

F18A/0552	Transfer Pedestrian Walkway	Covered 80m pedestrian walkway at Pier 4 (total floor area 160sqm)	The scheme is for works in the same vicinity as the Proposed Development. However, due to the programme of the works it is unlikely there will be significant cumulative effects during construction. No cumulative operational effects are likely. Therefore, no cumulative significant effects are likely to occur.
F21A/0518 Ref: ABP-313157-22	Drop Off Pick Up Project	Revised Application for traffic barriers on Dublin Airport private roads and associated works including lane realignment.	The scheme is the same vicinity of the Proposed Development and there is potential for cumulative impacts during construction. However, given the nature and scale of the scheme it is unlikely there will be significant cumulative effects during construction. No cumulative operational effects are likely. Therefore, no cumulative significant effects are likely to occur.
F22A/0029	Car Park	Rehabilitation works to existing 'Purple Zone' staff car park	The scheme is located east of the Proposed Development and there is potential for cumulative impacts from construction. However, given the nature and scale of the scheme it is unlikely there will be significant cumulative effects during construction. No cumulative operational effects are likely. Therefore, no cumulative significant effects are likely to occur.
F20A/0668 ABP Ref: V Add ABP Ref: ABP- 314485-22	Night-Time use of Runway System	'Relevant Action' to amend the operating restriction set out in condition no. 3(d) and the replacement of the operating restriction in condition no. 5 of the North Runway Planning Permission and mitigation measures	This scheme relates to the night-time use of the runway system at Dublin Airport. Due to the programme, nature and scale of the scheme it is unlikely there will be significant cumulative effects during construction. No cumulative operational effects are likely. Therefore, no cumulative significant effects are likely to occur.
F22A/0460	Underpass	Airfield Underpass of Runway 16/34	The scheme is located within the same vicinity of the Proposed Development and there is potential for cumulative impacts from construction. However, given the nature and scale of the scheme it is unlikely there will be significant cumulative effects during construction. No cumulative operational effects are likely.
F23A/0039	South apron Animal	Planning amendment to F19A/0426	Therefore, no cumulative significant effects are likely to occur. Based on the nature, location and scale of the development, no



Table 18-2 - Cumulative Impacts Assessment for Consented Projects - Wider Environs

Figure Project Applicant Project Summary		Project Summary	Cumulative Impacts Assessment
ABP Ref: NA29N.314724	MetroLink Rail Order Application	This project comprises the development of a proposed railway, approximately 18.8 kilometres in length, which is mostly underground, through Swords, Dublin Airport, Ballymun, Glasnevin and City Centre to Charlemont, Co. Dublin. It includes a 9.4km section of single bore tunnel running beneath Dublin City Centre running from Charlemont to Northwood Station and a 2.3km section of single bore tunnel running beneath Dublin Airport. This application was lodged by TII (accompanied by an EIAR and NIS) and is due to be decided by 22/05/2023.	The extent of the proposed works in the vicinity of Dublin Airport comprise tunnelling, emergency access, Dublin Airport station, north portal and south portal, and associated site compounds (3no.). Subject to the outcome of the planning and procurement processes, construction of MetroLink is anticipated to commence in 2025 with a view to operation in the early 2030s.
		The construction period provided for in the draft Railway Order is ten years from the date it comes into effect. The works will generally comprise but are not limited to the construction of a Railway approximately 18.8 kilometres in length which is mostly underground. It includes a 9.4km section of single bore tunnel running beneath Dublin City Centre running from Charlemont to Northwood Station and a 2.3km section of single bore tunnel running beneath Dublin Airport. Tunnel sections include intervention access facilities for emergency services including Dublin Airport. Tunnel Portal structures will be provided including at Dublin Airport. North of Dublin Airport the railway will emerge from tunnel and will run at surface level and in cut and cover structures to Estuary Station. There will be a total of 16 stations, including at Dublin Airport. The works will also include railway signalling, command and control and communications systems; provision of electrical substations; establishment of temporary construction compounds; establishment of temporary traffic management and road diversions; and other infrastructural modifications to facilitate the overall project.	The extent of the proposed works in the vicinity of Dublin Airport comprise tunnelling, emergency access, Dublin Airport station, north portal and south portal, and associated site compounds (3no.). Taking into account the nature and scale of the proposed development, and based on available planning documentation submitted for the proposed MetroLink project, significant cumulative environmental effects (with respect to the proposed MetroLink project) are not likely to occur.
F17A/0244	Dublin Cemeteries t/a Glasnevin Trust Permission for the installation of 1 no. ecolation unit, associated interral alterations and plant area within the existing crematorium building (permitted under Reg. Ref: F14A/0216). The proposal also seeks permission for the retention and completion of the car park adjacent to the crematorium to provide 95 no. car parking spaces, 11 no. car parking spaces adjacent to the substation and lodge, 24 no. car parking space at the Entrance Plaza together with associated landscaping, upgrade internal road network, traffic management measures including electron barrier and site works.		Due to the location of the scheme, ca. 1km south east of the Proposed development it is unlikely there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects are likely to occur.

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FW21A/0187	associated facilities, 69no. car parking spaces and other vehicular spaces and all other associated works.		Due to the location of the scheme, ca. 2.5km north west of the Proposed Development it is unlikely there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects are likely to occur.		
FW20A/0202			Due to the location of the scheme, ca. 1.9km sour east of the Proposed development it is unlike there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects and likely to occur.		
ABP Ref: 301798	Uisce Eireann	10-year permission for development of the Ringsend wastewater treatment plant upgrade project including a regional biosolids storage facility	Due to the location of the scheme, ca. 1.9km social east of the Proposed development it is unlike there will be significant cumulative effects duri construction and/ or operation. Therefore, no cumulative significant effects a likely to occur.		
FW20A/0187	A/0187 HPREF Dublin Office DevCo1 Limited (nr 1) Permission of the construction of 8 no light industrial/warehouse (including wholesale use) / logistics units including ancillary office use and entrance/reception areas. The demolition of 2 no. existing agricultural sheds and the construction of a link road; implementation of a new internal road network with all access points, internal access roads and footpaths, service yards and access roads, cycle paths and landscaping; The construction of 2 no. new roundabouts on Estate Road No. 4, the construction of Estate Road No. 3 branching west and the extension of Estate Road No. 2 which currently serves Horizon Logistics Park; The development of 2 no. ESB substation buildings and switchrooms and associated facilities		Due to the location of the scheme, ca. 2.8km south west of the Proposed development it is unlikely there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects are likely to occur.		
FW22A/0079	HPREF Dublin Office DevCo1 Limited (nr 2) Site C consists of the construction of 1no. light industrial/warehouse, 58no. car parking spaces & 14no. bicycle spaces and provision of an ESB Substation and switchroom with all associated construction works Site E consists of the construction of 2no. light industrial/warehouse, 239no. car parking spaces & 76no. bicycle spaces and provision of an ESB Substation and switchroom 2 no. sprinkler tanks and 2 no. pumprooms with all associated construction works		Due to the location of the scheme, ca. 2.5km south west of the Proposed development it is unlikely there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects are likely to occur.		



F19A/0149	A/0255 Arora Dublin T2 Limited The development will 410 bedroom hotel in T2 Limited The development comprises a new solar photovoltaic solar farm at site bounded by Harristown Lane (L3151), St Margaret's Road (R122), and South Parallel Road (R108) in the townland of Sanganhill Td, Finglas ED, Co. Dublin. The development will consist of the installation of a ground mounted solar photovoltaic (PV) array with associated development and ancillary works including inverters, modules and transformers; site cabling; 2 no. substation building; a storage container on a concrete base; an internal access road and attendant surface water		Due to the location of the scheme, ca. 1.6km south west of the Proposed development it is unlikely there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects are likely to occur.
F21A/0255			The scheme is located within the same vicinity of the Proposed Development and there is potential for cumulative impacts from construction. However, based on the nature and scale of the project it is unlikely there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects are likely to occur.
FW22A/0021			Authority bounded by Harristown Lane (L3151), St Margaret's Road (R122), and South Parallel Road (R108) in the townland of Sanganhill Td, Finglas ED, Co. Dublin. The development will consist of the installation of a ground mounted solar photovoltaic (PV) array with associated development and ancillary works including inverters, modules and transformers; site cabling; 2 no. substation building; a storage container on a concrete base; an internal access road and attendant surface water drainage; the formation of a new site entrance onto South Parallel Road (R108); security boundary fencing and landscaping; and a security
F18A/0436	Darragh Hall The development includes completion of partially constructed part-two, part-three storey Core Aviation type office building as approved under Reg. Ref. F07A/1659 (subsequently extended under F07A/1659/E1). Permission is also sought for alterations and extensions to previously approved building to result in a four storey office building		The scheme is located within the same vicinity of the Proposed Development. However, due to the programme, nature and scale of the project it is unlikely there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects are likely to occur.
FW/20A/0126	IPUT	4 No. warehouses with marshalling offices, ancillary office space, staff facilities and associated development	Due to the location of the scheme, ca. 4.6km west of the Proposed development it is unlikely there will be significant cumulative effects during construction and/ or operation.



			Therefore, no cumulative significant effects are likely to occur.
FW19A/0143	Rohan Holdings Ltd	The construction of 2 no. Single-Storey Units for industrial and/or Warehouse use with ancillary Two-Storey offices with a gross floor area 11,157.90 square meters	Due to the location of the scheme, ca. 4.7km south west of the Proposed development it is unlikely there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects are likely to occur.
FW21A/0240	Alan & Yvonne Fitzachary	Retention permission for as constructed agricultural dairy milk pasturing shed & permission to complete the development works	Due to the location of the scheme, ca. 4.4km west of the Proposed development it is unlikely there will be significant cumulative effects during construction and/ or operation. Therefore, no cumulative significant effects are likely to occur.



