



Tier Environmental Ltd

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TE1163-TE-00-XX-GE-LT-008-V01

FAO Mr Ben Laverick

Assistant Spatial Planner
North West Region
National Highways
8th Floor, Piccadilly Gate
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M1 2WD

07 September 2023

TIER RESPONSE TO NATIONAL HIGHWAYS LETTER REFERENCE: NH/23/02241

Dear Ben,

Tier Environmental has produced this letter as a response to the correspondence received from National Highways dated 18th August 2023. Tier has responded to the comments and requests for further information below in **Red**.

Details of the borrow pit and its impact on the M62, including any relevant slope stability assessment. (If necessary, the northern extent of the pit may have to be moved a safe distance away from the M62).

Appended to this letter Tier have included further drawings and sections of the proposed excavations. As can be seen on drawing No: L005-TIE-ZZ-XX-DR-C-6036, the edge of the excavated area is approximately 30m from the edge of the site boundary / top of motorway cutting and over 60m away from the edge of the carriageway. At this distance it is not considered to be within influencing distance of any National Highways infrastructure. Furthermore as shown on the above referenced drawings, the excavated area will be a maximum of 1.75m bgl deep. At the northern extent of this area, this equates to a formation level of 28.75m AOD compared with a carriageway level of 26.50m AOD on the M62.

All excavations in this vicinity of the site will be undertaken in predominantly natural soils. Ground investigations have shown these materials to comprise of Till Deposits, consisting of mainly firm clays, and Pennine Coal Measures consisting of largely mudstone. Investigations have also confirmed that excavations undertaken in this vicinity of the site were stable, with no collapses noted in exploratory trial pits. Bedrock is recorded at a shallow depth in this vicinity of the site generally a maximum of 4m bgl. If the superficial soils were to fail, using a conservative 45-degree angle for an approximate zone of collapse, the failure would only impact an area a maximum of 4m away from the edge of the excavated area.

Additionally the sides of the excavated area will be sloped at a very shallowly dipping angle of 1 in 3 to further reduce the risk of any slope failures and if required materials will be mixed with lime to

reduce moisture contents. Tier will also be undertaking regular site visits to monitor the progress of the works including inspections of the sides of the excavations.

Due to the reasons detailed above and contained within the appended drawings, it is not considered that any of the proposed excavations undertaken within the site boundary will have any impact on any National Highways Infrastructure.

A Shallow groundwater table is present across the site. Given the extent of the earthworks proposed for the site and the sandy nature of the ground, the proposals for any groundwater lowering control measures to be adopted at the site and their impact on the M62.

It is noted in the first instance that the ground conditions comprise largely cohesive deposits consisting of clays and mudstones in this vicinity of the site, not sandy materials. Tier Environmental have undertaken extensive groundwater modelling and analysis across the site and have included appended to this letter, groundwater monitoring results and groundwater contours. Evidence from monitoring indicates that shallow groundwater is isolated and perched within pockets surrounded by cohesive, low permeability. In the northern section of the site in most exploratory hole locations during monitoring visits and during exploratory investigations, no groundwater was encountered.

The proposed excavation follows the topography dipping shallowly to the south so any surface water will run southwards and pool in the south of the excavation at which point it can be pumped out. The deeper groundwater within the bedrock has been shown to be at >15m bgl.

Due to the shallow depth of excavations (1.75m bgl) and the nature of the groundwater observed during monitoring and shown from the modelling, it is not anticipated that widescale dewatering will be required, and if any is needed it would just constitute sump pumping to prevent ponding and / or temporary drainage from excavations.

Confirmation of the drilling and grouting zone at the site. Depending on its proximity to the M62, its impact on the motorway.

