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Ref: 12-123-L5 Rev 1
Date: 22nd April 2021

Kevin Ryan
Countryside Properties
301 Bridgewater Place
Birchwood Park
Birchwood
Warrington
WA3 6XG

BY Email

Dear Kevin,

SUPPLEMENTARY GEOENVIRONMENTAL SITE INVESTIGATION BELLE VUE

1. BACKGROUND

Further to the ground investigation works undertaken by E3P in August 2019, with the findings detailed within report (Ref: 12-123-R1-Rev 3), E3P has undertaken further investigation in areas that were previously inaccessible due to site activities.

The stadium, racetrack and parts of the car park were not accessible for trial pits, as such E3P attended site on the 19th October 2020 to complete 17 trial pits within the stadium and on the 18th November 2020 to complete 10 trial pits on the surrounding hardstanding around the stadium's perimeter. The findings for the October and November 2020 site investigations are detailed below.

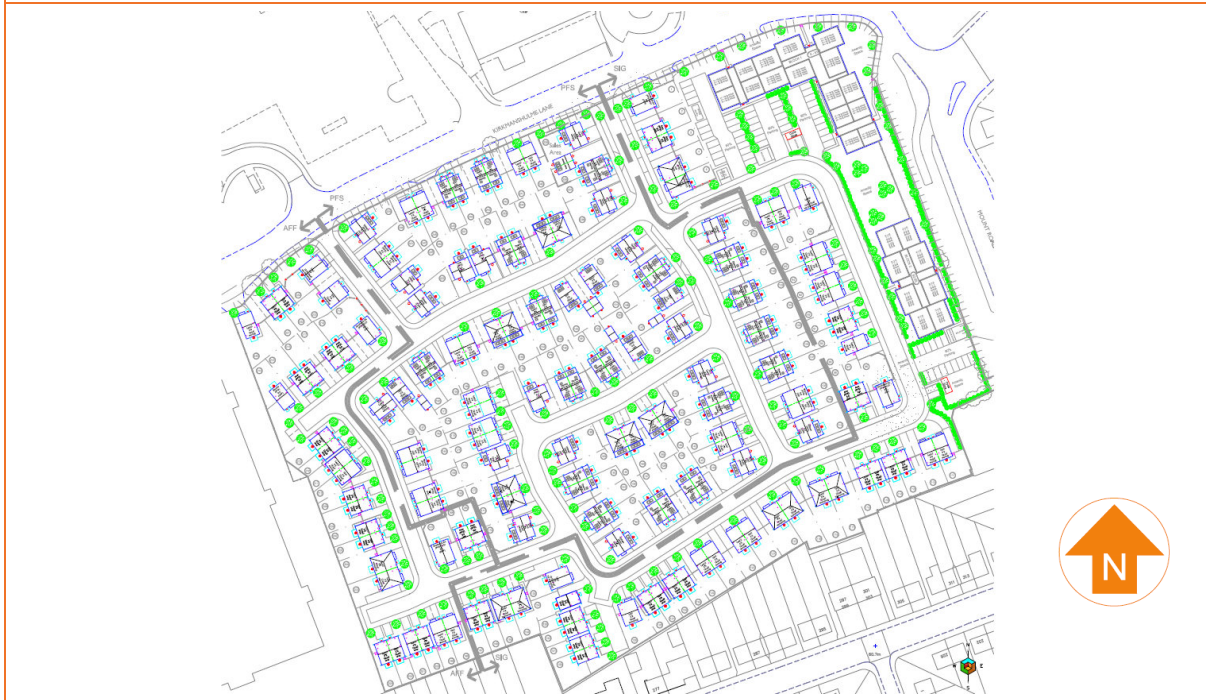
1.1. PROPOSED DEVELOPMENT

Countryside Properties intends to construct a low-rise residential development comprising residential dwellings with associated gardens, estate roads and infrastructure.

E3P has been provided with a draft planning layout and a snapshot of the proposed development is provided in Figure 1.1 with the full drawing attached to the rear of this letter.



FIGURE 1.1 SNAPSHOT OF PROPOSED DEVELOPMENT



1.2. SITE FEATURES

The subject site is a relatively regular shaped parcel of land that is predominantly occupied by the Belle Vue Greyhound Stadium with associated car parking and ancillary infrastructure.

The stadium itself comprises a single large multi-storey building with sand greyhound racetrack and dirt car race track. Pit garages and a refuelling area bound the western side of track. The southern and eastern sides of the track are bound by concrete hardstanding for standing viewing areas.

The northern sector of the site is overlain by asphalt hardstanding, being used as a motorbike training course, with the old entrance gate located on the north eastern boundary of the site. Part of the car park is currently utilised by a motorbike test centre.

An electricity substation is located in the eastern sector of the site.

The eastern sector of the site is utilised as waste storage and a soil bund is present with dense Japanese Knotweed present on the mound, that appears to have been treated with significant amounts of dead vegetation observed.

The southern sector of the site is vacant and overlain with soft standing.

The western sector is overlain by hardstanding and utilised as a pit garage and fuelling area for the motorbikes and cars used for racing. One large spectator stand is also present in this sector of the site.



2. SUPPLEMENTARY INVESTIGATION SUMMARY

2.1. SCOPE OF THE SUPPLEMENTARY GROUND INVESTIGATION

E3P has completed an intrusive supplementary ground investigation comprising 27 mechanically excavated trial pits to target areas not previously accessible, in and around the greyhound stadium.

2.2. GROUND CONDITIONS

TOPSOIL

Topsoil was encountered within TP203, TP206, TP209 which were situated in the central raised verge that produced the figure of eight racetrack layout in the stadium. These deposits consist of very silty dark brown clay, with plastic and metal debris.

MADE GROUND

Made Ground deposits were encountered within all exploratory locations to a maximum depth of 3.0 m bgl, however the Made Ground is typically between 0.0–1.3 m bgl. Within three locations (TP203, TP209 and TP215) the full depth of Made Ground could not be determined as these excavations had to be suspended due to utility infrastructure and pit instability.

In several of the exploratory locations the surface asphalt/concrete hardcore had to be broken before the trial pit could be advanced. These locations were TP217, TP301 and TP304–TP310.

Made Ground deposits across site generally comprise of granular reddish brown ashy gravel that overlay gravelly clay with lots of brick and concrete crush throughout. Within the gravel found in TP201 to TP216 there is often whole bricks that appear to have been placed, possibly to form the structure of the racetrack.

The Made Ground deposits beneath the asphalt within the pit area of the racetrack are consistent to those encountered within the stadium, however they show clear evidence of hydrocarbon staining with a strong hydrocarbon odour.

Layers of Peat within the Made Ground were encountered within TP304 at 2.60 m to 2.90 m and TP305 at 1.60 m to 1.80 m. Peat pockets were encountered within shallower Made Ground within TP307, TP308, TP309 to maximum depth of 1.00 m bgl.

DRIFT

The drift encountered onsite was consistent and comprises firm to very stiff brown with grey mottling gravelly CLAY. The gravel is formed of fine subrounded sandstone and mudstone. This correlates with what was identified during the previously completed E3P ground investigation.

Within TP205 a pocket of impacted natural CLAY material with black staining and a strong hydrocarbon odour was encountered between 0.3–0.5 m bgl.

The drift deposits encountered during the supplementary site investigation discussed within this letter are in line with those encountered during the initial site investigation (Ref: 12-123-R1-Rev 3).

Within the previous investigation fibrous PEAT was encountered in TP101 between 1.30 m and 1.70 m bgl. TP101 is in the vicinity of TP304 and TP305 in the north of the site where PEAT was encountered within the Made Ground. This PEAT likely relates to the former pond that was present across these areas of the site.



SOLID

The solid geology was not encountered as part of the supplementary investigations carried out in the October and November 2020. As part of the August 2019 site investigation (Ref: 12-123-R1-Rev 3) solid geology was encountered in excess of 15.10 m bgl, being formed of weathered red SANDSTONE.

GROUNDWATER

Groundwater was encountered between 0.50 m bgl and 2.60 m bgl during the site investigation within five trial pits. Within TP210 and TP216 groundwater was rising from the base of the excavation, whereas in TP215, TP217 and TP303 perched water was encountered.



3. CONTAMINATED LAND ASSESSMENT

3.1. HUMAN HEALTH RISK ASSESSMENT

Tier I human health risk assessment has been undertaken using the chemical analysis results of the soils and comparing to the relevant Tier I criteria, as outlined within Table 3.1 below. I2 Analytical Report 20-36745 and 20-42509 refers to the soil samples taken from within the additional trial pits.

TABLE 3.1 SUMMARY OF INORGANIC AND HYDROCARBON TOXICITY ASSESSMENT FOR RESIDENTIAL USE

DETERMINAND	UNITS	GAC	N	MC	LOC. OF EX	PATH WAY	ASSESSMENT
Arsenic	mg/kg	37	11	160	TP215-0.7m TP303-0.3m TP306-0.3m	1	Further Action
Cadmium	mg/kg	11	11	0.5	N/A	1	No Further Action
Chromium (VI)	mg/kg	6.1	11	<4.0	N/A	1	No Further Action
Lead	mg/kg	200	11	460	TP215-0.7m TP303-0.3m TP306-0.3m TP309-0.3m	1	Further Action
Mercury	mg/kg	1.2	11	2.3	TP215-0.7m	2	Further Action
Nickel	mg/kg	180	11	73	N/A	1	No Further Action
Selenium	mg/kg	250	11	<1.0	N/A	1	No Further Action
Copper	mg/kg	2400	11	470	N/A	1	No Further Action
Zinc	mg/kg	3700	11	280	N/A	1	No Further Action
Cyanide - Total	mg/kg	791	11	<1	N/A	1	No Further Action
Phenols - Total.	mg/kg	210	1	<1	N/A	1	No Further Action
Asbestos	Fibres	NFD	6	Chrysotile	TP303-0.3m	4	Further Action
Naphthalene	mg/kg	2.3	7	5.5	TP215-0.7m TP303-0.3m	3	Further Action
Acenaphthylene	mg/kg	170	7	1.1	N/A	2	No Further Action
Acenaphthene	mg/kg	210	7	6.6	N/A	1	No Further Action
Fluorene	mg/kg	170	7	12	N/A	1	No Further Action
Phenanthrene	mg/kg	95	7	39	N/A	2	No Further Action
Anthracene	mg/kg	2400	7	19	N/A	2	No Further Action
Fluoranthene	mg/kg	280	7	38	N/A	2	No Further Action
Pyrene	mg/kg	620	7	68	N/A	2	No Further Action
Benzo(a)Anthracene	mg/kg	7.2	7	38	TP215-0.7m TP303-0.3m TP306-0.3m TP309-0.3m	2	Further Action
Chrysene	mg/kg	15	7	29	TP215-0.7m TP309-0.3m	2	Further Action
Benzo(b)Fluoranthene	mg/kg	2.6	7	32	TP215-0.7m TP303-0.3m TP306-0.3m TP309-0.3m TP201-0.6m	2	Further Action
Benzo(k)Fluoranthene	mg/kg	77	7	14	N/A	2	No Further Action
Benzo(a)Pyrene	mg/kg	2.2	7	30	TP215-0.7m TP303-0.3m TP306-0.3m TP309-0.3m TP201-0.6m	2	Further Action
Indeno(123-cd)Pyrene	mg/kg	27	7	16	N/A	2	No Further Action
Dibenzo(a,h)Anthracene	mg/kg	0.24	7	4.6	TP215-0.7m TP303-0.3m TP306-0.3m	2	Further Action



DETERMINAND	UNITS	GAC	N	MC	LOC. OF EX	PATH WAY	ASSESSMENT
					TP309–0.3m		
Benzo(ghi)Perylene	mg/kg	320	7	19	N/A	2	No Further Action
TPH C5-C6 (aliphatic)*	mg/kg	42	9	<1.0	N/A	3	No Further Action
TPH C6-C8 (aliphatic)*	mg/kg	100	9	<0.1	N/A	3	No Further Action
TPH C8-C10 (aliphatic)*	mg/kg	27	9	<0.1	N/A	3	No Further Action
TPH C10-C12 (aromatic)*	mg/kg	74	9	25	N/A	3	No Further Action
TPH C12-C16 (aromatic)*	mg/kg	140	9	100	N/A	3	No Further Action
TPH C16-C21 (aromatic)*	mg/kg	260	9	470	TP215–0.7m TP309–0.3m	1	Further Action
TPH C21-C35 (aromatic)*	mg/kg	1100	9	4000	TP201–0.6m TP309–0.3m	1	Further Action

Notes

Main Exposure Pathways: 1 = Soil Ingestion, 2 = Dermal Contact & 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 (C₅-C₁₂) and the Tier 1 values for aromatic compound for the non-volatile fractions (C₁₂-C₃₅). The comparison of a total (aliphatic/aromatic) compounds to an individual fraction is considered to be a conservative approach and satisfactory for the protection of human health.

