Aniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	0.44	0.27
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	0.35	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.7
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	0.83	0.71
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.54
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.54

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648659	1648660	1648661	1648662
Sample Reference				TP107	TP110	TP110a	TP112
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.35	2.40	1.30	0.35
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.74
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.33
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.45
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.26
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.32
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	I/S	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	< 0.1	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648663	1648664	1648665	1648666
Sample Reference				TP113	TP122	TP124a	TP126
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.50	0.90	1.80	0.50
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	7.6	12	23	11
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Amosite	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Detected	-	Not-detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.005	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	0.005	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	-	1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.8	0.3	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.35	-	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.38	-	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	-	6.6	7.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	160	-	150	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.37	-	0.32	0.92
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	-	0.6	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	-	0.9	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648663	1648664	1648665	1648666
Sample Reference				TP113	TP122	TP124a	TP126
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.50	0.90	1.80	0.50
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	41	-	40	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	200	-	460	10
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.3	-	1.6	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	-	23	32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	-	15	34
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	270	-	140	39
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-
o-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	< 0.001	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	< 8.0	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	< 8.0	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	< 10	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	< 10	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	< 10	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	< 10	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	< 10	-	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	-	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	3.7	-	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	14	-	7.6	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	55	-	38	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	440	-	160	< 1.0
TPH (C35 - C40)	mg/kg	10	MCERTS	170	-	47	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	690	-	260	< 10
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Chloroethane	µg/kg	1	NONE	-	< 1.0	-	-
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648663	1648664	1648665	1648666
Sample Reference				TP113	TP122	TP124a	TP126
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.50	0.90	1.80	0.50
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	-
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	-
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648663	1648664	1648665	1648666
Sample Reference				TP113	TP122	TP124a	TP126
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.50	0.90	1.80	0.50
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
SVOCs							
Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648663	1648664	1648665	1648666
Sample Reference				TP113	TP122	TP124a	TP126
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.50	0.90	1.80	0.50
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	< 0.1	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	< 0.1	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648667	1648668	1648669	1648670
Sample Reference				TP130	TP135	TP140	TP142
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	1.50	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	15	11	3	14
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	-	-
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	0.7	2.4
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	-	-
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	38	8.8	-	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	540	220	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	3.3	0.37	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	1.1	0.9	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.6	-	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648667	1648668	1648669	1648670
Sample Reference				TP130	TP135	TP140	TP142
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	1.50	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	76	35	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	76	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	51	23	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	67	21	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140	470	-	-
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	34
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	< 8.0	220
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	< 8.0	570
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	< 10	150
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	830
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	7.8
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	< 10	80
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	< 10	240
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	< 10	33
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	330
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	< 10	1300
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	-	-
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	-	-
TPH (C12 - C16)	mg/kg	4	MCERTS	4.9	6	-	-
TPH (C16 - C21)	mg/kg	1	MCERTS	19	26	-	-
TPH (C21 - C35)	mg/kg	1	MCERTS	54	130	-	-
TPH (C35 - C40)	mg/kg	10	MCERTS	12	23	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	93	190	-	-
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648667	1648668	1648669	1648670
Sample Reference				TP130	TP135	TP140	TP142
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	1.50	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	-	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	-	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	-	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648667	1648668	1648669	1648670
Sample Reference				TP130	TP135	TP140	TP142
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	1.50	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0	< 1.0
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	-	0.69	0.41
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	0.8	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	-	0.72	0.59
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	0.13
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	0.43
Pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	0.49
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648667	1648668	1648669	1648670
Sample Reference				TP130	TP135	TP140	TP142
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	1.50	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	< 0.1	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	< 0.1	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648671	1648672	1648673	1648674
Sample Reference				TP149	TP207	TP207	TP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.75	0.60	0.90	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	12	19	14
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	8.1	11.5	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	420	1800	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	670	200	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.33	0.098	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	333	98.4	-	-
Sulphide	mg/kg	1	MCERTS	28	14	-	-
Total Sulphur	mg/kg	50	MCERTS	1200	1300	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.47	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.7	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.21	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.24	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	1.62	-	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8	7.6	7.1	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	120	690
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	1	2.5
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	0.4	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.5	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	14	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648671	1648672	1648673	1648674
Sample Reference				TP149	TP207	TP207	TP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.75	0.60	0.90	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	28	20	48
Lead (aqua regia extractable)	mg/kg	1	MCERTS	45	74	12	27
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	19	35	44
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	34	58
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	46	85	45	39
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	-	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	16	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	< 1.0	160	< 1.0
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	11	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	< 10	190	< 10
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Chloroethane	µg/kg	1	NONE	-	< 1.0	-	-
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648671	1648672	1648673	1648674
Sample Reference				TP149	TP207	TP207	TP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.75	0.60	0.90	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	-
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	-
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648671	1648672	1648673	1648674
Sample Reference				TP149	TP207	TP207	TP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.75	0.60	0.90	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648671	1648672	1648673	1648674
Sample Reference				TP149	TP207	TP207	TP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.75	0.60	0.90	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648675	1648676	1648677	1648678
Sample Reference				TP203	TP202	TP202	TP204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.00	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	6	13	12	14
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	9.2
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	-	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	580
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	180
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	0.09
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	90.2
Sulphide	mg/kg	1	MCERTS	-	-	-	31
Total Sulphur	mg/kg	50	MCERTS	-	-	-	670
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	0.32	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	0.34	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	0.35	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	1.01	-	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.2	5.9	-	9.3
Barium (aqua regia extractable)	mg/kg	1	MCERTS	35	120	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.27	0.66	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	0.4	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.4	-	0.6
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	21

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648675	1648676	1648677	1648678
Sample Reference				TP203	TP202	TP202	TP204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.00	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	37	-	51
Lead (aqua regia extractable)	mg/kg	1	MCERTS	87	57	-	67
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.6	26	-	40
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	7.8	22	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	69	110	-	86
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	-	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	24	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	230	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	210	< 1.0	< 1.0
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	11	< 10	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	470	< 10	< 10
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648675	1648676	1648677	1648678
Sample Reference				TP203	TP202	TP202	TP204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.00	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648675	1648676	1648677	1648678
Sample Reference				TP203	TP202	TP202	TP204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.00	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648675	1648676	1648677	1648678
Sample Reference				TP203	TP202	TP202	TP204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.00	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648679	1648680	1648681	1648682
Sample Reference				TP204	TP206	TP206	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	0.50	1.20	0.40
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	10	6.7	10	5.1
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	-	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	-	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.2	21	-	7.1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	92	230	-	66
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.83	1.2	-	0.44
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.3	-	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.7	-	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648679	1648680	1648681	1648682
Sample Reference				TP204	TP206	TP206	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	0.50	1.20	0.40
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	67	-	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	140	-	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	34	24	-	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	26	-	16
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	39	93	-	45
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	-	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648679	1648680	1648681	1648682
Sample Reference				TP204	TP206	TP206	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	0.50	1.20	0.40
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648679	1648680	1648681	1648682
Sample Reference				TP204	TP206	TP206	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	0.50	1.20	0.40
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648679	1648680	1648681	1648682
Sample Reference				TP204	TP206	TP206	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	0.50	1.20	0.40
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	I/S
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	< 0.1