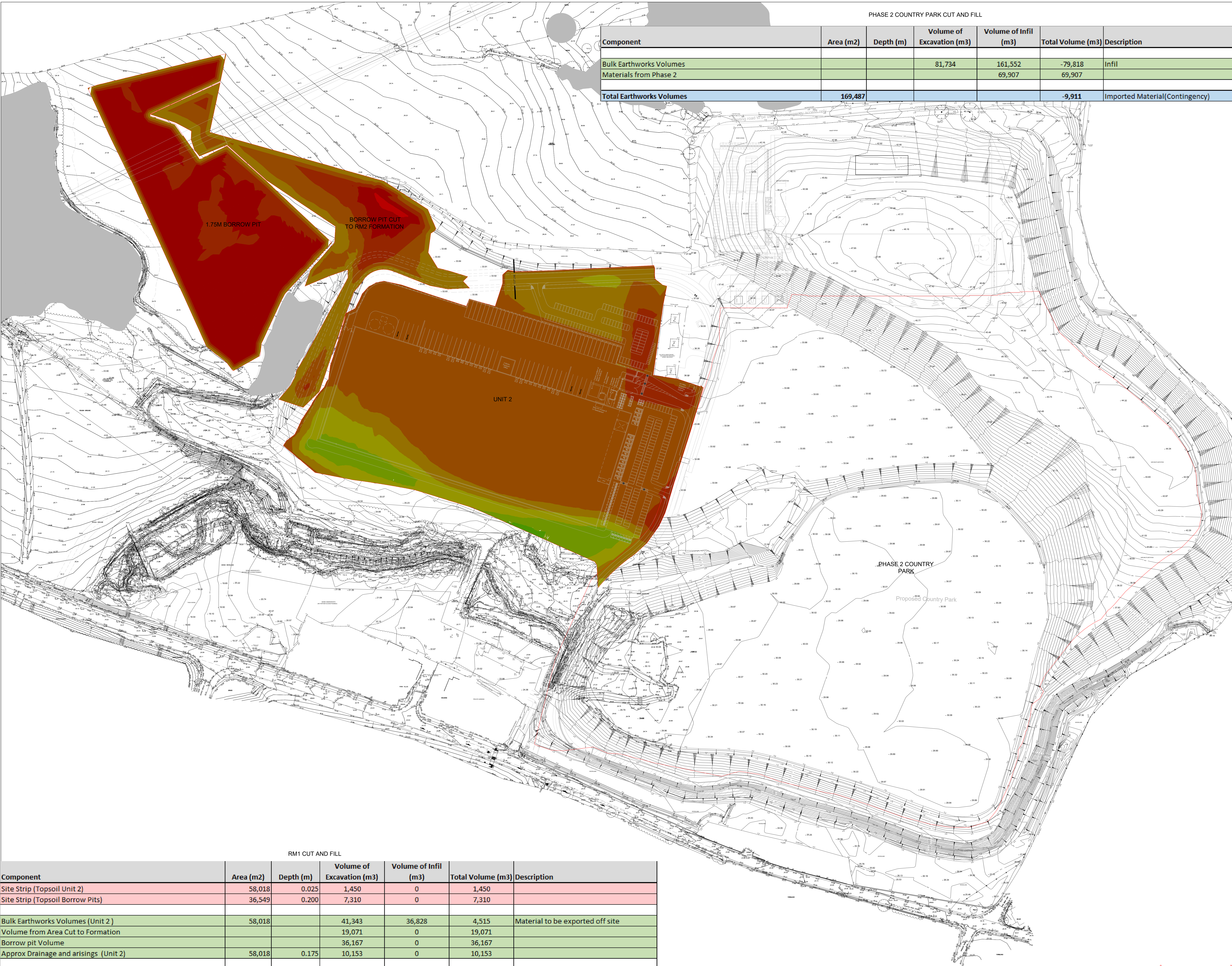
The drill and grouting zone during this phase of the development will be over 215m away from the M62 and is not considered to pose a potential impact on any National Highway infrastructure. The drill and grouting plan is appended to this letter.

For and on behalf of

TIER ENVIRONMENTAL LTD

Geo-Environmental Engineer

Tier Environmental Ltd



PHASE 2 COUNTRY PARK CUT AND FILL

Component	Area (m2)	Depth (m)	Volume of Excavation (m3)	Volume of Infil (m3)	Total Volume (m3)	Description
Bulk Earthworks Volumes			81,734	161,552	-79,818	Infil
Materials from Phase 2				69,907	69,907	
Total Earthworks Volumes	169,487				-9,911	Imported Material(Contingency)

- Notes
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 4. ALL LEVELS ARE IN METRES AND 8 TO 25 DATUM.