The assessment has identified several chemical exceedances within soil samples submitted for chemical analysis from within the trial pits. These include heavy metals, asbestos, polycyclic aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPHs). This is in line with the 2019 Phase 2 Ground Investigation which identified several exceedances of these compounds across the site.

The laboratory analysis confirms the assessment within the initial conceptual site model that the main constituents of concern were likely to be asbestos, petroleum-based contamination and heavy metals within Made Ground Deposits. Chemical analysis from the natural deposits across the site have confirmed the absence of any contamination.

All of the identified elevated concentrations have primary exposure pathways related to dermal contact and ingestion of soils, inhalation of vapours and consumption of home-grown vegetables. The chronic risk to human health associated with the elevated concentrations on inorganic heavy metals and non-volatile PAH compounds can be mitigated through the installation of a suitable cover system in all proposed private gardens, landscaping and public open space to remove any potential for direct exposure to impacted soils.

With regards to the elevated naphthalene and TPH, these present a potential volatilisation to indoor air risk. These elevated concentrations have been identified within three areas of the site (north east and two areas in the west) in addition to in the south east (TP106) during the previous investigation. These locations should be delineated and an assessment made as to whether the impacted soils can be managed on-site or whether they require further treatment and/or disposal off-site.

Elevated total mercury has been identified in the shallow granular Made Ground at TP215. During remediation and enabling works, speciated mercury analysis should be completed to assess whether elemental mercury is present which may pose a risk to future site users through vapour inhalation. If elemental mercury is identified, it may be necessary to delineate and excavate the soils as a hotspot and place in an area of low sensitivity such as POS. Alternatively, if it is proven that there is no elemental mercury, a clean cover system will be sufficient.

Asbestos in the form of chrysotile has also been identified within TP303 in Made Ground deposits. Asbestos quantification has confirmed that the concentrations are at 0.001%. No visual signs of ACM were encountered during the ground investigation; it is therefore likely that only trace fibres are present. Impacted soils should be managed according to the asbestos risk mitigation conceptual site model shown in Figure 3.1.



FIGURE 3.1 ASBESTOS CONCEPTUAL SITE MODEL



3.2. CONTROLLED WATERS

The previously completed controlled waters assessment undertaken by E3P stated the following:

No elevated concentrations have been identified within the groundwater or leachate analysis, however further investigation is required on the site due to limited access. In particular further investigation is required in the area of the pit stops, refuelling area and below the race track.

Furthermore, elevated TPHs have been identified in 4No. isolated areas on site that will require delineation, excavation and validation as part of any remediation works. However, as the site is located within a low sensitivity location with respect to controlled waters there is not considered to be a significant risk to controlled waters.

During this further investigation, three leachate samples were taken from within the Made Ground deposits found within TP202, TP303 and TP309. A Tier I controlled waters risk assessment has been undertaken using the chemical analysis results of the leachate samples and compared Drinking Water Standards, outlined within Table 3.2 below.

Drinking Water Safety standards have been employed for this comparison due to the underlying secondary A aquifer within the drift and the principal aquifer found in the bedrock, as outlined within E3P report (Ref: 12-123-R1-Rev 3).



TABLE 3.2 TIER 1 CONTROLLED WATER RISK ASSESSMENT

TABLE 5.2 TIER 1 CONTROLLED WATER RISK ASSESSMENT								
DETERMINAND	UNIT	EQS SCREENING VALUE ^{1, 2, 3}	DWS 3,4,5	N		MC	LOC. OF EX	ASSESSMENT
		AA		L	GW			
Arsenic	µg/l	50	10	3	0	85	TP309 – 0.3m	No Further Action
Cadmium	µg/l	0.08-0.25	5	3	0	<0.08	N/A	No Further Action
Chromium (VI)	µg/l	3.4	–	3	0	<5.0	N/A	No Further Action
Chromium (III)	µg/l	4.7	50	3	0	2.2	N/A	No Further Action
Copper	µg/l	1	2000	3	0	9.8	N/A	No Further Action
Total Cyanide	µg/l	1	50	3	0	<1.0	N/A	No Further Action
Lead	µg/l	1.2	10	3	0	9.3	N/A	No Further Action
Mercury	µg/l	–	1.0	3	0	<0.5	N/A	No Further Action
Nickel	µg/l	4	20	3	0	2.7	N/A	No Further Action
Selenium	µg/l	–	10	3	0	<4.0	N/A	No Further Action
Zinc	µg/l	10.9	–	3	0	18	TP202–0.3m TP303–0.3m TP309–0.3m	Further Action
pH	6–9			3	0	9.1	TP309–0.3m	Further Action
PAH								
Naphthalene	µg/l	2	10*	3	0	<0.01	N/A	No Further Action
Anthracene	µg/l	0.1		3	0	<0.01	N/A	No Further Action
Benzo[b]fluoranthene	µg/l	0.00017*		3	0	<0.01	N/A	No Further Action
Benzo[k]fluoranthene	µg/l	0.00017*		3	0	<0.01	N/A	No Further Action
Benzo(a)pyrene	µg/l	0.00017*		3	0	<0.01	N/A	No Further Action
Indeno(123-cd)pyrene	µg/l	0.00017*		3	0	<0.01	N/A	No Further Action
Benzo(ghi)pyrene	µg/l	0.00017*		3	0	<0.01	N/A	No Further Action
Fluoranthene	µg/l	0.0063		3	0	<0.01	N/A	No Further Action
Benzo(ghi)perylene	µg/l	1.7–4		3	0	<0.01	N/A	No Further Action
TPH-Aromatic								
TPH C5-C6 (benzene)	µg/l	10	1	3	0	<1.0	N/A	No Further Action
TPH C6-C8 (toluene)	µg/l	74	700	3	0	<1.0	N/A	No Further Action
TPH C8-C10 (ethyl benzene)	µg/l	20	300	3	0	<1.0	N/A	No Further Action
TPH C10-C12 (xylene)	µg/l	30	500	3	0	<10	N/A	No Further Action
TPH C12-C16	µg/l	2	90 ⁵	3	0	<10	N/A	No Further Action
TPH C16-C35	µg/l	50#	90 ⁵	3	0	<1.0	N/A	No Further Action
TPH Aliphatic ⁵								
TPH C5-C6	µg/l	–	15000	3	0	<1.0	N/A	No Further Action



DETERMINAND	UNIT	EQS SCREENING VALUE ^{1, 2, 3}	DWS ^{3,4,5}	N		MC	LOC. OF EX	ASSESSMENT
		AA		L	GW			
TPH C6-C8	µg/l	–	15000	3	0	<1.0	N/A	No Further Action
TPH C8-C10	µg/l	–	300	3	0	<1.0	N/A	No Further Action
TPH C10-C12	µg/l	–	300	3	0	<10	N/A	No Further Action
TPH C12-C16	µg/l	–	300	3	0	<10	N/A	No Further Action
TPH C16 – C21	µg/l	–	300**	3	0	<10	N/A	No Further Action
TPH C21-C35	µg/l	–	300**	3	0	<10	N/A	No Further Action

Notes

Solubility <0.01µg/l

AA – Annual Average

* Polycyclic aromatic 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. Third edition (2004)

The chemical analysis of a leachate sample from the Made Ground soils encountered during the supplementary ground investigation indicates that the soils have isolated elevated levels of:

-  Arsenic
-  Zinc
-  pH

The impacted deposits pose a risk to the controlled water receptors and the wider environment. The exceedances are only minor which may be due to the aggressive nature of the leachate test. Three groundwater samples were undertaken during the initial E3P investigation and they did not identify any elevated levels in arsenic or lead, however the screening level for zinc has now decreased therefore it does exceed with one water sample.

Given the site is underlain by circa 15 m of low permeable clay and nearest groundwater abstraction borehole for drinking water is over 1 km away, a complete pollutant linkage cannot be made.

Furthermore, elevated TPHs have been identified in 4No. isolated areas on site that will require delineation, excavation and validation as part of any remediation works. However, as the site is located within a low sensitivity location with respect to controlled waters there is not considered to be a significant risk to controlled waters.

The area around the existing stadium structure that has not been investigated due to access constraints still requires further assessment.



3.3. POTABLE WATER INFRASTRUCTURE

This will need to be confirmed following the completion of a UKWIR risk assessment. Post-remediation and enabling works ground conditions may be different from those identified during this site investigation.



4. GEOTECHNICAL ASSESSMENT

4.1. UNDEGROUND OBSTRUCTIONS

The figure of eight racetrack in the centre of the stadium appeared to have a brick-built foundation, circa 0.4 m bgl. It is anticipated that subsurface structures and significant obstructions will be present in and around the main structure of the stadium, this area has access constraints and no intrusive investigations have been conducted to date.

Any voids left from the excavation of obstructions will require infilling in accordance with an approved specification.

4.2. SULPHATE ASSESSMENT

Following a process of remediation and enabling works, concrete classification will be DS-1 AC-1s.

4.3. FOUNDATION ASSESSMENT

It is anticipated that on completion of the proposed site remediation and enabling works, the ground will generally comprise circa 0.50 to 1.50 m of Made Ground overlying a thin (~400mm) band of soft to firm organic CLAY over stiff CLAY or medium dense granular soils.

As such it is considered that the optimum foundation solution would be to prepare the ground in a controlled manner so as to facilitate the use of a vibro stone column to support a shallow reinforced concrete strip foundation.

It may be necessary to deepen foundations within influencing distance of any former, existing or proposed trees. It is important to note that within areas that have been re-engineered using VSC, foundations may still need to be locally deepened to mitigate potential volumetric instability in clay soils.

Peat has been encountered in the north of the site (TP101, TP304 and TP305 between 1.30 m and 1.70 m bgl) Any organic/ soft materials, will require complete excavation prior to development to remove the risk of differential settlement. The resulting void will need to be backfilled with geotechnically suitable material. The excavated peat/ organic soils can then be placed in a 300 mm layer below the 600 mm cover system but no deeper than 1.00 m bgl due to gassing risk.