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648683	1648684	1648685	1648686
Sample Reference				TP154	TP117	TP147	TP147
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	1.00	0.50	2.00
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	14	6.9	12
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	-	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	-	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	7.7	4.5	5
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	110	81	69
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.91	0.27	0.68
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.5	0.8	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	0.4	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648683	1648684	1648685	1648686
Sample Reference				TP154	TP117	TP147	TP147
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	1.00	0.50	2.00
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	17	7.4	9.5
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	13	22	8.1
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	0.4	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	36	10	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	35	11	25
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	44	50	25
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	-	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	-
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	-
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	-
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	4.1	-
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	11	-
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	4.6	-
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	< 1.0	15	-
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	< 10	-
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	< 10	41	-
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
Chloroethane	µg/kg	1	NONE	-	< 1.0	< 1.0	-
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648683	1648684	1648685	1648686
Sample Reference				TP154	TP117	TP147	TP147
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	1.00	0.50	2.00
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	< 1.0	-
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	< 1.0	-
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	-
Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Styrene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Tribromomethane	µg/kg	1	NONE	-	< 1.0	< 1.0	-
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648683	1648684	1648685	1648686
Sample Reference				TP154	TP117	TP147	TP147
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	1.00	0.50	2.00
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-
SVOCs							
Aniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648683	1648684	1648685	1648686
Sample Reference				TP154	TP117	TP147	TP147
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	1.00	0.50	2.00
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	< 0.1	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	< 0.1	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648687	1648688	1648689	1648690
Sample Reference				TP148	TP148	TP139	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	0.40
Date Sampled				05/10/2020	05/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	3.8	14	7	3.6
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	-	-	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	-	-
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.8	-	-	3.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	46	-	-	49
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.33	-	-	0.2
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	-	-	0.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	-	-	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648687	1648688	1648689	1648690
Sample Reference				TP148	TP148	TP139	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	0.40
Date Sampled				05/10/2020	05/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7.5	-	-	4.5
Lead (aqua regia extractable)	mg/kg	1	MCERTS	300	-	-	9.6
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.2	-	-	8.7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	8.6	-	-	7
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	63	-	-	24
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	-	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	4.2	5.3
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	20	22
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	< 1.0	90	64
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	22	15
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	< 10	140	110
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	-	< 1.0	-
Chloroethane	µg/kg	1	NONE	-	-	< 1.0	-
Bromomethane	µg/kg	1	ISO 17025	-	-	< 1.0	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648687	1648688	1648689	1648690
Sample Reference				TP148	TP148	TP139	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	0.40
Date Sampled				05/10/2020	05/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	-	< 1.0	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	< 1.0	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	< 1.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	< 1.0	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0	-
Trichloromethane	µg/kg	1	MCERTS	-	-	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	< 1.0	-
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	< 1.0	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0	-
Trichloroethene	µg/kg	1	MCERTS	-	-	< 1.0	-
Dibromomethane	µg/kg	1	MCERTS	-	-	< 1.0	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	< 1.0	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	-	-	< 1.0	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	< 1.0	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	< 1.0	-
Styrene	µg/kg	1	MCERTS	-	-	< 1.0	-
Tribromomethane	µg/kg	1	NONE	-	-	< 1.0	-
o-Xylene	µg/kg	1	MCERTS	-	-	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
Bromobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	< 1.0	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648687	1648688	1648689	1648690
Sample Reference				TP148	TP148	TP139	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	0.40
Date Sampled				05/10/2020	05/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	-	-	< 0.05	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648687	1648688	1648689	1648690
Sample Reference				TP148	TP148	TP139	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	0.40
Date Sampled				05/10/2020	05/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648691	1648692	1648693	1648694
Sample Reference				TPP01	TP146	TP146	TP153
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.60	0.85	0.60
Date Sampled				06/10/2020	06/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	7.1	7.6	15	20
Total mass of sample received	kg	0.001	NONE	1.5	1.5	0.6	1.5
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	-	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	0.4	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	-	-
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	5.5	6.1	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	120	86	100
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.25	0.54	0.61
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.2	0.8	2.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.2	0.3	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648691	1648692	1648693	1648694
Sample Reference				TPP01	TP146	TP146	TP153
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.60	0.85	0.60
Date Sampled				06/10/2020	06/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	8.3	18	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	72	37	58
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	1.6	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	11	33	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	11	22	25
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	96	64	90
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	-	< 1.0
o-xylene	µg/kg	1	MCERTS	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	22
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	< 10
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	22
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	11
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	11
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	-	33
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	33
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	< 10	< 10	35
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Chloroethane	µg/kg	1	NONE	-	< 1.0	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648691	1648692	1648693	1648694
Sample Reference				TPP01	TP146	TP146	TP153
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.60	0.85	0.60
Date Sampled				06/10/2020	06/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	< 1.0
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648691	1648692	1648693	1648694
Sample Reference				TPP01	TP146	TP146	TP153
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.60	0.85	0.60
Date Sampled				06/10/2020	06/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
SVOCs							
Aniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.24
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.33
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.33
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648691	1648692	1648693	1648694
Sample Reference				TPP01	TP146	TP146	TP153
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.60	0.85	0.60
Date Sampled				06/10/2020	06/10/2020	06/10/2020	06/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648695	1648696	1648697	1648698
Sample Reference				TP145	TP145	TP143	TP135
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.50	0.65
Date Sampled				06/10/2020	06/10/2020	06/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	10	13	15	18
Total mass of sample received	kg	0.001	NONE	1.5	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	-	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.5	6.6	8.8	8.5
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	73	72	87
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.25	0.61	0.81	0.8
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.4	1	0.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648695	1648696	1648697	1648698
Sample Reference				TP145	TP145	TP143	TP135
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.50	0.65
Date Sampled				06/10/2020	06/10/2020	06/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9	130	26	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	28	47	44
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.4	21	17	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	11	21	23	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	150	31	57	50
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	-
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	19	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	57	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	15	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	79	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	< 10	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	< 10	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	92	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	-	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	5.1	-	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	20	-	14
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	50	-	41
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	12	-	11
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	89	-	69
VOCs							
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
Chloroethane	µg/kg	1	NONE	< 1.0	-	< 1.0	-
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648695	1648696	1648697	1648698
Sample Reference				TP145	TP145	TP143	TP135
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.50	0.65
Date Sampled				06/10/2020	06/10/2020	06/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	< 1.0	-
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	< 1.0	-
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	< 1.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	< 1.0	-
Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	< 1.0	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Styrene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Tribromomethane	µg/kg	1	NONE	< 1.0	-	< 1.0	-
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648695	1648696	1648697	1648698
Sample Reference				TP145	TP145	TP143	TP135
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.50	0.65
Date Sampled				06/10/2020	06/10/2020	06/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-
SVOCs							
Aniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	0.23	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	0.28	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	0.3	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648695	1648696	1648697	1648698
Sample Reference				TP145	TP145	TP143	TP135
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.50	0.65
Date Sampled				06/10/2020	06/10/2020	06/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648699	1648700	1648701	1648702
Sample Reference				TP116	TP121	TP138	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	0.50	0.50
Date Sampled				07/10/2020	08/10/2020	08/10/2020	08/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	10	15	14	18
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	3	-
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.71	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.34	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.42	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	3.3	0.85	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.62	0.16	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.3	0.57	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.96	0.47	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.22	0.27	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.26	0.2	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	7.41	3.23	-
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.1	7.5	5.8	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	35	95	270	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.44	0.78	0.99	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	1	0.7	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.2	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648699	1648700	1648701	1648702
Sample Reference				TP116	TP121	TP138	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	0.50	0.50
Date Sampled				07/10/2020	08/10/2020	08/10/2020	08/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	16	28	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	6.7	20	17	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	36	24	22	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	29	31	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	42	40	57	-
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	-	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	12	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	60	32	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	16	82	130	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	71	1500	110	< 1.0
TPH (C35 - C40)	mg/kg	10	MCERTS	22	540	< 10	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	110	2200	270	< 10
VOCs							
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-
Chloroethane	µg/kg	1	NONE	< 1.0	-	-	-
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648699	1648700	1648701	1648702
Sample Reference				TP116	TP121	TP138	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	0.50	0.50
Date Sampled				07/10/2020	08/10/2020	08/10/2020	08/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	-
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-	-
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648699	1648700	1648701	1648702
Sample Reference				TP116	TP121	TP138	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	0.50	0.50
Date Sampled				07/10/2020	08/10/2020	08/10/2020	08/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-
SVOCs							
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648699	1648700	1648701	1648702
Sample Reference				TP116	TP121	TP138	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	0.50	0.50
Date Sampled				07/10/2020	08/10/2020	08/10/2020	08/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648703	1648704	1648705	1648706
Sample Reference				TP124	TP205	TP301	TP301
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	2.20	0.30	0.90
Date Sampled				08/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	26	10	11
Total mass of sample received	kg	0.001	NONE	0.6	0.6	1.5	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	0.28	-	-	-
Fluorene	mg/kg	0.05	MCERTS	0.22	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	0.63	-	-	-
Anthracene	mg/kg	0.05	MCERTS	0.2	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	0.54	-	-	-
Pyrene	mg/kg	0.05	MCERTS	0.44	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.21	-	-	-
Chrysene	mg/kg	0.05	MCERTS	0.19	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	2.71	-	-	-
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.8	3.9	6.5	7.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	45	170	120
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.92	0.39	1.3	0.88
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.5	0.5	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	2.6	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648703	1648704	1648705	1648706
Sample Reference				TP124	TP205	TP301	TP301
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	2.20	0.30	0.90
Date Sampled				08/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.9	11	17	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	11	82	7.8
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	31	12	92	32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	22	560	34
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	47	22	420	44
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	11	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	97	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	260	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	670	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-	210	< 10
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	1000	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	28	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	400	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	1300	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	2200	16
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	220	55
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	3900	16
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	5400	71
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	-	-
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	0.3	-	-
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	-	-
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	5.3	-	-
TPH (C16 - C21)	mg/kg	1	MCERTS	4.2	25	-	-
TPH (C21 - C35)	mg/kg	1	MCERTS	61	67	-	-
TPH (C35 - C40)	mg/kg	10	MCERTS	20	< 10	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	88	100	-	-
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648703	1648704	1648705	1648706
Sample Reference				TP124	TP205	TP301	TP301
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	2.20	0.30	0.90
Date Sampled				08/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	11	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	38	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	26	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	20	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	54	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648703	1648704	1648705	1648706
Sample Reference				TP124	TP205	TP301	TP301
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	2.20	0.30	0.90
Date Sampled				08/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0
SVOCs							
Aniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	6.9	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	6.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	0.37	31	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	21	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	0.46	35	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	2.1	110	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	0.52	52	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	12	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	7.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	2.2	110	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	1.6	100	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.78	71	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	0.68	56	< 0.05

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Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648703	1648704	1648705	1648706
Sample Reference				TP124	TP205	TP301	TP301
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	2.20	0.30	0.90
Date Sampled				08/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	0.67	66	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	0.5	39	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.61	62	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.31	29	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	8.3	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.35	31	< 0.05
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648707	1648708	1648709	1648710
Sample Reference				TP302	TP302	TP303	TP303
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	1.90
Date Sampled				09/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	12	16	17
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.6	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	-	-
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	6.8	8.4	9.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	160	130	350	71
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	2.5	0.8	2.6	0.76
Boron (water soluble)	mg/kg	0.2	MCERTS	1.1	0.4	1.9	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.4	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648707	1648708	1648709	1648710
Sample Reference				TP302	TP302	TP303	TP303
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	1.90
Date Sampled				09/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	15	38	18
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	7.7	36	23
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	30	26	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	31	39	35
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54	42	110	46
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	3.3	< 2.0	11	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	23	< 8.0	33	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	37	< 8.0	35	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	63	< 10	78	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	63	< 10	78	< 10
TPH (C5 - C6)	mg/kg	1	NONE	-	-	< 1.0	-
TPH (C6 - C8)	mg/kg	0.1	MCERTS	-	-	< 0.1	-
TPH (C8 - C10)	mg/kg	0.1	MCERTS	-	-	< 0.1	-
TPH (C10 - C12)	mg/kg	2	MCERTS	-	-	< 2.0	-
TPH (C12 - C16)	mg/kg	4	MCERTS	-	-	11	-
TPH (C16 - C21)	mg/kg	1	MCERTS	-	-	33	-
TPH (C21 - C35)	mg/kg	1	MCERTS	-	-	35	-
TPH (C35 - C40)	mg/kg	10	MCERTS	-	-	< 10	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-	80	-
VOCs							
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648707	1648708	1648709	1648710
Sample Reference				TP302	TP302	TP303	TP303
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	1.90
Date Sampled				09/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648707	1648708	1648709	1648710
Sample Reference				TP302	TP302	TP303	TP303
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	1.90
Date Sampled				09/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
SVOCs							
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.44	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.43	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.43	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.24	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.22	< 0.05

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648707	1648708	1648709	1648710
Sample Reference				TP302	TP302	TP303	TP303
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	1.90
Date Sampled				09/10/2020	09/10/2020	09/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.32	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.16	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.24	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Misc Organics							
Acrylamide	mg/kg	0.1	NONE	-	-	-	-
Epichlorohydrin	mg/kg	0.1	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648711	1656192
Sample Reference				TP109	TP121
Sample Number				None Supplied	None Supplied
Depth (m)				2.05	0.40
Date Sampled				09/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	12
Total mass of sample received	kg	0.001	NONE	0.6	0.5
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-
General Inorganics					
pH - Automated	pH Units	N/A	MCERTS	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	-
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-
Sulphide	mg/kg	1	MCERTS	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.6	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1	-
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648711	1656192
Sample Reference				TP109	TP121
Sample Number				None Supplied	None Supplied
Depth (m)				2.05	0.40
Date Sampled				09/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	35	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	36	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	48	-
Monoaromatics & Oxygenates					
Benzene	µg/kg	1	MCERTS	-	-
Toluene	µg/kg	1	MCERTS	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-
o-xylene	µg/kg	1	MCERTS	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	-
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	-
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	-
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	-
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	-
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	-
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	-
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	-
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	-
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	-
VOCs					
Chloromethane	µg/kg	1	ISO 17025	-	-
Chloroethane	µg/kg	1	NONE	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648711	1656192
Sample Reference				TP109	TP121
Sample Number				None Supplied	None Supplied
Depth (m)				2.05	0.40
Date Sampled				09/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Vinyl Chloride	µg/kg	1	NONE	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-
Benzene	µg/kg	1	MCERTS	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-
Toluene	µg/kg	1	MCERTS	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-
Styrene	µg/kg	1	MCERTS	-	-
Tribromomethane	µg/kg	1	NONE	-	-
o-Xylene	µg/kg	1	MCERTS	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648711	1656192
Sample Reference				TP109	TP121
Sample Number				None Supplied	None Supplied
Depth (m)				2.05	0.40
Date Sampled				09/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-
SVOCs					
Aniline	mg/kg	0.1	NONE	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill
Your Order No: 14-035-MW-TBC

Lab Sample Number				1648711	1656192
Sample Reference				TP109	TP121
Sample Number				None Supplied	None Supplied
Depth (m)				2.05	0.40
Date Sampled				09/10/2020	07/10/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-
Misc Organics					
Acrylamide	mg/kg	0.1	NONE	-	< 0.1
Epichlorohydrin	mg/kg	0.1	NONE	-	< 0.1