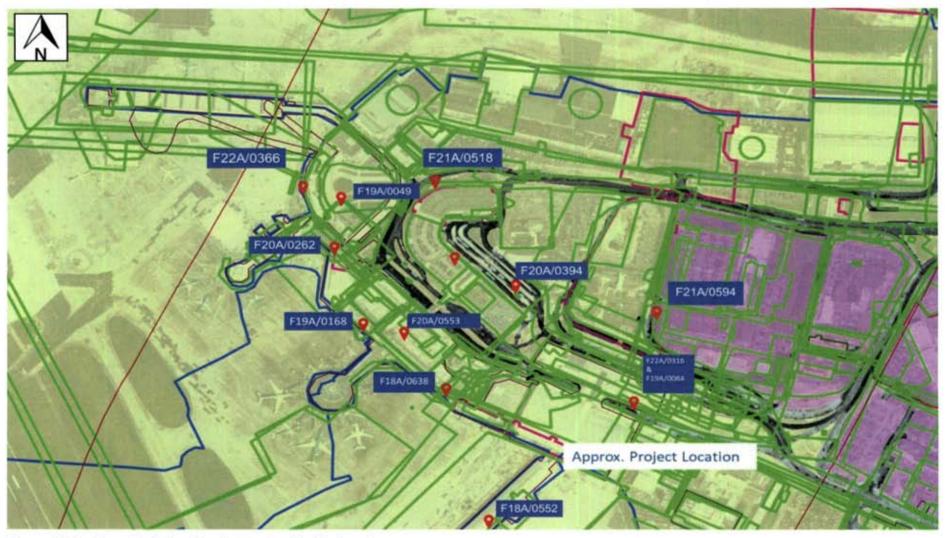


Figure 18-1 - Committed daa Development - Airside Lands



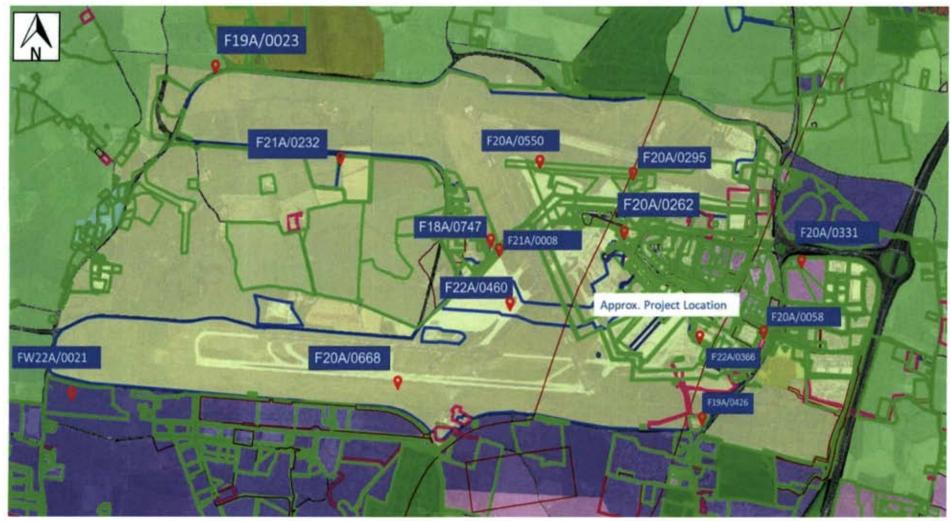


Figure 18-2 - Committed daa development - Wider Airport Complex



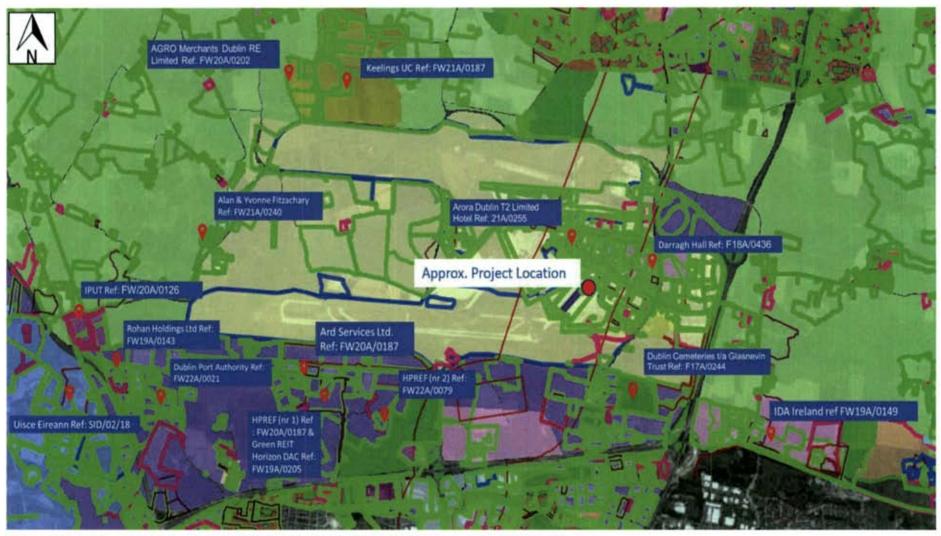


Figure 18-3 - Committed Development in the Vicinity of the Project (outside of Dublin Airport)



18.3.1. Population and Human Health

The proposed development will not have any significant negative effects on population and human health and it is considered that the mitigation measures and monitoring requirements outlined in regard to the other environmental topics will ensure that the proposed development is unlikely to result in any significant cumulative effects in relation to population and human health.

18.3.2. Biodiversity

The proposed development will not result in the loss of any habitats. The proposed development site is comprised of existing buildings within a built-up area of Dublin Airport and is of low ecological value. The site is generally bound by existing airport infrastructure. Provided ecological mitigation measures (including in relation to surface water run-off) are implemented no significant cumulative effects are expected as a result of the proposed development.

18.3.3. Landscape and Visual

There would be no additional cumulative landscape and visual effects arising from the proposed development to those already described in Chapter 6 – Landscape and Visual.

No significant cumulative effects are likely.

18.3.4. Air Quality

As noted in Chapter 7, there is potential for cumulative construction dust impacts. Permitted and existing developments under construction within 350m of the site have been reviewed in conjunction with the impacts of the proposed development to determine the potential for cumulative construction dust impacts.

There are currently no developments within 350m of the site that have the potential for cumulative construction dust impacts to air quality. Should the construction phases of any development coincide with that of the proposed development then there is the potential for cumulative construction dust impacts to nearby receptors.

However, provided the mitigation measures outlined in Chapter 7 – Air Quality are in place for the duration of the construction phase cumulative dust related effects to nearby sensitive receptors are not predicted to be significant. Cumulative effects to air quality will be direct, short-term, localised, negative and imperceptible.

Furthermore, the operational stage effects from the proposed development are predicted to be long-term, localised, direct, neutral and imperceptible in relation to air quality.

No significant cumulative effects are likely.

18.3.5. Climate

By presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. Therefore, the assessment approach is considered to be inherently cumulative.

No significant cumulative effects are likely.

18.3.6. Noise and Vibration

There would be no additional cumulative noise and vibration effects arising from the proposed development to those already described in Chapter 9 – Noise and Vibration.

No significant cumulative effects are likely.

18.3.7. Traffic

The proposed development will occur in a phased manner over at least 3 years (Q1 2024 – Q2 2027). The most intense construction traffic phases were identified and analysed for assumed peak trips on key junctions. In accordance with the thresholds set out in TII's Traffic and Transport Guidelines, no junctions were required to be brought forward for detailed assessment and it is considered that the cumulative construction traffic impacts due to the construction activity for the proposed development is below the thresholds outlined in the TII guidelines.

No significant cumulative effects are likely.



18.3.8. Land, Soils and Geology

Provided the mitigation measures outlined in Chapter 11 – Land, Soils and Geology are in place for the duration of the construction phase, cumulative effects are not likely to be significant. There will be no effects with regards to land (including land take), soils or geology during the operational phase.

Therefore no significant cumulative effects are likely.

18.3.9. Water

Provided the mitigation measures outlined in Chapter 12 – Water are in place for the duration of the construction phase, anticipated effects on surface water or groundwater will be temporary and slight adverse during the Construction Phase. Taking account of proposed mitigation measures, effects on surface water or groundwater will be temporary and slight adverse during the Operational Phase of the proposed development.

Therefore no significant cumulative effects are likely.

18.3.10. Cultural Heritage

Subject to the implementation of the appropriate archaeological mitigation measures during the construction phase of the development, no significant cumulative effects on archaeological, architectural and cultural heritage are likely.

Therefore no significant cumulative effects are likely.

18.3.11. Material Assets

Subject to the implementation of proposed mitigation measures during the construction and operational phases of the development, no significant cumulative effects on material assets are likely.

Therefore no significant cumulative effects are likely.

18.4. Summary

No likely significant effects have been identified as a result of potential cumulative effects between effects identified in the technical chapters of the EIAR and other committed developments.

Furthermore, in most cases such interactions are unlikely to occur.

No significant cumulative effects are likely to arise from the Proposed Development.

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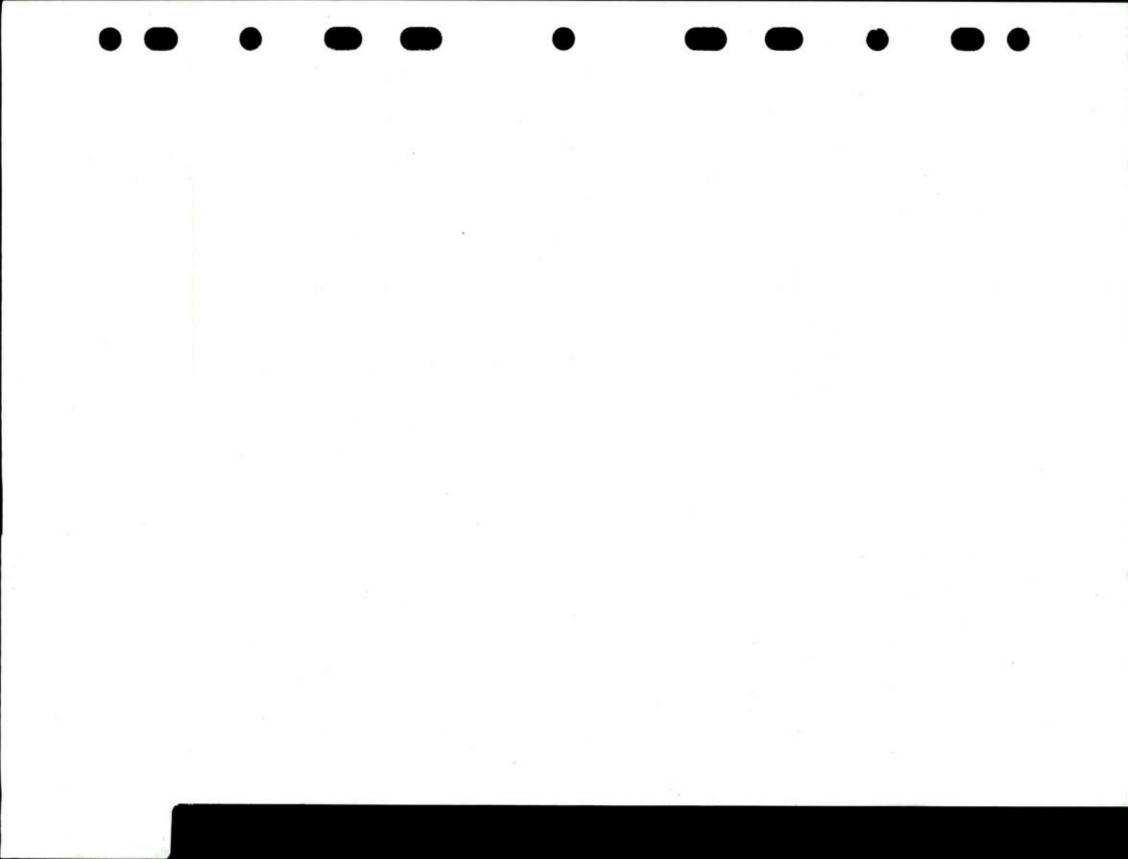
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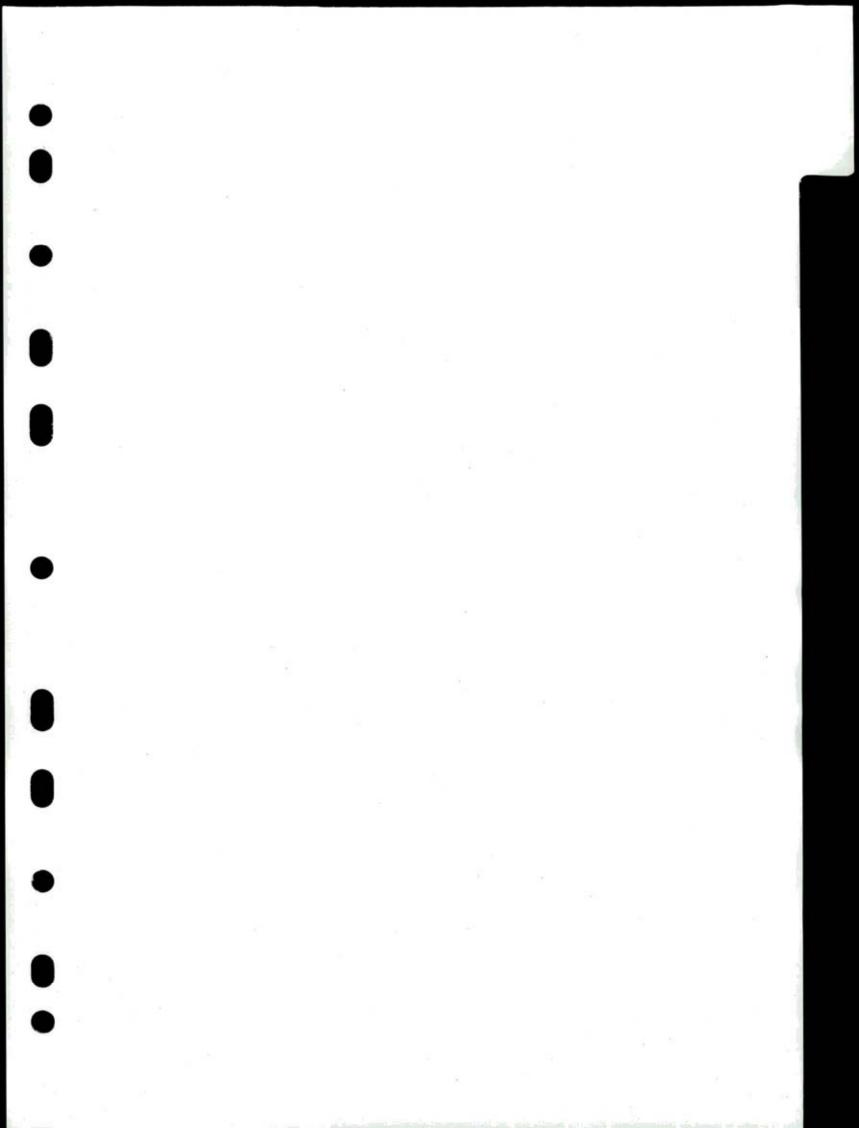
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- US Customs and Border Protection (CBP) - Proposed Reconfiguration & Expansion & South Apron Support Centre (SASC) - Partial Demolition, Refurbishment & Upgrade Project
- Environmental Impact Assessment Report –
 Volume 3 Appendices