Given the extensive presence of relict obstructions and deep Made Ground E3P would not anticipate that traditional shallow strip foundations would be suitable for more than 10% of the development. It will be necessary to locally deepen foundations within influence of existing or proposed trees.

4.4. FLOOR SLABS

Due to the presence of substantial thickness' of Made Ground across the site it is considered that ground bearing floor slabs, whilst viable, will require detailed design to accommodate variability of the formation and account for differential settlement.

Where suspended floor slabs are employed ventilation of the under-floor void will be required to address condensation issues. This would also assist in the mitigation of potential gas ingress issues.

A ground bearing slab will be viable for the commercial structures; however, it will need to be constructed utilising a sub-base with the thickness designed by a structural engineer to ensure that settlement tolerances are taken into consideration.



5. CONCLUSION

Based on the findings of the supplementary ground investigation the depth of the Made Ground deposits and the drift deposits are consistent with those encountered during the initial phase of site investigation. Several exploratory locations have indicated impacted soils that pose elevated risks to human health, the controlled water receptors and the wider environment.

As part of the remediation and enabling works for the site it is recommended that impacted materials within TP106, TP202, TP215, TP303, TP306 and TP309 be delineated and assessed to determine the best means to manage these materials. Further investigation is required post demolition in and around the stadium building as access was limited during both the October 2020 and the November 2020 visit.

Furthermore, elevated total mercury has been identified in the shallow granular Made Ground at TP215. During remediation and enabling works, speciated mercury analysis should be completed to assess whether elemental mercury is present in TP215.

The area of peat has been further delineated and will require consideration.

I trust that the above information is sufficient at this time and if you require anything further please do not hesitate to contact me

Yours sincerely,
For and on behalf of E3P Ltd



Stuart Ellis
Principal Geoenvironmental Consultant



Enclosed:

Exploratory Borehole Logs;
Chemical Test Results;
12-123-001 – Site Location Plan;
12-123-002 – Site Features Plan;
12-123-003 – Historical Features Plan;
12-123-004 – Proposed Development Plan;
12-123-005 – Exploratory Hole Location Plan;
12-123-007 – Depth of Made Ground Plan;
12-123-008 – Depth of Founding Strata;
12-123-009 – Site Conceptual Site Model; and
12-123-010 – Remediation Issues drawing.





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Trial Pit Log

TrialPit No
TP201
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387818.00 - 396008.00
Level:Date
19/10/2020

Location: Manchester

Dimensions (m): 2.00

Scale
1:24

Client: Countryside Properties

Depth
2.00Logged
M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.05			MADE GROUND: Red brown very gravelly clay. The gravel is fine to medium subrounded to subangular of brick, mudstone and concrete.	
				0.20			MADE GROUND: Red brown very clayey gravel. The gravel is fine to medium subrounded to subangular of brick, mudstone and concrete.	
	0.60	ES		0.60			MADE GROUND: Grey clayey gravel with laid brick at 0.4 m bgl. The gravel is fine subrounded to subangular of brick and sandstone.	
				0.70			MADE GROUND: Black ashy clay (strong hydrocarbon odour).	
							Stiff, high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY. Gravel is fine subrounded of sandstone and mudstone.	1
	1.50	HVP	154					
				2.00			End of Pit at 2.00m	2
								3
								4
								5

Remarks: 1. Complete. 2. Hydrocarbon odour between 0.60m to 0.70m bgl.

Stability: 1. Stable





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Trial Pit Log

TrialPit No
TP202
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387794.00 - 396024.00
Level:Date
19/10/2020

Location: Manchester

Dimensions (m): 2.50

Scale
1:24

Client: Countryside Properties

Depth
2.20Logged
M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.05 0.10						MADE GROUND: Red brown very gravelly clay. The gravel is fine to medium subrounded to subangular of brick, mudstone, sandstone and concrete.	
	0.30 0.30	L Leachate					MADE GROUND: Red brown very clayey gravel. The gravel is fine to medium subrounded to subangular of brick, mudstone and concrete.	
	0.80 0.90	HVP ES	110	0.80			MADE GROUND: Red brown slightly clayey ashy gravel with whole bricks throughout. The gravel is fine to coarse subangular of brick and sandstone. (Brick Fill)	
							Stiff, high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY with pockets of fine yellow sand at 2 m bgl. Gravel is fine subrounded of sandstone and mudstone.	1
				2.20			End of Pit at 2.20m	2
								3
								4
								5

Remarks: 1. Complete.

Stability: 1. Stable





Project Name: Belle Vue	Project No. 12-123	Co-ords: 387854.00 - 396078.00 Level:	Date 19/10/2020
Location: Manchester		Dimensions (m): 2.50 Depth 2.40	Scale 1:24
Client: Countryside Properties			Logged M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.30	ES		0.10 0.30 0.50		   	<p>MADE GROUND: Red brown very gravelly clay with metal wire throughout. The gravel is fine to medium subrounded to subangular of brick, mudstone, sandstone and concrete.</p> <p>MADE GROUND: Red brown slightly clayey ashy gravel with whole bricks throughout. The gravel is fine to coarse subangular of brick and sandstone. (Brick Fill)</p> <p>Firm, medium strength black with brown pockets CLAY with strong hydrocarbon odour. (Impacted natural)</p> <p>Stiff, high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY. Gravel is fine subrounded of sandstone and mudstone.</p>
	2.00	ES		2.40		End of Pit at 2.40m	

Remarks: 1. Complete. 2. No representative sample for HSV.

Stability: 1. Stable

Project Name: Belle Vue	Project No. 12-123	Co-ords: 387891.00 - 396076.00 Level:	Date 19/10/2020
Location: Manchester		Dimensions (m): 2.00 Depth 2.30	Scale 1:24
Client: Countryside Properties			Logged M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.10			Dark brown very silty clay with rootlets. (Topsoil)	
				0.50			MADE GROUND: Dark brown sandy silty clay with metal ropes, plastic, whole bricks and car parts throughout.	
	0.60	ES					MADE GROUND: Brown gravelly clay. The gravel is a mixture of medium subangular of limestone and chert.	
				1.00			Firm to stiff brown with grey mottling along fissure plains CLAY with subrounded of sandstone cobbles throughout.	1
	2.00 2.00	L Leachate						2
				2.30			End of Pit at 2.30m	3
								4
								5

Remarks: 1. Complete. 2. No representative sample for HSV.

Stability: 1. MG very unstable 2. Natural stable

Project Name: Belle Vue	Project No. 12-123	Co-ords: 387909.00 - 396093.00 Level:	Date 19/10/2020
Location: Manchester	Dimensions (m): 2.50 Depth 3.00 0.55		Scale 1:24
Client: Countryside Properties			Logged M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.05	ES		0.05			MADE GROUND: Red brown very gravelly clay. The gravel is fine to medium subrounded to subangular of brick, mudstone, sandstone and concrete.	
	0.20	ES		0.20			MADE GROUND: Red brown very clayey gravel. The gravel is fine to medium subrounded to subangular of brick, mudstone and concrete.	
	0.40	HVP	106	0.40			MADE GROUND: Black ashy gravel of fine to medium subangular slag, coal and mudstone.	
							Stiff, high strength brown with grey mottling along fissure plains, very slightly gravelly slightly sandy CLAY with subrounded sandstone cobbles at 2m bgl. Gravel is fine subrounded of sandstone and mudstone.	1
								2
				3.00			End of Pit at 3.00m	3
								4
								5

Remarks: 1. Complete. 2. Clay fracturing upon excavation below 1.0m bgl.

Stability: 1. Stable



e3p

Trial Pit Log

TrialPit No
TP208
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387920.00 - 396072.00
Level:Date
19/10/2020

Location: Manchester

Dimensions (m):

2.00

Scale
1:24

Client: Countryside Properties

Depth
2.50

0.55

Logged
M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10	ES		0.05			<p>MADE GROUND: Red brown very gravelly clay. The gravel is fine to medium subrounded to subangular of brick, mudstone, sandstone and concrete.</p> <p>MADE GROUND: Red brown slightly clayey ashy gravel with whole bricks throughout. The gravel is fine to coarse subangular of brick and sandstone. (Brick Fill)</p> <p>Very stiff, very high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY with subrounded sandstone cobbles at 1.5m bgl. Gravel is fine subrounded of sandstone and mudstone.</p>
				0.30			
	1.30	HVP	194				
	1.50	ES					
				2.50			End of Pit at 2.50m

Remarks: 1. Complete. 2. No representative sample for HSV past 1.3m.

Stability: 1. Stable







e3p

Trial Pit Log

TrialPit No
TP210
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387907.00 - 396038.00
Level:Date
19/10/2020

Location: Manchester

Dimensions
(m):

2.00

Scale
1:24

Client: Countryside Properties

Depth
2.60

0.55

Logged
M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.10			MADE GROUND: Red brown very gravelly clay with rubber and metal strips. The gravel is fine to medium subrounded to subangular of brick, mudstone, sandstone and concrete.	
	0.40	ES		0.40			MADE GROUND: Red brown very clayey gravel with whole bricks throughout. The gravel is fine to medium subrounded to subangular of brick, mudstone and concrete.	
	0.70	ES		0.70			MADE GROUND: Black gravelly clay. The gravel is fine to coarse subangular brick and tiles (Sweet hydrocarbon odour).	
	1.00	HVP	223				Very stiff, very high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY with subrounded sandstone cobbles at 1.5m bgl. Gravel is fine subrounded of sandstone and mudstone.	1
								2
								3
								4
								5
				2.60			End of Pit at 2.60m	

Remarks: 1. Complete. 2. No representative sample for HSV past 1.3m. 3. Sweet hydrocarbon odour between 0.40m to 0.70m bgl. 4. Water rising from base.

Stability: 1. MG very unstable 2. Natural stable





e3p

Trial Pit Log

TrialPit No
TP211
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387867.00 - 396060.00
Level:Date
19/10/2020

Location: Manchester

Dimensions (m): 3.00

Scale
1:24

Client: Countryside Properties

Depth
2.40Logged
M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.15	ES		0.10			<p>MADE GROUND: Red brown very gravelly clay. The gravel is fine to medium subrounded to subangular of brick, mudstone, sandstone and concrete.</p> <p>MADE GROUND: White sandy gravel with metal piping. The gravel is medium subangular to angular of limestone. (Crush fill)</p> <p>MADE GROUND: Brown to dark brown ashy gravelly clay. The gravel is medium subangular of limestone and brick. French drain at 0.4m bgl.</p> <p>Stiff, high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY with subrounded sandstone cobbles at 2m bgl. Gravel is fine subrounded of sandstone and mudstone.</p>	
	0.40	ES		0.20				
				0.60				
	2.00	ES						
				2.40			End of Pit at 2.40m	

Remarks: 1. Complete 2. No representative sample for HSV.

Stability: 1. MG very unstable 2. Natural stable





e3p

Trial Pit Log

TrialPit No
TP212
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387859.00 - 396039.00
Level:Date
19/10/2020

Location: Manchester

Dimensions (m): 2.50

Scale
1:24

Client: Countryside Properties

Depth
2.70

0.55

Logged
M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.05	ES		0.10			<p>MADE GROUND: Red brown very gravelly clay. The gravel is fine to medium subrounded to subangular of brick, mudstone, sandstone and concrete.</p> <p>MADE GROUND: White sandy gravel with metal piping. The gravel is medium subangular to angular of limestone. (Crush fill)</p> <p>Stiff, high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY with subrounded sandstone cobbles at 2m bgl. Gravel is fine subrounded of sandstone and mudstone.</p>
	0.40	ES		0.20			
	0.40	HVP	104				
	0.50	B					
				2.70			End of Pit at 2.70m

Remarks: 1. Complete 2. No representative sample for HSV past 1.0m.