U/S = Unsuitable Sample I/S = Insufficient Sample

UKAS TESTING 4041

Analytical i2 Environmental Science

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-035-MW-TBC

Lab Sample Number				1648712	1648713	1648714	1648715
Sample Reference				TP110a	TP122	TP140	TP142
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	0.90	1.50	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
General Inorganics							
pH	pH Units	N/A	ISO 17025	7.8	8.1	7.8	7.9
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols							
Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH							
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2
Heavy Metals / Metalloids							
Arsenic (dissolved)	µg/l	1	ISO 17025	3.4	1.9	< 1.1	2.3
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.4	3.9	1.2	< 0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	17	16	4.7	11
Lead (dissolved)	µg/l	1	ISO 17025	3	2.7	< 1.0	4.7
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	6.2	12	3.3	140
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	7	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	21	17	9.8	53
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10	< 10	< 10
Petroleum Hydrocarbons							
TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10	< 10	< 10

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-035-MW-TBC

Lab Sample Number				1648712	1648713	1648714	1648715
Sample Reference				TP110a	TP122	TP140	TP142
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	0.90	1.50	0.60
Date Sampled				05/10/2020	05/10/2020	05/10/2020	05/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

UKAS TESTING 4041

Analytical i2 Environmental Science

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-035-MW-TBC

Lab Sample Number				1648716	1648717	1648718
Sample Reference				TP117	TP116	TP205
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	2.20
Date Sampled				05/10/2020	07/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
General Inorganics						
pH	pH Units	N/A	ISO 17025	8.3	7	7.4
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Total Phenols						
Total Phenols (monohydric)	µg/l	1	ISO 17025	9.9	5	3.4
Speciated PAHs						
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Total PAH						
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2	< 0.2
Heavy Metals / Metalloids						
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.1	11	4.6
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	U/S	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.8	9.5	0.7
Copper (dissolved)	µg/l	0.7	ISO 17025	85	66	28
Lead (dissolved)	µg/l	1	ISO 17025	2.5	4.2	3.7
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	12	13	5.9
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	96	39	40
Monoaromatics & Oxygenates						
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10	< 10
Petroleum Hydrocarbons						
TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10	< 10

Analytical Report Number: 20-35228
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-035-MW-TBC

Lab Sample Number				1648716	1648717	1648718
Sample Reference				TP117	TP116	TP205
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	2.20
Date Sampled				05/10/2020	07/10/2020	09/10/2020
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 20-35228
Project / Site name: Bridgewater Paper Mill

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1648655	TP101	None Supplied	0.4	Brown sand with gravel.
1648656	TP102	None Supplied	0.4	Brown loam and clay with gravel.
1648657	TP103	None Supplied	1.2	Brown sandy clay with gravel.
1648658	TP106	None Supplied	0.8	Brown clay and sand with gravel.
1648659	TP107	None Supplied	0.35	Light brown gravelly loam.
1648660	TP110	None Supplied	2.4	Brown sand with clinker
1648661	TP110a	None Supplied	1.3	Brown clay and sand with gravel.
1648662	TP112	None Supplied	0.35	Light brown sand with gravel.
1648663	TP113	None Supplied	2.5	Light brown sand with gravel.
1648664	TP122	None Supplied	0.9	Light brown clay and sand with gravel.
1648665	TP124a	None Supplied	1.8	Light brown sand with gravel and glass
1648666	TP126	None Supplied	0.5	Light brown clay and sand with gravel.
1648667	TP130	None Supplied	0.8	Brown sand with gravel.
1648668	TP135	None Supplied	0.3	Brown sand with gravel.
1648669	TP140	None Supplied	1.5	Light brown sand with gravel.
1648670	TP142	None Supplied	0.6	Brown sand with gravel.
1648671	TP149	None Supplied	0.75	Brown loam and clay with gravel.
1648672	TP207	None Supplied	0.6	Light grey clay and gravel.
1648673	TP207	None Supplied	0.9	Brown clay with gravel.
1648674	TP201	None Supplied	0.6	Brown sand with rubble and gravel
1648675	TP203	None Supplied	0.5	Grey clay and gravel.
1648676	TP202	None Supplied	0.5	Brown clay and gravel.
1648677	TP202	None Supplied	1	Brown clay and sand.
1648678	TP204	None Supplied	0.6	Brown clay and sand with gravel.
1648679	TP204	None Supplied	None Supplied	Brown clay and sand with gravel.
1648680	TP206	None Supplied	0.5	Grey clay and sand with vegetation and gravel.
1648681	TP206	None Supplied	1.2	Brown clay and sand with gravel.
1648682	TP154	None Supplied	0.4	Grey gravelly sand with vegetation.
1648683	TP154	None Supplied	1.6	Brown clay and sand.
1648684	TP117	None Supplied	1	Brown clay with gravel.
1648685	TP147	None Supplied	0.5	Grey sand with gravel.
1648686	TP147	None Supplied	2	Brown sandy clay.
1648687	TP148	None Supplied	0.5	Light grey clay and sand with gravel.
1648688	TP148	None Supplied	1	Brown loam and clay with vegetation and gravel
1648689	TP139	None Supplied	0.5	Grey clay and sand with rubble and vegetation.
1648690	TP144	None Supplied	0.4	Light grey clay and sand with gravel.
1648691	TPP01	None Supplied	0.2	Grey clay and sand with vegetation and gravel.
1648692	TP146	None Supplied	0.6	Brown clay and sand with rubble and brick.
1648693	TP146	None Supplied	0.85	Brown clay and sand with gravel.
1648694	TP153	None Supplied	0.6	Brown clay and sand with vegetation and gravel
1648695	TP145	None Supplied	0.25	Light brown sand with rubble and vegetation.
1648696	TP145	None Supplied	0.5	Brown clay with gravel.
1648697	TP143	None Supplied	0.5	Brown clay and sand with vegetation and gravel
1648698	TP135	None Supplied	0.65	Grey clay and sand with gravel.
1648699	TP116	None Supplied	0.6	Brown loam and clay with gravel.
1648700	TP121	None Supplied	1.3	Brown loam and clay with gravel.
1648701	TP138	None Supplied	0.5	Brown clay and sand with gravel.
1648702	TP139	None Supplied	0.5	Brown clay and sand with gravel.
1648703	TP124	None Supplied	0.3	Brown clay and sand with gravel.
1648704	TP205	None Supplied	2.2	Brown sand with gravel.
1648705	TP301	None Supplied	0.3	Brown gravelly sand.
1648706	TP301	None Supplied	0.9	Brown clay.
1648707	TP302	None Supplied	0.5	Brown clay and sand with gravel.
1648708	TP302	None Supplied	1	Brown clay and sand with gravel.
1648709	TP303	None Supplied	0.5	Brown clay and sand with gravel.
1648710	TP303	None Supplied	1.9	Brown clay and sand with gravel.
1648711	TP109	None Supplied	2.05	Brown clay and sand with gravel.
1656192	TP121	None Supplied	0.4	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 20-35228
Project / Site name: Bridgewater Paper Mill

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In house method.	L005-PL	W	ISO 17025
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

Analytical Report Number : 20-35228
Project / Site name: Bridgewater Paper Mill

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
EF - Acrylamide in soil by LC-MS	Acrylamide in soil by LC-MS	In-house method	UK	W	NONE
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

Analytical Report Number : 20-35228
Project / Site name: Bridgewater Paper Mill

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample Deviation Report

Analytical Report Number : 20-35228
Project / Site name: Bridgewater Paper Mill

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP101	None Supplied	S	1648655	c	Total cyanide in soil	L080-PL	c
TP102	None Supplied	S	1648656	c	Total cyanide in soil	L080-PL	c
TP103	None Supplied	S	1648657	c	Total cyanide in soil	L080-PL	c
TP106	None Supplied	S	1648658	c	Total cyanide in soil	L080-PL	c
TP107	None Supplied	S	1648659	c	Total cyanide in soil	L080-PL	c
TP110	None Supplied	S	1648660	c	Total cyanide in soil	L080-PL	c
TP110a	None Supplied	S	1648661	c	Total cyanide in soil	L080-PL	c
TP112	None Supplied	S	1648662	c	Total cyanide in soil	L080-PL	c
TP113	None Supplied	S	1648663	c	Total cyanide in soil	L080-PL	c
TP117	None Supplied	S	1648684	c	Total cyanide in soil	L080-PL	c
TP124a	None Supplied	S	1648665	c	Total cyanide in soil	L080-PL	c
TP126	None Supplied	S	1648666	c	Total cyanide in soil	L080-PL	c
TP130	None Supplied	S	1648667	c	Total cyanide in soil	L080-PL	c
TP135	None Supplied	S	1648668	c	Total cyanide in soil	L080-PL	c
TP143	None Supplied	S	1648697	c	Total cyanide in soil	L080-PL	c
TP144	None Supplied	S	1648690	c	Total cyanide in soil	L080-PL	c
TP145	None Supplied	S	1648695	c	Total cyanide in soil	L080-PL	c
TP145	None Supplied	S	1648696	c	Total cyanide in soil	L080-PL	c
TP146	None Supplied	S	1648692	c	Total cyanide in soil	L080-PL	c
TP146	None Supplied	S	1648693	c	Total cyanide in soil	L080-PL	c
TP147	None Supplied	S	1648685	c	Total cyanide in soil	L080-PL	c
TP147	None Supplied	S	1648686	c	Total cyanide in soil	L080-PL	c
TP148	None Supplied	S	1648687	c	Total cyanide in soil	L080-PL	c
TP149	None Supplied	S	1648671	c	Sulphide in soil	L010-PL	c
TP149	None Supplied	S	1648671	c	Total cyanide in soil	L080-PL	c
TP153	None Supplied	S	1648694	c	Total cyanide in soil	L080-PL	c
TP154	None Supplied	S	1648682	c	Total cyanide in soil	L080-PL	c
TP201	None Supplied	S	1648674	c	Total cyanide in soil	L080-PL	c
TP202	None Supplied	S	1648676	c	Total cyanide in soil	L080-PL	c
TP203	None Supplied	S	1648675	c	Total cyanide in soil	L080-PL	c
TP204	None Supplied	S	1648678	c	Sulphide in soil	L010-PL	c
TP204	None Supplied	S	1648678	c	Total cyanide in soil	L080-PL	c
TP204	None Supplied	S	1648679	c	Total cyanide in soil	L080-PL	c
TP206	None Supplied	S	1648680	c	Total cyanide in soil	L080-PL	c
TP207	None Supplied	S	1648672	c	Sulphide in soil	L010-PL	c
TP207	None Supplied	S	1648672	c	Total cyanide in soil	L080-PL	c
TP207	None Supplied	S	1648673	c	Total cyanide in soil	L080-PL	c

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Analytical Report Number : 20-38319

Replaces Analytical Report Number: 20-38319, issue no. 1
Client references/information amended.

