



Tier Environmental Ltd

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TE1163-TE-00-XX-GE-LT-011-V01

FAO Ms Blythin

Environment Agency
Environment Agency Head Office,
Horizon House,
Bristol,
BS1 5AH

13 November 2023

**TIER RESPONSE TO ENVIRONMENT AGENCY RESPONSE DATED 21st SEPTEMBER 2023 –
23/01949/REM**

Dear India,

Tier Environmental has produced this letter as a response to the correspondence received from the Environment Agency dated 21st September 2023 and the aim is to support planning application No. 23/01949/REM. Tier Environmental and the Environment Agency held a meeting on October 19th 2023, where the below works and measures were discussed and agreed in principle. The comments from the Environment Agency have been reproduced below for ease.

We do not agree with the conclusions that are presented in the report, based upon the data provided and our knowledge of the site history there is a credible pollutant linkage from this area of the site (Unit 2) to controlled waters receptors.

In this case our concerns are particularly around the soils and their ability to create a leachate that may impact the watercourse to the south. We have particular concerns around the possibility of high Iron and manganese levels from the colliary spoil that we know has been placed in this area. The area around the proposed unit is believed to be the location of a groundwater regs authorisation and a large mass of spoil we know was deposited there in the area. Groundwater concentrations in CP102, CP107 and CP108 have shown very high concentrations which would be associated with ochre in these areas, whilst CP102 is in this area it likely represents a deeper groundwater body CP107 and CP108 are not located in the area in question. Leachability analysis of contaminants of concern for colliary spoil does not appear to have been completed on any of the soils in this area, which we would have expected given the site history and context.

Further intrusive work is required in order to better characterise the soils and a remediation strategy will likely be required in order to mitigate the risks from the leachate especially considering that building on the site may further compress the soils and expel a slug of leachate.

Introduction

This letter has been prepared to further assess the results of soil leachate data obtained from beneath the Unit 02 area of the proposed development at the Symmetry Park Merseyside site located off Fox's Bank Lane, Cronton, L35 3SU.

This information has been provided in light of recent Environment Agency correspondence indicating concerns with respect to the possibility of the historic colliery spoil material leaching pollution which could reach a local brook.

Conceptual Site Model Understanding

Background

The superficial stratum beneath the majority of the wider site (Till) is designated as a Secondary (undifferentiated) Aquifer, with the Alluvium along the eastern and south-eastern areas of the wider site designated as Secondary (A) Aquifer. The bedrock of the Pennine Middle Coal Measures Formation which underlies the Unit 02 site area is designated as a Secondary (A) Aquifer. The Unit 02 site area is not located within a Source Protection Zone. The nearest active groundwater abstraction to the site comprises a borehole used at Blundells Hill Golf Club used for Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services (potable water abstraction). The borehole is stated within the Groundsure report for the site to be located at National Grid Reference 348550, 390340 which is located 1.48km northeast of the closest point at Unit 02. This borehole is considered to lay hydraulically up gradient based on local hydrogeological mapping and groundwater contours produced on site, the groundwater contours are contained within Appendix A. The closest hydraulically downgradient potable water abstraction borehole is located 1250m south of Unit 02. The closest surface water course to the Unit 02 site area is Fox's Bank Brook which at its closest point lays 50m south of the proposed Unit. When taking in to account the sensitivity of the controlled waters environment, it is considered that overall the risk to the underlying aquifers is very low and the risk to the surface waters is moderate.

The Unit 02 area is directly underlain by a wedge of Made Ground soils discontinuously underlain in turn by Till. Surface ground conditions currently underlying the proposed application area comprise rough scrubland and grassed areas, with no areas of hardstanding or drainage. All precipitation currently drains through the soils and percolates very slowly into surface and groundwater bodies. This current hydrological ground model has been in place at the site within the Unit 02 area for approximately 40 years, since the demolition of the colliery infrastructure in the 1980s.

Groundwater monitoring data from within the Unit 02 application area indicates that there are localised pockets of groundwater confined by cohesive soils. This is evidenced by discontinuous groundwater monitored across the site, as shown on the drawings within Appendix A. Furthermore, during site walkovers, Tier have observed extensive surface water pooling on the surface of the soils indicating that percolation rates through the soils are intrinsically very low.

It is noted that the colliery spoil materials, whilst recovered in a manner such that the engineer log descriptions are of a granular nature, actually behave *in situ* like a stiff cohesive material but ‘break up’ upon excavation or drilling which is why the engineer logs sometimes describe the recovered materials as a ‘gravel’. Evidence; however, that these materials have plasticity indicating the cohesive nature of the materials is provided in the geotechnical laboratory results obtained across the wider site. Other data has been provided to support the fact that consistently, the colliery spoil materials across the site have plastic properties consistent with a cohesive material. In addition, the low infiltration rates observed during *in situ* soakaway tests are included as Appendix C.

Excavation works have been conducted by Tier Environmental in October 2023 to assess the presence / absence of preferential pathways associated with culverts beneath the Unit 02 building footprint. The conclusion of this assessment was that **no culverts** are present beneath the Unit 02 area.

Development

The proposed development for the Unit 02 area comprises a commercial warehouse, with associated yard and parking areas to the north and east of the building. A fire track and small localised soft landscaped areas are located around the periphery. The proposed development layout is included within Appendix A. The majority of the application area, over 90% of the surface area, will therefore incorporate buildings and hardstanding that will have a dedicated drainage system that will significantly further reduce the infiltration rates through the soils.

Tier have produced a series of Conceptual Site Model (CSM) drawings that present how the ground model will change throughout the development of the site. These are drawings No. TE1163-TE-00-XX-DR-GE-022-V01 Current CSM, TE1163-TE-00-XX-DR-GE-023-V01 Earthworks CSM and TE1163-TE-00-XX-DR-GE-022-V01 Post Construction CSM contained within Appendix A. The drawings highlight how the development is providing betterment to the underlying current hydrological regime currently present at the site.

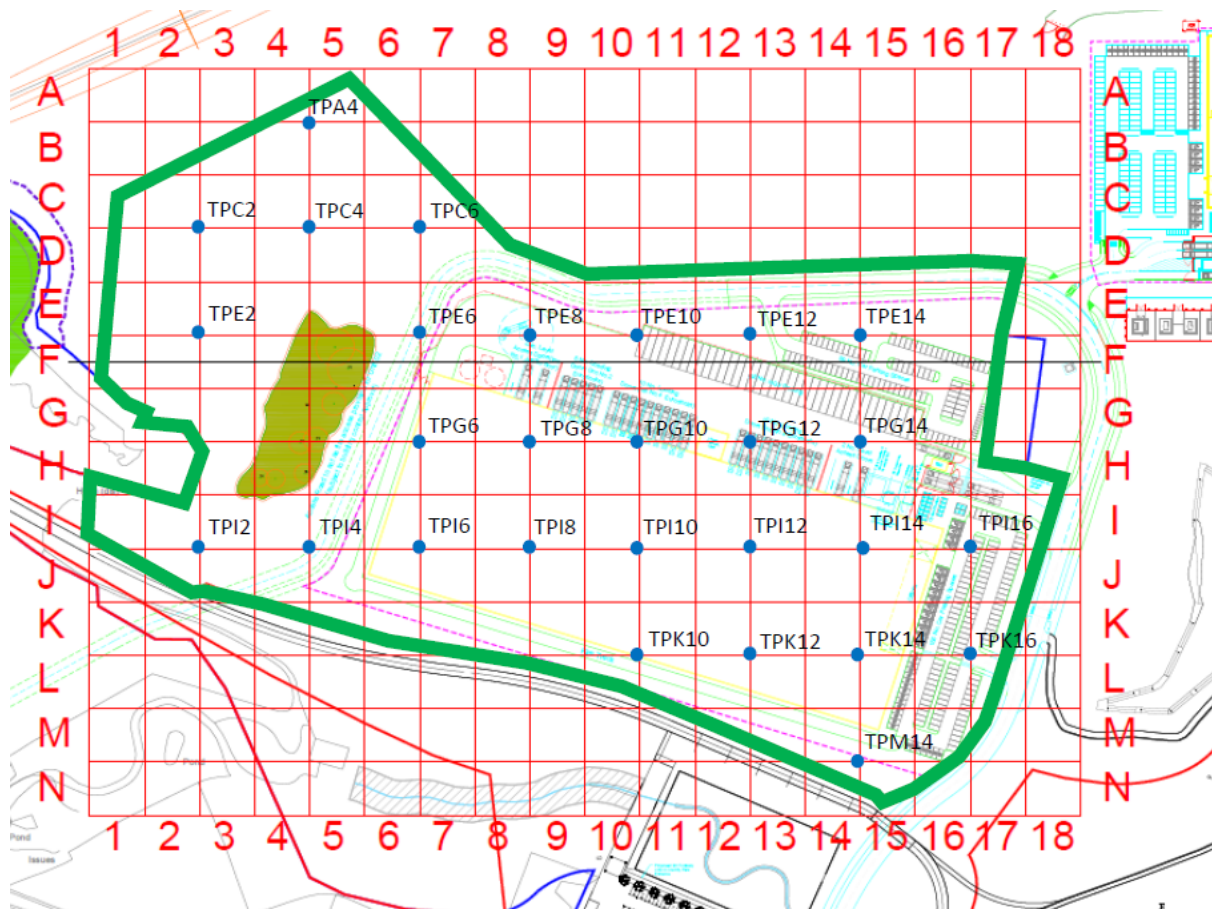
However, it is acknowledged that a risk remains during the earthworks phase, of increased percolation through the Made Ground soils. To reduce this risk, further measures will be implemented during the development and supervised by Tier. These include that all fresh surfaces will be “sealed” via proof rolling to reduce permeability at the surface. The slope to the south of Unit 02 will be re-engineered to enhance the inherent low permeability properties of the colliery spoils detailed above even further. Tier will be undertaking a watching brief throughout the earthworks. It is therefore considered that the development of the Unit 02 area will greatly reduce any residual risk to the controlled waters environment.

Controlled Waters Risk Assessment

Introduction

Tier Environmental conducted additional intrusive investigations in order to assess whether there is a potentially unacceptable risk of pollution of controlled waters. Samples of soil leachate have been submitted for laboratory chemical analysis from the locations shown below:

Figure 1 Location of Leachate Samples



Analytical data from the soil leachate sample testing undertaken by Tier Environmental have been evaluated against Water Quality Standard (WQS) values appropriate to the Conceptual Site Model in a manner consistent with that described in the Ground Investigation Report previously produced by Tier Environmental (report reference: TE1163GIR1.3, dated 1st December 2021). The laboratory chemical analysis data is presented in Appendix B.