Stability: 1. Stable



Project Name: Belle Vue	Project No. 12-123	Co-ords: 387858.00 - 396022.00 Level:	Date 19/10/2020
Location: Manchester		Dimensions (m): 2.50 Depth 2.80	Scale 1:24
Client: Countryside Properties			Logged M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES		0.05			MADE GROUND: Red brown very gravelly clay. The gravel is fine to medium subrounded to subangular of brick, mudstone, sandstone and concrete.	
				0.30			MADE GROUND: Red brown slightly clayey ashy gravel with whole bricks throughout. The gravel is fine to coarse subangular of brick and sandstone. (Brick Fill)	
				0.60			MADE GROUND: Black ashy gravelly clay. The gravel is fine to coarse subrounded to subangular of sandstone, concrete and brick.	
	1.60	ES					Stiff, high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY with red medium sand pockets at 2m bgl. Gravel is fine subrounded of sandstone and mudstone.	1
				2.80			End of Pit at 2.80m	3
								4
								5

Remarks: 1. Complete 2. No representative sample for HSV past 1.0m.

Stability: 1. MG unstable 2. Natural stable



e3p

Trial Pit Log

TrialPit No
TP214
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387769.00 - 396052.00
Level:Date
19/10/2020

Location: Manchester

Dimensions (m): 2.50

Scale
1:24

Client: Countryside Properties

Depth
2.80Logged
M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.05	ES		0.05			MADE GROUND: Black asphalt.	
	0.30	ES		0.30			MADE GROUND: Black slightly clayey gravel of fine to coarse subangular asphalt and concrete with metal debris throughout.	
	0.60	L		0.60			MADE GROUND: Black slightly gravelly clay with strong hydrocarbon odour. The gravel is medium subangular of brick.	
	0.60	Leachate						
	0.70	HVP	154				Very stiff, very high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY. Gravel is fine subrounded of sandstone and mudstone.	1
								2
				2.80			End of Pit at 2.80m	3
								4
								5

Remarks: 1. Complete 2. No representative sample for HSV past 1.3m. 3. Strong hydrocarbon odour between 0.30m to 0.60m bgl.

Stability: 1. Stable



Project Name: Belle Vue	Project No. 12-123	Co-ords: 387759.00 - 396026.00 Level:	Date 19/10/2020
Location: Manchester		Dimensions (m): Depth 3.00	Scale 1:24
Client: Countryside Properties		0.55 	Logged M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.05 0.10			MADE GROUND: Black asphalt. MADE GROUND: White grey concrete with medium angular limestone gravel beneath. MADE GROUND: Black very ashy slightly clayey gravel with roofing slates, coal and timber throughout. The gravel is fine to coarse subrounded to subangular of brick, sandstone and concrete.	1
▼ 1.20	0.70	ES						
▼ 1.70	1.80	ES		1.60			MADE GROUND: Grey with orange mottling clay with glass bottles, whole bricks and patches of oil stained clay (strong hydrocarbon odour throughout). (Reworked clay)	2
				3.00			End of Pit at 3.00m	3
								4
								5

Remarks: 1. Suspended due to undercutting. 2. Strong hydrocarbon odour and staining between 1.60m to 3.00m bgl. 3. Perched water at 1.20m and 1.70m bgl.

Stability: 1. Stable

Project Name: Belle Vue	Project No. 12-123	Co-ords: 387803.00 - 395965.00 Level:	Date 19/10/2020
Location: Manchester		Dimensions (m): 2.50 Depth 2.20	Scale 1:24
Client: Countryside Properties		0.55	Logged M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
▼ 1.00	0.05	ES		0.05			MADE GROUND: Red brown very gravelly clay. The gravel is fine to medium subrounded to subangular of brick, mudstone, sandstone and concrete.
	0.20	ES		0.20			MADE GROUND: Red brown very clayey gravel. The gravel is fine to medium subrounded to subangular of brick, mudstone and concrete.
				0.30			MADE GROUND: black very ashy clayey gravel. The gravel is fine to medium subangular of limestone and brick debris.
				0.70			MADE GROUND: Grey to black clay with bricks and strong hydrocarbon odour throughout.
							Stiff, high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY. Gravel is fine subrounded of sandstone and mudstone.
	1.70	B		2.20			End of Pit at 2.20m

Remarks: 1. Complete 2. Hydrocarbon odour at 0.3m to 0.7m bgl. 3. Water strike encountered at 1.00m bgl rising from the base.

Stability: 1. Stable



e3p

Trial Pit Log

TrialPit No
TP217
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387866.00 - 395995.00
Level:Date
19/10/2020

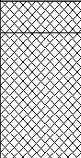
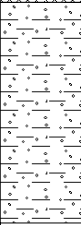
Location: Manchester

Dimensions (m): 2.50

Scale
1:24

Client: Countryside Properties

Depth
1.70Logged
M. Jackson

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
 0.50	0.10	L Leachate		0.10			MADE GROUND: Black asphalt.	
	0.10						MADE GROUND: Black very ashy slightly clayey gravel. The gravel is fine to coarse subangular of coal, brick, slag and mudstone.	
	0.50	ES		0.50			MADE GROUND: Black stained grey clay with whole bricks throughout. (Reworked clay)	
	1.20	ES		1.00			Stiff, high strength brown with grey mottling along fissure plains, very slightly gravelly CLAY. Gravel is fine subrounded of sandstone and mudstone.	1
				1.70			End of Pit at 1.70m	2
								3
								4
								5

Remarks: 1. Complete 2. No representative sample for HSV past 1.5m. 3. Perched water encountered at 0.50m bgl.

Stability: 1. Stable





e3p

Trial Pit Log

TrialPit No
TP301
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387973.00 - 396150.00
Level:Date
18/11/2020

Location: Manchester

Dimensions (m): 2.20

Scale
1:24

Client: Countryside Properties

Depth
2.80

0.80

Logged
J. Oliver

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.10			MADE GROUND: Asphalt.	
							MADE GROUND: Concrete.	
	0.35	ES		0.30			MADE GROUND: Grey sandy gravel. Gravel is fine to coarse subangular to subrounded of brick and concrete.	
				0.60			MADE GROUND: Dark grey sandy gravelly clay. Gravel is fine to coarse subangular to subrounded of brick.	
				0.80			Grey sandy CLAY.	1
	1.20	ES		1.10			Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	
	1.20	HVP	326.9					
	1.50	B						
	1.50	HVP	445.2					2
	2.20	HVP	477.0					
				2.80			End of Pit at 2.80m	3
								4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 2.3m bgl.

Stability: Stable





e3p

Trial Pit Log

TrialPit No
TP302
Sheet 1 of 1

Project Name: Belle Vue	Project No. 12-123	Co-ords: 387933.00 - 396140.00 Level:	Date 18/11/2020
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Location: Manchester	Dimensions (m): 3.00	Scale 1:24
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Client: Countryside Properties	Depth 2.80	Logged J. Oliver
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.20			MADE GROUND: Light brown grey very sandy gravel. Gravel is fine to coarse subangular to subrounded of brick concrete and glass.	
				0.30			MADE GROUND: Light reddish brown grey sandy gravel with glass shards throughout. Gravel is fine to coarse subangular to subrounded of brick and concrete.	
	0.50	ES		0.40			MADE GROUND: Dark grey slightly gravelly sandy clay. Gravel is fine to medium subangular of brick and concrete.	
	0.60	HVP	305.3				Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	1
								2
	1.10	HVP	449.0					3
				2.80			End of Pit at 2.80m	4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 1.5m bgl. 3. Pit extended south after encountering clay drainage pipe in north of pit.

Stability: Stable





e3p

Trial Pit Log

TrialPit No
TP303
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387932.00 - 396176.00
Level:Date
18/11/2020

Location: Manchester

Dimensions (m): 2.20

Scale
1:24

Client: Countryside Properties

Depth
2.80

0.80

Logged
J. Oliver

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
 0.40	0.30	L		0.25			MADE GROUND: Light reddish brown grey gravelly sand. Gravel is fine to medium subangular to subrounded of brick and concrete.	1
							MADE GROUND: Slightly clayey sandy gravel. Gravel is fine to medium subangular to subrounded of asphalt. Slight organic odour.	
	1.30	ES		1.20			MADE GROUND: Grey slightly gravelly sandy clay. Gravel is fine to medium subangular to subrounded of asphalt.	
	1.60	HVP	372.7	1.40			Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	2
				2.80			End of Pit at 2.80m	3
								4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 1.6m bgl. 3. Water strike at 0.4m bgl. 4. Slight organic odour between 0.25m bgl and 1.2m bgl.

Stability: Stable





e3p

Trial Pit Log

TrialPit No
TP304
Sheet 1 of 1

Project Name: Belle Vue	Project No. 12-123	Co-ords: 387899.00 - 396167.00 Level:	Date 18/11/2020
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Location: Manchester	Dimensions (m): 2.20	Scale 1:24
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Client: Countryside Properties	Depth 3.20	Logged J. Oliver
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES		0.10			MADE GROUND: Asphalt.	
							MADE GROUND: Light grey to dark grey very sandy gravel. Gravel is fine to coarse subangular to subrounded of sandstone and concrete.	
	0.60	ES		0.50			MADE GROUND: Grey slightly gravelly sandy clay. Gravel is fine to medium subangular to subrounded of mudstone.	
	0.80	HVP	99.2					1
	1.60	HVP	104.3					2
	2.40	HVP	109.4					
	2.60			2.60			MADE GROUND: Dark brown slightly sandy slightly gravelly fibrous peat. Gravel is fine to medium subrounded to sub angular of brick. With rare plastic wrapper fragments.	
	2.80	D		2.90			Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	3
				3.20			End of Pit at 3.20m	4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 2.9m bgl.

Stability: Stable



Project Name: Belle Vue	Project No. 12-123	Co-ords: 387879.00 - 396143.00 Level:	Date 18/11/2020
Location: Manchester		Dimensions (m): 2.20 Depth 2.70	Scale 1:24
Client: Countryside Properties			Logged J. Oliver

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES		0.10			MADE GROUND: Asphalt.	
				0.50			MADE GROUND: Light brown very sandy gravel with a cobble. Gravel is fine to coarse subangular to subrounded of limestone, brick and concrete. Cobble is subangular of brick.	
	1.50	ES		1.60			MADE GROUND: Grey slightly gravelly sandy clay. Gravel is fine to medium subangular to subrounded of brick and mudstone.	1
	2.00	HVP	318.0	1.80			MADE GROUND: Dark brown slightly sandy slightly gravelly fibrous peat. Gravel is fine to medium subrounded to sub angular of brick. With rare plastic wrapper fragments.	
				2.70			Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	2
							End of Pit at 2.70m	3
								4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 2.2m bgl.