Legend

COUNTRY PARK CUT AND FILL DEPTHS

SURFACE LEVEL DATA			
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR

UNIT 2 CUT AND FILL DEPTHS

SURFACE LEVEL DATA			
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	-4.000	-2.000	
2	-2.000	0.000	
3	0.000	2.000	
4	2.000	4.000	
5	4.000	6.000	
6	4.000	8.000	
7	8.000	9.000	
8	9.000	9.677	

RM2 FORMATION CUT AND FILL DEPTHS

SURFACE LEVEL DATA			
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	-4.535	-4.000	
2	-4.000	-3.000	
3	-3.000	-2.000	
4	-2.000	-1.000	
5	-1.000	6.283	

BORROW PIT CUT AND FILL DEPTHS

SURFACE LEVEL DATA			
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	-2.106	-1.500	
2	-1.500	-1.000	
3	-1.000	-0.500	
4	-0.500	0.000	

RM1 CUT AND FILL

Component	Area (m2)	Depth (m)	Volume of Excavation (m3)	Volume of Infil (m3)	Total Volume (m3)	Description
Site Strip (Topsoil Unit 2)	58,018	0.025	1,450	0	1,450	
Site Strip (Topsoil Borrow Pits)	36,549	0.200	7,310	0	7,310	
Bulk Earthworks Volumes (Unit 2)	58,018		41,343	36,828	4,515	Material to be exported off site
Volume from Area Cut to Formation			19,071	0	19,071	
Borrow pit Volume			36,167	0	36,167	
Approx Drainage and arisings (Unit 2)	58,018	0.175	10,153	0	10,153	
Total Earthworks Volumes	58,018				69,907	Excess Material to Country Park