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May 2023

Appendix 2: Consultation

Consultee	Contact Address	20/01/2023 20/01/2023	
Irish Aviation Authority (IAA)	The Times Building, 11-12 D'Olier Street, Dublin 2		
Aircraft Noise Competent Authority	Aircraft Noise Competent Authority Fingal County Council County Hall Main St Swords, Co. Dublin, K87 X8Y2		
An Chomhairle Ealaíon (The Arts Council)	70 Merrion Square Sq., Dublin 2.	20/01/2023	
An Taisce	The National Trust for Ireland, Tailors' Hall, Back Lane, Dublin, D08 X2A3, Ireland	20/01/2023	
Birdwatch Ireland	Unit 20, Block D, Bullford Business Campus, Kilcoole, Greystones, Co. Wicklow, A63 RW83	20/01/2023	
Development Applications Unit	Development Applications Unit Department of Culture, Heritage and the Gaeltacht Newtown Road Wexford Y35 AP90	20/01/2023	
Dublin City Council (DCC) - Planning	Dublin City Council Planning and Property Development Department Civic Offices Wood Quay	20/01/2023	
The Department of Transport	Dublin 8 The Department of Transport Lesson Lane Dublin 2 D02 TR60	20/01/2023	
Dublin Bus	59 Upper O'Connell Street, Dublin 1, Ireland, D01RX04	20/01/2023	
Environmental Protection Agency (EPA)	Environmental Licensing Programme, Office of Environmental Sustainability, Environmental Protection Agency, Regional Inspectorate, Inniscarra, Co Cork	20/01/2023	
Failte Ireland	88-95 Amiens Street Dublin 1	20/01/2023	
FCC Biodiveristy Officer	County Hall Main Street Swords County Dublin K67 X8Y2	20/01/2023	
FCC Drainage	County Hall, Main Street, Swords, County Dublin, K67 X8Y2.	20/01/2023	
FCC Heritage Officer	County Hall Main Street Swords County Dublin K67 X8Y2	20/01/2023	
FCC Traffic	Senior Executive Engineer Transport Planning Section Planning and Strategic Infrastructure Department Fingal County Council Civic Offices, Grove Rd. Blanchardstown 15, Co. Dublin	20/01/2023	
FCC Planning	County Hall, Main Street, Swords, County Dublin, K67 X8Y2.	20/01/2023	
Geological Survey of Ireland	Beggars Bush Haddington Road Dublin D04 K7X4	20/01/2023	
arnród Éireann (Irish Rail)	Connolly Station, Amiens Street, Dublin 1, D01 V6V6		

Consultee	Contact Address	20/01/2023 20/01/2023	
nland Fisheries Ireland (IFI)	Inland Fisheries Ireland 3044 Lake Drive Citywest Business Campus Dublin D24 CK66		
rish Wildlife Trust	The irish Wildlife Trust, 8 Cabra Road, Dublin 7, D07bT1W2		
National Transport Authority (NTA)	Dún Scéine, Harcourt Lane, Dublin 2, DO2 WT20.	20/01/2023	
The Department of Culture, Heritage and the Gaeltacht,	23 Kildare Street, Dublin, D02 TD30.	20/01/2023	
National Parks and Wildlife Service (NPWS)	Development Applications Unit Department of Culture, Heritage and the Gaelitacht Newtown Road Wexford Y35 AP90		
National Monuments / Archictecture	Department of Culture, Heritage and the Gaeltacht	20/01/2023	
The Eastern & Midland Regional Assembly	Ballymun Civic Centre, Main Street, Ballymun, Dublin 9, Ireland.	20/01/2023	
The Health Services Executive, Environmental Health	The Health Services Executive Swords Business Campus Ballheary Rd Ballheary Demosne	20/01/2023	
The Heritage Council	The Heritage Council Aras na hOidhreachta Church Lane Kilkenny RX95 X264	20/01/2023	
Transport Infrastructure Ireland (TII)	Parkgate Business Centre, Parkgate Street, Dublin 8, D08 DK10.	20/01/2023	
The Health and Safety Authority	The Metropolitan Building, James Joyce	20/01/2023	
Irish Water (Uisce Éireann)	Street, Mountjoy, Dublin 1 110 Amiens Street, North Dock, Dublin 1	20/01/2023	
The Department of Transport, Tourism and Sport	2 Leeson Lane, Dublin	20/01/2023	
National Transport Authority	National Transport Authority Dún Scéine, Harcourt Lane Dublin 2 D02 WT20	20/01/2023	
The Minister for state Local Government and planning	The Customs Houe, north Dock, Dublin, D01 W6X0	20/01/2023	
The Deapriment of Agriculture, Food and Marine	Department of Agriculture, Food and the Marine, Agriculture House, Kildare street, Dublin	20/01/2023	



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Our reference: 5218354

The Manager Birdwatch Ireland Unit 20, Block D, Bullford Business Campus, Greystones, Co. Wicklow, A63 RW83

Dear Sir / Madam

RE: Consultation for EIA Scoping Stage - US Customs and Border Protection (CBP) - Proposed Reconfiguration & Expansion & South Apron Support Centre (SASC) - Partial Demolition, Refurbishment & Upgrade Project

Atkins Ireland Ltd. (Atkins) on behalf of Dublin Airport Authority plc. (daa) are currently in the process of compiling an Environmental Impact Assessment Report (EIAR), Appropriate Assessment (AA) Screening and providing planning and environmental services for the above project, which is the subject of a proposed planning application to be lodged to Fingal County Council (FCC).

The preliminary project description of the proposed development is as follows:

- the reconfiguration and expansion of the existing 2-storey US Customs and Border Protection (CBP) pre-clearance facility at Pier 4, Terminal 2, Dublin Airport, and
- (2) the partial demolition, refurbishment and upgrade of the existing two-storey South Apron Support Centre (SASC) to the southeast of the Terminal 2 building at Dublin Airport, to be used initially as a temporary construction compound for the proposed works to the CBP facility, and then for continued use as an Airport Operational Building for airside support/operations. (See Figure 1)

It should be noted that the description of the development may be subject to change as the project progresses.





Figure 1: Proposed Site Location

Specifically, the proposed development will include:

(1) CBP

- (1a) demolition of 2no. existing Pier 4 link bridges, 2no. external vertical circulation cores (VCC), part of the north, east and south elevations of the existing CBP facility, and part of the existing apron pavement;
- (1b) reconfiguration of part of Pier 4 and the existing CBP facility and the construction of an expanded 2-storey, part 3-storey CBP facility to the east of the existing CBP facility, to include:
 - (i) pre-clearance clearance passenger processing facilities at Level 10 (ground floor), including 5no. entry E-gates, queuing areas, 8no. screening lanes (1no. for training/contingency and 1no. for staff access), 22no. booths, transit lounge area, welfare facilities, and ancillary staff facilities.
 - lounge, retail/food and beverage area, swing gateroom, welfare facilities, airline lounge, staff facilities, including ancillary offices at Level 15 (first floor).
 - (iii) construction of 2no. external vertical circulation cores (VCC).
 - (iv) construction of a new link bridge at Level 20 to the Terminal 2 building.
 - (v) fallow space at Level 10 to allow for future CBP security facilities, and at Level 20 (second floor) and a lift core extending to Level 30 to safeguard for future expansion, to merge with the remaining parts of the existing facility at Pier 4.
 - (vi) reconfiguration of the existing airside road on site with pedestrian walkways and zebra crossings; and
 - (vii) provision of 17no. airside car parking spaces, including 2no. PRM/platinum parking spaces; 2no. GIWA (goods vehicles) spaces; 4no. passenger stair parking spaces; and 2no. bus set down areas.



(1c) decommissioning of existing aircraft stands 409 L/C/R and 410T, and the provision of temporary MARS aircraft stand 409T.

(2) SASC

- (2a) upgrade of the façade of the existing SASC building, to include partial demolition of the later attritions/extensions to the south and west flanks of the building; demolition of the existing pedestrian link bridge to Shamrock House to the east (making good the elevation of Shamrock House to match the existing), and demolition of an existing substation internal to the building;
- (2b) the refurbishment of the remaining SASC structure to provide offices, meeting rooms, staff welfare facilities, storage and plant rooms on the ground and first floors, including an external dining courtyard at ground floor; and refurbished rooftop plant enclosure and new rooftop balustrades;
- (2c) the temporary use of the upgraded and refurbished SASC building and its existing external hardstanding area to the north-west of the SASC building as office storage and a pre-screening/ logistics/ staff welfare facility, as well as 10no. parking spaces, 2no. PRM car parking spaces and 50no. cycle storage racks during the construction of the proposed extension to the CBP facility, A temporary construction access road is also proposed, which will involve the temporary removal of landscaping and boundary treatments, to be reinstated once construction is completed;
- (2d) revised external pedestrian and vehicular circulation arrangements; and
- (2e) separate external smoking shelter and separate external bin storage.

The proposed development at the existing CBP and SASC buildings will also require the diversion and extension of the existing watermain on site, and a new foul and surface water drainage system, as well as all associated site development and landscaping works

The proposed development at the existing CBP and SASC buildings will not result in any increase in passenger or operational capacity at Dublin Airport. There will also be no increase in staff parking, either airside or landside, as a result of the proposed development.

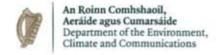
As part of the consultation phase, we would like to inform you of the proposed planning application for the daa project and seek any feedback, opinions or background information you may have in relation to the proposal. This information will be used to inform the environmental elements of our assessments.

If you require any further information regarding the project, please do not hesitate to contact Deirdre Larkin on 01 810 8000.

We would greatly appreciate it if you could provide any comments you may have at your earliest convenience to Deirdre Larkin by either email Deirdre.larkin@atkinsglobal.com or the above address,

Yours faithfully,

Deirdre Larkin





Deirdre Larkin Atkins Atkins House 150 Airside Business Park Swords Co. Dublin K67 K5W4

08 February 2023

Re: Consultation for EIA Scoping Stage – US Customs and Border Protection (CBP) – Proposed Reconfiguration & Expansion & South Apron Support Centre (SASC) – Partial Demolition, Refurbishment & Upgrade Project

Your Ref: 5218354 Our Ref: 23/24

Dear Deirdre,

Geological Survey Ireland is the national earth science agency and is a division of the Department of the Environment, Climate and Communications. We provide independent geological information and advice and gather various data for that purpose. Please see our <u>website</u> for data availability. We recommend using these various data sets, when conducting the EIAR, SEA, planning and scoping processes. Use of our data or maps should be attributed correctly to 'Geological Survey Ireland'.

With reference to your letter received on the 26 January 2023, concerning the Consultation for EIA Scoping for the Partial Demolition, Refurbishment & Upgrade Project at Dublin Airport, Geological Survey Ireland would encourage use of and reference to our datasets. Please find attached a list of our publicly available datasets that may be useful to the environmental assessment and planning process. We recommend that you review this list and refer to any datasets you consider relevant to your assessment. The remainder of this letter and following sections provide more detail on some of these datasets.

Geoheritage

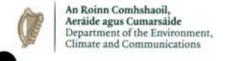
A national inventory of geoheritage sites known as County Geological Sites (CGSs) is managed by the Geoheritage Programme of Geological Survey Ireland. CGSs, as adopted under the National Heritage Plan, include sites that are of national importance which have been selected as the very best examples for NHA (Natural Heritage Areas) designation. NHA designation will be completed in partnership with the National Parks and Wildlife Service (NPWS). CGSs are now routinely included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online Map Viewer.

The County Geological Heritage Audit for Fingal was completed out in 2007. The full report details can be found <u>here</u>. Our records show that there are no CGSs in the vicinity of the proposed Dublin Airport development.

Groundwater

Geological Survey Ireland's <u>Groundwater and Geothermal Unit</u>, provides advice, data and maps relating to groundwater distribution, quality and use, which is especially relevant for safe and secure drinking water supplies and healthy ecosystems.

Proposed developments need to consider any potential impact on specific groundwater abstractions and on groundwater resources in general. We recommend using the groundwater maps on our <u>Map viewer</u> which should include: wells; drinking water source protection areas; the national map suite - aquifer, groundwater vulnerability, groundwater recharge and subsoil permeability maps. For areas underlain by limestone, please refer to the karst specific data layers (karst features, tracer test database; turlough water levels (gwlevel.ie). Background information is also provided in the Groundwater Body Descriptions. Please read all disclaimers carefully when using Geological Survey Ireland data.





The Groundwater Data Viewer indicates an aquifer classed as a 'Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones' underlies the proposed development. The Groundwater Vulnerability map indicates the range of groundwater vulnerabilities within the area covered is variable. We would therefore recommend use of the Groundwater Viewer to identify areas of High to Extreme Vulnerability and 'Rock at or near surface' in your assessments, as any groundwater-surface water interactions that might occur would be greatest in these areas.

<u>GWClimate</u> is a groundwater monitoring and modelling project that aims to investigate the impact of climate change on groundwater in Ireland. This is a follow on from a previous project (GWFlood) and the data may be useful in relation to Flood Risk Assessment (FRA) and management plans. Maps and data are available on the Map viewer.