Project / Site name:	Bridgewater Paper Mill	**Samples received on:**	29/10/2020
Your job number:	14-035	**Samples instructed on/ Analysis started on:**	29/10/2020
Your order number:	14-0351AE-E	**Analysis completed by:**	06/11/2020
Report Issue Number:	2	**Report issued on:**	06/11/2020
Samples Analysed:	5 water samples		

[redacted]

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666986	1666987	1666988	1666989
Sample Reference				CP101	CP104	CP105	CP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/10/2020	28/10/2020	28/10/2020	28/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
General Inorganics							
pH	pH Units	N/A	ISO 17025	8	8.3	7.7	9.6
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	16	2.4	2.3
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.22	7.7	14.9	27.6
Total Phenols							
Total Phenols (monohydric)	µg/l	1	ISO 17025	3.7	< 1.0	< 1.0	6.6
Heavy Metals / Metalloids							
Calcium (dissolved)	mg/l	0.012	ISO 17025	260	57	110	26
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.8	3.19	2.84	11.9
Barium (dissolved)	µg/l	0.06	ISO 17025	60	41	30	22
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.1	0.08	0.06	0.17
Chromium (dissolved)	µg/l	0.2	ISO 17025	3.1	1.6	3.1	1.8
Copper (dissolved)	µg/l	0.5	ISO 17025	15	6.9	8.1	39
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	1.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	650	29	100	13
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.07	< 0.05	< 0.05	0.06
Nickel (dissolved)	µg/l	0.5	ISO 17025	220	7.6	38	17
Selenium (dissolved)	µg/l	0.6	ISO 17025	26	3.3	5.1	42
Vanadium (dissolved)	µg/l	0.2	ISO 17025	4.8	5.8	4.4	15
Zinc (dissolved)	µg/l	0.5	ISO 17025	4.3	4.3	3.5	2.3
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666986	1666987	1666988	1666989
Sample Reference				CP101	CP104	CP105	CP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/10/2020	28/10/2020	28/10/2020	28/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Petroleum Hydrocarbons							
TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666986	1666987	1666988	1666989
Sample Reference				CP101	CP104	CP105	CP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/10/2020	28/10/2020	28/10/2020	28/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
VOCs							
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	7.7	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	3.5	4.4	5.5	4.4
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666986	1666987	1666988	1666989
Sample Reference				CP101	CP104	CP105	CP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/10/2020	28/10/2020	28/10/2020	28/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666986	1666987	1666988	1666989
Sample Reference				CP101	CP104	CP105	CP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/10/2020	28/10/2020	28/10/2020	28/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs							
Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666986	1666987	1666988	1666989
Sample Reference				CP101	CP104	CP105	CP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/10/2020	28/10/2020	28/10/2020	28/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666990
Sample Reference				CP107
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				28/10/2020
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
General Inorganics				
pH	pH Units	N/A	ISO 17025	10.2
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	52
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	48.5
Total Phenols				
Total Phenols (monohydric)	µg/l	1	ISO 17025	14
Heavy Metals / Metalloids				
Calcium (dissolved)	mg/l	0.012	ISO 17025	110
Chromium (hexavalent)	µg/l	5	ISO 17025	U/S
Arsenic (dissolved)	µg/l	0.15	ISO 17025	9.91
Barium (dissolved)	µg/l	0.06	ISO 17025	34
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.17
Chromium (dissolved)	µg/l	0.2	ISO 17025	3.2
Copper (dissolved)	µg/l	0.5	ISO 17025	190
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	5.4
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	16
Selenium (dissolved)	µg/l	0.6	ISO 17025	15
Vanadium (dissolved)	µg/l	0.2	ISO 17025	12
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.4
Monoaromatics & Oxygenates				
Benzene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666990
Sample Reference				CP107
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				28/10/2020
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Petroleum Hydrocarbons				
TPH1 (C10 - C40)	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666990
Sample Reference				CP107
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				28/10/2020
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
VOCs				
Chloromethane	µg/l	1	ISO 17025	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	4.1
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666990
Sample Reference				CP107
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				28/10/2020
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Tribromomethane	µg/l	1	ISO 17025	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666990
Sample Reference				CP107
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				28/10/2020
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
SVOCs				
Aniline	µg/l	0.05	NONE	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05

Analytical Report Number: 20-38319
Project / Site name: Bridgewater Paper Mill

Your Order No: 14-0351AE-E

Lab Sample Number				1666990
Sample Reference				CP107
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				28/10/2020
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 20-38319
Project / Site name: Bridgewater Paper Mill

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	NONE
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 21-53390

Project / Site name:	Bridgewater Mill	**Samples received on:**	26/01/2021
Your job number:	14035	**Samples instructed on/ Analysis started on:**	26/01/2021
Your order number:	14035-AE-2	**Analysis completed by:**	02/02/2021
Report Issue Number:	1	**Report issued on:**	02/02/2021
Samples Analysed:	7 water samples		

Signed: [redacted]

[redacted]

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 21-53390
Project / Site name: Bridgewater Mill

Your Order No: 14035-AE-2

Lab Sample Number				1749852	1749853	1749854	1749855	1749856
Sample Reference				CP101	CP103	CP104	CP105	CP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				25/01/2021	25/01/2021	25/01/2021	25/01/2021	25/01/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 21-53390
Project / Site name: Bridgewater Mill

Your Order No: 14035-AE-2

Lab Sample Number				1749852	1749853	1749854	1749855	1749856
Sample Reference				CP101	CP103	CP104	CP105	CP106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				25/01/2021	25/01/2021	25/01/2021	25/01/2021	25/01/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-53390
Project / Site name: Bridgewater Mill

Your Order No: 14035-AE-2

Lab Sample Number				1749857	1749858
Sample Reference				CP107	CP110
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				25/01/2021	25/01/2021
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
VOCs					
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0

Analytical Report Number: 21-53390
Project / Site name: Bridgewater Mill

Your Order No: 14035-AE-2

Lab Sample Number				1749857	1749858
Sample Reference				CP107	CP110
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				25/01/2021	25/01/2021
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-53390
Project / Site name: Bridgewater Mill

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

APPENDIX VII
ORIGIN OF TIER I GENERIC ASSESSMENT CRITERIA

CONSTITUENT	ORIGIN OF RISK ASSESSMENT VALUE
Arsenic	2014 LQM/CIEH S4ULs
Cadmium	2014 LQM/CIEH S4ULs
Chromium	2014 LQM/CIEH S4ULs
Lead	2014 LQM/CIEH S4ULs
Mercury	2014 LQM/CIEH S4ULs – methylmercury
Nickel	2014 LQM/CIEH S4ULs
Selenium	2014 LQM/CIEH S4ULs
Copper	2014 LQM/CIEH S4ULs
Zinc	2014 LQM/CIEH S4ULs
Cyanide – Total	2014 LQM/CIEH S4ULs
Phenols – Total	2014 LQM/CIEH S4ULs
Naphthalene	General assessment criteria (GAC) developed by CIEH/LQM Suitable 4 Use Levels with supporting data from SR3, SR7 and existing Tox report where applicable. 1% SOM.
Acenaphthylene	
Acenaphthene	
Fluorene	
Phenanthrene	
Anthracene	
Fluoranthene	
Pyrene	
Benzo(a)Anthracene	
Chrysene	
Benzo(b/k)Fluoranthene (iii)	
Benzo(a)Pyrene	
Indeno(123-cd)Pyrene	
Dibenzo(a,h)Anthracene	
Benzo(ghi)Perylene	
TPH C_5-C_6 (aliphatic)	
TPH C_6-C_8 (aliphatic)	
TPH C_8-C_{10} (aliphatic)	
TPH C_{10}-C_{12} (aliphatic)	
TPH C_{12}-C_{16} (aromatic)	
TPH C_{16}-C_{21} (aromatic)	
TPH C_{21}-C_{35} (aromatic)	

The Tier 1 GAC for the hydrocarbon fraction is derived from the CIEH assessment for petroleum hydrocarbons criteria working group (CWG) for both aliphatic and aromatic compounds. E3P has utilised the Tier 1 values for aliphatic compounds for the volatile and semi-volatile fractions (C_5-C_{12}) and the Tier 1 values for aromatic compound for the non-volatile fractions (C_{12}-C_{35}). The comparison of total (aliphatic/aromatic) compounds to an individual fraction is considered to be a conservative approach and satisfactory for the protection of human health.

CONTROLLED WATERS

* Sum of The specified compounds are benzo[b]fluoranthene (CAS 205-99-2), benzo[k]fluoranthene (CAS 207-08-9), benzo[g,h,i]perylene (CAS 191-24-2) and indeno[1,2,3-c,d]pyrene (CAS 193-39-5)

1) The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations (2015)
2) Directive establishing a framework for Community action in the field of water policy (Water Framework Directive)
3) Council Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Dangerous Substances Directive) - List II substances
4) Council Directive on the quality of water intended for human consumption (Drinking Water Directive)
5) WHO Guidelines for Drinking Water Quality. Third edition (2004)

APPENDIX VIII
GEOTECHNICAL TESTING RESULTS

LABORATORY REPORT

4043

Contract Number: PSL20/6137

Report Date: 13 November 2020

Client's Reference: 13597

Client Name: E3P
Taylor Road
Urmston
Manchester
M41 7JQ

For the attention of: Jamie Craig

Contract Title: Bridgewater Mill

Date Received: 4/11/2020
Date Commenced: 4/11/2020
Date Completed: 13/11/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

[redacted]

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

S Eyre
(Senior Technician)

L Knight
(Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
CP101	8	U100	6.50	6.95	Stiff brown slightly gravelly sandy CLAY.
CP105	8	U100	6.50	6.95	Stiff brown slightly gravelly very sandy CLAY.
CP107	7	U100	6.50	6.95	Very stiff brown slightly gravelly very sandy CLAY.
CP110	8	U100	6.50	6.95	Firm brown slightly gravelly very sandy CLAY.
TP141			1.80		Brown slightly gravelly sandy CLAY.
TP102			1.00		Brown slightly gravelly very sandy CLAY.
TP54			2.00		Brown slightly gravelly very sandy CLAY.
TP302			1.50		Brown slightly gravelly very sandy CLAY.
TP116			1.70		Brown slightly gravelly sandy CLAY.
TP145			1.70		Brown peaty CLAY.
TP149			1.50		Brown slightly gravelly very sandy CLAY.
TP201			2.10		Dark grey slightly gravelly very sandy CLAY.
TP101			1.50		Brown slightly gravelly very sandy CLAY.
TP204			1.20		Brown slightly gravelly very sandy CLAY.
TP107			1.35		Brown slightly gravelly very sandy CLAY.
TP153			1.70		Brown slightly gravelly very sandy CLAY.
TP117			0.90		Brown slightly gravelly very sandy CLAY.
TP147			1.90		Brown slightly gravelly sandy CLAY.
TP202			1.60		Brown slightly gravelly very sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP141			1.80		21			35	20	15	94	Intermediate plasticity CI.
TP102			1.00		16			26	17	9	93	Low plasticity CL.
TP54			2.00		16			28	18	10	93	Low plasticity CL.
TP302			1.50		16			28	15	13	93	Low plasticity CL.
TP116			1.70		30			38	22	16	93	Intermediate plasticity CI.
TP145			1.70		132			171	67	104	100	Extremely high plasticity ME.
TP149			1.50		16			29	14	15	93	Low plasticity CL.
TP201			2.10		28			32	18	14	94	Low plasticity CL.
TP101			1.50		14			30	18	12	94	Low plasticity CL.
TP204			1.20		22			31	18	13	93	Low plasticity CL.
TP107			1.35		15			32	17	15	96	Low plasticity CL.
TP153			1.70		22			34	20	14	96	Low plasticity CL.
TP117			0.90		21			26	15	11	93	Low plasticity CL.
TP147			1.90		28			47	23	24	94	Intermediate plasticity CI.
TP202			1.60		17			24	14	10	93	Low plasticity CL.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