In summary, in accordance with Part 2A of the Environmental Protection Act 1990, Tier Environmental has made regard to all of the WQS values that are relevant to the site and a judgment has been made against the most stringent of those relevant standards.

In some instances, the laboratory method detection limit is greater than the appropriate WQS value. In these instances, only measured concentrations in excess of the laboratory method detection limit have been considered likely to potentially represent a possible significant risk to controlled waters.

For those determinants where the selected water quality standard is dependent on hardness, the relevant EQS has been selected based on the hardness results of groundwater analysis at the site.

The GACs were predominantly selected from Freshwater Environmental Quality Standards (EQS) in order to determine the potential risk to the controlled waters during an initial Tier 1 screening exercise. In the absence of any such available values, available UK DWS values were used for initial screening purposes (e.g. for selenium).

In regard to the GAC for manganese, Tier previously produced a technical note (report ref: TE1163-TE-00-XX-TN-GE-001-V02), in which the Metal Bioavailability Tool (M-BAT) has been implemented to calculate the bioavailable concentrations of manganese. Tier Environmental have adopted the approach stipulated in the *UKTAG River & Lake Assessment Method Specific Pollutants (Metals) - Metal Bioavailability Assessment Tool (M-BAT)* document dated July 2014 of applying a 'summary value' (median) for pH, average for Calcium and a median value for DOC for the receiving water in order to calculate the bioavailable concentrations of manganese. The M-BAT analysis calculated 'Predicted No Effect Concentration' or 'PNEC' (considered a site-specific EQS value (Section 2.3)) is 325.80 µg/l, and therefore this value will be used in this assessment.

Soil Leachate Testing

Tier Environmental has conducted a comparison of the reported leachate concentrations reported Table 1 below summarises the measured concentrations of contaminants of concern from these soil leachate samples that have been reported in excess of the respective WQS values.

Table 1 Summary of Measured Concentrations of Soil Leachate Potential Contaminants of Concern in Excess of WQS Values Beneath or in Close Proximity to Unit 02

Potential Contaminant of Concern	Units	LoD*	WQS	Maximum concentration	No. samples >WQS	Exploratory Hole Locations	Depth (m bgl)	Soil Population
Dissolved iron	µg/l	<20	1	667	12 of 25	TC6, TPE10, TPE12, TPE14, TPG10, TPG12, TPG14, TPI02, TPI4, TPI16, TPK12, TPK16	0.10 to 3.00	Colliery spoil materials

Potential Contaminant of Concern	Units	LoD*	WQS	Maximum concentration	No. samples >WQS	Exploratory Hole Locations	Depth (m bgl)	Soil Population
Dissolved manganese	µg/l	<1.5	325.8 (SSAC)	7492	8 of 25	TPC4, TPG08, TPG10, TPI02, TPI14, TPI16, TPK16, TPM14	0.40 to 3.00	Colliery spoil materials
Sulphate as SO ₄	mg/l	<0.5	400	1645.6	12 of 25	TPE8, TPG06, TPG08, TPG10, TPI02, TPI10, TPI12, TPI14, TPI16, TPK10, TPK14, TPK16	0.20 to 3.00	Colliery spoil materials

* LOD= Laboratory Method Limit of Detection

Dissolved Iron Discussion

Measured concentrations of leachable iron have been reported in excess (by between the same order of magnitude and two orders of magnitude) of the respective WQS. The concentrations are observed to fluctuate across the Unit 02 site area with no observable spatial pattern. The concentrations observed are not considered to constitute a potential risk to the surface waters and are considered to be representative of background concentrations associated with the underlying natural geology and past industrial activity that has taken place in the area. Similar concentrations of Iron have been identified within the surface water monitoring. Taking into consideration the above, the betterment offered by the earthworks and final development (as described in previous sections), and the potential for significant dilution within the surface water bodies beneath the site and the historical commercial / industrial heritage of the wider area surrounding the site the concentrations of Iron observed are not considered to present a potentially unacceptable risk to controlled waters.

Dissolved Manganese Discussion

Measured concentrations of leachable manganese have been reported up to one order of magnitude above the respective WQS. Manganese exceedances have also been recorded in surface water monitoring undertaken throughout the last 18 months by the same orders of magnitude alongside manganese exceedances reported across the site in multiple boreholes during all phases of investigations and monitoring. BGS Technical Report WN/95/3 states that groundwater in continuity within the Coal Measures can be “particularly high in iron and manganese concentrations due to the oxidisation of pyrites”.

The closure of many coal mines and industry within the wider Knowsley area has left extensive legacy of abandoned workings in an unknown condition which are steadily degrading. Coal-bearing rocks can contain high levels of manganese bearing strata which was exposed during mining operations. Since the cessation of groundwater pumping following the closure of the mines, the fresh surfaces have been underwater allowing it to breakdown and dissolve manganese compounds such as manganese

hydroxides into the surrounding waters. Due to this the waters within the entire greater Knowsley area likely contains similar background concentrations of manganese that have also been found across the site. It is therefore considered that the manganese concentrations do not pose a potentially unacceptable risk to controlled waters, particularly in the context of the betterment offered by the earthworks and final development (as described in previous sections).

Dissolved Sulphate Discussion

Measured leachable sulphate concentrations have been reported marginally in excess of the WQS by up to only one order of magnitude. It should be noted that dissolved phase sulphate is found in high concentrations in groundwater in a number of locations within Coal Measures and are commonly derived from the flooded mine workings and the dissolution of oxidised pyrite within the Coal Measures.

Sulphate is not listed as a priority substance under the Water Framework Directive (WFD) and Environmental Quality Standards Directive (EQSD) and the EQS value for inland surface waters is non-statutory.

Tier Environmental have assessed the Stockholm University Department of Environmental Science and Analytical Chemistry (ACES) report entitled “*Sulphate EQS Data Overview*” (report reference: ACES report number 14, dated 2018) The report demonstrates that several studies have demonstrated that increased water hardness decreases the toxicity of sulphate in both acute and chronic exposures. As hardness reported in Fox’s Bank Brook on 29th March 2022 to be between 267 and 641 mg/l, it is considered that the increased hardness in the receiving water would reduce the toxicity of sulphate within the controlled water environment.

Overall, when the context of the wider naturally occurring Pennine Middle Coal Measure sulphate levels, the marginal nature of the leachable exceedances described above, the betterment offered by the earthworks and final development (as described in previous sections), the distance to Fox’s Bank Brook and the decreased toxicity due to elevated hardness levels in Fox’s Bank Brook are considered, the measured leachable concentrations of sulphate are not regarded as presenting a potentially significant risk to the controlled waters environment.

Additional Measures

Tier Environmental understand that the Environment Agency have primary concerns associated with the short-term risks associated with the earthworks, but also longer-term risks associated with any leaching driven by a future unforeseen drainage / water pipe leakage.

The following control measures will be implemented to provide further confidence that the long-term risks associated with leaching are acceptably low:

- The building will form a physical barrier to infiltration from precipitation at the site. Indeed all infiltration at the Unit 02 site will be captured by the drainage pipework on site;

- A CCTV survey will be carried out on all of the drainage pipework upon completion as part of a validation survey; and,
- The drainage will be pressure tested as part of the validation works.

The following control measures will be implemented to provide further confidence that the short-term risks associated with leaching are acceptably low:

- A surface water management plan has been produced for the site and is presented within Appendix A. In summary this comprises land drains surrounding the Unit 2 application area to capture any surface water runoff. These waters will then enter a purpose-built settlement lagoon and run through a siltbuster. They will then be pumped up to a higher elevation on the eastern extent of Unit 02. To be deposited into the wider drainage that drains into the eastern country park attenuation ponds.
- All fresh surfaces will be “sealed” via proof rolling to reduce permeability at the surface.
- The slope to the south of Unit 02 will be re-engineered to enhance the inherent low permeability properties of the colliery spoils detailed above even further.
- Tier will be undertaking a watching brief throughout the earthworks.

It is believed that this combination of measures appropriately mitigates the risk of any future leaks.

Surface Water Monitoring

It is proposed that surface water monitoring will be carried out on a three-weekly basis from Fox's Bank Brook assess any variations in pre-existing surface water concentrations. The reported concentrations will be compared against appropriate WQS.

In the event that reported concentrations are found to exceed the appropriate WQS, then the following contingency measures will be taken. As part of the monitoring plan, trigger levels and contingency actions have been developed. Trigger levels and contingency actions are set out below and are informed by the results of the baseline monitoring.

Trigger Level – Measured Surface Water Concentrations Exceed WQS by up to 2 No. Orders of Magnitude

- Examine data including consideration of historic and recent trends, spatial correlation to site operations, possibility of cause;
- Increased scrutiny – increase the number of times the data is being obtained and reviewed – a repeat visit should be conducted; and,
- Establish if one-off or part of a trend.

Action Level - Measured Surface Water Concentrations Exceed WQS In Excess of 2 No. Order of Magnitude

- Inform Environment Agency;
- Examine data to assess cause and likely impact of high concentrations;

- Revise risk assessment and re-assess potential risk;
- If high concentrations are predicted to be significant, then hold discussions with the Environment Agency as to such activities need to cease temporarily or whether such activities could reasonably continue but be further controlled or reduced in extent or slowed down; and,
- Once the measures have been decided, further sampling / monitoring should be conducted to confirm whether such measures have been effective so as to reduce the increasing concentration trends observed. Alternatively, if increasing trends continue to be observed, further discussion and liaison will be required with the LA and EA to discuss any additional measures that need to be taken on site to further reduce risk.