Stability: Stable

Project Name: Belle Vue Project No. 12-123 Co-ords: 387836.00 - 396149.00 Date 18/11/2020

Location: Manchester Dimensions (m): 2.20 Scale 1:24

Client: Countryside Properties Depth 2.80 Logged J. Oliver

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	L		0.10 0.40			MADE GROUND: Asphalt. MADE GROUND: Reddish grey brown very sandy gravel with rare cobbles. Gravel is fine to medium subangular to subrounded of concrete and brick. Cobbles are subangular of brick. MADE GROUND: Layered reddish brown grey gravelly clayey sand with rare cobbles. Gravel is fine to coarse subangular to subrounded of brick and concrete. Layers are 0.20m-0.30m thick. Cobbles are subrounded of brick.	1
	1.50 1.50	B ES		1.80 2.80			Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	2
							End of Pit at 2.80m	3
								4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 1.8m bgl.

Stability: Stable



e3p

Trial Pit Log

TrialPit No
TP307
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387786.00 - 396131.00
Level:Date
18/11/2020

Location: Manchester

Dimensions (m): 2.20

Scale
1:24

Client: Countryside Properties

Depth
2.60

0.80

Logged
J. Oliver

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES		0.10			MADE GROUND: Asphalt.	
				0.30			MADE GROUND: Dark grey gravelly sand with roots and rootlets. Gravel is fine to coarse subangular to subrounded of brick and concrete.	
				0.60			MADE GROUND: Grey slightly gravelly sandy clay with reworked peat pockets. Gravel is fine to medium subangular to subrounded of brick, concrete and mudstone. Peat pockets circa 0.1m thick.	
	0.80	ES					Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	
	1.00	HVP	354.9					1
	1.50	HVP	483.4					2
				2.60			End of Pit at 2.60m	3
								4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 1.6m bgl.

Stability: Stable





e3p

Trial Pit Log

TrialPit No
TP308
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387746.00 - 396109.00
Level:Date
18/11/2020

Location: Manchester

Dimensions (m): 2.20

Scale
1:24

Client: Countryside Properties

Depth
2.80

0.80

Logged
J. Oliver

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.10			MADE GROUND: Asphalt.	
	0.30	ES		0.40			MADE GROUND: Dark grey gravelly sand with reworked peat pockets. Gravel is fine to coarse subangular to subrounded of mudstone brick and concrete. Peat pockets circa 0.1m thick.	
	0.60	ES		0.70			MADE GROUND: Grey slightly gravelly sandy clay with reworked peat pockets. Gravel is fine to medium subangular to subrounded of brick, concrete and mudstone. Peat pockets circa 0.1m thick.	
	1.00	HVP	394.3				Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	1
	1.50	HVP	470.6					2
				2.80			End of Pit at 2.80m	3
								4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 1.5m bgl.

Stability: Stable



Project Name: Belle Vue	Project No. 12-123	Co-ords: 387748.00 - 396082.00 Level:	Date 18/11/2020
Location: Manchester		Dimensions (m): 2.20 Depth 2.70	Scale 1:24
Client: Countryside Properties			Logged J. Oliver

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	L		0.10			MADE GROUND: Asphalt.	
				0.50			MADE GROUND: Dark grey gravelly sand. Gravel is fine to coarse subangular to subrounded of mudstone brick and concrete.	
	1.10	ES		1.00			MADE GROUND: Grey slightly gravelly sandy clay with reworked peat pockets. Gravel is fine to medium subangular to subrounded of brick and mudstone. Peat pockets circa 0.1m thick.	1
	1.10	HVP	330.7				Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	2
				2.70			End of Pit at 2.70m	3
								4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 1.5m bgl.

Stability: Stable



e3p

Trial Pit Log

TrialPit No
TP310
Sheet 1 of 1

Project Name: Belle Vue

Project No.
12-123Co-ords: 387774.00 - 396094.00
Level:Date
18/11/2020

Location: Manchester

Dimensions (m): 2.20

Scale
1:24

Client: Countryside Properties

Depth
2.60

0.80

Logged
J. Oliver

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.10			MADE GROUND: Asphalt.	
	0.30	ES					MADE GROUND: Dark grey gravelly sand. Gravel is fine to coarse subangular to subrounded of mudstone brick and concrete.	
				0.60				
	0.80	ES					MADE GROUND: Light grey light brown slightly gravelly sandy CLAY. Gravel is fine to medium subrounded to subangular of mudstone and brick debris.	
				0.90				
							Very stiff, very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone.	1
	1.40	HVP	435.0					
	1.80	HVP	324.4					2
				2.60			End of Pit at 2.60m	3
								4
								5

Remarks: 1. Complete. 2. Clay friable upon excavation below 2.0m bgl.

Stability: Stable



**Stuart Ellis**

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Analytical Report Number : 20-42509

Replaces Analytical Report Number: 20-42509, issue no. 1
Additional analysis undertaken.

Project / Site name:	Belle Vue Stadium	Samples received on:	19/11/2020
Your job number:	12-123	Samples instructed on/ Analysis started on:	20/11/2020
Your order number:	12-123-JO-E	Analysis completed by:	03/12/2020
Report Issue Number:	2	Report issued on:	03/12/2020
Samples Analysed:	2 leachate samples - 7 soil samples		

Signed:

Agnieszka Czerwińska
Technical Reviewer (Reporting Team)
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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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: 20-42509
Project / Site name: Belle Vue Stadium
Your Order No: 12-123-JO-E

Lab Sample Number	1690534	1690535	1690536	1690537
Sample Reference	TP103	TP303	TP304	TP306
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	1.20	0.30	2.80	0.30
Date Sampled	18/11/2020	18/11/2020	18/11/2020	18/11/2020
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
Moisture Content	%	0.01	NONE	14
Total mass of sample received	kg	0.001	NONE	0.4

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Detected	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	0.001	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	0.001	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	-	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	-	-	-
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	-	-	-
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	-	-	-
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	-	-	-
Sulphide	mg/kg	1	MCERTS	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	9	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.43	3.5	-	0.66
Acenaphthylene	mg/kg	0.05	MCERTS	0.23	0.22	-	0.41
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	4.9	-	0.99
Fluorene	mg/kg	0.05	MCERTS	< 0.05	4.2	-	0.65
Phenanthrene	mg/kg	0.05	MCERTS	0.21	27	-	7.4
Anthracene	mg/kg	0.05	MCERTS	< 0.05	5	-	1.8
Fluoranthene	mg/kg	0.05	MCERTS	0.15	26	-	15
Pyrene	mg/kg	0.05	MCERTS	0.26	24	-	15
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	14	-	11
Chrysene	mg/kg	0.05	MCERTS	< 0.05	10	-	8.1
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	11	-	11
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	5	-	5.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	9.7	-	11
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	4.4	-	6.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	1.2	-	1.7
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	5.9	-	7.4

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1.28	156	-	104
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	140	-	160
Barium (aqua regia extractable)	mg/kg	1	MCERTS	270	450	-	800
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	4.3	-	1.6
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2	5.6	-	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2

Analytical Report Number: 20-42509
Project / Site name: Belle Vue Stadium
Your Order No: 12-123-JO-E

Lab Sample Number				1690534	1690535	1690536	1690537
Sample Reference				TP103	TP303	TP304	TP306
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	0.30	2.80	0.30
Date Sampled				18/11/2020	18/11/2020	18/11/2020	18/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	470	-	98
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	400	-	260
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.8	-	0.7
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	39	73	-	43
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	93	-	69
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	65	280	-	99

Petroleum Hydrocarbons

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	-	7.3	-	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	-	32	-	32
TPH (C16 - C21)	mg/kg	1	MCERTS	-	130	-	150
TPH (C21 - C35)	mg/kg	1	MCERTS	-	340	-	1000
TPH (C35 - C40)	mg/kg	10	MCERTS	-	63	-	240
TPH Total C5 - C40	mg/kg	10	MCERTS	-	580	-	1400

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

Analytical Report Number: 20-42509
Project / Site name: Belle Vue Stadium
Your Order No: 12-123-JO-E

Lab Sample Number	1690538	1690539	1690540
Sample Reference	TP307	TP309	TP309
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	0.80	0.30	1.10
Date Sampled	18/11/2020	18/11/2020	18/11/2020
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status
Stone Content	%	0.1	NONE
Moisture Content	%	0.01	NONE
Total mass of sample received	kg	0.001	NONE

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	8.9	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	270	-	-
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.024	-	-
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	48	-	-
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	24.1	-	-
Sulphide	mg/kg	1	MCERTS	< 1.0	-	-
Total Sulphur	mg/kg	50	MCERTS	170	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.1	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	0.71	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	1.1	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	6.6	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	12	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	39	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	12	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	38	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	40	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	27	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	20	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	23	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	6.4	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	20	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	8.5	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	3.1	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	11	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	267	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.4	31	10
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	660	150
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	1.9	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.3	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2

Analytical Report Number: 20-42509
Project / Site name: Belle Vue Stadium
Your Order No: 12-123-JO-E

Lab Sample Number				1690538	1690539	1690540
Sample Reference				TP307	TP309	TP309
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.30	1.10
Date Sampled				18/11/2020	18/11/2020	18/11/2020
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	33	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	160	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	210	14
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	38	61	36
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	60	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	68	170	62

Petroleum Hydrocarbons

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	-	100	-
TPH (C16 - C21)	mg/kg	1	MCERTS	-	470	-
TPH (C21 - C35)	mg/kg	1	MCERTS	-	1100	-
TPH (C35 - C40)	mg/kg	10	MCERTS	-	240	-
TPH Total C5 - C40	mg/kg	10	MCERTS	-	2000	-

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



Analytical Report Number: 20-42509
Project / Site name: Belle Vue Stadium

Your Order No: 12-123-JO-E

Lab Sample Number				1690541	1690542
Sample Reference				TP303	TP309
Sample Number				None Supplied	None Supplied
Depth (m)				0.30	0.30
Date Sampled				18/11/2020	18/11/2020
Time Taken				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	9.1
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0

Total Phenols

Total Phenols (monohydric)	µg/l	1	ISO 17025	3.3	4.8
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	4.5	85
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.9	2.2
Copper (dissolved)	µg/l	0.7	ISO 17025	6	9.8
Lead (dissolved)	µg/l	1	ISO 17025	5.3	9.3
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	2	< 0.3
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	18	13

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	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
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10

Petroleum Hydrocarbons



Analytical Report Number: 20-42509
Project / Site name: Belle Vue Stadium

Your Order No: 12-123-JO-E

Lab Sample Number				1690541	1690542
Sample Reference				TP303	TP309
Sample Number				None Supplied	None Supplied
Depth (m)				0.30	0.30
Date Sampled				18/11/2020	18/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		
TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10

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



Analytical Report Number: 20-42509
Project / Site name: Belle Vue Stadium
Your Order No: 12-123-JO-E

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1690535	TP303	0.30	134	Loose Fibres	Chrysotile	0.001	0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 20-42509
Project / Site name: Belle Vue Stadium

* 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 *
1690534	TP103	None Supplied	1.2	Brown clay and sand.
1690535	TP303	None Supplied	0.3	Brown clay and sand with gravel and clinker.
1690536	TP304	None Supplied	2.8	Black clay and sand with vegetation and gravel
1690537	TP306	None Supplied	0.3	Brown clay and sand with gravel.
1690538	TP307	None Supplied	0.8	Brown clay and sand.
1690539	TP309	None Supplied	0.3	Brown clay and gravel.
1690540	TP309	None Supplied	1.1	Brown clay with gravel.