Bridgewater Mill

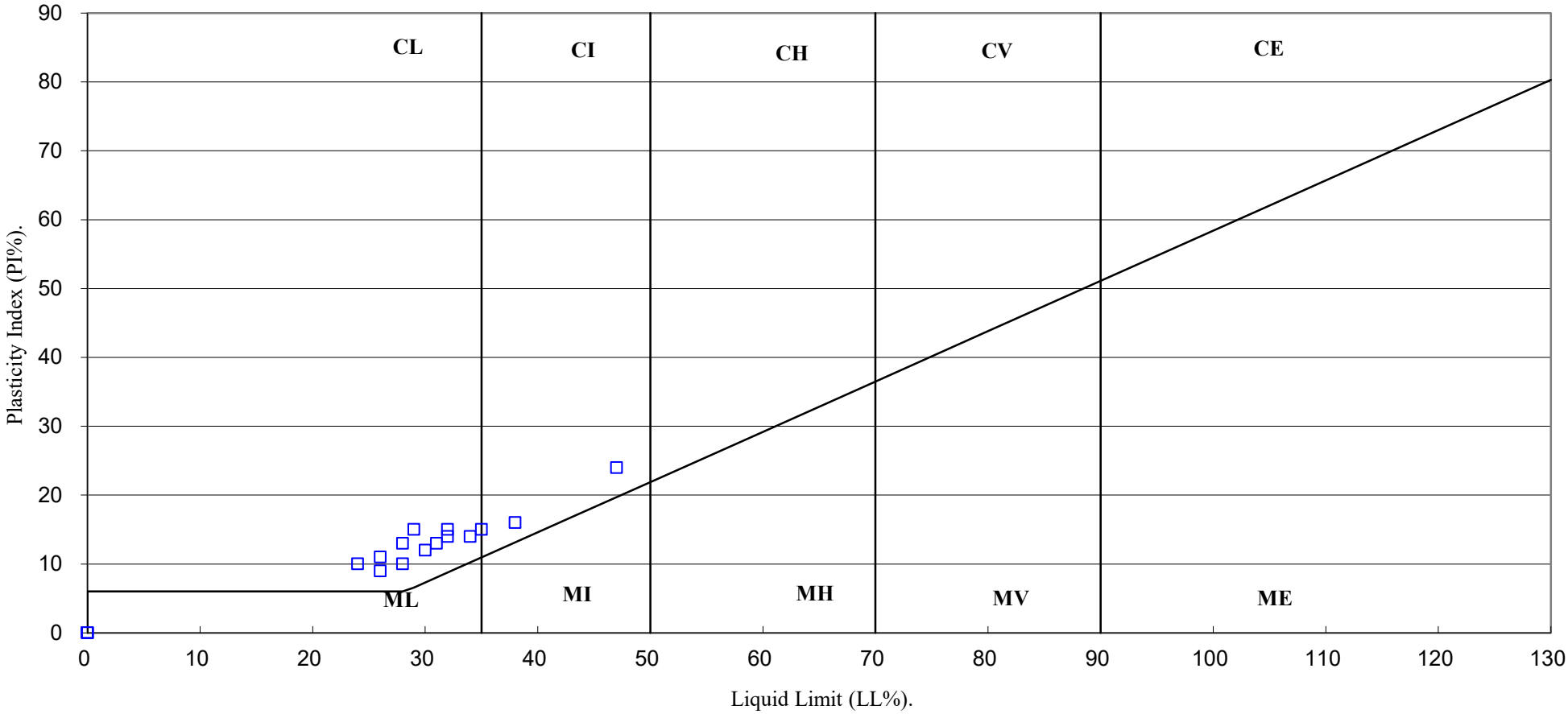
Contract No:

PSL20/6137

Client Ref:

13597

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



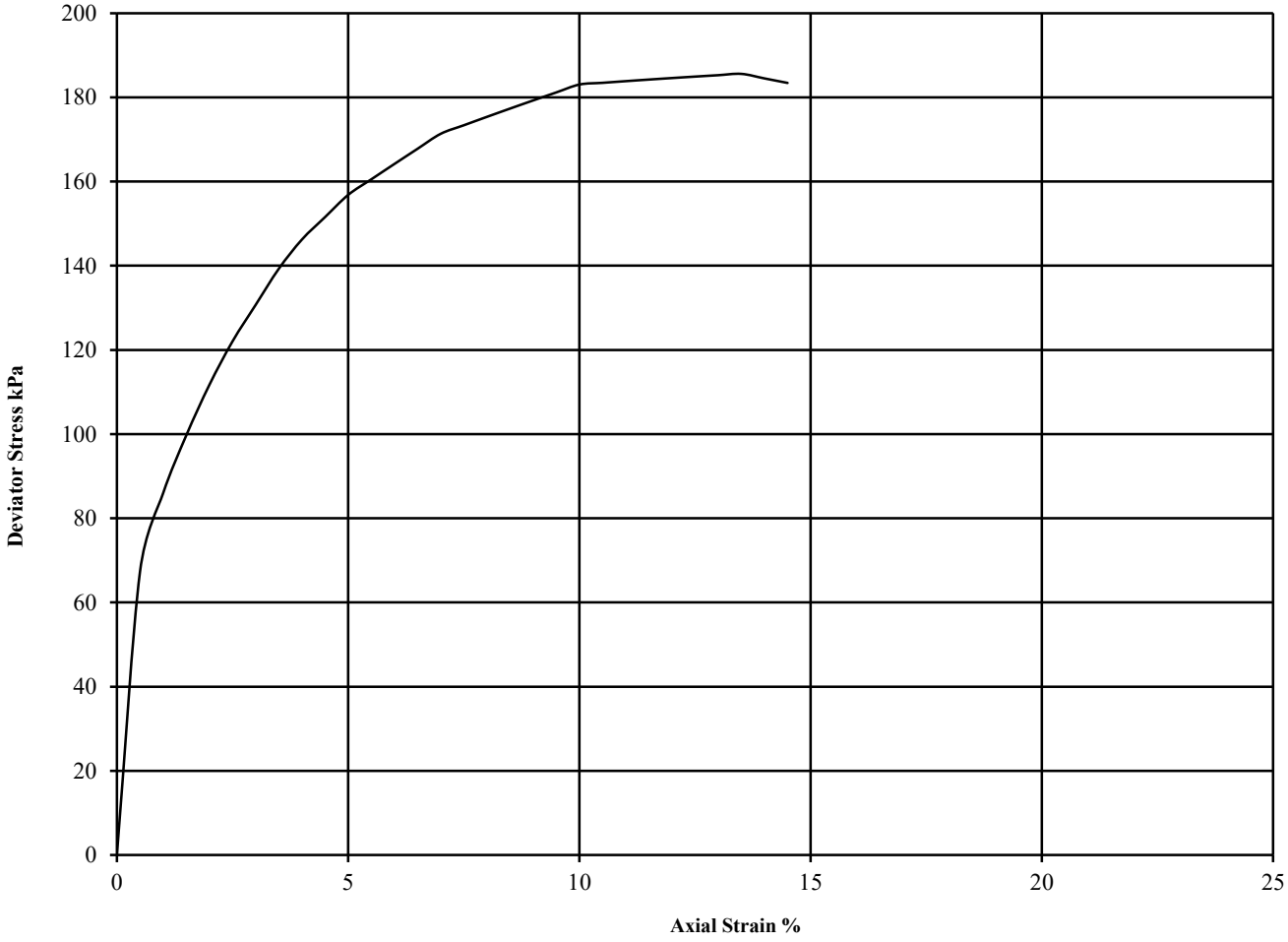
UKAS TESTING 4043	PSL Professional Soils Laboratory	Bridgewater Mill	Contract No: PSL20/6137 Client Ref: 13597

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**CP101**	**Top Depth (m):**	**6.50**
Sample Number:	**U100**	**Base Depth (m):**	**6.95**
Sample Type	**8**		



Diameter (mm):		38	Height (mm):		76	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.80
1	11	2.26	2.03	130	186	93	13.5	Plastic	See summary of soil descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Bridgewater Mill

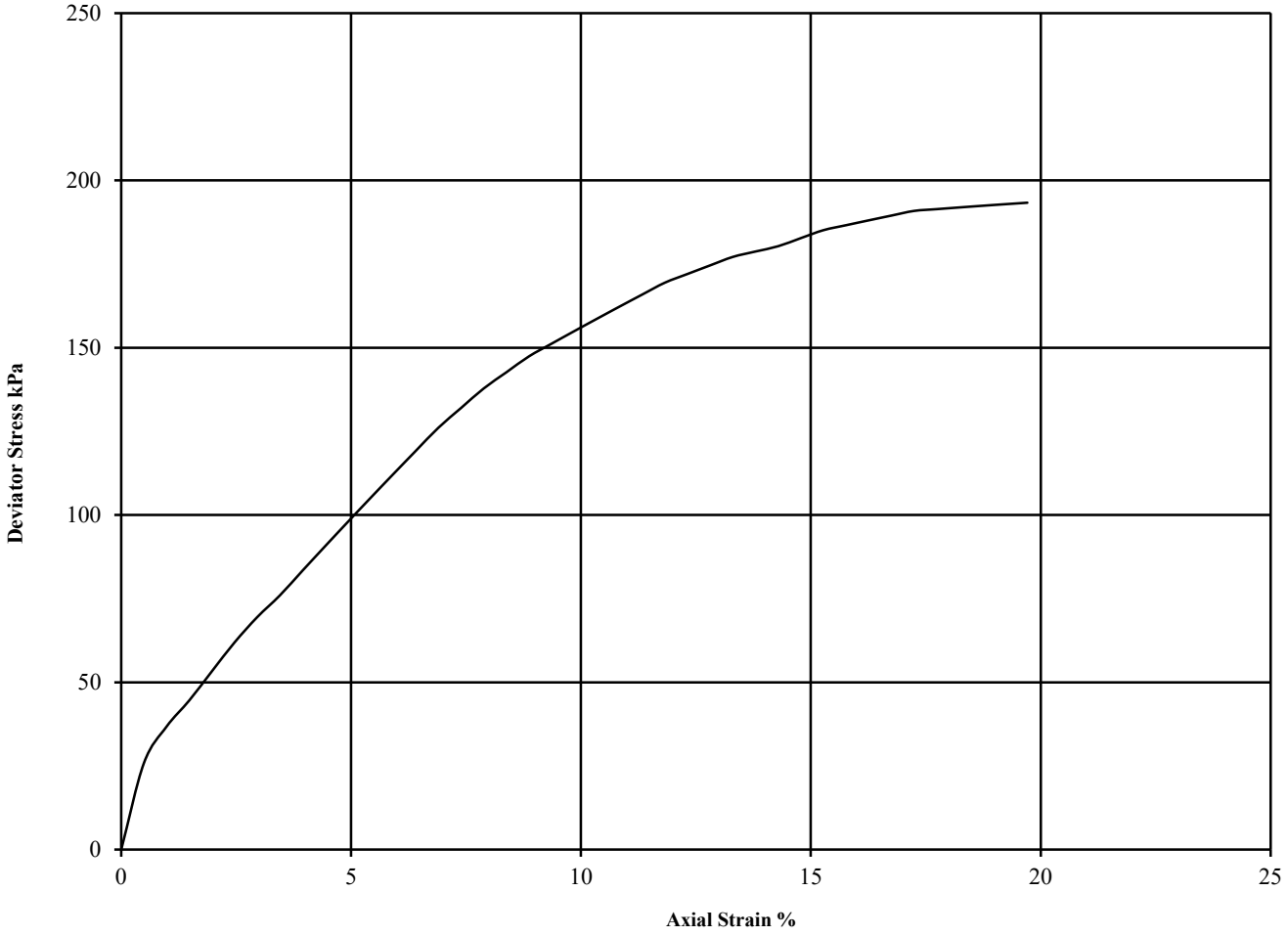
Contract No:
PSL20/6137
Client Ref:
13597