Conclusions

- The Conceptual Site Model summary indicates very low risk to underlying aquifer and moderate risk to nearby surface waters.
- Colliery spoil is plastic and behaves as a cohesive material *in situ*. Soakaway testing demonstrates low permeability properties thereby restricting lateral and vertical migration;
- Tier 1 leachate assessment from below Unit 02 area demonstrates reported concentrations of manganese, iron and sulphate; however, no unacceptable risk to controlled waters has been identified;
- Additional measures are proposed to further reduce EA raised concerns:
 - Implementation of a surface water management plan, including land drains to stop surface run off into brook, settlement pond, siltbusters and discharging into wider site drainage.
 - Sealing of all freshly excavated surfaces and re-engineering of slope south of Unit 02;
 - The building will act as a physical barrier to infiltration and the drainage system will capture infiltration elsewhere;
 - Full drainage validation survey;
 - Additional layers of protection from leaks beneath Unit 02 via implementation of waterproof layers on water pipes and drainage pipework;
 - Surface water sampling / monitoring and contingencies in the event that WQS criteria are exceeded (trigger and action levels)

For and on behalf of

TIER ENVIRONMENTAL LTD

Alex Preston

Principal Geo-Environmental Engineer

Tier Environmental Ltd

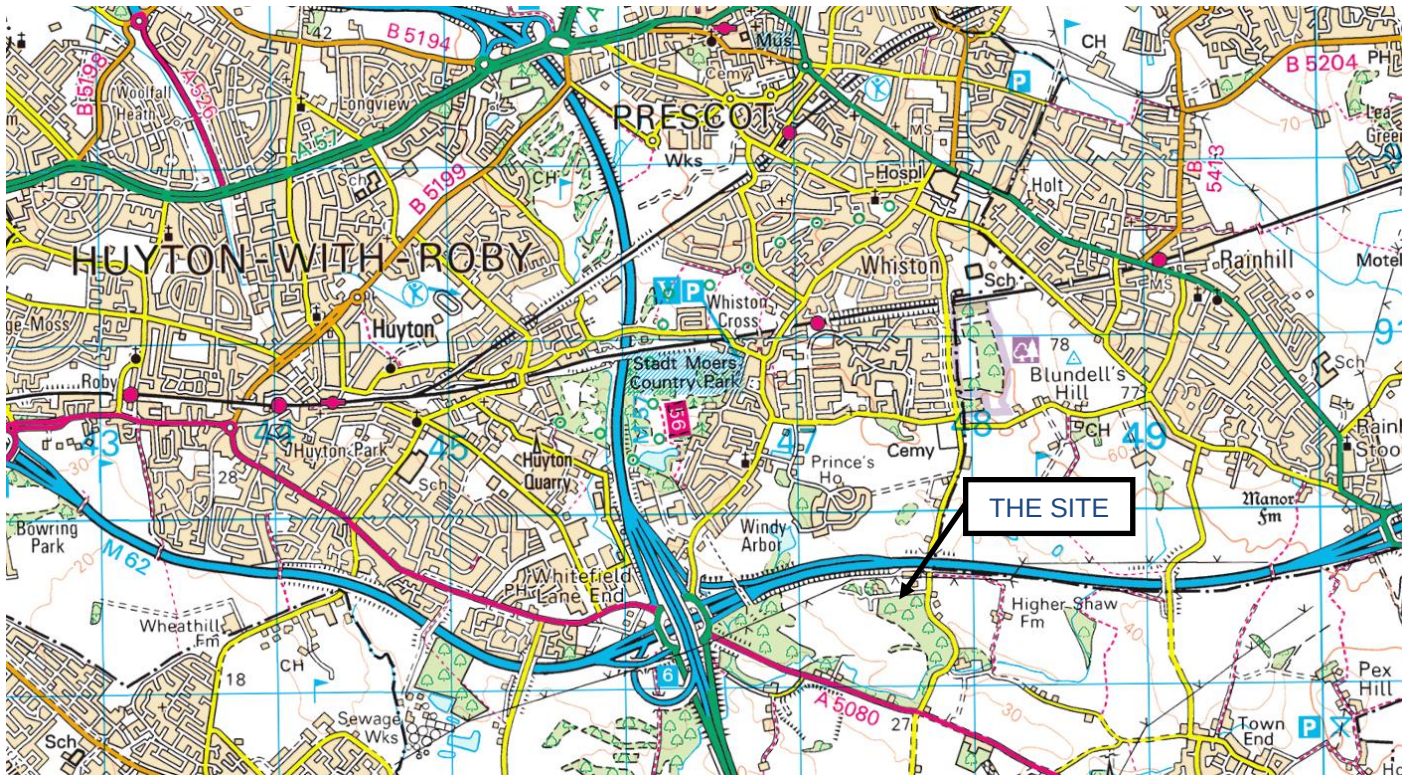


APPENDIX A – DRAWINGS



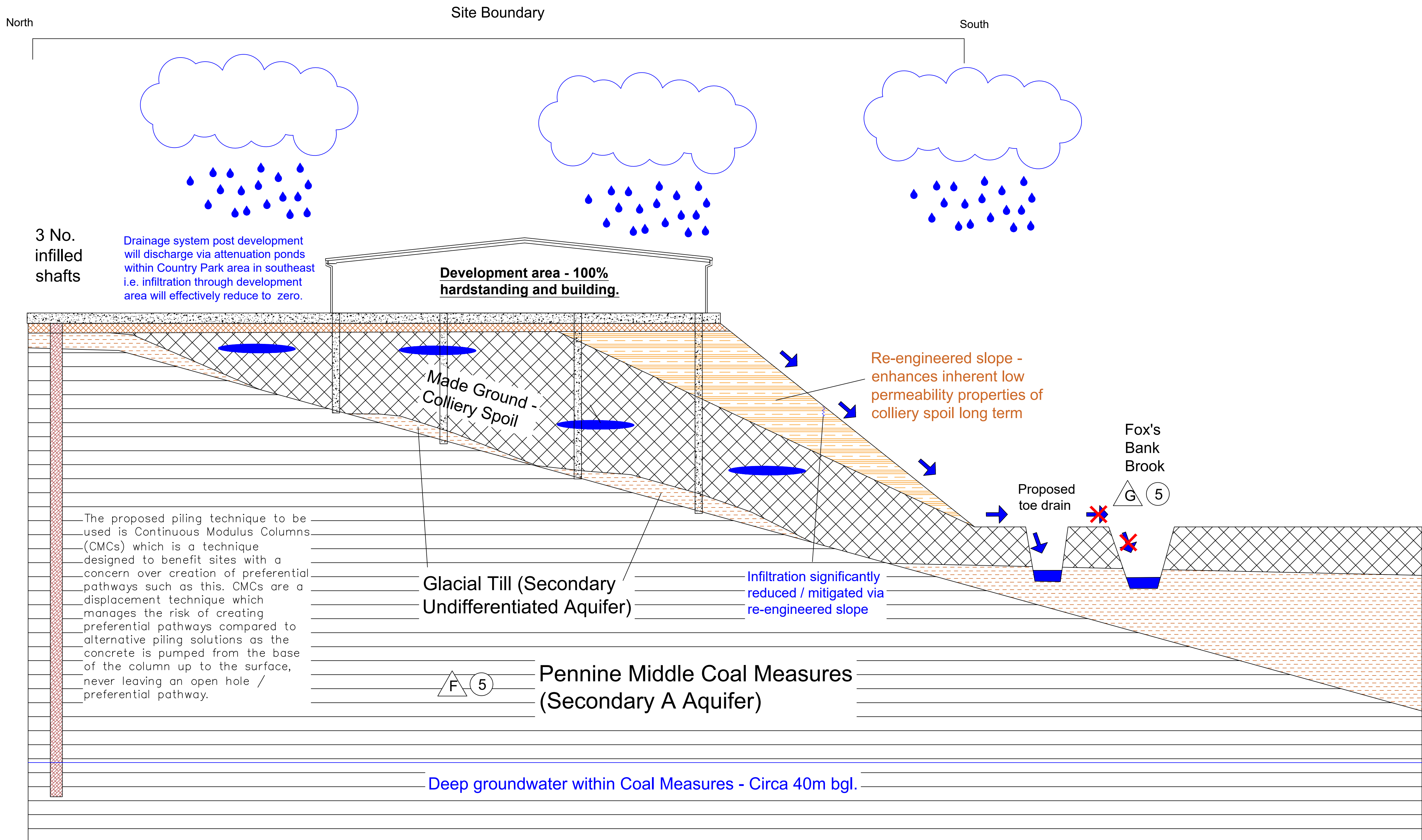
Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	DB Symmetry

Site Location Plan



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Scale	NTS		
Drawn by	JC	Approved	SL
Drawing Number	TE1163GIR1		



- A** Future site users
- B** Current site users
- C** Adjacent site users
- D** Construction, site investigation, demolition and future maintenance workers
- E** Buildings, hardstanding and services
- F** Secondary A Aquifer
- G** Surface Water - Fox's bank Brook

- 1** Inhalation of indoor and outdoor gas
- 2** Direct contact
- 3** Migration of ground gas through permeable Made Ground
- 4** Dust migration and inhalation/ingestion
- 5** Migration of mobile contaminants
- 6** Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits
- 7** Migration of mobile contaminants through water pipes

DO NOT SCALE

TIER

NOTES

This drawing is purely schematic and is a representation of the ground conditions and process, based upon information derived from the third party reports, desk study, Preliminary Risk Assessment and ground investigations and risk assessments.

This model should be revised, in the event of any supplementary information, to ensure its relevance to actual conditions.

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REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS: FINAL



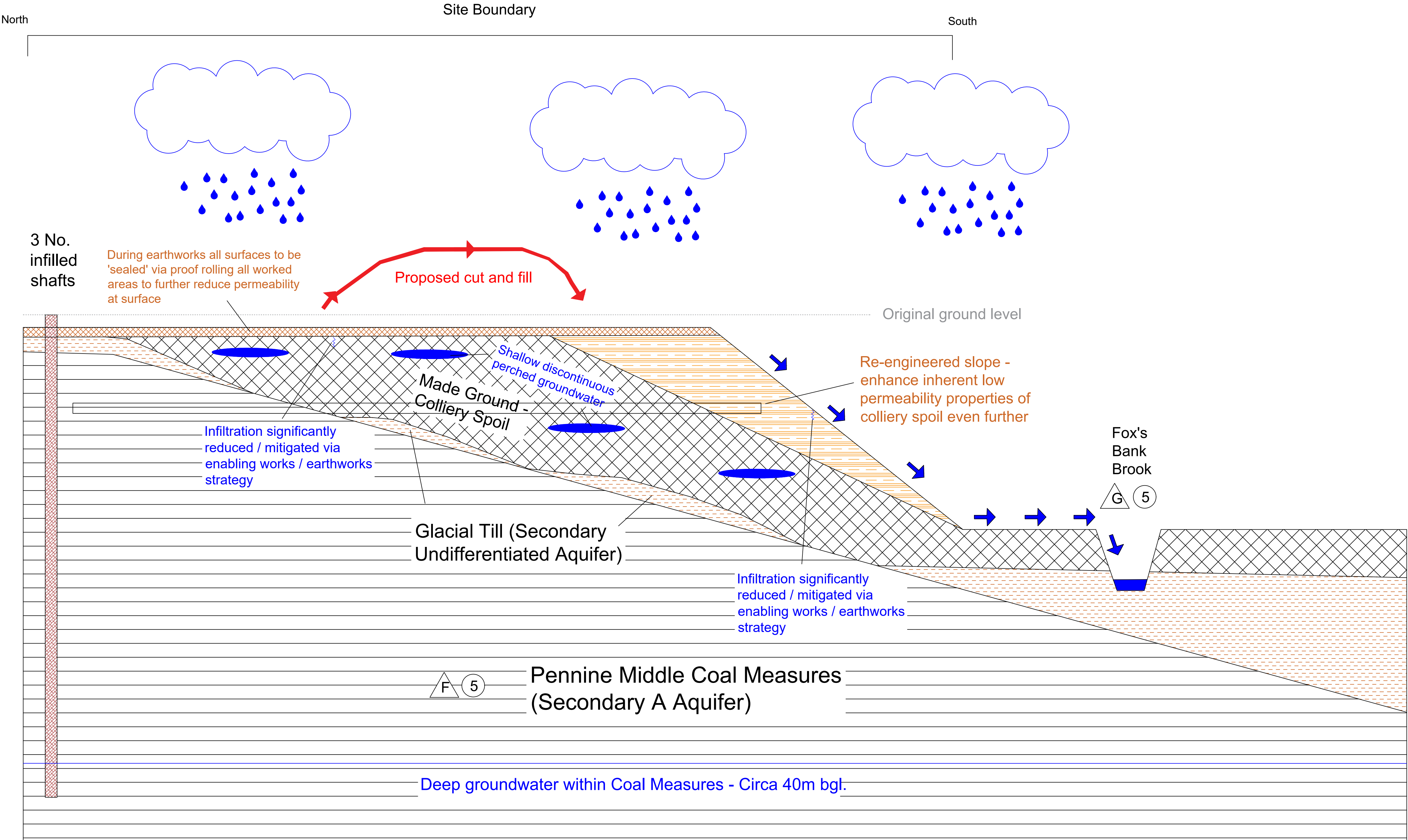
Tier Environmental Ltd.
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CLIENT:
db Symmetry