T1	27.07.23	JCB TENDER ISSUE	WNL
Rev	Date	By	Description
Revisions			Appd
Drawn			

TENDER



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Client

TRITAX SYMMETRY HUXTON LIMITED

Project

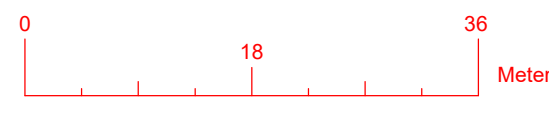
SYMMETRY PARK
CRANTON
PHASE 1 - UNIT 2

Title

Proposed Earthworks

Scale	1:500@A0	Drawn	JCB	Revision	T1
Date	Jan'21	Checked	WNL		

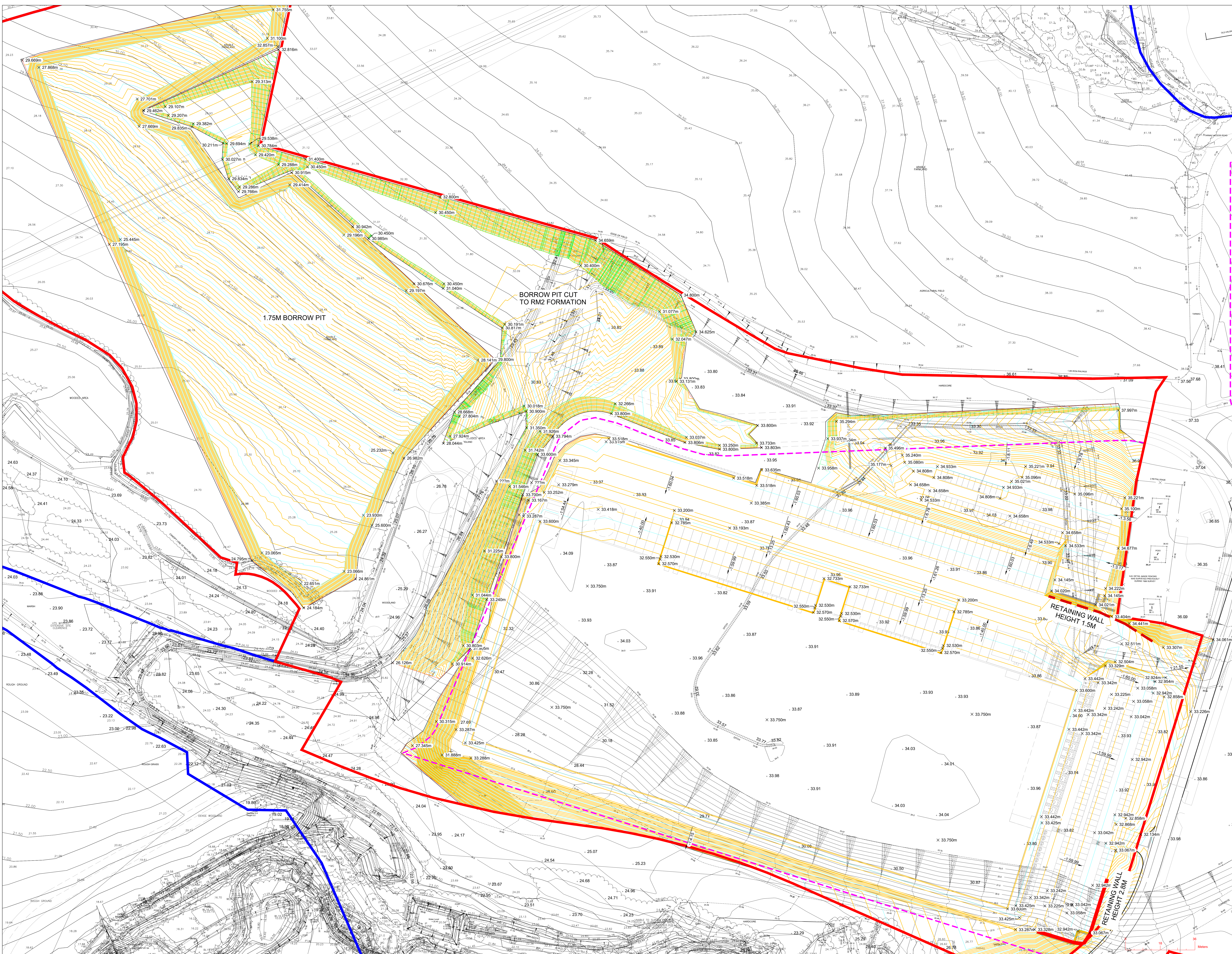
Drawing Ref: L005-TIE-ZZ-XX-DR-C-6036



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4. ALL LEVELS ARE IN METRES UNLESS OTHERWISE STATED.

Legend



T1	27.07.23	JCB TENDER ISSUE	WNL
Rev	Date	By	Description
33			Revisions
			Drawn

TENDER

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TRITAX SYMMETRY HUYTON LIMITED

Project
**SYMMETRY PARK
CRONTON
PHASE 1 - UNIT 2**

Drawn
JCB

Checked
WNL

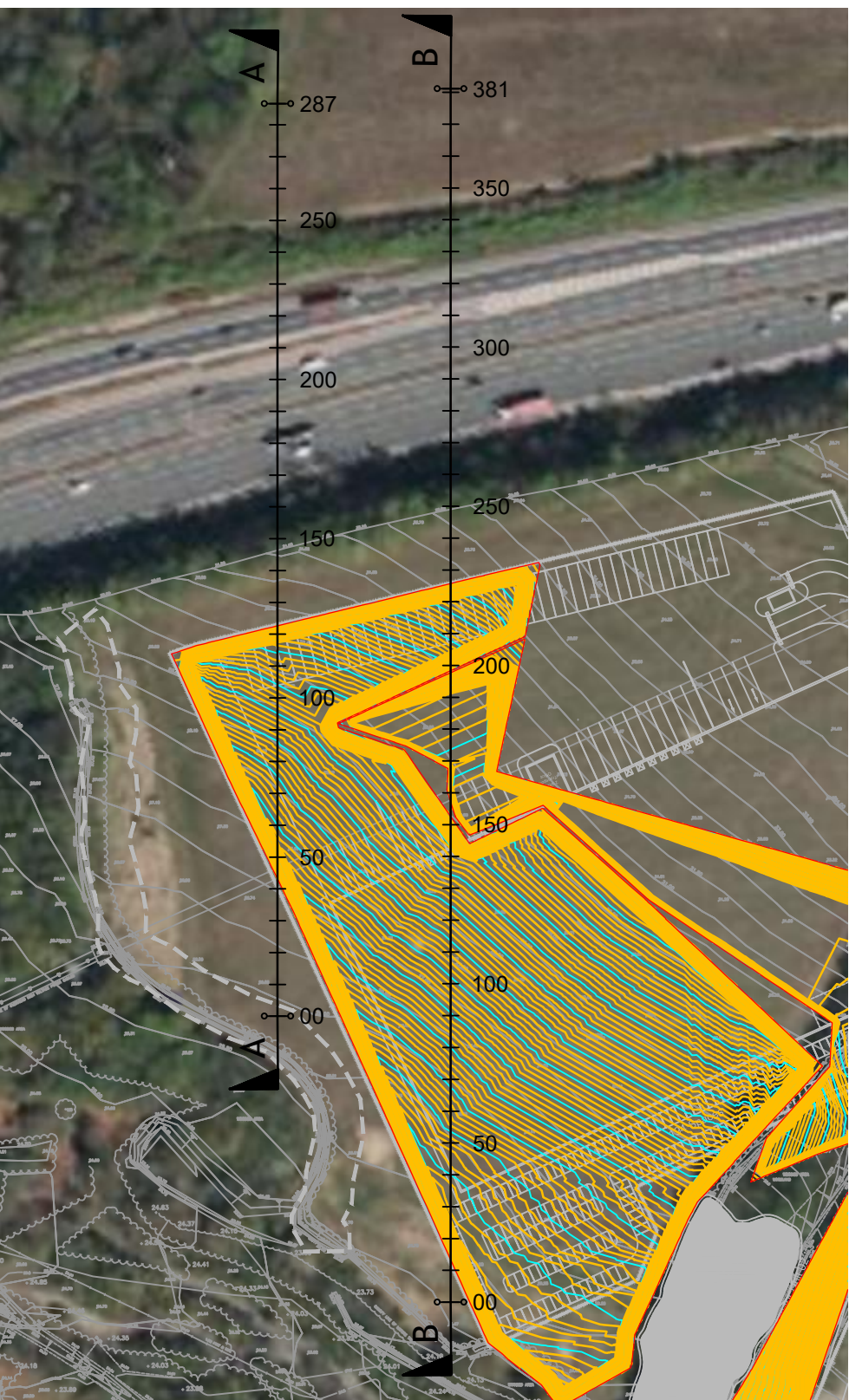
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Jan'21