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**CP105**	**Top Depth (m):**	**6.50**
Sample Number:	**8**	**Base Depth (m):**	**6.95**
Sample Type	**U100**		



Diameter (mm):		102	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33
1	11	2.28	2.05	130	193	97	19.7	Plastic	See summary of soil descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Bridgewater Mill

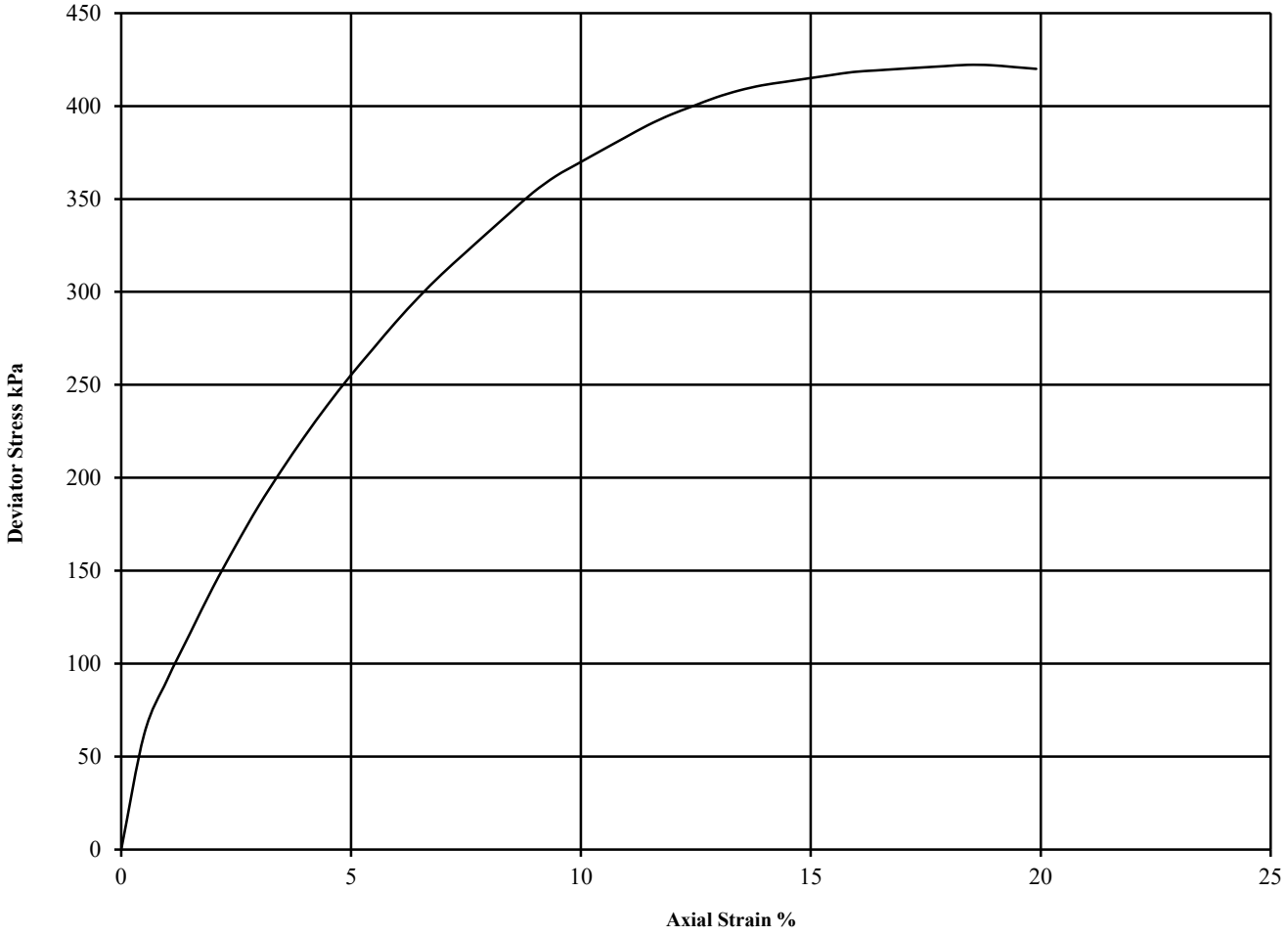
Contract No:
PSL20/6137
Client Ref:
13597

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**CP107**	**Top Depth (m):**	**6.50**
Sample Number:	**7**	**Base Depth (m):**	**6.95**
Sample Type	**U100**		



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33
1	11	2.16	1.94	130	422	211	18.4	Intermediate	See summary of soil descriptions

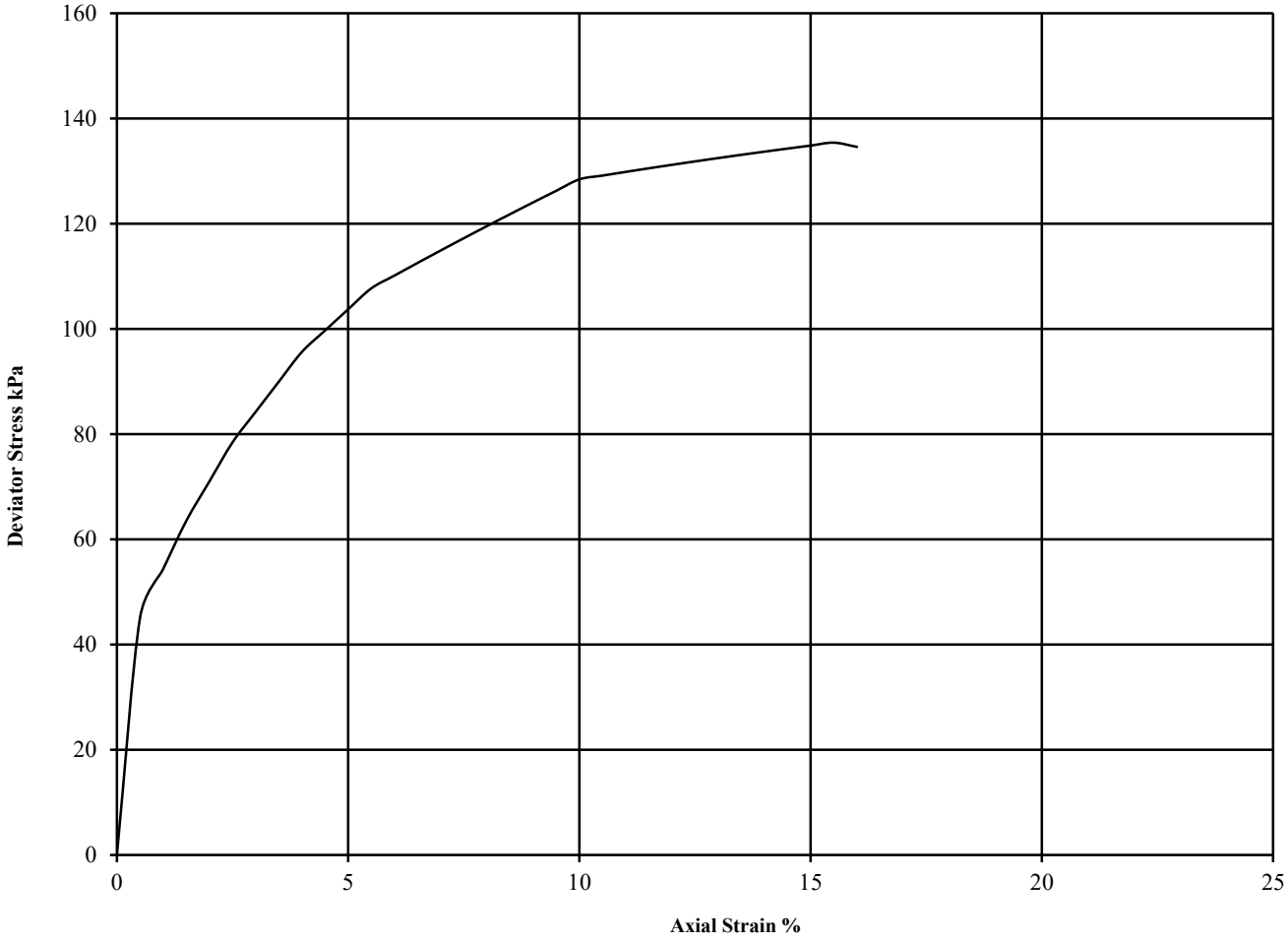
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Bridgewater Mill**	**Contract No:** PSL20/6137 **Client Ref:** 13597

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**CP110**	**Top Depth (m):**	**6.50**
Sample Number:	**8**	**Base Depth (m):**	**6.95**
Sample Type	**U100**		



Diameter (mm):		38	Height (mm):		76	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.77
1	13	2.20	1.94	130	135	68	15.5	Plastic	See summary of soil descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Bridgewater Mill