PROJECT:
UNIT 2, FORMER CRONTON COLLIERY

TITLE:
CONCEPTUAL SITE MODEL POST-CONSTRUCTION

SCALE: NTS	CHECKED: AP	APPROVED: SL
CAD FILE: -	DESIGN/DRAWN: AR	DATE: 19/10/2023
PROJECT No: TE1163	DRAWING No: TE1163-TE-00-XX-DR-GE-024-V01	REV: p1



DO NOT SCALE

TIER

NOTES

This drawing is purely schematic and is a representation of the ground conditions and process, based upon information derived from the third party reports, desk study, Preliminary Risk Assessment and ground investigations and risk assessments.

This model should be revised, in the event of any supplementary information, to ensure its relevance to actual conditions.

P1	19/10/2023	AR	ISSUED FOR INFORMATION	AP	SL
REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS: FINAL



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db Symmetry

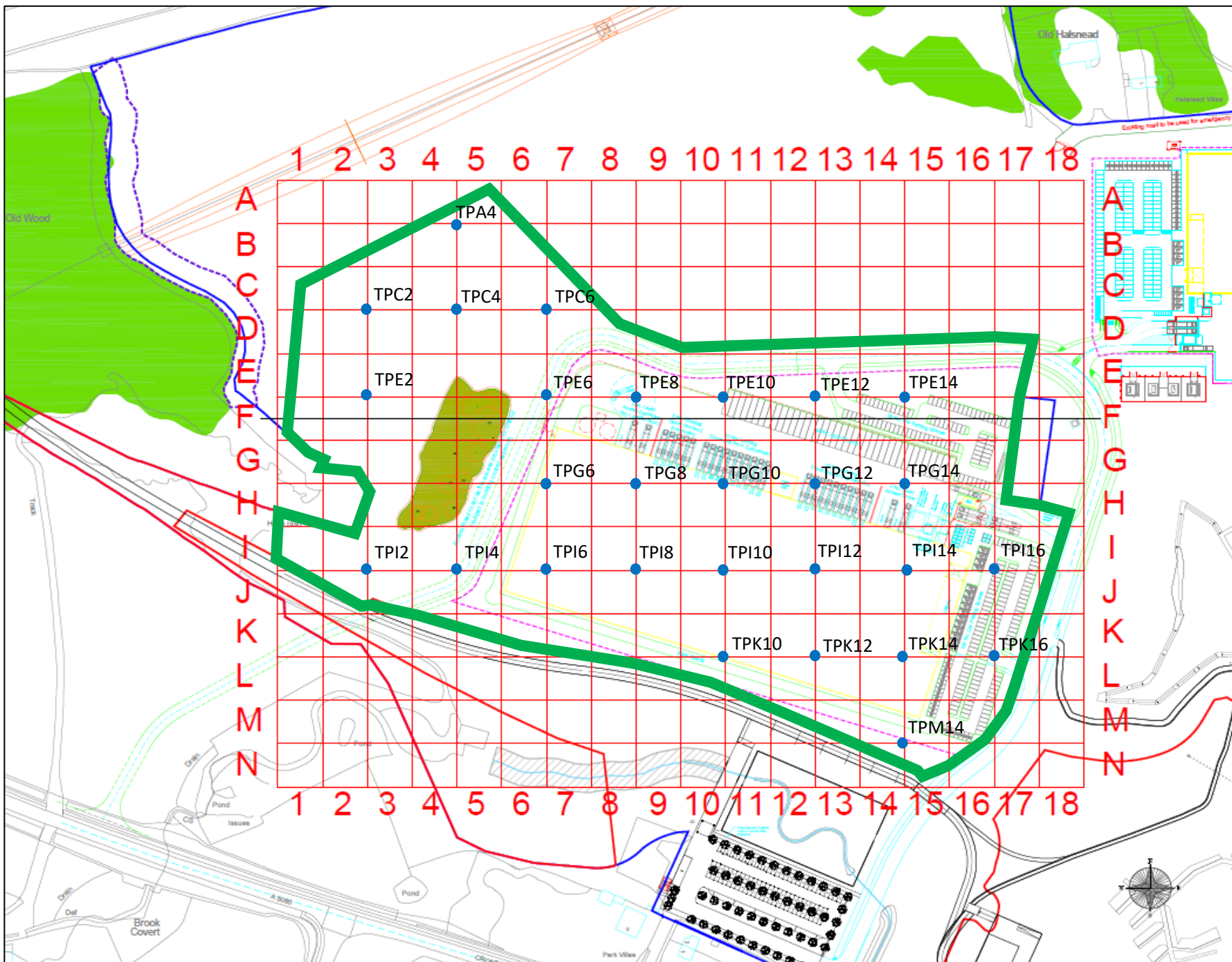
PROJECT:

UNIT 2, FORMER CRONTON COLLIERY

TITLE:

CONCEPTUAL SITE MODEL DURING EARTHWORKS

SCALE: NTS	CHECKED: AP	APPROVED: SL
CAD FILE: -	DESIGN/DRAWN: AR	DATE: 19/10/2023
PROJECT No: TE1163	DRAWING No: TE1163-TE-00-XX-DR-GE-023-V01	REV: p1



● TPxx = Leachate Sample location

Drawing Status: Draft



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Client: DB Symmetry

Project: Former Cronton Colliery

Title: Leachate Sample Plan

SCALE@SIZE: NTS	CHECKED: AP	APPROVED:AP
CAD FILE: -	DESIGN/DRAWN: ER	DATE: 18/10/2023
PROJECT No.: TE1789	DRAWING No.: TE1789-TE- 00-XX-DR-GE-001-V01	REV: 1



Visit 1 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



- WS04
40.339
- Monitoring well reference and groundwater elevation (m AOD)
- Shallow installation (to a maximum depth of 4m bgl)
- Middle depth installation (to depths between 4m and 7m bgl)
- Deep depth installation (to depths greater than 7m bgl)

Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-002-V01	



Visit 2 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-001-V01	



Visit 3 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd

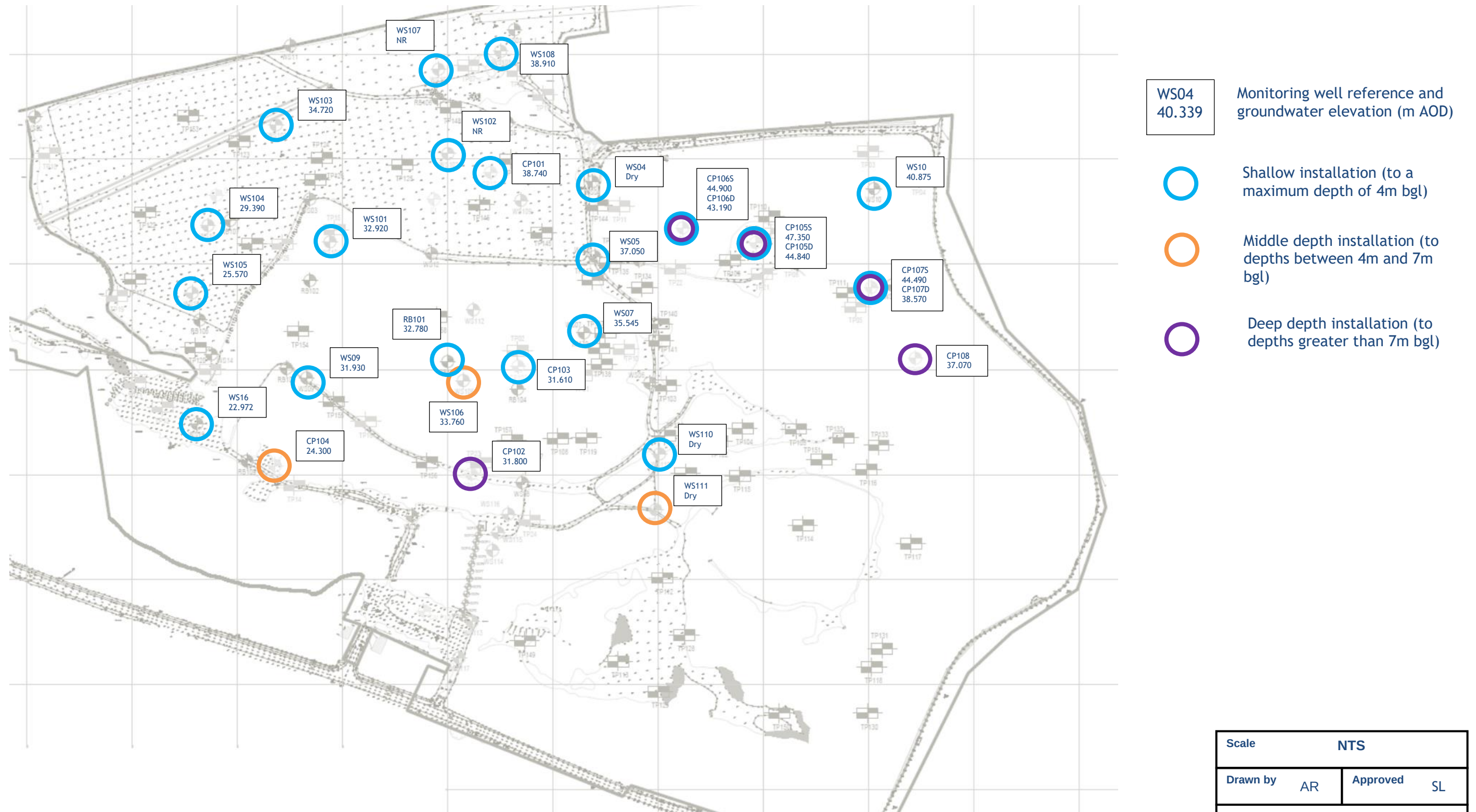


WS04 40.339	Monitoring well reference and groundwater elevation (m AOD)
	Shallow installation (to a maximum depth of 4m bgl)
	Middle depth installation (to depths between 4m and 7m bgl)
	Deep depth installation (to depths greater than 7m bgl)

Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-001-V01	



Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



Scale		NTS	
Drawn by AR		Approved SL	
Drawing Number		TE1163-TE-00-XX-DR-GE-001-V01	



Visit 5 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



WS04 40.339	Monitoring well reference and groundwater elevation (m AOD)
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	Middle depth installation (to depths between 4m and 7m bgl)
	Deep depth installation (to depths greater than 7m bgl)

Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-001-V01	



Visit 6 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-001-V01	



Visit 1 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-002-V01	



Visit 2 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-001-V01	



Visit 3 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-001-V01	



Visit 4 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-001-V01	



Visit 5 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd



Scale	NTS	
Drawn by	AR	Approved SL
Drawing Number	TE1163-TE-00-XX-DR-GE-001-V01	



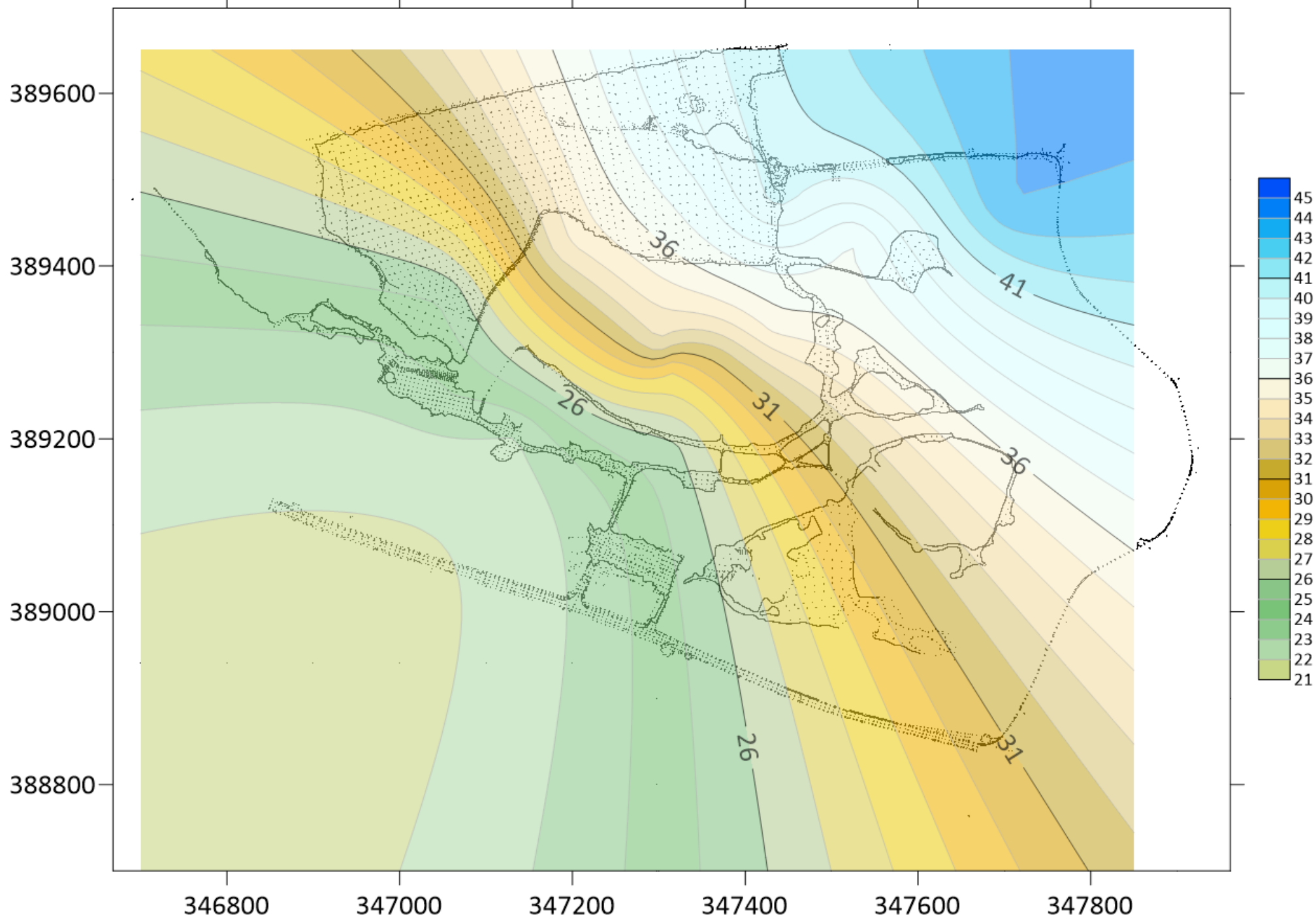
Visit 6 - Groundwater Levels Summary

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Ltd

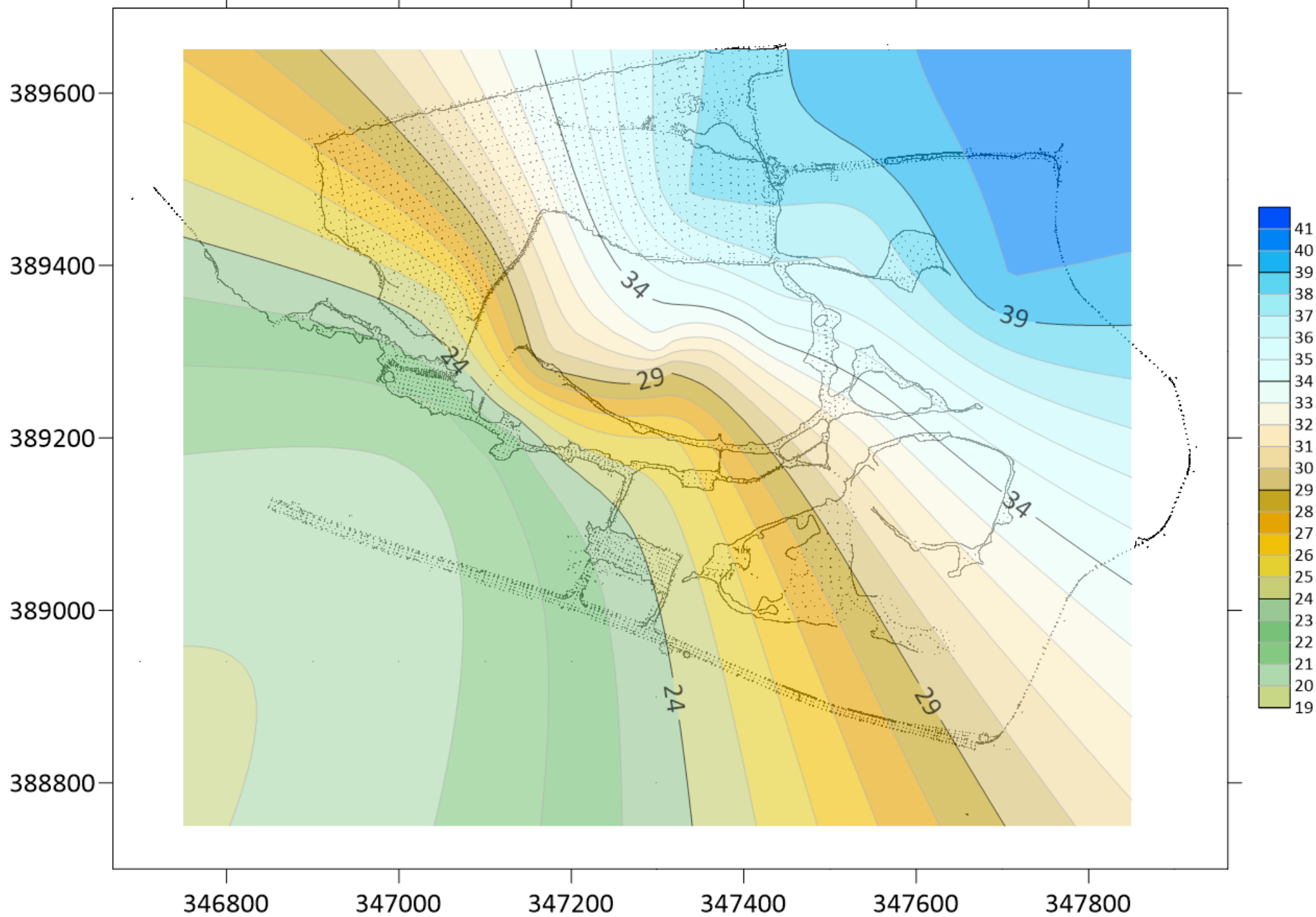


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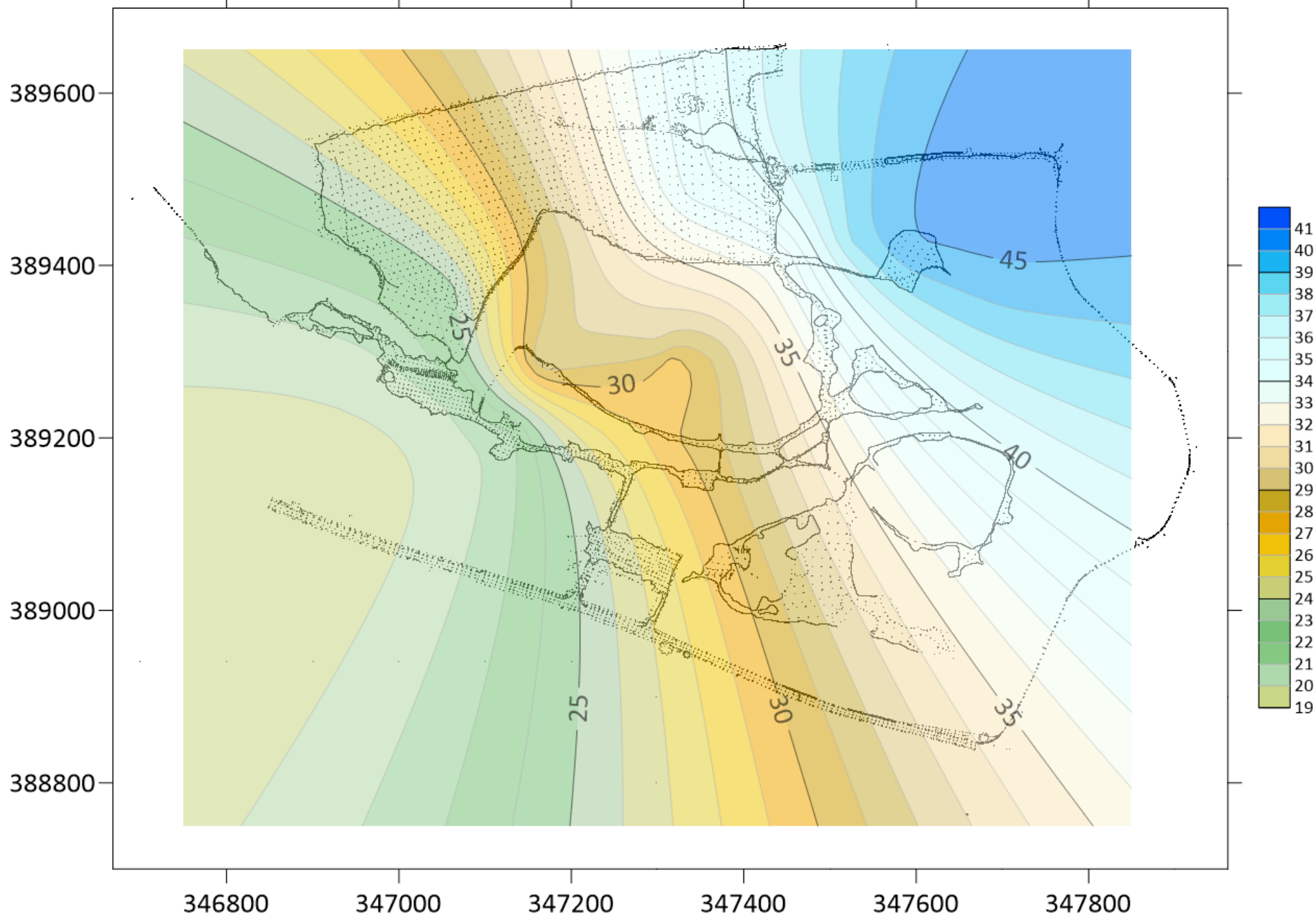
Monitoring Visit 1 - 02.09.2020



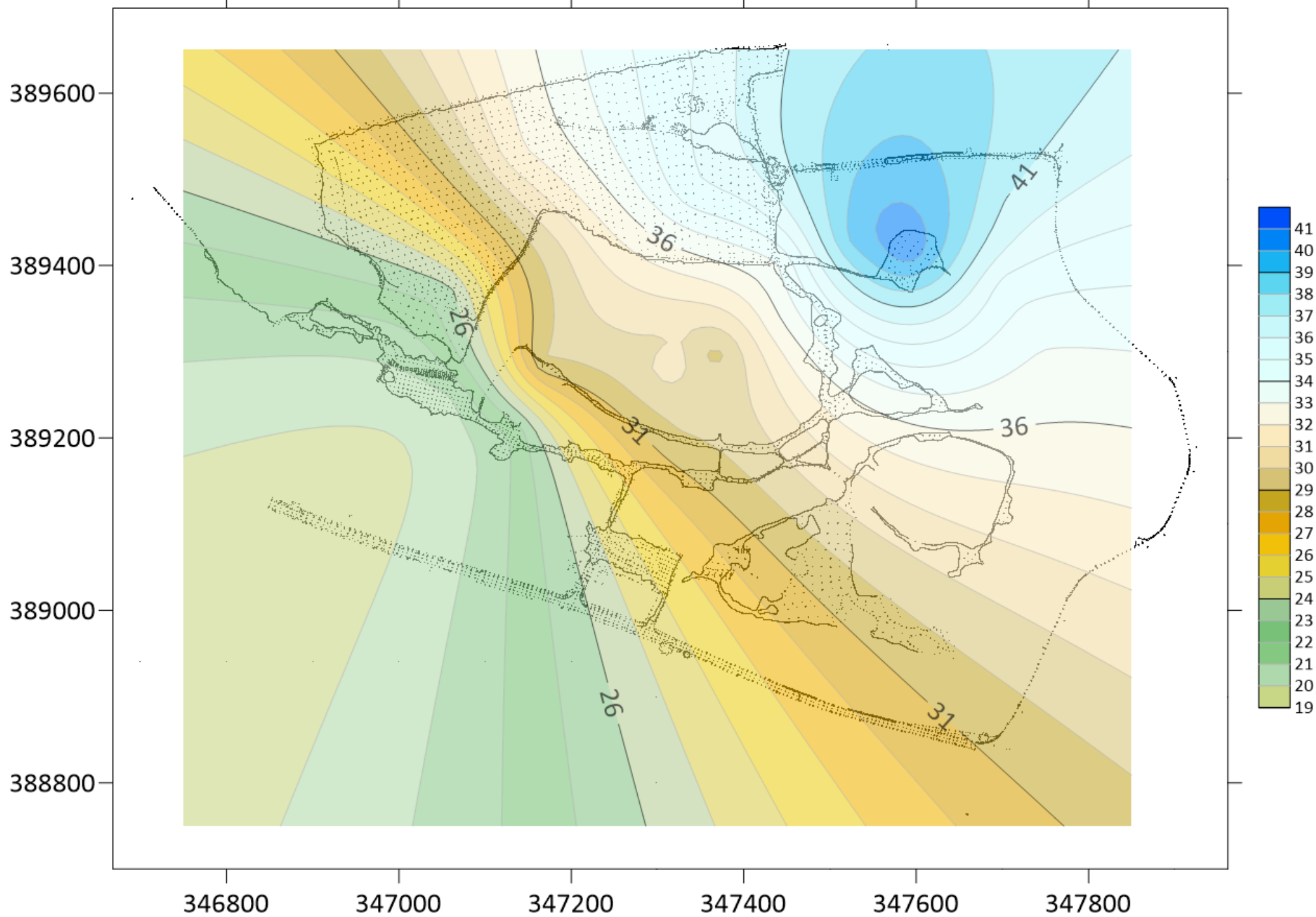
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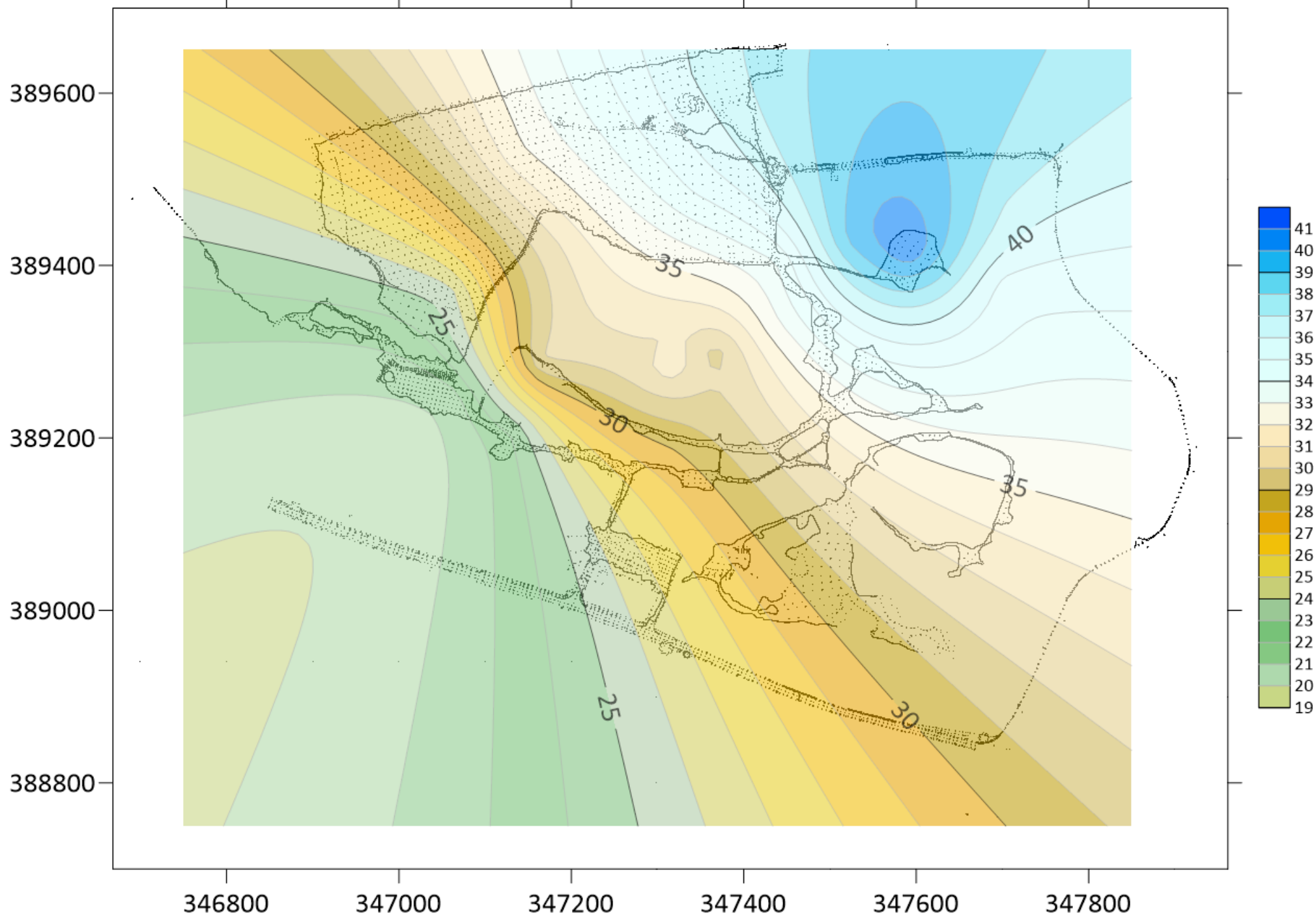
Monitoring Visit 3 - 25.09.2020