Analytical Report Number : 20-42509
Project / Site name: Belle Vue Stadium

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 diphenylcarbazine 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 diphenylcarbazine 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

Analytical Report Number : 20-42509
Project / Site name: Belle Vue Stadium

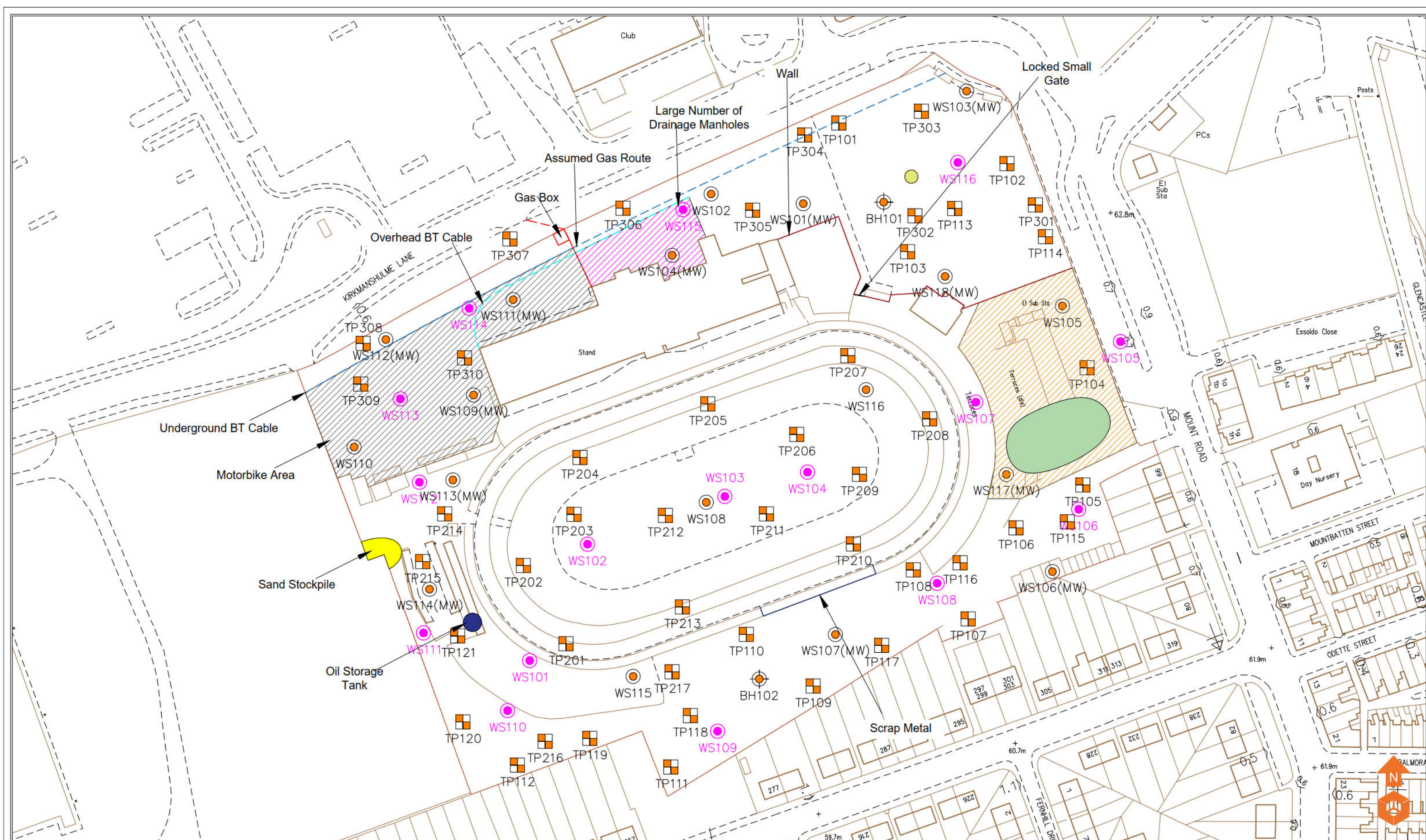
Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
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
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
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	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
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
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

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 30°C.



- Location Symbols**
- Approximate Window Sample Probehole Location
 - Approximate Window Sample Probehole Location with Install
 - Approximate Trial Pit Location
 - Approximate Cable Percussive Borehole Location
 - Approximate DB Window Sample Probehole Location

- Site Features**
- Underground BT Cable
 - Overhead BT Cable
 - Lighting Column
 - Wall
 - Drainage Manholes
 - Assumed Gas Route
 - Unable to Access Area
 - Area of Fly Tipping
 - Locked Small Gate
 - Scrap Metal
 - Oil Storage Tank
 - Sand Stock Pile
 - Motorbike Area

Notes:

Client:

Countryside Properties

Job No:

12-123

Date:

04.01.2021

Drawing No:

002

Scale:

NTS

Drawing Title:

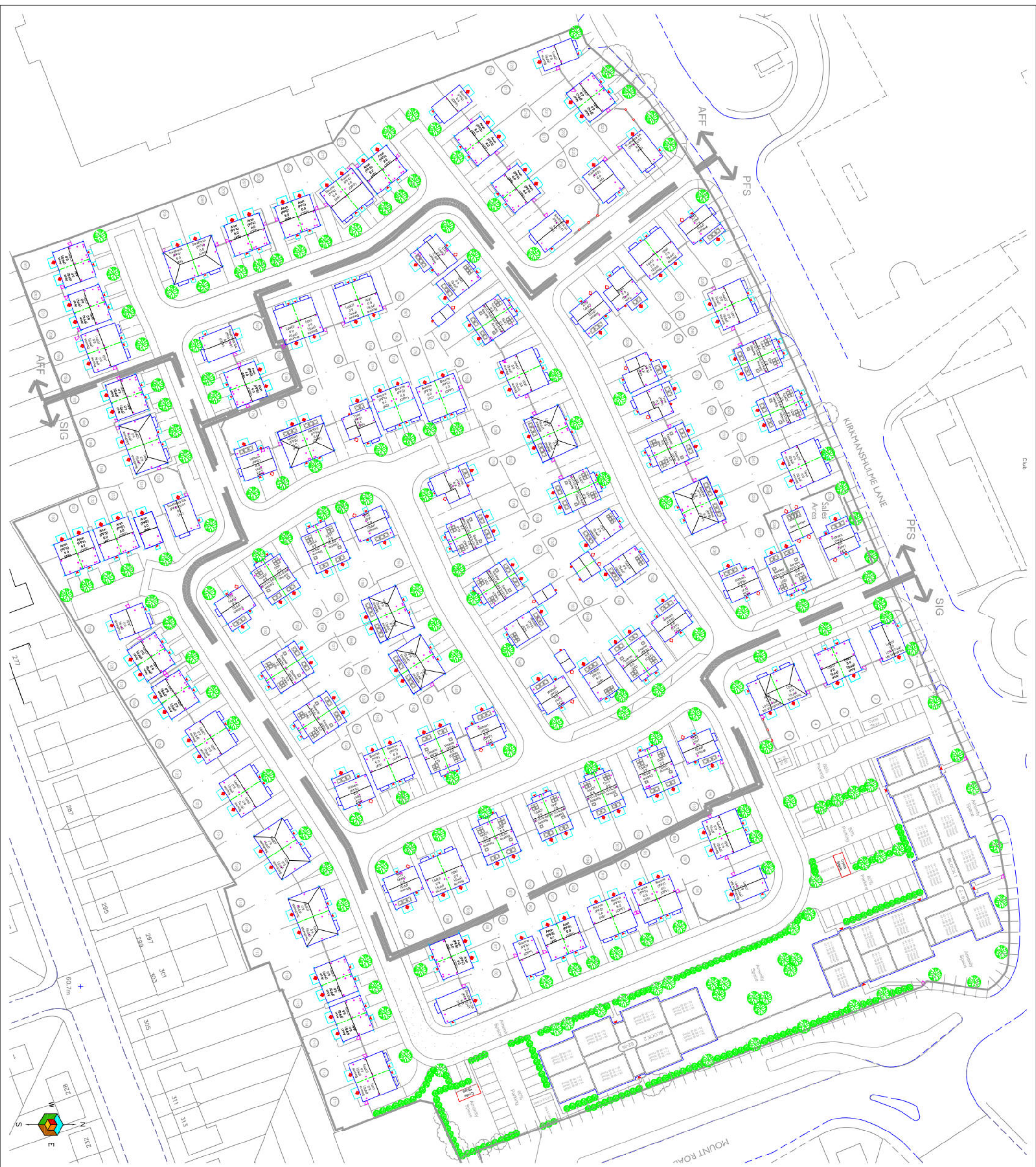
Site Features Plan



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P1	REVA	04.01.2021	HM	SE
Phase	Issue	Date	Drawn	Checked



Key:

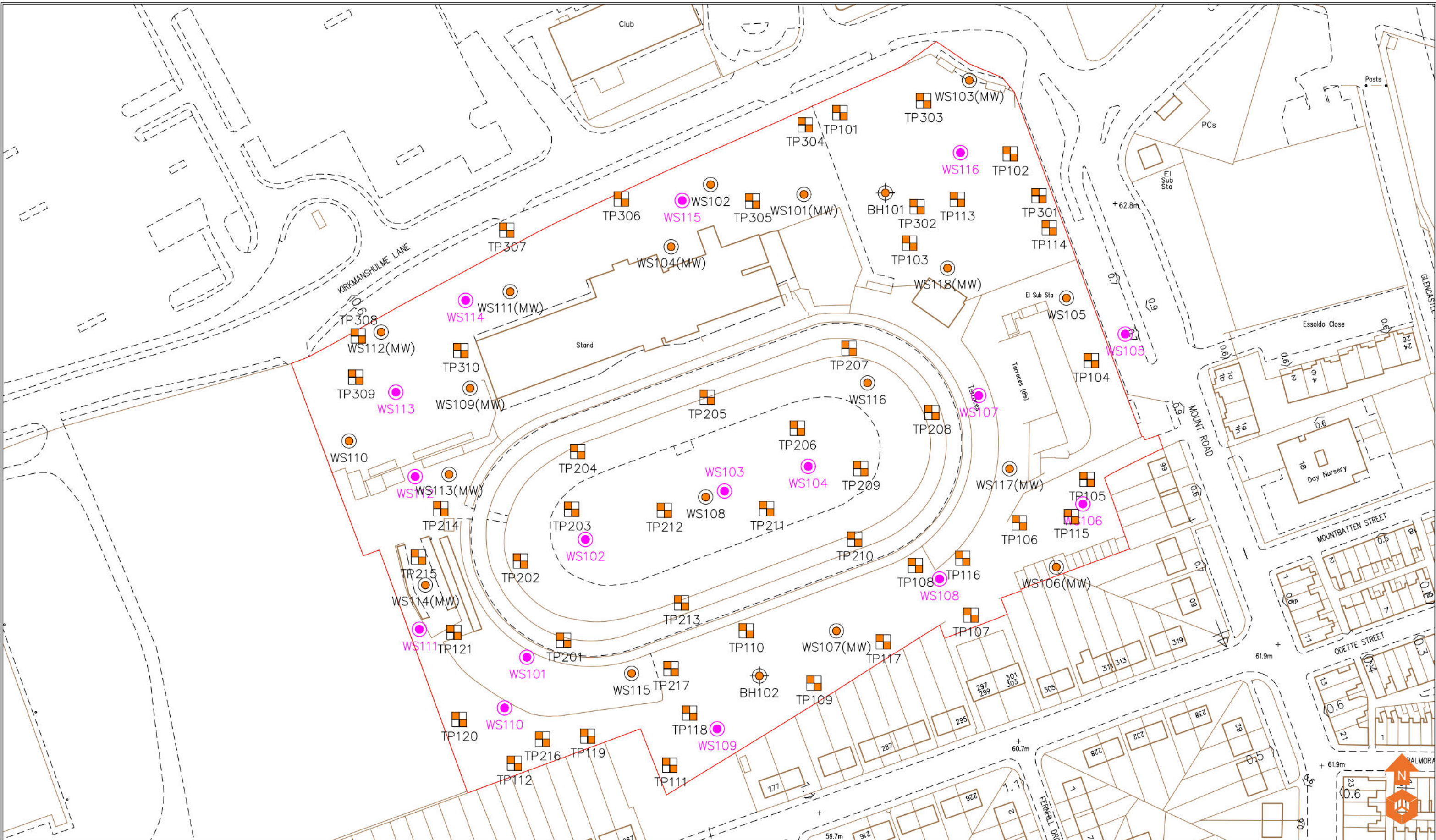
Notes:

P1	-	27.02.2019	DRAFT	HM	SE
Phase	Revision	Date	Issue	Drawn	Authorised
Countryside Properties			Job No:	12-123	Date: 27.02.2019
Job Title:			Drawing No:	004	Scale: NTS
Belle Vue Stadium			Proposed Development Layout		

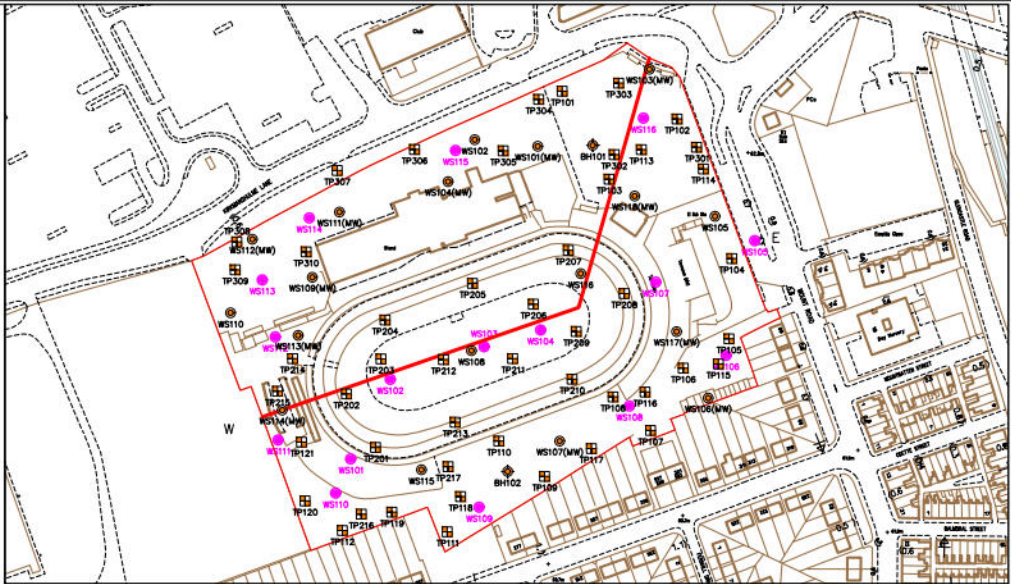


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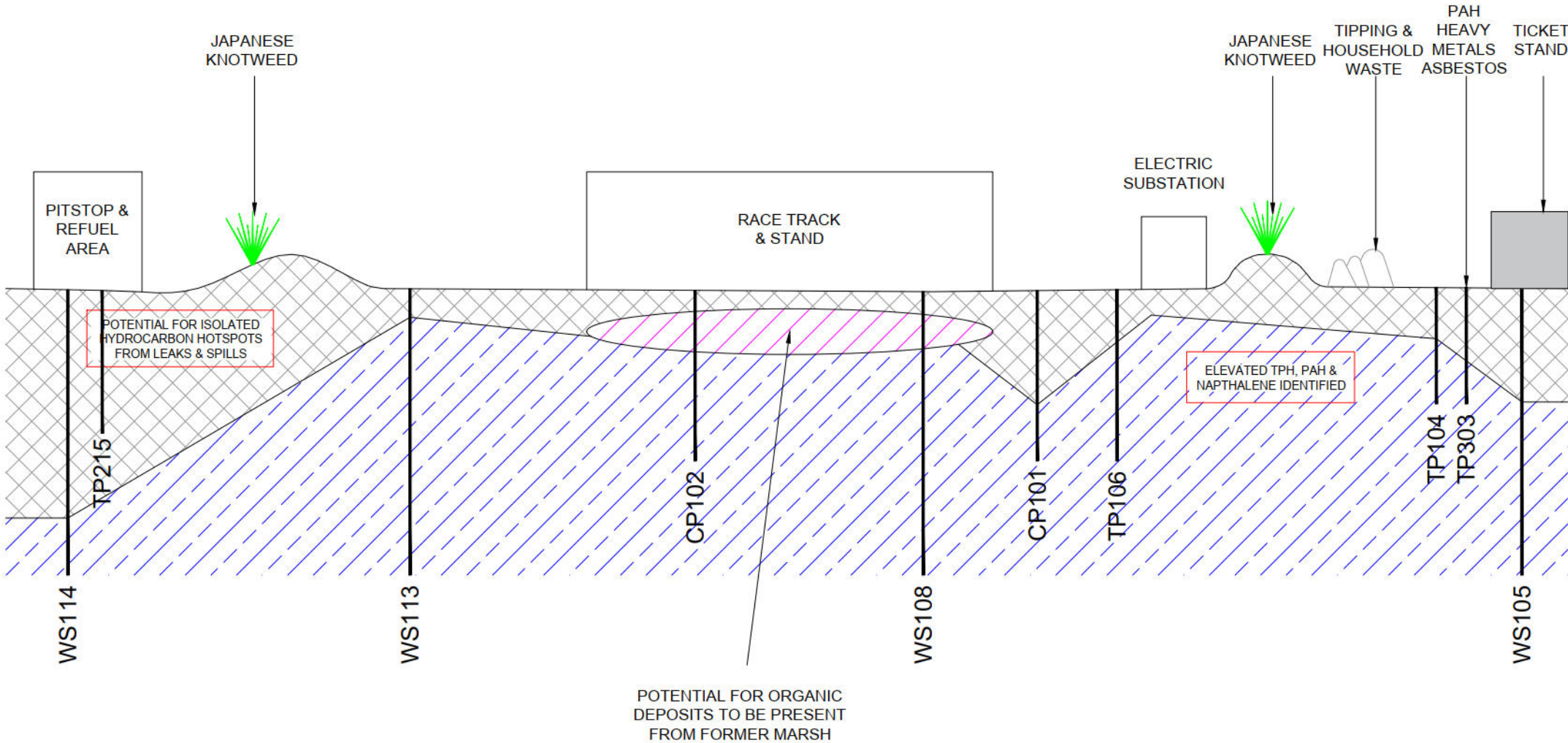


<div>Location Symbols</div> <div><div><div></div></div>Approximate Window Sample Probehole Location</div> <div><div><div></div></div>Approximate Window Sample Probehole Location with Install</div> <div><div><div></div></div>Approximate Trial Pit Location</div> <div><div><div></div></div>Approximate Cable Percussive Borehole Location</div> <div><div><div></div></div>Approximate DB Window Sample Probehole Location</div>	Notes:					Client: Countryside Properties	Job No: 12-123	Date: 18.12.2020	<div><div><div></div></div>e3p</div> <div>Environmental Engineering Partnership Ltd Taylor Road, Trafford Park Urmston, Manchester, M41 7JQ Tel: 0161 707 9612 E-mail: info@e3p.co.uk Website: www.e3p.co.uk</div>
								Drawing No: 005	
						<div>P1 P1 P1</div> <div>REVC REV8 REVA</div> <div>18.12.2020 26.10.2020 16.02.2018</div> <div>HM HM HM</div> <div>SE MJ MD</div>	Job Title: Belle Vue Stadium	Drawing Title: Exploratory Hole Location Plan	
					<div>Phase</div> <div>Issue</div> <div>Date</div> <div>Drawn</div> <div>Checked</div>				



W

NE



- Geological Features
- Clay
 - Made Ground
 - Potential For Organic Deposits to be Present from Former Marsh
 - Japanese Knotweed

Notes:				
P1	REVB	04.01.2021	HM	SE
P1	REVA	26.03.2018	RW	MD
Phase	Issue	Date	Drawn	Checked

Client: Countryside Properties

Job Title: Belle Vue Stadium

Job No: 12-123

Drawing No: 009

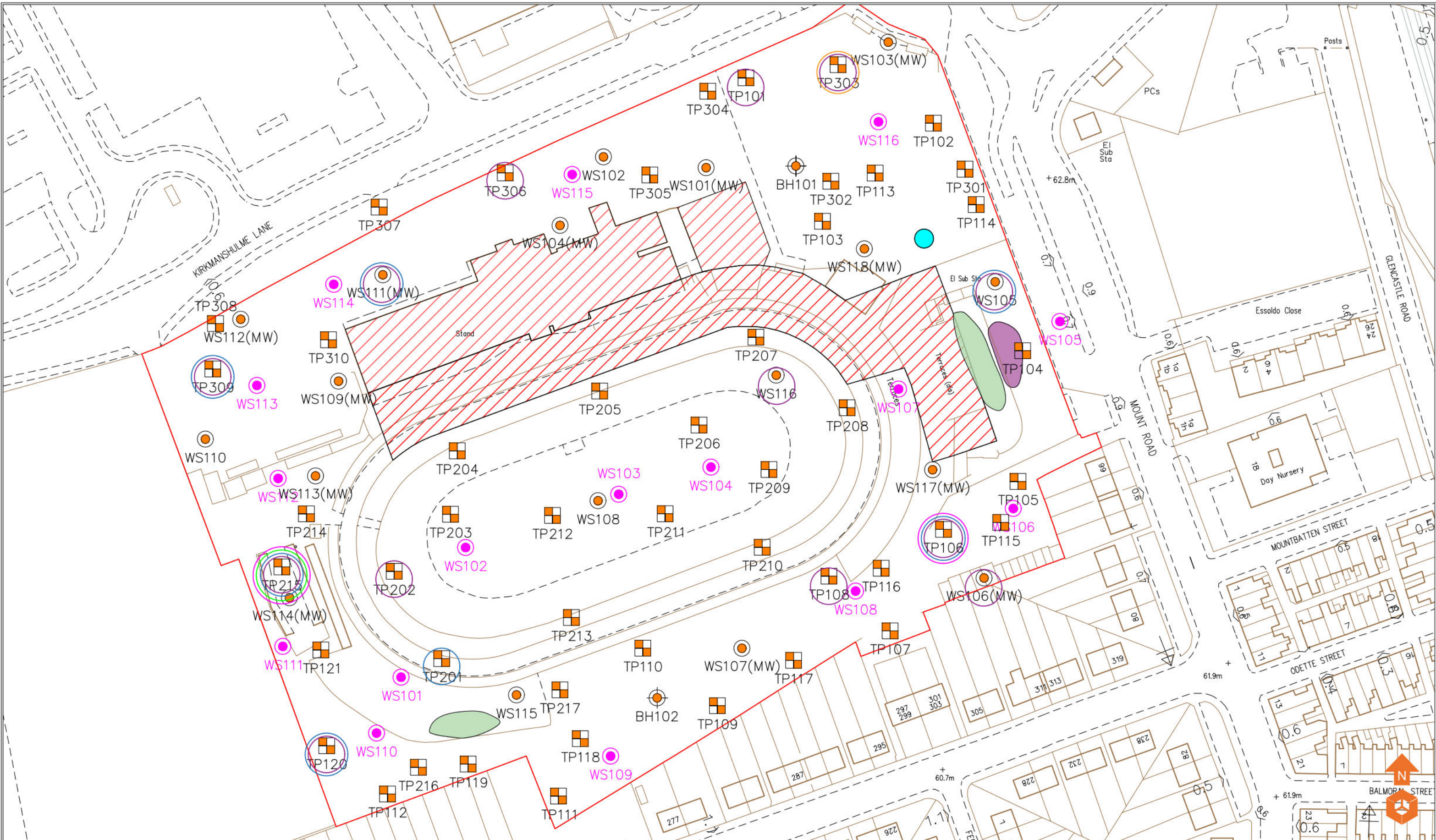
Date: 04.01.2021

Scale: NTS

Drawing Title: Conceptual Site Model

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 - Approximate DB Window Sample Probehole Location