Contract No:
PSL20/6137
Client Ref:
13597

ONE DIMENSIONAL CONSOLIDATION TEST

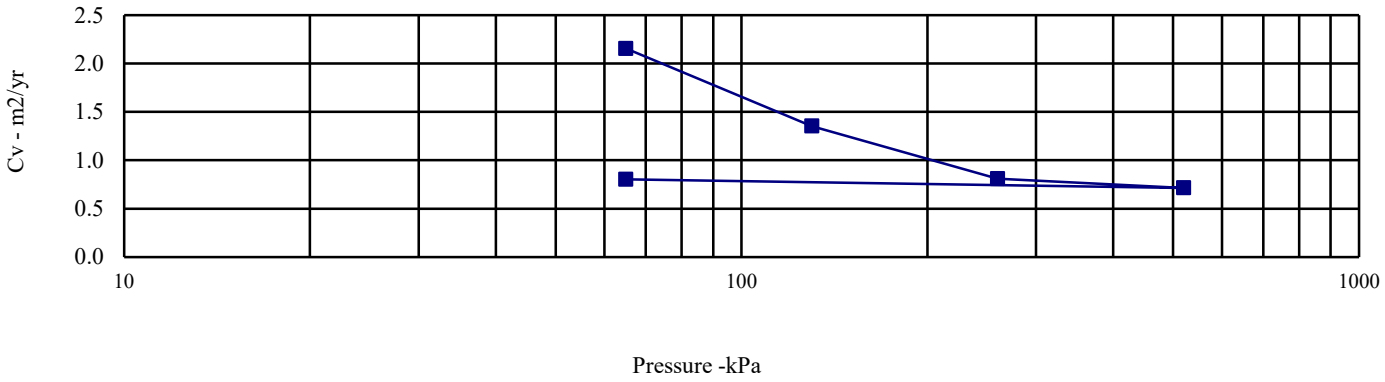
BS 1377: Part 5: 1990: Clause 3

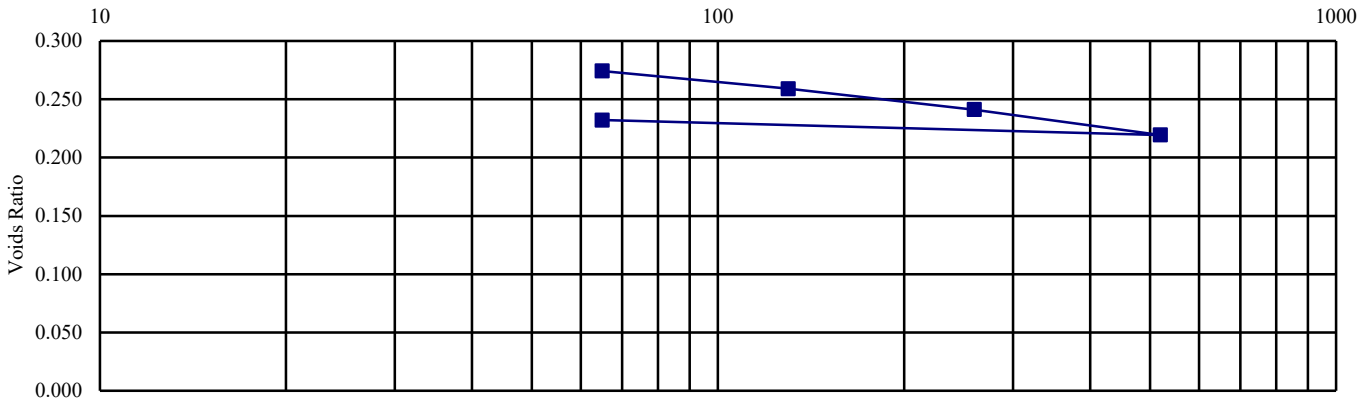
Hole Number: CP101 **Top Depth (m):** 6.50

Sample Number: 8 **Base Depth (m) :** 6.95

Sample Type: U100

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	11						
Bulk Density (Mg/m3):	2.26	0	65	0.308	2.155	Method used to determine CV:	T90
Dry Density (Mg/m3):	2.04	65	130	0.184	1.353		
Voids Ratio:	0.300	130	260	0.109	0.808	Nominal temperature during test ' C:	20
Degree of saturation:	97.6	260	520	0.067	0.715		
Height (mm):	20.048	520	65	0.023	0.803	Remarks: See summary of soil descriptions	
Diameter (mm)	74.955						
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043	PSL Professional Soils Laboratory	**Bridgewater Mill**	**Contract No:** PSL20/6137 **Client Ref:** 13597

ONE DIMENSIONAL CONSOLIDATION TEST

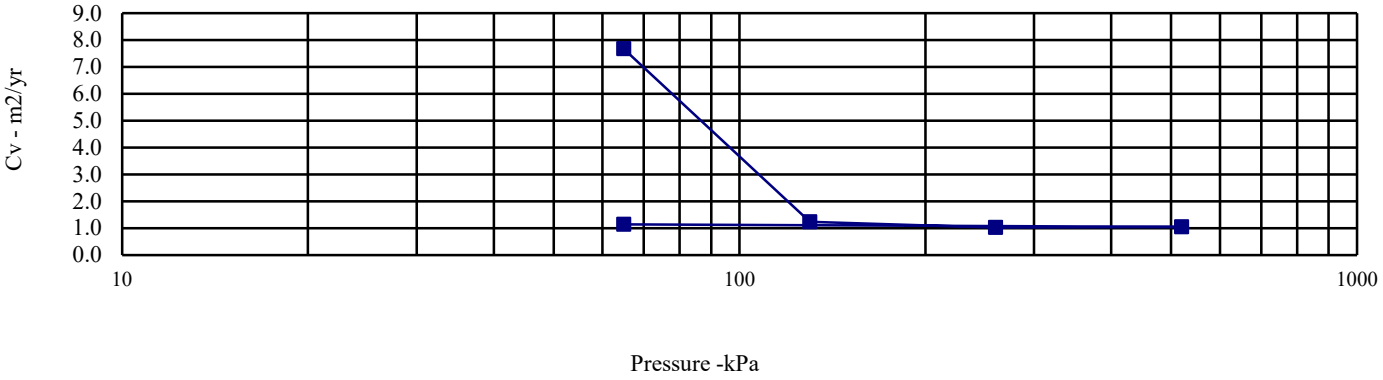
BS 1377: Part 5: 1990: Clause 3

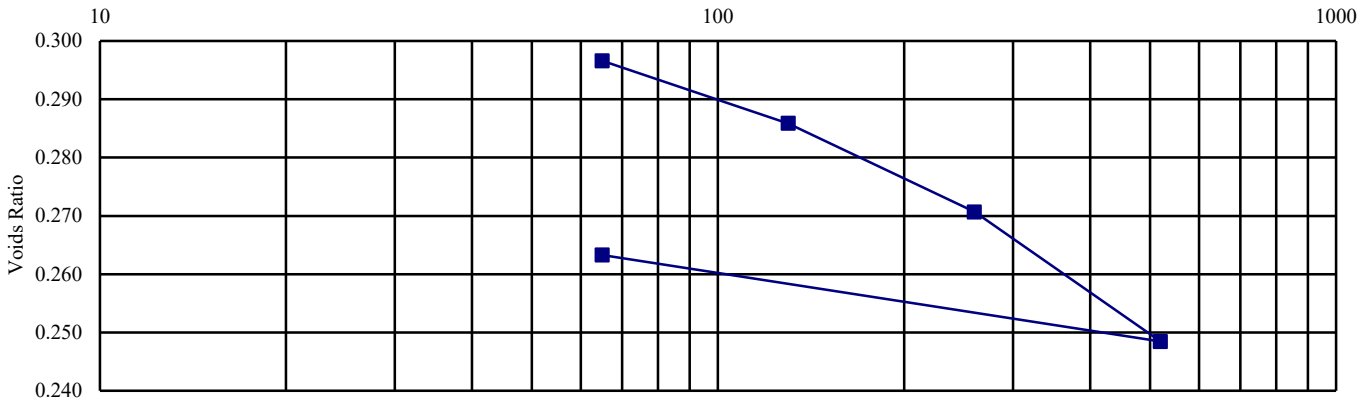
Hole Number: CP105 **Top Depth (m):** 6.50

Sample Number: 8 **Base Depth (m) :** 6.95

Sample Type: U100

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	12						
Bulk Density (Mg/m3):	2.26	0	65	0.190	7.671	Method used to	
Dry Density (Mg/m3):	2.02	65	130	0.127	1.232	determine CV:	T90
Voids Ratio:	0.313	130	260	0.091	1.020	Nominal temperature	
Degree of saturation:	100.0	260	520	0.067	1.046	during test ' C:	20
Height (mm):	20.208	520	65	0.026	1.141	Remarks:	
Diameter (mm)	74.928					See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043	PSL Professional Soils Laboratory	**Bridgewater Mill**	**Contract No:** PSL20/6137 **Client Ref:** 13597

ONE DIMENSIONAL CONSOLIDATION TEST

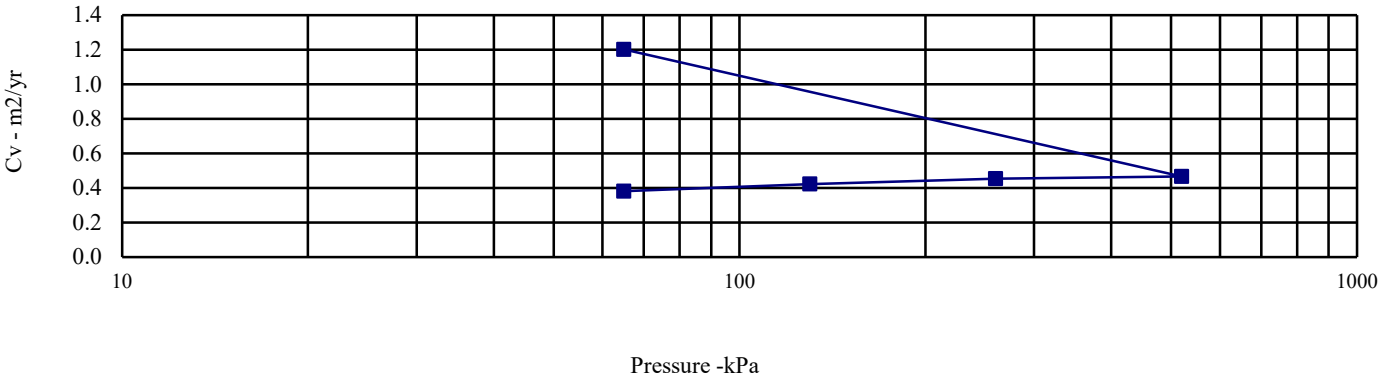
BS 1377: Part 5: 1990: Clause 3

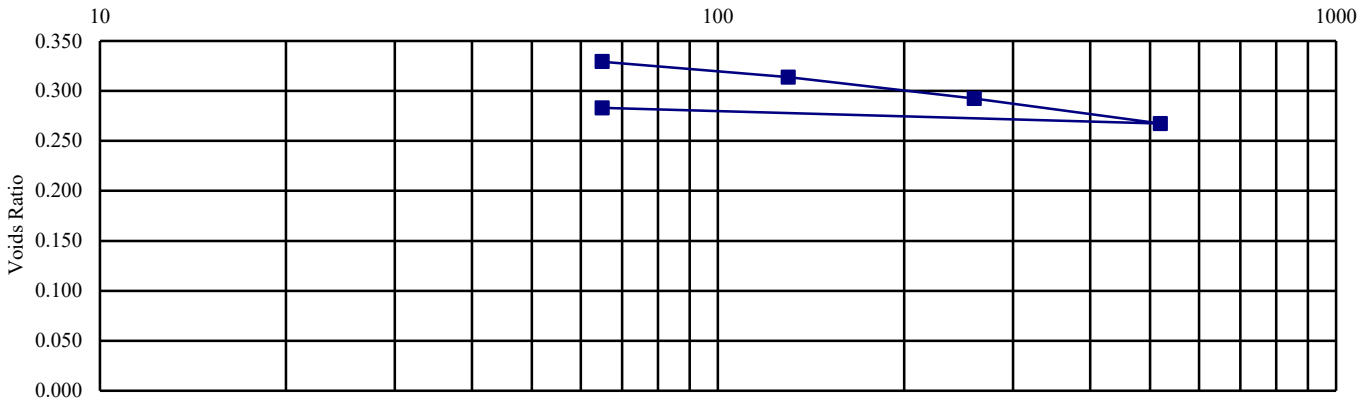
Hole Number: CP107 **Top Depth (m):** 6.50

Sample Number: 7 **Base Depth (m) :** 6.95

Sample Type: U100

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	11						
Bulk Density (Mg/m3):	2.16	0	65	0.360	0.381	Method used to	
Dry Density (Mg/m3):	1.95	65	130	0.181	0.422	determine CV:	T90
Voids Ratio:	0.361	130	260	0.124	0.453	Nominal temperature	
Degree of saturation:	80.7	260	520	0.075	0.466	during test ' C:	20
Height (mm):	20.136	520	65	0.027	1.202	Remarks:	
Diameter (mm)	75.055					See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043