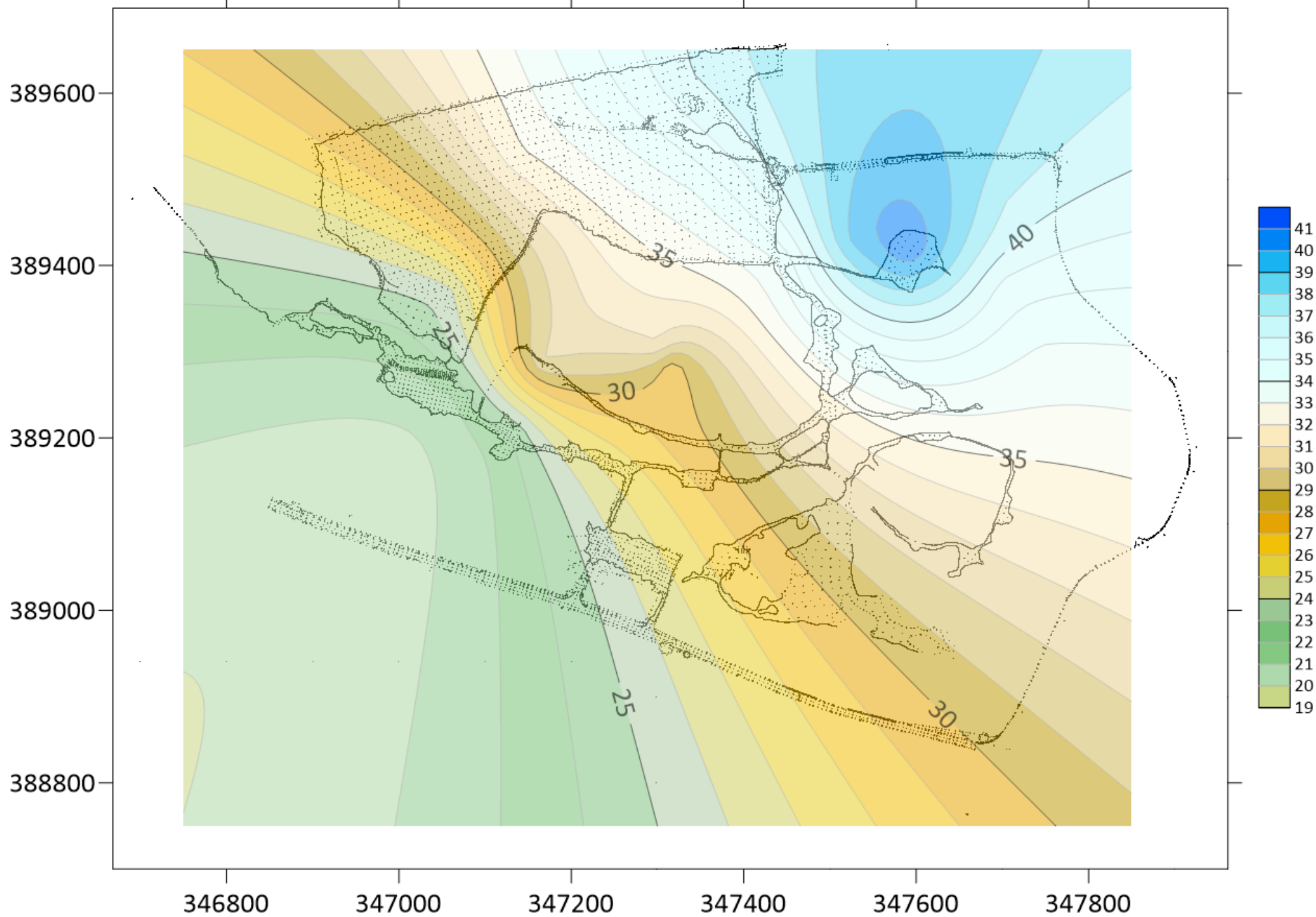
Monitoring Visit 4 - 12.10.2020

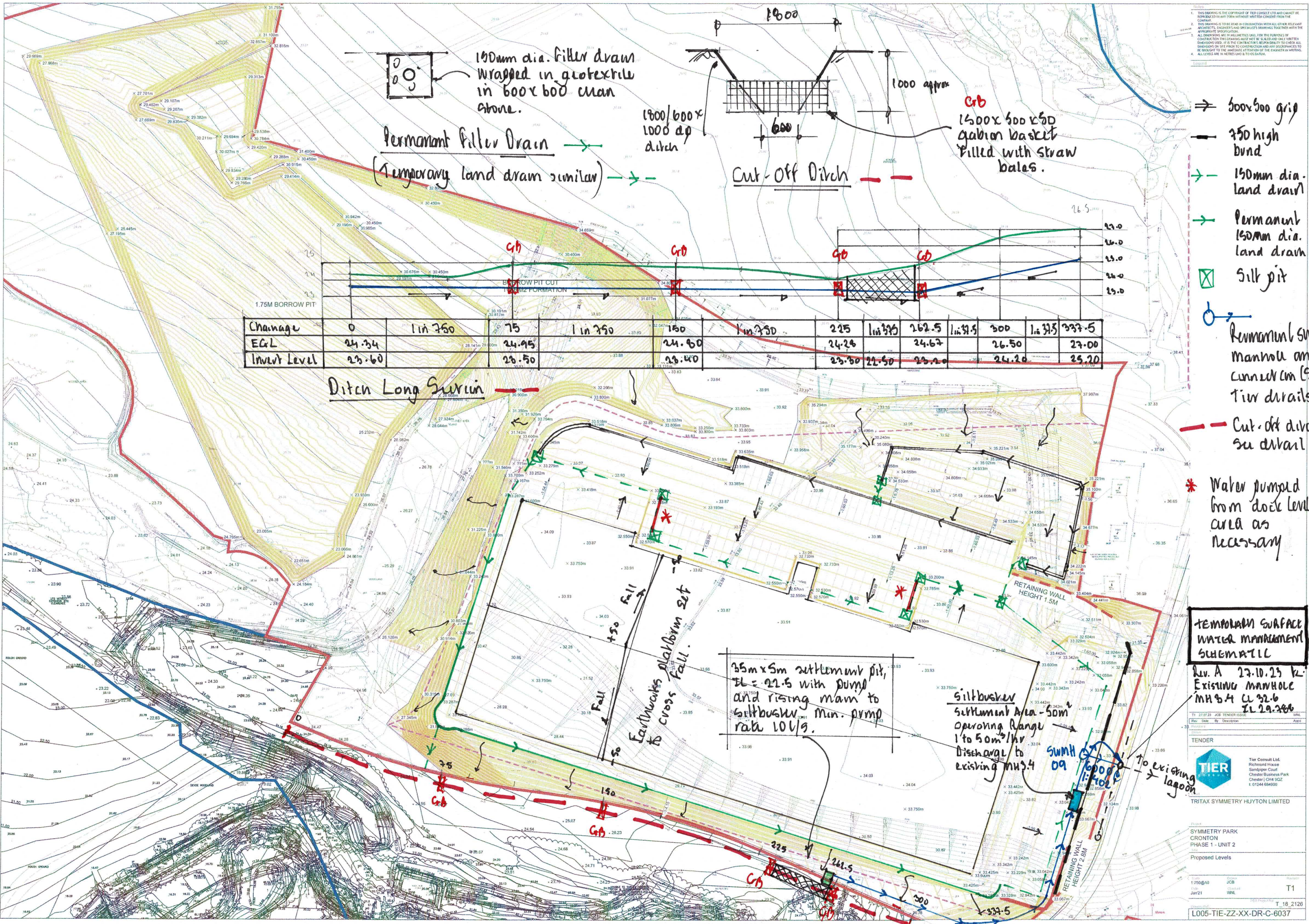


Monitoring Visit 5 - 25.10.2020



Monitoring Visit 6 - 23.11.2020





150mm dia. filler drain
wrapped in geotextile
in 600x600 man
above.

Permanent Filler Drain
(Temporary land drain similar)

1800/600x
1000 dp
ditch

Cut-off Ditch

1500x500x50
gabion basket
filled with straw
bales.

Chainage	0	1 in 750	75	1 in 750	150	1 in 750	225	1 in 750	300	1 in 750	375
EG.L	24.34		24.95		24.60		24.26		23.90		23.56
Invert Level	23.60		23.50		23.40		23.30		23.20		23.10

Ditch Long Section

Earthworks platform set
to cross fall.

35m x 5m settlement pit,
IL = 22.5 with pump
and rising main to
siltbush. Min. pump
rate 10 l/s.

Siltbush
settlement area - 50m
operating range
1 to 50m/hr
Discharge to
existing MH 3.4

TEMPORARY SURFACE
WATER MANAGEMENT
SCHEMATIC

Rev. A 27.10.23 K.
Existing manhole
MH 3.4 IL 22.6
IL 22.200

TENDER

TIER

Tier Consult Ltd.
Richmond House
Sandpiper Court
Chester Business Park
Chester, CH4 9DZ
t: 01244 684000

TRITAX SYMMETRY HUXTON LIMITED



APPENDIX B – CHEMICAL TEST RESULTS

Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
United Kingdom
WA3 6AE



4225



Attention : Alex Preston
Date : 24th October, 2023
Your reference : TE1789
Our reference : Test Report 23/16518 Batch 1
Location : Cronton
Date samples received : 5th October, 2023
Status : Final Report
Issue : 1.2

Twenty five samples were received for analysis on 5th October, 2023 of which twenty five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 65.522 kg of CO2

Scope 1&2&3 emissions - 154.846 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1789
Location: Cronton
Contact: Alex Preston
EMT Job No: 23/16518

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1789
Location: Cronton
Contact: Alex Preston
EMT Job No: 23/16518

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Client Name: Tier Environmental
Reference: TE1789
Location: Cronton
Contact: Alex Preston
EMT Job No: 23/16518

Solids: V=60g VOC jar. J=250g glass jar. T=plastic tub

Please see attached notes for all abbreviations and acronyms

Client Name: Tier Environmental

Reference: TE1789

Location: Cronton

Contact: Alex Preston

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/16518

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x3 Dilution
AB	x5 Dilution
AC	x10 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/16518

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes		AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.			AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes

EMT Job No: 23/16518

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.			AD	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	