Revision
T1

Tier Project No
T_18_2126

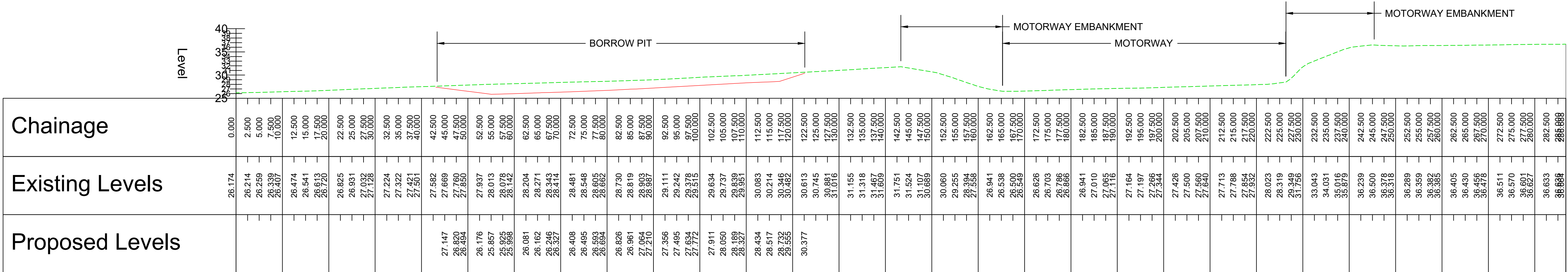
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4. ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS NOTED OTHERWISE.
5. ALL LEVELS ARE IN METRES, UNLESS NOTED OTHERWISE.