- Exceedances**
- Elevated Heavy Metals and non volatile PAHs Identified
 - Elevated Mercury Identified
 - Asbestos Identified
 - TPH C16-C35
 - Elevated Volatile organic compounds and TPH C5-C16 Identified
 - Area Not Investigated
 - Area of Japanese Knotweed
 - Area of Fly Tipping
 - Abstraction Boreholes

Notes:

P1	REV B	06.01.2021	LM	SE
P1	REVA	04.01.2021	HM	SE
Phase	Issue	Date	Drawn	Checked

Client:

Countryside Properties

Job Title:

Belle Vue Stadium

Job No:

12-123

Drawing No:

010

Date:

06.01.2021

Scale:

NTS

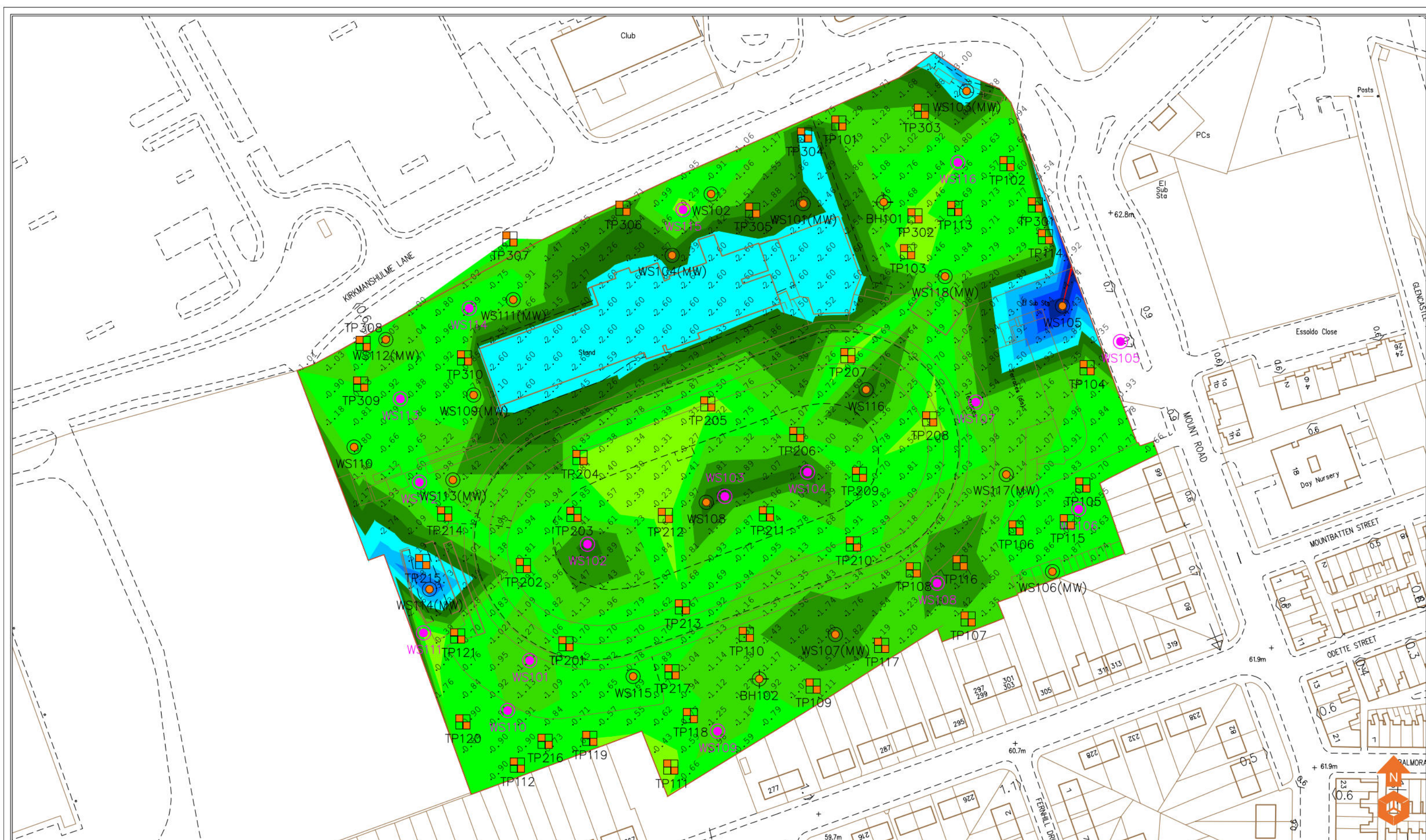
Drawing Title:

Remediation Issues Plan



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 - Approximate DB Window Sample Probehole Location

- Made Ground Depth (m)**
- Depth of Made Ground 0.00 - 0.49m
 - Depth of Made Ground 0.50 - 0.99m
 - Depth of Made Ground 1.00 - 1.49m
 - Depth of Made Ground 1.50 - 1.99m
 - Depth of Made Ground 2.00 - 2.49m
 - Depth of Made Ground 2.50 - 2.99m
 - Depth of Made Ground 3.00 - 3.49m
 - Depth of Made Ground 3.50 - 3.99m
 - Depth of Made Ground >4.00m

Notes:				
P1	REVC	04.01.2021	HM	SE
P1	REVB	26.10.2020	HM	MJ
P1	REVA	16.02.2018	HM	MD
Phase	Issue	Date	Drawn	Checked

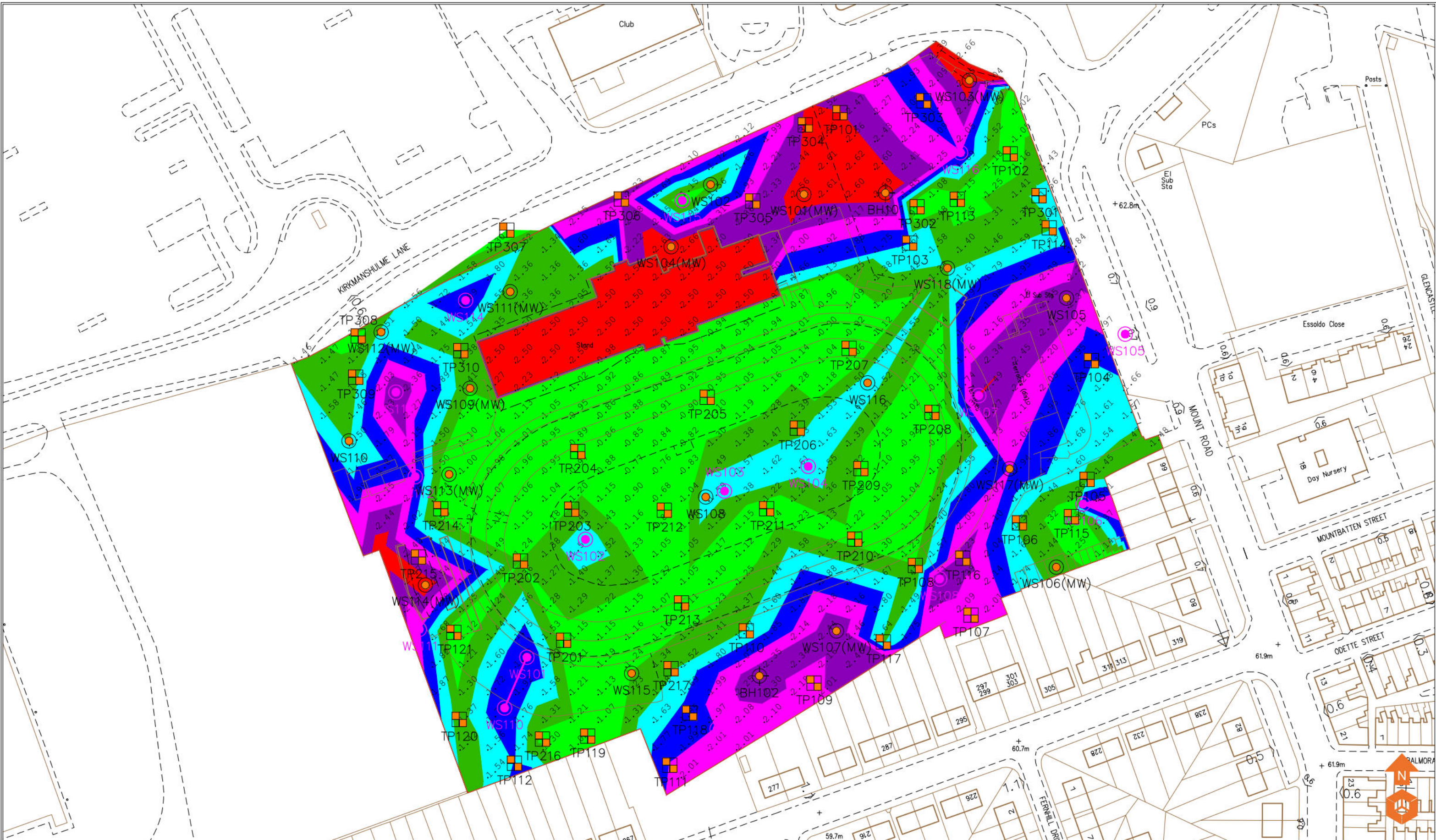
Client:	
Countryside Properties	
Job Title:	
Belle Vue Stadium	

Job No:	12-123	Date:	04.01.2021
Drawing No:	007	Scale:	NTS
Drawing Title:		Depth of Made Ground Plan	

e3p

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- Location Symbols**
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 - Approximate DB Window Sample Probehole Location

- Shallow Spread Footings**
- Depth to Founding Strata 0.00 - 1.24m
 - Depth to Founding Strata 1.25 - 1.49m
- Mass Trench Fill Footings**
- Depth to Founding Strata 1.50 - 1.74m
 - Depth to Founding Strata 1.75 - 1.99m
 - Depth to Founding Strata 2.00 - 2.24m
- Engineered Footings**
- Depth to Founding Strata 2.25 - 2.49m
 - Depth to Founding Strata >2.50m

Notes:

P1	REVC	04.01.2021	HM	SE
P1	REVB	26.10.2020	HM	MJ
P1	REVA	16.02.2018	HM	MD
Phase	Issue	Date	Drawn	Checked

Client:

Countryside Properties

Job Title:

Belle Vue Stadium

Job No:

12-123

Drawing No:

008

Date:

04.01.2021

Scale:

NTS

Drawing Title:

Depth to Founding Strata Plan



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