APPENDIX C – SOAKAWAY RESULTS

Chadwick House
Birchwood Park
Warrington Rd
WA3 6AE

Tritax Symmetry Ltd

Symmetry Park Merseyside, Huyton

SA01

TE1163

BEN GORE

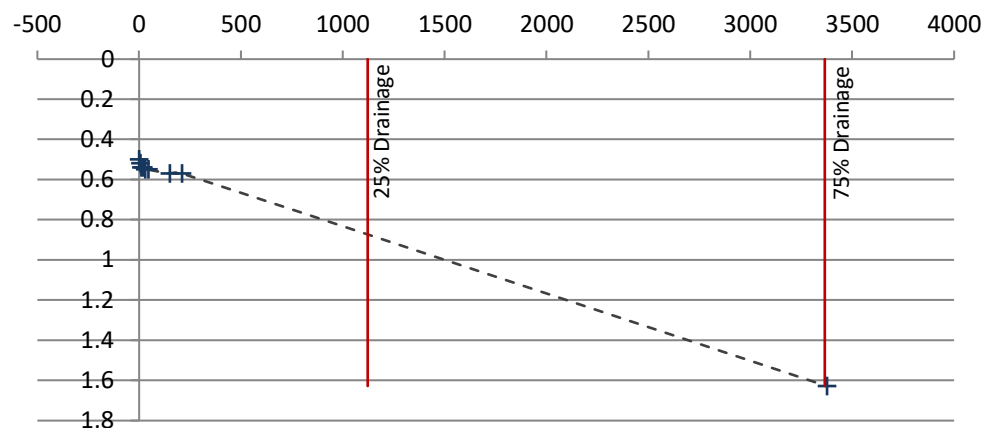
01.08.2022

3

Comments:

Soakage Pit Width [m]	1.75
Soakage Pit Length [m]	3.5
Soakage Pit Depth [m]	2
Depth to water at start of test bgl [m]	0.5
Effective Storage Depth [m]	1.50
Free Volume [%]	100

Effective Depth at 25% Drainage	0.875
Effective Depth at 75% Drainage	1.625
Time to Drain From 25% to 75% [s]	134617
Internal Surface Area [m ²]	14
Effective Storage Volume [m ³]	4.59375
Test Completion [%]	100%

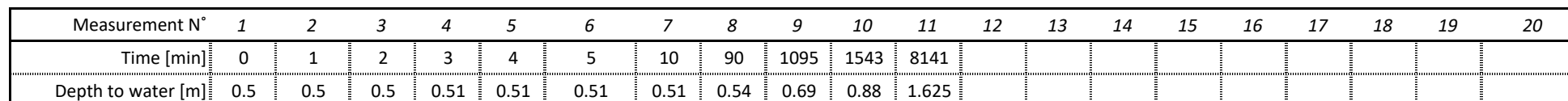


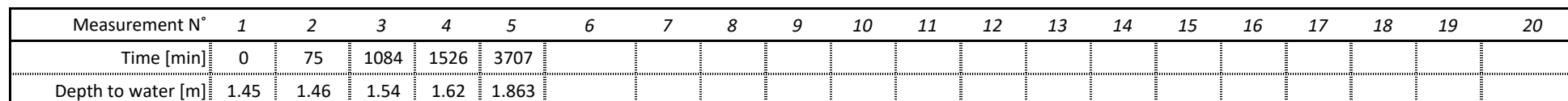
Soil infiltration rate(m/s)

2.44E-06

SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS

[illegible]





Tier Environmental

Chadwick House
Birchwood Park
Warrington Rd
WA3 6AE

Test ID: HDP401

Job Number: TE1163

Technician: SW

Test Date:	18.10.2023
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Test Number:	1	of	1
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Comments:	
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Client:

DB SYMMETRY

Site:

CRONTON COLLIERY

Soakage Pit Width [m]	0.28
-----------------------	------

Soakage Pit Length [m]	0.28
------------------------	------

Soakage Pit Depth [m]	1
-----------------------	---

Depth to water at start of test bgl [m]	0.18
---	------

Effective Storage Depth [m]	0.82
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Free Volume [%]	100
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Effective Depth at 25% Drainage	0.385
---------------------------------	-------

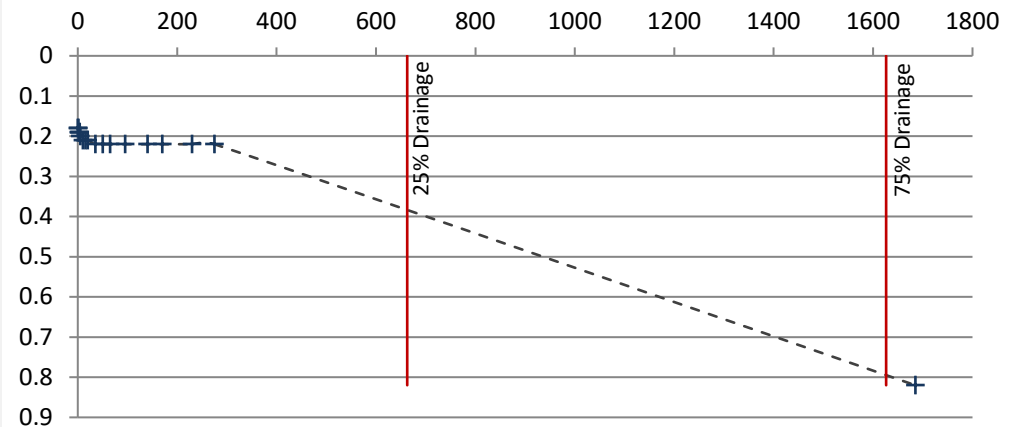
Effective Depth at 75% Drainage	0.795
--	-------

Time to Drain From 25% to 75% [s]	57810
--	-------

Internal Surface Area [m ²]	0.5376
---	--------

Effective Storage Volume [m ³]	0.032144
--	----------

Test Completion [%]	100%
---------------------	------



Soil infiltration rate(m/s)

1.03E-06

SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS

[illegible]

**Tier Environmental**Chadwick House
Birchwood Park
Warrington Rd
WA3 6AE**Client:**

DB SYMMETRY

Site:

CRONTON COLLIERY

Test ID:

HDP402

Job Number:

TE1163

Technician:

SW

Test Date:

18.10.2023

Test Number:

1 of

Comments:

Soakage Pit Width [m] 0.26

Soakage Pit Length [m] 0.26

Soakage Pit Depth [m] 1

Depth to water at start of test bgl [m] 0.19

Effective Storage Depth [m] 0.81

Free Volume [%] 100

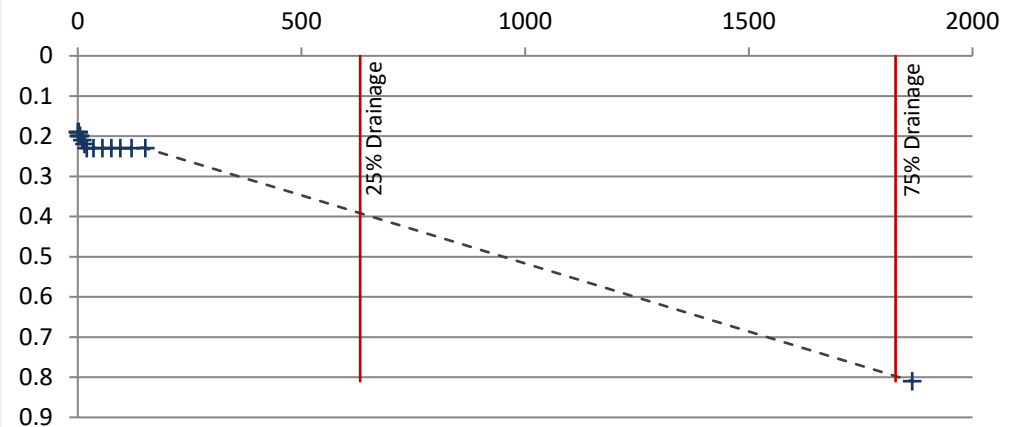
Effective Depth at 25% Drainage 0.3925

Effective Depth at 75% Drainage 0.7975

Time to Drain From 25% to 75% [s] 71811

Internal Surface Area [m²] 0.4888Effective Storage Volume [m³] 0.027378

Test Completion [%] 100%

**Soil infiltration rate(m/s)**

7.80E-07

SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS

Measurement N°	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Time [min]	0	1	2	3	4	5	10	15	20	35	55	75	95	120	151	1865				
Depth to water [m]	0.19	0.19	0.19	0.2	0.2	0.2	0.21	0.22	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.81				

**Tier Environmental**

Chadwick House
Birchwood Park
Warrington Rd
WA3 6AE

Client:

DB SYMMETRY

Site:

CRONTON COLLIERY

Test ID:

HDP403

Job Number:

TE1163

Technician:

SW

Test Date:

18.10.2023

Test Number:

1 of

Comments:

Soakage Pit Width [m] 0.28

Soakage Pit Length [m] 0.28

Soakage Pit Depth [m] 1

Depth to water at start of test bgl [m] 0.19

Effective Storage Depth [m] 0.81

Free Volume [%] 100

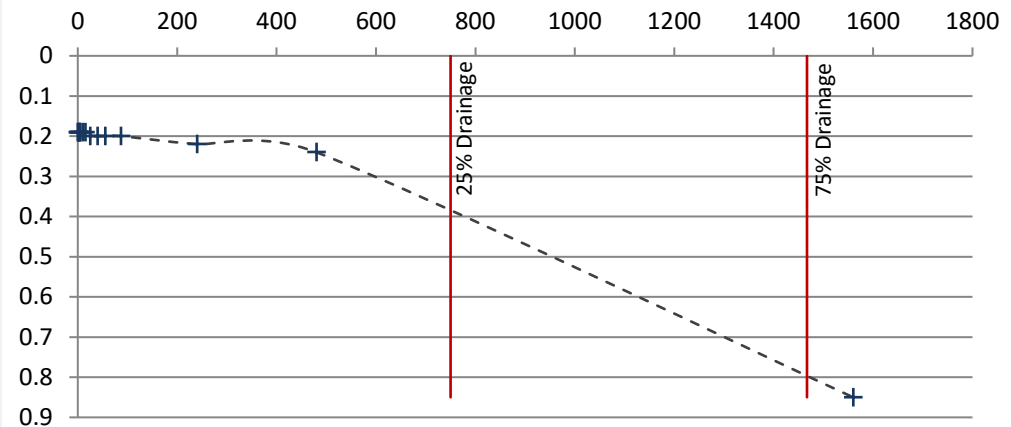
Effective Depth at 25% Drainage 0.3925

Effective Depth at 75% Drainage 0.7975

Time to Drain From 25% to 75% [s] 43023

Internal Surface Area [m²] 0.532Effective Storage Volume [m³] 0.031752

Test Completion [%] 100%

**Soil infiltration rate(m/s)**

1.39E-06

SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS

Measurement N°	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Time [min]	0	1	2	3	4	5	10	15	25	40	55	87	240	480	1560					
Depth to water [m]	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.2	0.2	0.2	0.2	0.22	0.24	0.85					