Geological Survey Ireland has completed Groundwater Protection Schemes (GWPSs) in partnership with Local Authorities, and there is now national coverage of GWPS mapping. A Groundwater Protection Scheme provides guidelines for the planning and licensing authorities in carrying out their functions, and a framework to assist in decision-making on the location, nature and control of developments and activities in order to protect groundwater. The Groundwater Protection Response overview and link to the main reports is here: https://www.gsi.ie/en-ie/programmes-and-projects/protecting-drinking-water/what-is-drinking-water-protection/county-groundwater-protection-schemes/Pages/default.aspx

Geological Mapping

Geological Survey Ireland maintains online datasets of bedrock and subsoils geological mapping that are reliable and accessible. We would encourage you to use these data which can be found <a href="https://example.com/html//heapth/files/bedrock-nd//heapth/files/bedrock-n

Our 3D models can help stakeholders visualize, understand and characterise geology, for deposit and resource mapping, for flooding and for urban geology applications including basement impact assessment, Sustainable Drainage Systems (SuDS), and subsurface management. Our 3D models offer a key element of geotechnical risk management by identifying areas requiring further site investigation.

Further information on the bedrock and Quaternary 3D models of Dublin is available here and here.

Please note we have recently launched QGIS compatible bedrock (100K) and Quaternary geology map data, with instructional manuals and videos. This makes our data more accessible to general public and external stakeholders. QGIS compatible data can be found in our downloadable bedrock 100k .zip file on the Data & Maps section of our website.

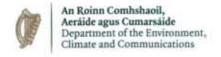
Geotechnical Database Resources

Geological Survey Ireland continues to populate and develop our national geotechnical database and viewer with site investigation data submitted voluntarily by industry. The current database holding is over 7500 reports with 134,000 boreholes; 31,000 of which are digitised which can be accessed through downloads from our <u>Geotechnical Map Viewer</u>. We would encourage the use of this database as part of any baseline geological assessment of the proposed development as it can provide invaluable baseline data for the region or vicinity of proposed development areas. This information may be beneficial and cost saving for any site-specific investigations that may be designed as part of the project.

Natural Resources (Minerals/Aggregates)

Geological Survey Ireland provides data, maps, interpretations and advice on matters related to minerals, their use and their development in our <u>Minerals section</u> of the website. The Active Quarries, Mineral Localities and the Aggregate Potential maps are available on our <u>Map Viewer</u>.

We would recommend use of the Aggregate Potential Mapping viewer to identify areas of High to Very High source aggregate potential within the area. In keeping with a sustainable approach we would recommend use of our data and mapping viewers to identify and ensure that natural resources used in the proposed refurbishment and upgrade projectare sustainably sourced from properly recognised and licensed facilities, and that consideration of future resource sterilization is considered.





Geochemistry of soils, surface waters and sediments

Geological Survey Ireland provides baseline geochemistry data for Ireland as part of the Tellus programme. Data is available at https://www.gsi.ie/en-ie/data-and-maps/Pages/Geochemistry.aspx. This page also hosts urban geochemistry mapping (Dublin SURGE project) which may be useful to the project.

Geological Survey Ireland has completed a geochemical characterization of the subsoil beneath large parts of Dublin, known colloquially as the Dublin Boulder Clay. The report documents the analysis completed on a third-party geochemical dataset obtained from the private sector and is accompanied by an excel spreadsheet containing the database of geochemical observations. Further details can be found at: https://www.gsi.ie/en-ie/publications/Pages/Geochemical-characterization-of-the-Dublin-Boulder-Clay.aspx

Guidelines

The following guidelines may also be of assistance:

- Institute of Geologists of Ireland, 2013. Guidelines for the Preparation of the Soils, Geology and Hydrogeology Chapters of Geology in Environmental Impact Statements.
- . EPA, 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)

Other Comments

Should development go ahead, all other factors considered, Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out. The data would be added to Geological Survey Ireland's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to the Geological Mapping Unit, at mailto:GeologicalMappingInfo@gsi.ie, 01-678 2795.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me Clare Glanville, or my colleague Trish Smullen at <u>GSIPlanning@gsi.ie</u>.

Yours sincerely,

Dr. Clare Glanville

Senior Geologist

Geological Survey Ireland

claujille

Trish Smullen

Geoheritage and Planning Programme

Juin Smuller

Geological Survey Ireland

Enc: Table - Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes.









Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes following European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018)

Programme	Dataset	Relevant EIA Topic	Coverage	Description / Notes / Limitations	Link to Geological Survey Ireland map viewer
Geohazards	Landslide: National landslide database and landslide susceptibility map	Land & Soil/Olimate/Landscape	National	Associated guidance documentation relating to the National Landslide Susceptibility Map is also available.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b68c1je8u9044a5081Pt50e98945425c
	Employed Action 1, inc	ACCES 1	11 200 18 200	Provide information of historic floosing, both surface water and groundwater. (A lack of flooding presented in any specific location of the map only indicates that a flood has not been detected. If does not indicate that a flood sannot occur in that location at present or in the	
iecharants	Groundwater Flooding (Historic)	Water	Regional	[uture]	https://dcenr.mags.arcgs.com/apps/webappviewer/index.html?id=848883c85799436b80855299c735b3cc
ienharanth	Groundwater Flooding (Predictive)	Winer		Provides information on the probability of future karst groundwater flooding (where available). The maps do not, and are not intended to, constitute advice. Professional or specialist advice should be sought before taking, or refraining from, any action on the least of the flood	The state of the s
leohazards	Radon Map	Land & Sols/Air	Regional	[magn]	https://diserv.maps.arrgis.com/apps/webappviewer/index.html?ld-848f83c85799436x808652F9c735b1cz
		Larrie & School	National		http://www.epa.ie/radiation/radonmap/
Secheritage	County Geological Sites as adopted by National Heritage Plan and listed in County Development Pla	Land & Solly/Landscape	Regional	All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS.	https://dcent.mapi.arg/s.com/apps/MapSeries/Index.html?appid=a33af518a67-a4c(bb)2thde2aac3c228
Section of the contra					The state of the s
Jeological Mapping	Bedrock geology:	Land & Soils	National	1:100,000 scale and associated memoirs.	https://ikjenr.maps.artgis.com/apps/wehappviewer/index.html?id=de7012x99d2748ex9106e7ee1b6ab8d5&scale=
Seological Mapping	Bedrock geology	Land & Soils	Regional	1.50,000 scale	https://dcenr.maps.arcgis.com/apps/webappsinwer/index.html?id=de?012a/bbc3748ea9106e?ee1b6ab8d5&scale=
Secrlogical Mapping	Quaternary geology: Sediments	tand & Soils	National	1100000	
Jeological Mapping	Quaternary geology: Geomorphology	Land & Soits	National	1:50,000 scale 1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id-de7012a/Rkd2748kra9106e7ee1b6ab8d5&scale-
			1200	L.MOON INSTITUTE OF THE PROPERTY OF THE PROPER	https://dcenr.maps.arcgis.com/apps/websppriewer/index.html?id-de7012a9962748ea9306e?ea1b6ab8d5&scale
eological Magaing	Physiographic units:	Land & Soils	National	Broad-scale physical landscape units mapped at 1:100,000 scale in order to be represented as a cartographic digital map at 1:250,000 scale	https://down.mem.arcsis.com/spps/webappinewer/ndes.htm/hd-afa70a420454877943ecatles075a34b
eological Mapping	GeoUrban: Spatial geological data for the greater Dublin and Cork areas	Land & Solls	Barriero I		
		Land & Sons	Regional	includes 3D models	https://dcene.maps.arrgis.com/apps/webappviewer/index.html/ld=976868818b79416093b6b2212x850ce68scale=
eological Mapping	Geotechnical database	Land & Soils	National	Digitised geotechnical and Site investigation Reports and boneholes which	
oldmine	Historical data sets including geological memoirs and 6" to 1 mile geological mapping records	land & Soils/Water	National	can be accessed through online downloads available online	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=a2718be1873647a585a3f0415b4a724c
			1441004	- I - I - I - I - I - I - I - I - I - I	https://secure.dccae.gov.in/goldmine/index.html
roundwater & Geothermal	Groundwater resources (aguifers)	Water	National	Data limited to \$1500,000 scale; sites should be investigated at local scale: Outa limited to 1:40,000 scale; sites should be investigated at local scale;	https://dcans.maps.arcgis.com/apps/webappviewer/index.html?id=2e8a202301594687ab14629a10b348af
roundwater & Geothermal	Groundwater recharge.	Water	National	long term annual average recharge	https://dcens.magn.arcgis.com/apps/webacqviewer/index.html?ub-7e8a202301594687ab14629a10b748ef
roundwater & Geothermal	Groundwater vulnerability.	Water	National	Data limited to 1.40,000 scale; sites should be investigated at local scale	https://dxanr.maps.arigis.com/apps/webappviewer/index.html?id=2e8a202301544687ab14629s10s148e8
rounitwater & Geothermal	Group scheme and public supply source protection areas.	Water	National	Not all PWS / GWS have SPZ / ZDC. Check with IW / coco / NFGWS for	
Chicago and Chicag	The state of the s	vester.	National	private supplies.	https://dcenn.maps.arcgis.com/apps/webappviewer/index.html7id=7e8a202301594687ab14629a10b148eF
roundwater & Seothermal	Groundwater Protection Schemes	Water	National	Data is livited to scale of 1:40,000. Data does not include all of the source protections areas	
roundwater & Geothermal	Calchment and WFD management units.	Water	National	protection areas	https://dxenr.maps.argis.com/apps/wehappstewer/index.html/id=7e8a303301594687a614674a106748eF https://dxenr.maps.argis.com/apps/wehappstewer/index.html/id=7e8a303301594687a614679a106748eF
				For areas underfain by limestone, includes karst features, tracer test	THE PROPERTY OF THE PROPERTY O
roundwater & Geothermal roundwater & Geothermal	karst specific data layers	water	National	detabase; turiough water levels (gwievel.ie).	https://doenr.maps.angis.com/apps/webappviewes/index.html?id=7e8a202301594687ab14629a10b748eF
Congwater & Geotherman	were and springs	Water	National	Not comprehensive, there may be unrecorded wells and springs	https://dcenr.maps.arcgis.com/apps/wehappviewer/index.html?ld=?e8a20230159468?ab14629a106?48ef
roundwater & Geothermal	Groundwater body Descriptions	Water	National	Not exhaustive; only those in designated SACs; could be other GWDTEs; for more information contact NPWS / EPA / site investigations.	https://www.gsi.in/en-ie/programmes-and-projects/groundwater-and-geothermal-unit/activities/undenstanding
				After, Readings for a Policy and Regulatory Framework for Geothermal	Ireland-groundwater/Pages/Groundwater-bodies.asps
roundwater & Geothermal	Geothermal Suitability maps	land & Soils/Water	National	Energy, November 2020	https://dcenr.maps.airgps.com/apps/webappviewer/index.html?ld=9ee46bee06de41278b90u991d60x0e0e
farine & Coustal Unit farine & Coustal Unit	INFOMAR - Ireland's national marine mapping programme; providing key baseline data for ireland's	Water	National	Carrier Control Control	https://secure.dccae.gov.le/GS/INFOMAR_VEWER/
and of Assetting Court	CHERISH - Coastal change project (Climate, Heritage and Environments of Reefs, Islands, and Headle	Water	Regional		http://www.chertshproject.eu/en/
fartne & Coustal Unit	Coastal Vulnerability Index (CVI).	water /Land & Soils	Regional	Currently the project is being carried out on the east count and will be rolled out nationally	https://www.asi.ie/en-is/programmes-and-projects/marine-and-coalitel-self/projects/Pages/Coastal-Yulnerability- index-asize
				Consideration of mineral resources and potential resources as a material	Secretarity (Control of Control o
Sinerals	Aggregate potential	Land & Soils/Material Assets	National	asset which should be explicitly recognised within the environmental assessment process.	https://dearg.main.hopis.com/eass-bush-on-to-a-f6-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-
linerals.	Active quarries	Land & Soils	National		https://dxenr.mags.srcgis.com/apps/webappviewer/index.htm?/d=ee8c4c285a69413aa6/1344416dc9956 https://dxenr.mags.arcsis.com/apps/webappviewer/index.htm?/d=ee8c4c285a69413aa6/1344416dc9956
025363	Lawrence A			Inventory and Risk Classification 2009. Environmental Protection Agency,	
linerals	Historic mines	Land & Sols/Cultural Heritage	National	Economic Minerals Division and Geological Survey Ireland (DECC).	https://gls.epu.io/EPAMasu/belaukt/eastrup-/&northings/Bild-EPALEMA_Facilities_Extractive_Facilities https://www.epa.io/artistsment/mines/
	Geochemical data: multi-element data for shallow soil, stream sediment and stream water	Land & Soils	Regional	A national mapping programme	https://doenr.mags.arcgis.com/apps/Mapheries/index.html?appid=6304e122b713498b99642707872f754
	Airborne geophysical data including radiometrics, electromagnetics and magnetics.	Land & Soils	Regional	A national mapping programme	https://doesr-maps.arcgis.com/apps/MapSeries/index.html?appid=6304e12707334986996427079729754
	urban geochemistry mapping [Dublin SURGE project).	Land & Soils	Regional		https://dcenr.maps.arcgis.com/apgs/MapSeries/index.html/appid=6304e122b733498b99642707H72f754

From:

INFO < Information@tii ie>

Sent:

2023-02-14 09:31

To:

Subject:

5218354 - Consultation for EIA Scoping Stage - US Customs and Border Protection

(CBP)

Dear Ms.