PSL Professional Soils Laboratory

Bridgewater Mill

Contract No: PSL20/6137

Client Ref: 13597

ONE DIMENSIONAL CONSOLIDATION TEST

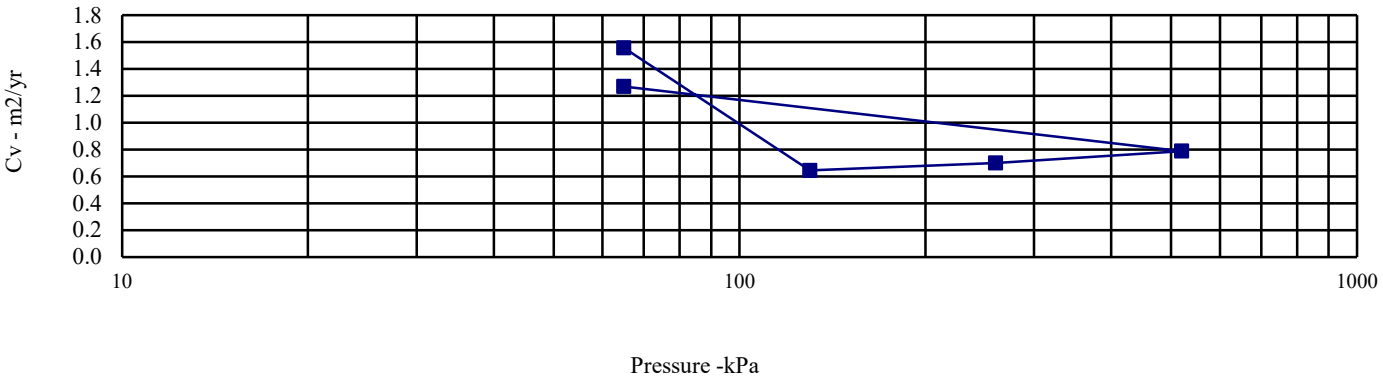
BS 1377: Part 5: 1990: Clause 3

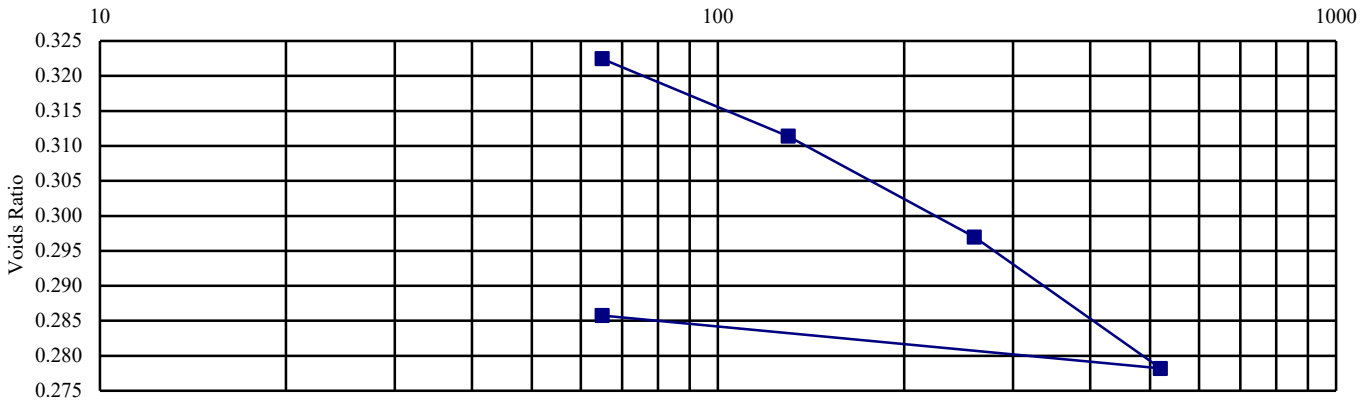
Hole Number: CP110 **Top Depth (m):** 6.50

Sample Number: 8 **Base Depth (m) :** 6.95

Sample Type: U100

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	13						
Bulk Density (Mg/m3):	2.22	0	65	0.255	1.556	Method used to	
Dry Density (Mg/m3):	1.97	65	130	0.129	0.644	determine CV:	T90
Voids Ratio:	0.345	130	260	0.084	0.699	Nominal temperature	
Degree of saturation:	99.1	260	520	0.056	0.788	during test ' C:	20
Height (mm):	19.894	520	65	0.013	1.269	Remarks:	
Diameter (mm)	74.895					See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043	PSL Professional Soils Laboratory	**Bridgewater Mill**	**Contract No:** PSL20/6137 **Client Ref:** 13597

APPENDIX XI
UXO REPORT

STAGE 1 PRELIMINARY UXO RISK ASSESSMENT

REPORT REF: PRA-20-1294 | Revision: 0

Client: E3P
Project: Former Bridgewater Paper Mill, Ellesmere Port
Date: 23/09/2020

BRIMSTONE SITE INVESTIGATION
1-3 Manor Road, Chatham, Kent, ME4 6AE
0207 117 2492
www.brimstoneuxo.com

INTRODUCTION

The Stage 1 Preliminary Risk Assessment is an initial screening assessment designed to highlight any sources of unexploded ordnance (UXO) with the potential to contaminate a given site.

The aim of the Stage 1 assessment is to identify or discount the need for further detailed research - a Stage 2 Detailed UXO Risk Assessment.

This desktop assessment has been researched and written by a dedicated Researcher / Risk Assessor and produced in accordance with the CIRIA C681Guidelines: Unexploded Ordnance, a Guide for the Construction Industry (published in 2009).

In preparation for this assessment, original WWII bombing figures and the Brimstone UXO Sources Database has been searched. The latter incorporates multiple datasets plotting the positions of a variety of domestic military sites and confirmed historic German bombing targets.

The Stage 1 Preliminary Risk Assessment considers the following:

1. The Proposed Works
2. Enemy Action during WWI and WWII
3. British / Allied Military Activity
4. Historic Site Occupancy
5. Risk Mitigating Factors

THE SITE AND PROPOSED WORKS

The Site (centred on the National Grid Ref: SJ 38926 78678) is located in the Mount Manisty area of Ellesmere Port (north-west Cheshire), near the south bank of the River Mersey. It is bound to the north-east by the Manchester Ship Canal, to the south-west by North Road, to the south-east by a recycling plant, and to the north-west by open ground.

The Site comprises the footprint of a former / recently demolished paper mill and as such is currently occupied by concrete floor slabs, overgrown vegetation, demolition debris heaps, and some brownfield land.

An SI, comprising approximately 50No. trial pits and 5No. cable percussion boreholes, will be conducted.

ENEMY ACTION DURING WWI AND WWII

Potential Source of UXO	Significant?	Details	
WWI German Bombing	×	Ellesmere Port did not experience bombing during WWI.	
WWII German Bombing	✓	British District Bombing Density Statistics	The Site is located within the (WWII-era) Urban District of Ellesmere Port which sustained 9.3 bombs / 1,000 acres, a low bombing density.
		Evidence of bombing / damage	Incident records not immediately available. Historical OS mapping does not highlight any potential evidence of severe bomb damage in the vicinity.
		Local German Bombing Targets	No Luftwaffe target records available for the local area. Closest known Luftwaffe target was Garston Docks (4.8km north). The military airfield (immediately west of the Site) would have represented a secondary target / target of opportunism.
		Local Bombing Decoy Sites	None within a significant radius of the Site. Closest was ~8km to the north-east.
WWII German Cross Channel Artillery Shelling	×	n/a	

BRITISH / ALLIED MILITARY ACTIVITY		
Potential Source of UXO	**Significant?**	**Details**
Existing or historic Army or RAF Training Areas / Ranges / Activity	×/✓	Soldiers of the 18th Cheshire (Ellesmere Port) Home Guard (HG) battalion would have been active in the local area during WWII. It is likely that the Site was accessed by armed HG soldiers however it will not have been requisitioned for significant HG use (e.g. ad-hoc weapons range).
Existing or historic Military Bases and Other Installations	×/✓	Historically, North Road (the southern Site boundary) also marked the perimeter of RAF Hooton Park (a WWI / WWII military airfield). Military activities associated with this airfield are therefore unlikely to have significantly affected the industrial use Site.
Existing or historic Munitions or Explosives Factories	×	n/a
Existing or historic Military Storage Depots	×	n/a
Existing or historic Military Defensive Fortifications	✓	The perimeter of the adjacent airfield was fortified against ground attack during 1940. Furthermore, evidence has been found of a WWII pillbox (hardened fortification) at the northern corner of the Site. This indicates infantry (army and RAF) activity in the immediate vicinity, potentially within the Site boundary.
WWII Light and / or Heavy Anti-Aircraft (LAA & HAA) Fire	✓	22 permanent HAA batteries were active within range of the Site during WWII. LAA batteries (defending the airfield) would have been active also. Liverpool was frequently and heavily bombed and therefore these guns would have frequently expended large quantities of ammunition.
WWII Pipe Mined Locations and Beach Minefields	×	RAF Hooton Park was not pipe mined during WWII.
HISTORIC SITE OCCUPANCY		
Was the Site developed during WWI / WWII?	During WWI, the Site was agricultural land. At the outbreak of WWII, the Site was occupied by Bowaters Paper Mill, comprising multiple small and large structures, storage areas, hardstanding, rail track and peripheral open ground.	
RISK MITIGATING FACTORS		
Post-Conflict Ground Works	The mill was expanded during the post-war period to cover the entire Site area with either hard-standing or additional buildings. Some of the original pre-war buildings remained on Site up until its demolition. The risk associated with any very shallow buried UXO will have almost certainly been mitigated. Post-war ground disturbance will likely have been relatively shallow, with significant excavations limited to structural footprints. Any shallow buried UXO risk will have only been partly mitigated on Site. The risk from any deeper buried UXO likely remains unmitigated.	
CONCLUSIONS		
Liverpool / Birkenhead was the second most heavily bombed conurbation, however as the Site is located a significant distance south of the primary target area, it was not significantly affected by these raids. Wartime figures confirm that the local district experienced a low bombing density. The adjacent airfield was never the specific subject of a large-scale targeted raid, however this facility could have drawn solitary aircraft to the vicinity with the potential for opportunistic bombing. It is conceivable therefore that wayward bombs (potential UXB) were released over the Site. The mill appears to have survived the war largely intact and therefore probably remained operational throughout the bombing conflict. Furthermore, the adjacent RAF base would have been a hive of activity with LAA gunners likely keeping watch around the clock. Any German UXO falling within the Site boundary is unlikely to have occurred unobserved. The proposed works (being SI) will disturb a relatively small volume of soil and consequently there is a low likelihood of a UXO encounter. There is currently considered to be a **Low Risk** to the proposed works from German UXO.		
The Site was separated from the adjacent airfield by a civilian road and therefore, as it was occupied by an industrial facility, RAF personnel probably would not have accessed the Site. However, an army fortification was built at the northern corner of the Site during WWII. Armed HG or army soldiers accessing the Site could conceivably have discarded / disposed of unwanted ammunition in peripheral soft ground. It is quite possible that an unexploded British AA shell struck peripheral vegetation on Site unobserved (during WWII) and remains shallow buried today. There is currently considered to be a **Low-Moderate Risk** to the proposed works from British UXO.		

RECOMMENDATION:	A Stage 2 Detailed UXO Risk Assessment is not considered necessary, however a UXO encounter cannot be completely ruled out. Therefore, a **UXO Safety Awareness Briefing** to all personnel conducting ground works would be considered prudent.