LOCATION PLAN
SCALE 1:2000

SECTION A-A
SCALE: H 1:500,V 1:500. DATUM: 25.000





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



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	



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	



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	



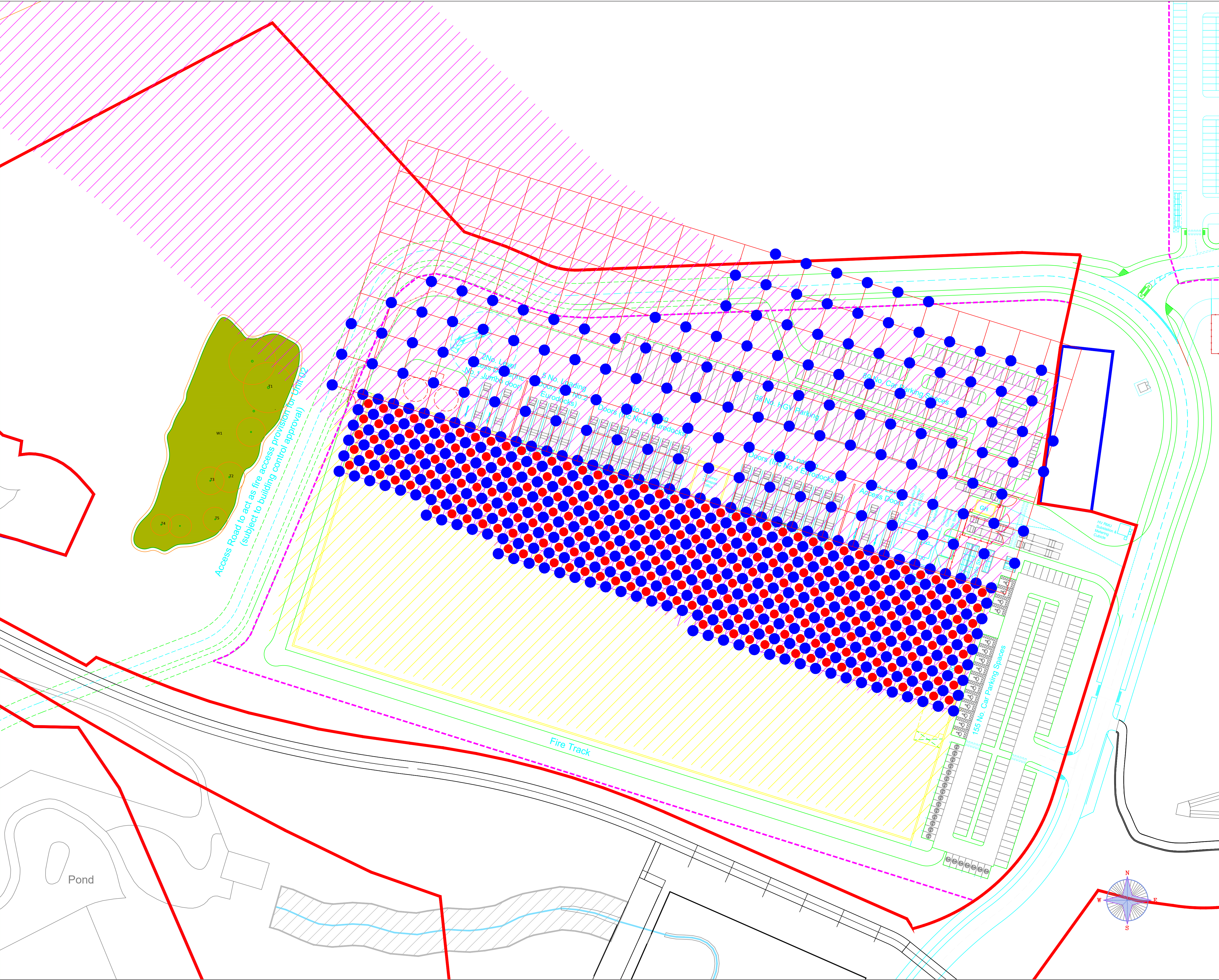
Visit 6 - Groundwater Levels Summary

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



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	



DO NOT SCALE

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NOTES

PRIMARY HOLES

SECONDARY HOLES

APPROXIMATE AREA THAT REQUIRES DRILL AND GROUTING

REQUIRED CONFIRMATORY BOREHOLES TO ESTABLISH ADEQUATE COVER IS PRESENT

NOTE:
ADDITIONAL STABILISATION WORKS MAY BE REQUIRED UNDER ADOPTED HIGHWAYS AND SERVICE CORRIDORS. IF UNRECORDED MINE ENTRIES ARE ENCOUNTERED DURING WORKS AN INVESTIGATIVE TRIAL PIT WILL BE UNDERTAKEN THROUGH THE MINE ENTRY. IF THE MINE ENTRY CAN BE BOTTOMED OUT, TO A MAXIMUM DEPTH OF 6m BGL, IT WILL BE REMOVED AND REPLACED WITH SUITABLE SITE WON ENGINEERED GRANULAR FILL, REINSTATED IN ACCORDANCE WITH SHW SERIES 600. IF THE MINE ENTRY IS FOUND TO EXTEND TO A GREATER DEPTH THAN 6m BGL THEN A PROBE HOLE WILL NEED TO BE DRILLED TO DETERMINE THE DEPTH AND CONSIDERATION FOR CAPPING OR GROUTING THE MINE ENTRY SHOULD BE MADE DEPENDENT ON FINAL DEPTH. IT IS NOTED THAT DUE TO THE DEPTH OF THE RECORDED SEAMS AND RECORDED WORKINGS ANY DEEP (<6m BGL) MINE ENTRIES ARE NOT ANTICIPATED.

P2	13/07/2023	CS	12M GRID INCLUDED	CS	AP
P1	06/06/2023	CS	ISSUED FOR INFORMATION	CS	AP
REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

DRAFT

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CLIENT:

DB SYMMETRY

PROJECT:

FORMER CRONTON COLLIERY

TITLE:

GROUNDING PLAN

SCALE: 1:1	CHECKED: AP	APPROVED: AP
CAD FILE: -	DESIGN/DRAWN: CS	DATE: 13/07/2023
PROJECT No: TE1163	DRAWING No: TE1163-TE-00-XX-DR-GE-018-V02	REV: P2