Thank you for your letter, which was received by Transport Infrastructure Ireland (TII) on 2 February 2023, regarding the above. The position in relation to your enquiry is as follows.

TII will endeavour to consider and respond to planning applications referred to it given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidelines as outlined in the Section 28 Ministerial Guidelines 'Spatial Planning and National Roads Guidelines for Planning Authorities' (DoECLG, 2012). Regard should also be had to other relevant guidance available at www.Tll.ie.

The issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid planning application referred.

With respect to EIAR scoping issues, the recommendations indicated below provide only general guidance for the preparation of an EIAR, which may affect the national road network.

TII would be specifically concerned as to potential significant impacts the development would have on the national road network (and junctions with national roads) in the proximity of the proposed development.

The developer/scheme promoter should have regard, inter alia, to the following:

- It would be required that a Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. TII's Traffic and Transport Assessment Guidelines (2014) should be referred to in relation to proposed development wi potential impacts on the national road network. Having regard to the nature of the proposed developme and location, the TTA should be undertaken in accordance with the TII TTA Guidelines (2014):
 - A mobility management plan should accompany the transport assessment,
 - Modal share targets (pre. and post light rail) should be outlined and how any PT modal share is accommodated in advance of light rail,
 - What measures that are proposed to reduce car dependency should be outlined,
 - Detailed phasing proposals of development with associated transport infrastructure provision is required,
 - Consider and address cumulative impacts of other development and impacts on limited national road capacity,
 - The traffic and transport assessment should consider all road users,
 - Mitigation measures should be aligned with phasing of road infrastructure improvements and required public transport interventions; all clearly outlined.
- Consultations should be had with the relevant Local Authority with regard to locations of existing and future public road schemes and potential improvements which may be necessary.
- Consultations should be had with the relevant Local Authority/National Transport Authority (NTA) will regard to locations of existing and future public transport and sustainable mobility schemes.

- The developer should have regard to any EIS/EIAR and all conditions and/or modifications imposed by An Bord Pleanála relating to transport in the area. The developer should in particular have regard to any potential cumulative impacts.
- The developer, in conducting EIAR, should have regard to the TII Publications (formerly NRA DMRB and the NRA Manual of Contract Documents for Road Works).
- The developer, in conducting EIAR, should have regard to TII's Environmental Assessment and Construction Guidelines, including the Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (National Roads Authority, 2006).
- The designers are asked to consult TII Publications to determine whether a Road Safety Audit is required.
- Regard should also be had to other relevant guidance available at www.tii.ie.

The developer is advised that any additional mitigations/works/structures required as a result of these Assessments should be funded by the developer.

Notwithstanding any of the above, the developer should be aware that this list is non-exhaustive and therefore site and development specific issues should be addressed in accordance with best practice.

I hope that the above comments are of use in your scoping process.

Yours sincerely,

Alban Mills

Senior Regulatory & Administration Executive

Ref No. TII23-121841



In accordance with TII's Right to Disconnect policy, if you are receiving this email outside of normal working hours, I do not expect a response or action outside of your own working hours unless it is clearly noted as requiring urgent attention.

De réir pholasaí BIÉ An Ceart gan a bheith Ceangailte, má tá an ríomhphost seo á fháil agat lasmuigh de na gnáthuaireanta oibre, nílim ag súil le freagra ná le gníomh uait lasmuigh de do ghnáthuaireanta oibre féin mura hfuil sé ráite go soiléir go bhfuil gá gníomhú go práinneach.

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Próiseálann BlÉ sonraí pearsanta a sholáthraítear dó i gcomhréir lena Fhógra ar Chosaint Sonraí atá ar fáil ag https://www.tii.ie/about/about-tii/Data-Protection/?set-lang=ga

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Córas r-phoist BIE: Tá an ríomhphost seo agus aon chomhaid a tharchuirtear leis faoi rún agus beartaithe lena núsáid ag an duine aonair nó ag an eintiteas a bhfuil siad dírithe chuige/chuici amháin. Más rud é go bhfuair tú an ríomhphost seo trí bhotún, cuir sin in iúil do postmaster@tii.ie, le do thoil, agus scrios an ríomhphost bunaidh agus aon cheangaltáin. From: @failteireland.ie>
Sent: 2023-02-08 14:39

To:

Subject: Consultation EIA Scoping-Dublin Airport

Hello

Thank you for contacting Fáilte Ireland and for your letter (ref: 5218354) regarding the Consultation for EIA Scoping Stage- US Customs and Border Protection (CBP) – Proposed Reconfiguration & Expansion & south Apron Support Centre (SASC) – Partial Demolition, Refurbishment & Upgrade Project at Dublin Airport. We have reviewed the details and have no comments or queries at this time.

Just for your information, Fáilte Ireland has a dedicated mailbox for all planning notifications/applications, consultations etc. Please use the following email address <u>planning.applications@failteireland.ie</u> when sending future planning notifications/applications, consultations etc. We would prefer, if possible, to receive these notifications by email rather than post.

By using the email address, it will ensure information/notifications will go directly to the Environment & Planning Manager (Mr Shane Dineen) and team and will be reviewed and actioned in a timely manner by the Manager and the Environment & Planning Team.

Regards & thanks,

Yvonne

Yvonne Jackson Product Development-Environment & Planning Support | Fáilte Ireland

88-95 Amiens Street, Dublin 1, D01 WR86 M +353 (0)86 0357590

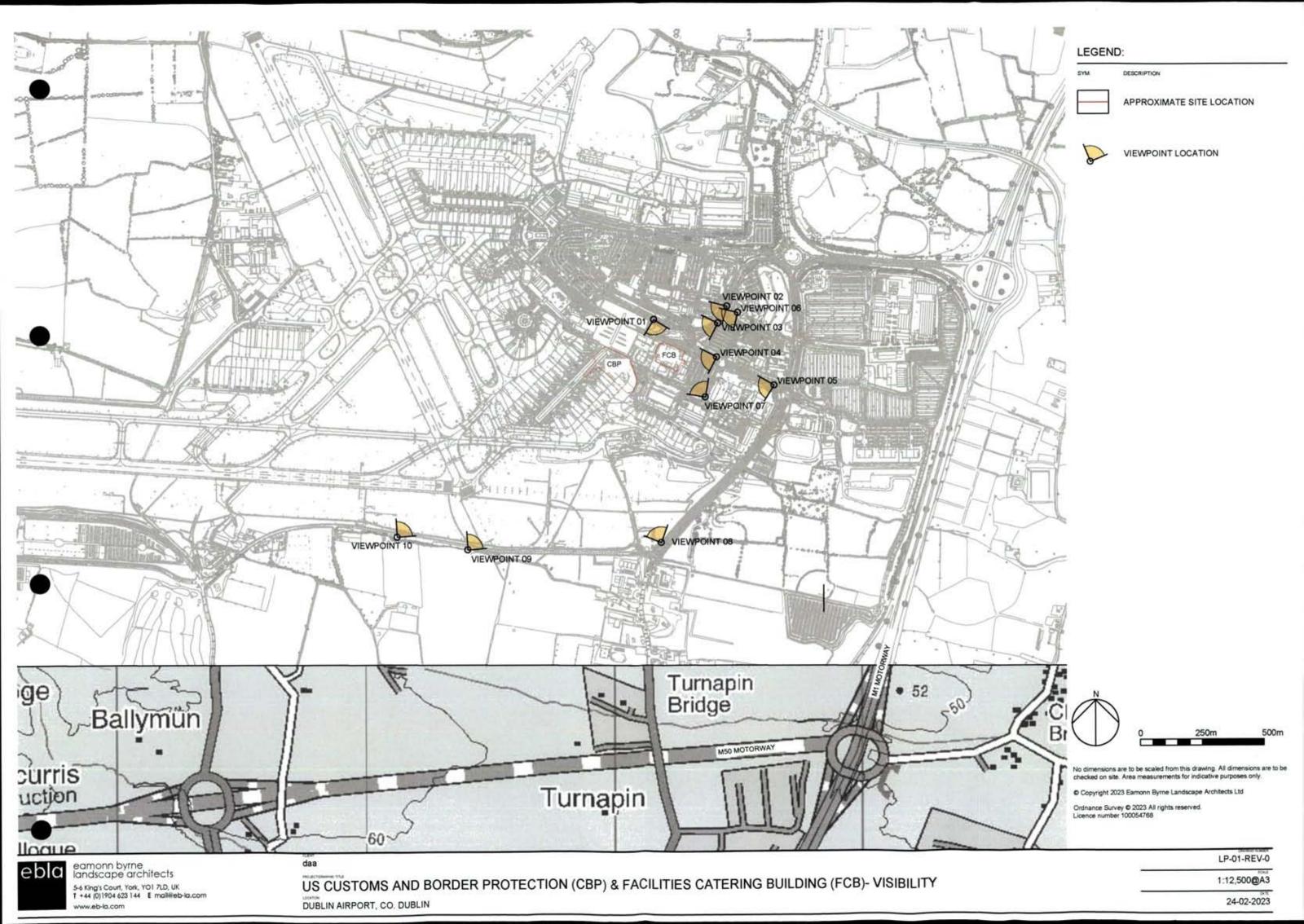


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Appendix 6: Landscape and Visual





Viewpoint 1



US CUSTOMS AND BORDER PROTECTION (CBP) & SASC -DUBLIN AIRPORT VIEWPOINTS
daa

SHEET-01

19/02/2023

106M to FCB

South East

400MM

1.6M

REV 0

22.02.2023



Viewpoint 2



SHEET-02

22.02.2023

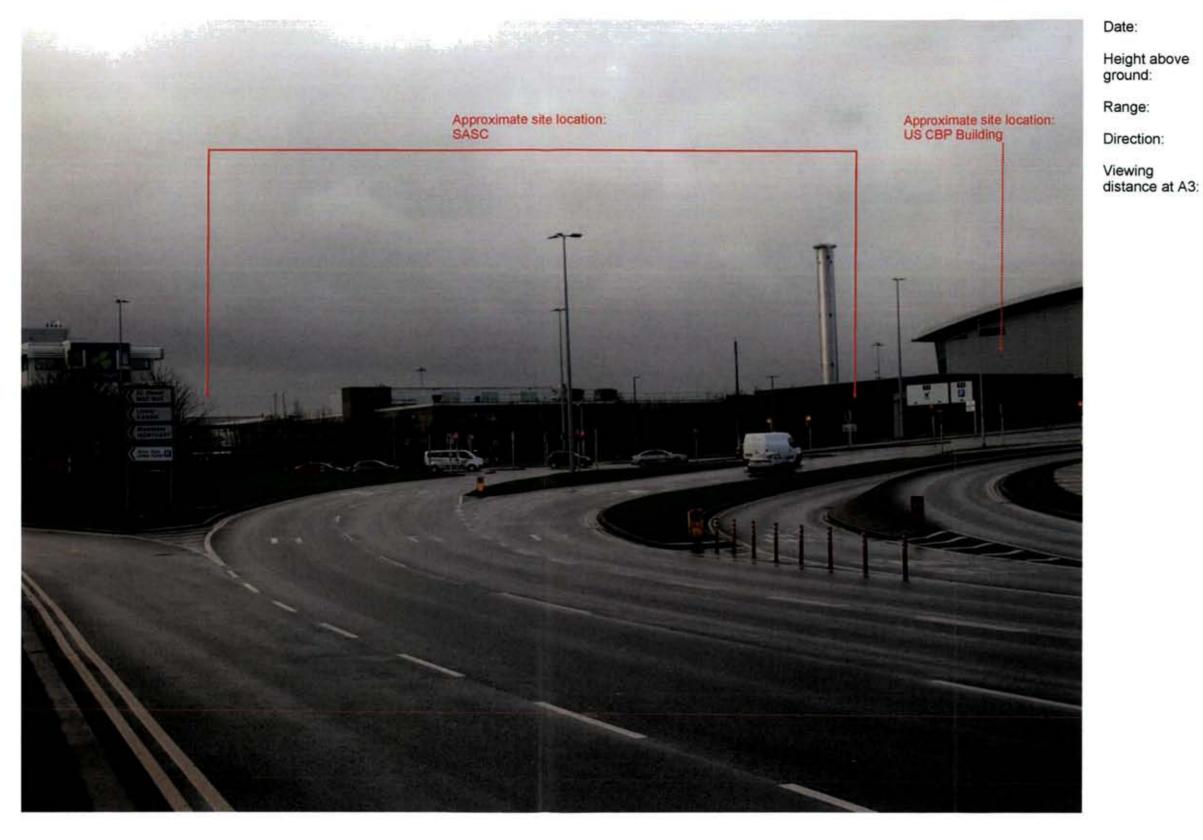
19/02/2023

260M to FCB

South West

400MM

1.6M



Viewpoint 3

daa



US CUSTOMS AND BORDER PROTECTION (CBP) & SASC -DUBLIN AIRPORT **VIEWPOINTS**

SHEET-03

19/02/2023

180M to FCB

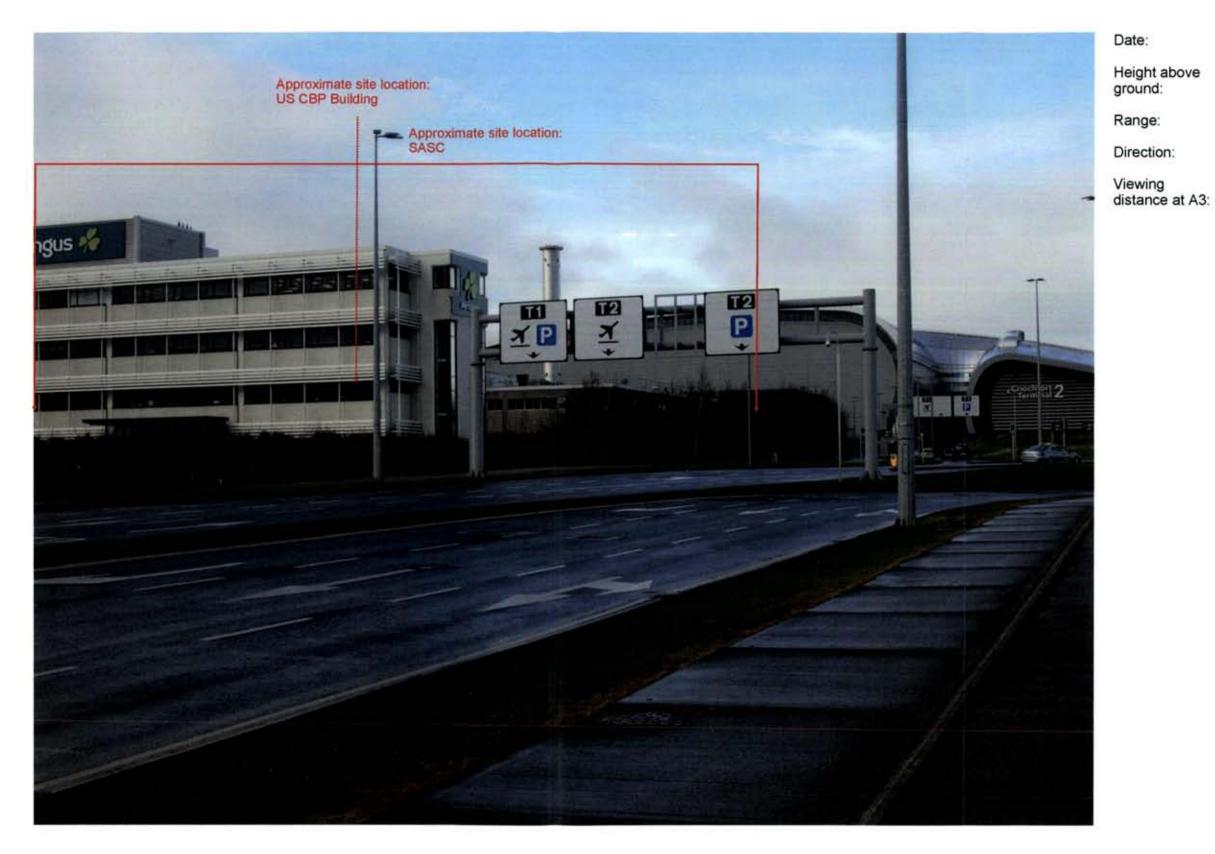
South West

400MM

1.6M

REV₀

22.02.2023



Viewpoint 4



US CUSTOMS AND BORDER PROTECTION (CBP) & SASC -DUBLIN AIRPORT

daa

22.02.2023

SHEET-04

REV₀

19/02/2023

132M to FCB

1.6M

West

400MM

VIEWPOINTS



Viewpoint 5



19/02/2023

390M to FCB

North West

400MM

1.6M



Viewpoint 6



US CUSTOMS AND BORDER PROTECTION (CBP) & SASC -DUBLIN AIRPORT VIEWPOINTS
daa

SHEET-06

19/02/2023

272M to FCB

South West

400MM

1.6M

REV 0

22.02.2023



Viewpoint 7



SHEET-07

19/02/2023

172M to FCB 432M to CBP North West

400MM

1.6M

REV 0

22.02.2023



Viewpoint 8



SHEET-08

REV 0

22.02.2023

19/02/2023

705M to FCB 782M to CBP

North West

400MM

1.6M

note 2023 Famono Rome I andscane Architects | M



Viewpoint 9



19/02/2023

1.08KM to FCB 955M to CBP North West

1.6M

400MM



Viewpoint 10



19/02/2023

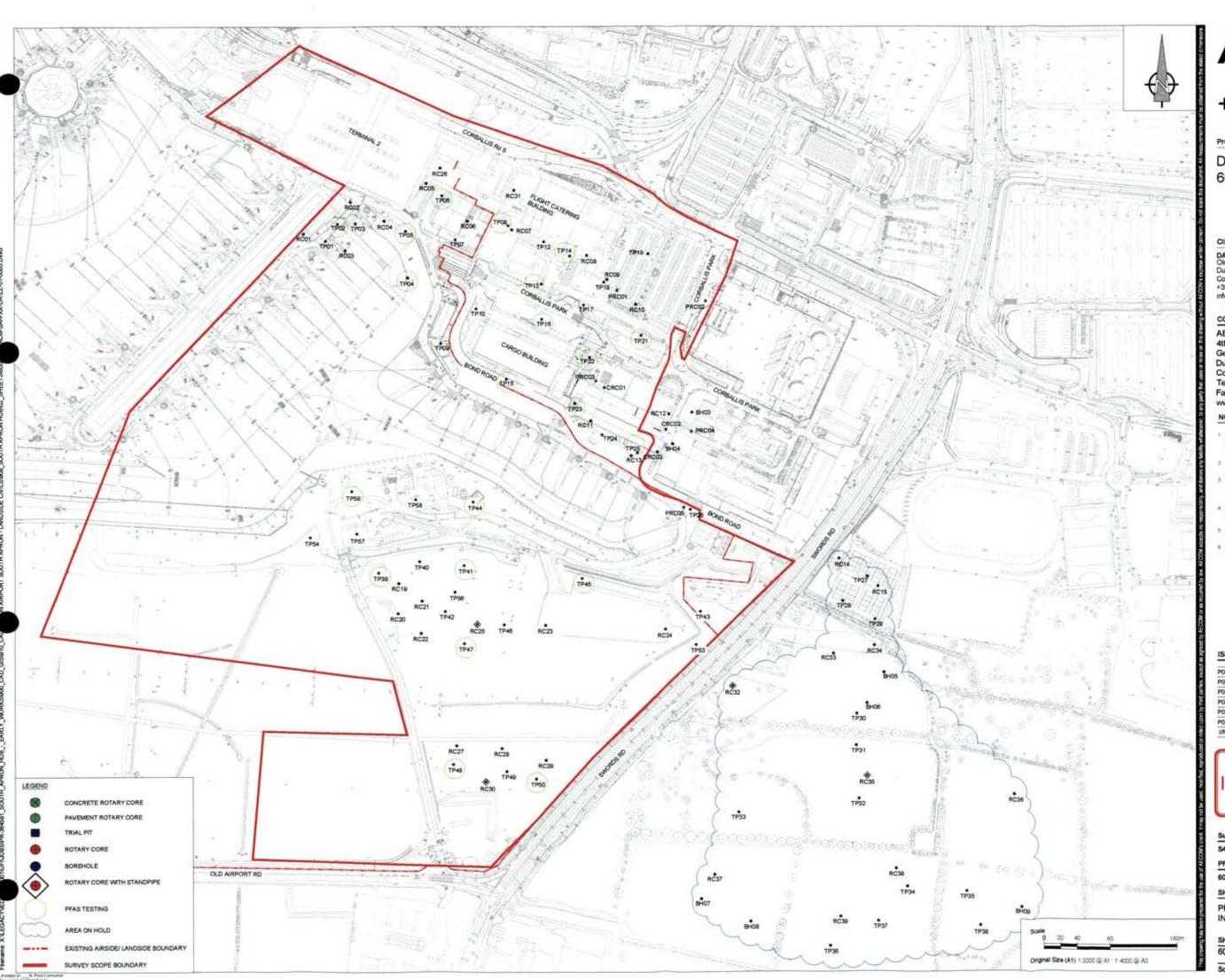
1.08KM to FCB 955M to CBP

North West

400MM

1.6M

Appendix 11: Land, Soils and Geology



AECOM PASCALL +WATSON

Project

Dublin Airport 60592409

Client

DAA itd Old Central Terminal Building Dublin Airport Co. Dublin, Ireland +353 1 814 11 11 Info@daa.ie

CONSULTANT

AECOM 4th Floor Adelphi Plaza, George's Street Upper, Dun Laoghaire, Co Dublin Tel:+353 (0)1 2383100 Fax:+353(0)1 2383199

NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RILLEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS, ANY DISCREPANCES, ERRORS OR OMISSIONI
- 2 ALL DIMENSIONS TO BE CHECKED BY THE CONTRACT ON SITE FRICH TO COMMENCEMENT OF WORKS
- AECOM LIMITED TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES PRICE TO THE COMMENCEMENT OF WORKS ON SITE
- TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS
- DO NOT SCALE, ALL MEASUREMENTS AND COORDINAT TO BE CHECKED ON SITE.
- 5. FOR DETAILS OF SURFACE FINISHES AND MATERIALS

ISSUE/REVISION

·		
P06	22.06.2022	UPDATED LOCATIONS
P05	02.06.2022	UPDATED LOCATIONS
P04	31.05.2022	UPDATED LOCATIONS
P03	25.05.2022	UPDATED LOCATIONS
P02	13.05.2022	UPDATED LOCATIONS
P01	13.01.2021	ISSUED FOR INFORMATION
1/82	DATE	DESCRIPTION

FOR INFORMATION ONLY

Suitability Status

S4 - Suitable for Stage Approval

PROJECT NUMBER

60592409

SHEET TITLE

PROPOSED GROUND INVESTIGATION

SHEET NUMBER

60592409-ACM-SAH-XX-DR-ZZ-01-0005

Scale 1:2000

Rev. Pot



NASAH North Apron & South Apron GI – Ground Investigation

Client:

Dublin Airport Authority

Report No.:

D18362-01-CWG-XXX-XX-XXX-RP-W-XXX-0002, 7

SOUTH

Date:

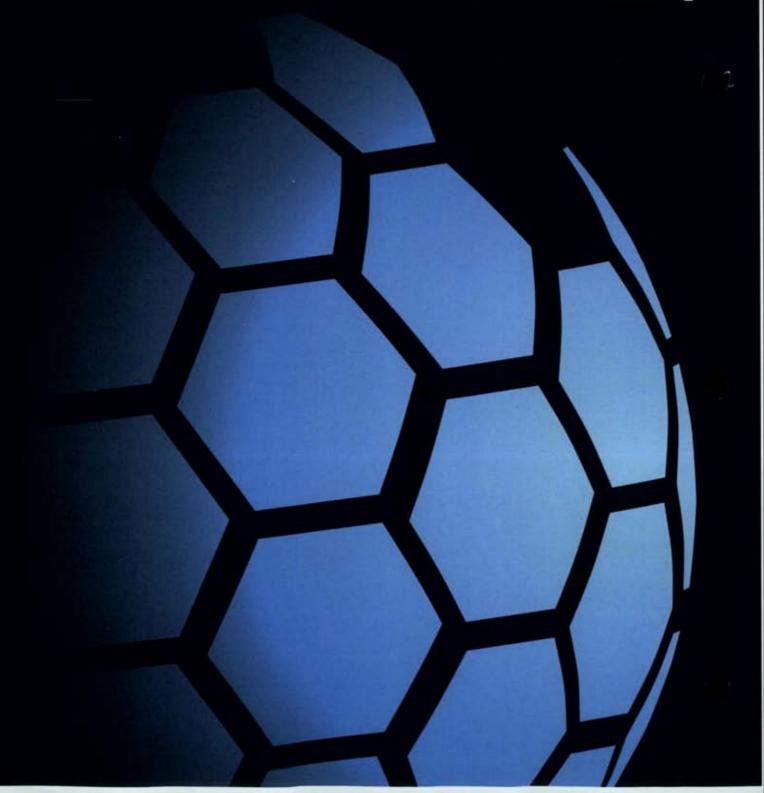
November 2022

Status:

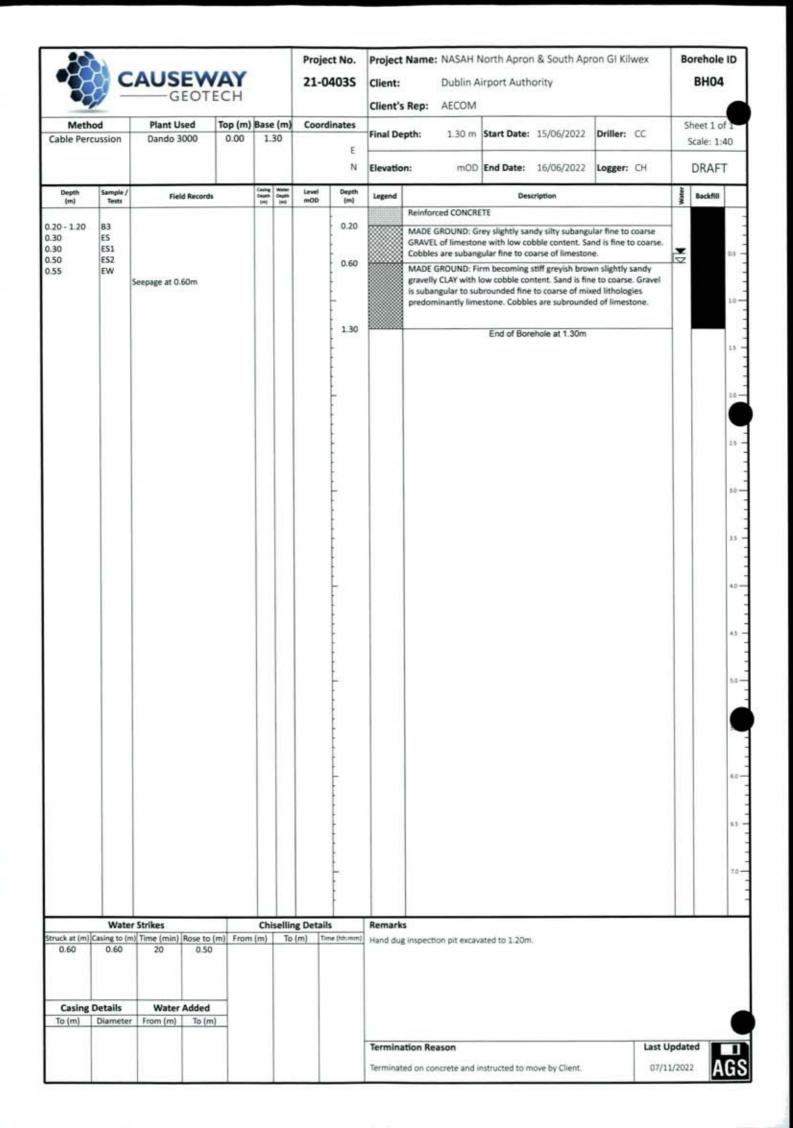
Weekly Update only <u>Not</u> to be used for tendering or design purposes



APPENDIX A
Draft Borehole Logss



Metho Cable Pero		Plant Used Dando 3000	Top (m)	-	(m)	Coord	linates	Client's		Start Date:	15/06/2022	Driller:	cc		Sheet 1 c	
							E N	Elevatio	on: mOD	End Date:	15/06/2022	Logger:	СН		DRAF	
Depth (m)	Sample / Tests	Field Records		Casing Coupts (m)	Water Depth [m]	Level mOD	Depth (m)	Legend		Des	ription			Water	Backfill	
.10 - 1.20 .30 .50 .50 .50 .50 .50 .20 - 1.65 .40 - 2.00 .50 .70 .00 .00 - 2.45 .50 .50 - 3.50 .50 - 3.50	ES4 B9 U15 D10 B11 D12 SPT (S)	PID = 0.50ppm Ublow=37 100% PID = 1.80ppm N=14 (2,3/3,3,4,4) PID = 1.60ppm Ublow=151 100% PID = 1.50ppm N=50 (9,15/50 for 150 N=50 (25 for 50mm/50 150mm) PID = 1.20ppm		2.00 3.00 4.00	Dry Dry		1.40		MADE GROUND: St low cobble content Sand is fine to coan lithologies predomi limestone. Firm becoming stiff is fine to coarse. Gr lithologies predomi	and fragment se. Gravel is su nantly limesto brown slighth avel is subang nantly limesto slightly sandy r fine to coarse	s of red brick ar bangular fine to ne. Cobbles are sandy slightly jular fine to coar ne.	nd sheets of o coarse of subround gravelly CL se of vario	of plastic. various ed of			2 2 3 4 4 5 5
Casing D	sing to (m	Strikes Time (min) Rose to (r Water Added From (m) To (m)	m) From (To (r	Details n) Time	e (hhumm)		inspection pit excaval dwater encountered.	ted to 1.20m.						6 4



Metho	9	GEOT Plant Used	Top (m)	Race	(m)	100000000	403S	Client:		irport Auth	only .	1			BH04/	
Cable Peri		Dando 3000	0.00	-	40	Coord	E	Final De	epth: 3.40 m	Start Date:	16/06/2022	Driller:	CC		Sheet 1 o Scale: 1:	
							N	Elevatio	m: mOD	End Date:	16/06/2022	Logger:	СН		DRAF	Т
Depth (m)	Sample / Tests	Field Records		Casing (bugst) (m)	Water Depth (m)	Level	Depth (m)	Legend	Reinforced CONCRE	VIV. 17	ription			Water	Backfill	
							0.20		MADE GROUND: Da coarse GRAVEL of lin coarse. Cobbles are	ork grey slightl mestone with of limestone.	low cobble cont	ent. Sand	is fine to			0:
0	D3								MADE GROUND: Sti gravelly CLAY with le is subangular fine to limestone. Cobbles	ow cobble con coarse of mis	tent. Sand is fine sed lithologies p	e to coarse	. Gravel			1
0 - 1.65 0 - 2.00 0		N=33 (4,5/7,7,9,10) Ha = 0197 PID = 0.50ppm	mmer SN	1.20	Dry		1.40	蠹	Very stiff dark grey s content. Sand is fine fine to coarse of lim	to coarse. Gr	avel is subangul	ar to subre	ounded			1
0 0 - 3.00 0 - 2.38	D5 B6 SPT (S)	N=50 (8,11/50 for 225 Hammer SN = 0197	mm)	2.00	Dry				limestone.							2
)	E52	PID = 0.70ppm														2
) 0 - 3.30	D7 SPT (S)	N=50 (17,8/50 for 150 Hammer SN = 0197	mm)	3.00	Dry		3.40			End of Bore	hole at 3.40m					3
																41
						2000 CAROLINA										4.
																5.1
																341
																6.0
																6.5
																1.0
	sing to (m	Strikes Time (min) Rose to (n			To (m	Details i) Time	(hh:mm)		nspection pit excavate water encountered.	ed to 1.20m.						
(m) D	-	Water Added From (m) To (m)						Terminati	on Reason				Last Up	date	d 🔳	

8	d	AUS	EW	/AY				ect No. 0403S	Client:	Name: NASAH N Dublin A	irport Auth			00000	1147125	RC05A	
	9 -		EOT						Client's							(5)2	
Meth		Plant U 8T Tracked E		Top (m)	-	(m)	Coor	dinates	Final De	pth: 10.00 m	Start Date:	22/08/2022	Driller:	GT	1 3	heet 1 d	
Rotary C		T44		2.50	10.	3000		E N	Elevatio	n: mOD	End Date:	24/08/2022	Logger:	MRG +CM		Scale: 1:50 DRAFT	
Depth (m)	Sample / Tests	Fie	ld Records		Carry Carry Carry Carry	II.	Level m00	Depth (m)	Legend		Des	cription		TCIVI	Water	Backfill	
V-4	1							0.20		TARMAC					ŕ		
30 30	ES2	PID = 4.50pp	m					1		MADE GROUND: Da fine to coarse GRAV					_		
40	81							0.45		MADE GROUND: Da to coarse GRAVEL o				gular fine	7=		0.5
50 50	B3 ES4							0.80		MADE GROUND: TE	RRAM						
50		PID = 8.90pp						1.10		MADE GROUND: Fir CLAY with low cobb					1		1.0
70	85	Heavy flow a	t 0.55m						44.0	subangular fine to o	coarse. Cobble	es are subangula	r.				
70	ES6									MADE GROUND: Fir with medium cobbi					1		1.5
70 00	B7	PID = 15.40p	pm						200	subrounded fine to	coarse. Cobb	les are subround	ed.				
00	ES8	nin arr	27					-	2.00	Firm greyish brown content. Sand is fine							2.0
00	ES10	PID = 0.20pp	m						- T	Cobbles are subang							
00	10-013	PID = 0.00pp	m					2.50						h 1-			2.5
.10 .50 - 2.94	B9 SPT(C)	N=50			2.50	Dry		1		Very stiff dark greyi cobble content. San							-
A 4134	(8,10/5	0 for								subrounded fine to	coarse of pre	dominantly lime	stone and				1
.90	290mm B11	1)						E		sandstone. Cobbles sandstone.	are subangul	ar to subrounde	d of limest	one and			3.0
90	ES12		95						20	331103101101							
90	PID = 0	.00ppm							2. 2.								3.5
									A 748								
00				+	2.50	Dry		-	4.748								4.0
00 - 4.12	SPT(C) 35mm/	N=50 (25 for						(3.55)	2-2-2								
	88mm)							(3.65)	7.2								43
			100														
			100						4								
									41								5.0
									27.0								
.50	corre	N 50	+	+	2.50	Dry											5.5
.50 - 5.88	SPT(C) (10,14/																
	230mn								4 2 1								6.0
			100					6.15		Very stiff brown slip					1		
			0.1000							coarse. Gravel is su lithologies.	bangular to si	ubrounded fine t	o medium	of various			6.5
								(0.85)		inthologies.							_
.00 .00 - 7.16	SPTICE	N=50 (25 for			2.50	Dry		7.00		Very stiff dark grey							7.0
	72mm	/50 for						(0.50)		to coarse. Gravel is limestone.	subangular to	o subrounded fin	e to coars	e of			
	87mm)						7.50		Very stiff brown slip	ghtly gravelly	slightly sandy CL	AY. Sand is	fine to	1		7.5
			100					(0.40)		coarse. Gravel is su							
								7.90	4.74.5	lithologies. Very stiff brown slip	ghtly sandy er	avelly CLAY with	low cobbi	e content.	1		8.0
									2	Sand is fine to coar	se. Gravel is a	ingular to subrou	inded of vi	arious			
3.50					2 50	Dry			2	lithologies. Cobble limestone.	s are subangu	iar to subrounde	d of predo	minantly			81
8.50 - 8.94	SPT(C)				2.50	Jony.		(2.10)									ľ
	(10,14, 285mr		100						4								
	203111	100							0.0	3							310
			TCR SC	R RQO F	1				1						1		
	Wate	er Strikes			_	sellin	g Detai		Remark	5					_		
ruck at (m) 0.55	Casing to (m) Time (min)	Rose to	(m) Fron	n (m)	To	(m) T	ime (hh.mm)	Hand dug	inspection pit excava	ated to 2.50m	¥.					
Control	Dat-II-	101.0	0.00	_													_
To (m)	Details Diam (mr	m) From (m)	Added To (m)												(
2.50	200			Co	re Bar	rel	Flus	h Type	Termina	ition Reason				Last U	pdat	ed 🔳	7
			1					4.5						1			_

	97	Plant	SEC	TE	ECI	Н			21-0	ect No. 4035	Project Client: Client's		Airport Auth		ron GI Ki	lwex		rehole	Α.
Inspection Rotary Co	n Pit	8T Tracked I	Excav		0.		2.50	0	Coord	dinates	Final De	pth: 10.00 m	Start Date:	22/08/2022	Driller:	GT		eet 2 o cale: 1:	
Rotary Co	oring	144	•		2.	50	10.0	,0		E N	Elevatio	n: mOl	End Date:	24/08/2022	Logger:	MRG +CM		DRAF	Г
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	Ħ	Coong Dayon Day		Level mOD	Depth (m)	Legend		Des	cription			Water	Backfill	
0.00					N-QD				mOD	(m)		Very stiff brown si Sand is fine to coa lithologies. Cobble limestone.	ightly sandy gra irse. Gravel is ar es are subangul	rvelly CLAY with	nded of va	rious	PAM .		95 300 305 310 315 320 315 315 315 315 315 315 315 315 315 315
																			17.0
																			18.0
			TCR	SCR	RQD	_													18.5
Casing De	sing to (m)	Strikes Time (min)	Adde	rd) Fro			To (m)	Petails Time	-	Remarks Hand dug i	nspection pit excavi	ated to 2.50m.						
(m) Dia 2.50	am (mm) 200	From (m)	To	(m)		11 2			73 Vaj-										
					C	ore f	Barrel		Flush T	уре	Terminati	on Reason				Last Upd	ated		1
						5K	6L		Wate	er	Terminated	at scheduled depti	h			07/11/2	022	AC	H

	C	AUS	EV	N.	AY			Project 21-0	t No. 403S	Project Client: Client's		North Aproi		ron GI Kilv	wex	10000	rehole ID RC06
Metho	THE RESERVE THE PERSON NAMED IN	Plant U	-		-	_	ase (m)	Coord	inates	0.5555.176	and a section of	Start Date	09/08/2022	Driller:	GT	She	eet 1 of 2
Inspectio	n Pit	8T Trac Excava			0.00)	1.60		E	Final De	pth: 10.00 m	Start Date:	09/08/2022	Driller:	61	Sc	ale: 1:40
Rotary Co	oring	T44 Ber			1.50)	10.00		N	Elevation	n: mOD	End Date:	10/08/2022	Logger:	MRG +CM	0	RAFT
Depth (m)	Samples	/ Field Records	TCR S	CR	RQD	FI D	epith Depth	Level mOD	Depth (m)	Legend		Des	cription			Water	Backfill
(m)			\top		+	T,	100				CONCRETE with reb	oar.				1	
0.80	В1								0.20		MADE GROUND: Go to coarse GRAVEL of MADE GROUND: TE MADE GROUND: Ve with low cobble cor to subrounded fine subrounded of mixe	of limestone. S RRAM ery stiff greyis intent. Sand is to coarse. Co	h brown slightly fine to coarse. G bblese are subar	arse. sandy grave iravel is sub	elly CLAY	7	1.0
1.50 - 1.95	1.30m SPT(C) f	epage at 4×44 0,10,12,12)				1	.50		1.50		Very stiff greyish br coarse. Gravel is su	A CONTRACTOR OF THE PARTY OF TH		AY. Sand is f	line to	_	1.5
2.35 - 2.80	B2	N=50 (25 for	100			4	1.00										25
3.00	60mm/ 75mm)	50 for	100						3.40		Very stiff greyish bi content. Sand is fin						35
4.50 - 4.58 4.50		N=50 (0 for 0 for 75mm)				4	4.50				4 50-4 70m. Bed of grey is subangular fine.	ish brown slightly g	gravelly sandy clay. Sa	nd is fine to coar	se Gravel		4.
5.10 - 5.70	83		100														54
6.00 - 6.45 6.00	SPT(C) (10,12/	N=50 '12,14,14,10)	100			6	5.00		6.00		Very dense greyish Gravel is subangul	THE RESERVE OF THE PARTY OF THE	lly very clayey fir	ne to coarse	SAND.		6.
			TCR	SCR	RQD	FI			6.90		Very stiff greyish b fine to coarse. Gra				Sand is		71
		r Strikes	_		Re	mar	ks		-	-						-	
1.30 Casing (Details	Core			n) Ha	end de	ug inspe	ction pit to	1.60m.								5
1.50	200 150	- 5	(6L														
10.00	150	Flush		1	Later a			Reason	0001101							Jpdated	
		W	ater		Te	rmina	ated on	scheduled	depth.						07/1	1/2022	AG

8	9	AUS	E	W OT	EC	Н			21-0	ect No. 04035	Client:		irport Auth		and down held	02000		RC06	
Meth	Company of the Party	Plant I 8T Tra				(m) .00		e (m) 60	Coord	dinates	Final De	epth: 10.00 m	Start Date:	09/08/2022	Driller:	GT		sheet 2 c	
Rotary (Excav T44 Be	ator		55	50		.00		E N	Elevation	on: mOD	End Date:	10/08/2022	Logger	MRG +CM	T	Scale: 1: DRAF	
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level m00	Depth (m)	Legend		Desc	cription			Water	Backfill	
7.50 - 7.74 7.50	SPT(C) ((10,15/ 92mm)	50 for	92				7.50					Very stiff greyish br fine to coarse. Grav				Sand is			9.5
3.30 - 8.60 3.00 - 9.50	U5 84		32				9.00												8.5
9.00 - 9.45 9.00	SPT(C) ! (10,12/	N=60 14,14,16,16)	100							9.70		Very dense greyish		gravelly clayey	fine to coa	rse			9.3
.0.00										10.00	77. 1	SAND. Gravel is sub		hole at 10.00m					0.010
																			110
																			31.1
																			120
)																			13.0
																			13.1
																			340
			TCR	SCR	RQD	FI											-		14.5
		Strikes			R	ema	rks										_		_
1.30	asing to (m	Time (min)	Rose	to (n	n) H	and d	fug in:	specti	on pit to	1.60m.									
Casing D	Details Diam (mm) 200	Core E		ıl															
10.00	150	Flush	Туре	5	Te	ermir	natio	n Rea	ason							Last U	pdate	d T	1
		Wa	ter		Te	rmin	ated o	on sch	eduled d	epth.						07/11		Po	ភ

	1							Projec	ct No.	Project	Name: NASAH N	North Apror	& South Apr	ron GI Kil	wex	Bo	orehole ID
	CAUS	E	W	A	Y			21-0	4035	Client:	Dublin A	irport Auth	ority				RC07
	7 —	GEC	DTE	ECH	+					Client's	Rep AECOM						4
Metho	d Plant	Used		Тор	(m)	Base	(m)	Coord	inates	E. In	10.00	Canal Date:	18/08/2022	Driller:	CT	S	heet 1 of 2
Rotary Dri				2.6	1.00	3.0			Е	Final De	pth: 10.00 m	Start Date:	10/00/2022	Driller:	GI		Scale: 1:40
Rotary Co	Control of the Contro	a T44		3.0	1000	10.0	50.04		N	Elevation	m: mOD	End Date:	18/08/2022	Logger:	MRG +RW		DRAFT
Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing 1 Depth (m)	ini ini	Level m00	Depth (m)	Legend		Des	cription			Water	Backfill
		Т	Г						0.02		Brown slightly sand Sand is fine to coars					1	
30	ES2										coarse of various lit	hologies.		.05.07.05.02.07			
50	B1										MADE GROUND: Da fine to coarse GRAV					1	0.5
									0.70		brick, concrete, tim	ber and plasti	c. Sand is fine to	coarse.			
90	83									22.2	Firm greenish brow cobble content. San						
90	ES4									27.0	subrounded fine to						10
									1.20		Firm light brown sli	ehtly sandy er	ravelly CLAY with	low cobbl	e	+	
											content. Sand is fin	e to coarse. G	ravel is subangu	lar to subre	ounded		
50 50	85 ES6										fine to coarse. Cobi lithologies.	oles are suban	gular to subrou	nded of mi	xed	1	1.5
100	Medium flow at								1.70		Light brownish grey				rounded	-	
	1.70m									-	fine to coarse GRAV						
40 50	87 ES8								2.40	**************************************	Stiff dark grey sligh					1	23
50	C36								2.60	64 B	content. Sand is fin fine to coarse. Cobi					X	
											Very stiff dark grey					1	
00 - 3.40	SPT(C) N=50	-	-	-					3.00		coarse. Gravel is su Very stiff dark brow	and the same of th			ne to	+	3.0
	(12,12/50 for										coarse. Gravel is su						
	250mm) Hammer SN = 0208								t		lithologies.						
									3.50	20.00	Very stiff dark brow	yn slightly san	dy slightly grave	lly CLAY wi	th	1	3.5
		100	,						-	22.5	medium cobble cor	ntent. Sand is	fine to coarse. G	ravel is sul			
		100								200	fine to coarse. Cob	oles are subro	unded of limest	one.			×-
																	4.0
.20 - 4.50	89								1	2.74.8							
.50 - 4.63	SPT(C) N=50 (25 for					Н			4.50								47
.50 - 4.63	55mm/50 for								4,30	\$ ×	Dense dark greyish Gravel is subangula			ne to coars	se SAND.		
	75mm) Hammer St = 0208	4				Н			F	X X	Graver is solding on	in mile to med				1	
.90 - 5.40	B10								-	× ×							54
									ţ	* ×							
		100	1						t	*, * ×							4
									5.50	2.25	Very stiff dark grey	ish brown san	dy gravelly CLAY	with low	cobble		
									-	2.7	content. Sand is fin	e to coarse. G	iravel is subroun				
	No despitato por en								-	2 2 2	Cobbles are subrou	unaea of time	stone.			1	
.00 - 6.42	SPT(C) N=50 (8,11/50 for			T					1	2							6.0
	275mm) Hammer	1							1								
	SN = 0208								ł	2.5							
		90							-	2.2							*
		1							-	61 24							
									1	44.0							2.
.10 - 7.50	B11									200							
		TO	R RC	RQD	FI				1	1						-	
	Water Strikes	,,,,		-	Rema	arke	_									1	
	asing to (m) Time (min	n) Ros	e to	-			spec	tion pit e	cavated:	to 2.60m.							
1.70																	
To (m)	Diam (mm)	e Bar	rel														1
10 1111/16		SK6L	ne		Term	inati	un D	eason							Last U	Indat	ed 🖃
		sh Ty							20022								
	1	Nater		1.7	iermi	nated	at sc	heduled (septh.						07/1	1/202	Z

	7		EC	TI	ECI	4			21-0	ect No. 0403S	Project Client: Client's		North Apro		ron GI Ki	lwex	Е	RC07
Inspection Rotary Dr	n Pit	8T Exca Beretta	vato		0.0 2.6	00	2.	60 00	Coor	dinates	Final De	epth: 10.00 m	Start Date:	18/08/2022	Driller:	GT		Sheet 2 of 2 Scale: 1:40
Rotary Co	oring	Beretta	T44		3.0		10	.00		N	Elevatio	n: mOD	End Date:	18/08/2022	Logger:	MRG +RW		DRAFT
Depth (m)	Samples /	Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	mOD	Depth (m)	Legend	Very stiff dark greyi		cription	with low o	obble	Water	Backfill
7.50			100							8.10		content. Sand is fin Cobbles are subrou Very stiff light brow Sand is fine to coars	e to coarse. G nded of limes nish grey sligh	ravel is subround tone. ntly sandy slight!	ded fine to	coarse.		**
3.70 - 9.00	C12	akan basy bay sama																
9.00 - 9.15 9.00	75mm/50 75mm) H	50 (25 for for ammer SN																54
70 - 10 00	= 0208		100															9.5
0.70 - 10.00	813									10.00								
																		11.0 12.0 12.0 13.0
ruck at (m) Cas	Water S	trikes			-	mar		spection	on pit ex	cavated to	2.60m.							04.5
Casing De To (m) Dia	tails om (mm)	Core E	5L	-12.11														
		Flush	Type	1	Te	rmin	atio	n Rea	son							Last U	pdate	d

	C	AUS G		TE	СН	_		(700)270	ct No. 403S	Project Client: Client's	Dublin A	orth Apron & South Ap	ron GI Kilwex	Borehole ID RC08
Metho Inspection Rotary Co	n Pit	Plant U 8T Excav Beretta	ator	1	0.00 1.50	1	se (m) 1.50 0.00	Coord	linates E	Final De	pth: 10.00 m	Start Date: 17/08/2022	Driller: MW	Sheet 1 of 2 Scale: 1:40
			_		_				N	Elevatio	n: mOD	End Date:	Logger: +MRG	DRAFT
Depth (m)	Samples / F	ield Records	TCR	SCR R	QD FI	Dep (m	ng Water th Depth i (m)	mOD	Depth (m)	Legend	TOOCOU with south	Description		Backfill Backfill
.70 .00 .50 .50 - 1.95 .00 - 2.50	B1 B2 B3 B4 SPT(C) N= (1,2/2,2,3 Hammer S B5 SPT(C) N= for 285mt Hammer S	,2) 5N = 0208 50 (7,7/50 m)	90						0.10		medium cobble conto subrounded fine subrounded. MADE GROUND: Fin with low cobble conto subrounded fine of mixed lithologies MADE GROUND: Fir medium cobble corcoarse. Gravel is sulare subangular to sifrm greyish brown cobble content. Sar subrounded fine to various lithologies. Very stiff dark brow low cobble content to coarse. Cobbles in coarse. Cobbles in coarse.	rm greyish brown slightly sanstent. Sand is fine to coarse. Of to coarse, Cobbles are subant rm light brown slightly sandy ntent. Sand is fine to coarse. Of to coarse. Cobbles are subant. It is regressive to coarse. Of the coarse of the coarse. Of the coarse of the c	Gravel is subangular gular to slightly gravelly CLAY Gravel is subangular igular to subrounded dy gravelly CLAY with igue. Sand is fine to to coarse. Cobbles ies. Y CLAY with low subangular to ilar to subrounded oil ity gravelly CLAY with it is subangular fine.	10
.50 - 4.62 .50	SPT(C) N= 55mm/50	50 (25 for) for ammer SN	100						4.90		cobble content. Sa coarse. Cobbles are	slightly sandy slightly gravelly nd is fine to coarse. Gravel is : e subangular of limestone.	subrounded fine to	4.0
5.00 - 5.50	B7 SPT(C) N=		100								content. Sand is fir	slightly sandy gravelly CLAY v ne to coarse. Grave is subangu bles are subangular of limest	ular to subrounded	5.0
5.00	(9,10/50 285mm) SN = 020	Hammer	100						6.40		coarse GRAVEL. Sa	y slightly sandy slightly clayey ind is fine to coarse. wnish grey slightly sandy grav		
7.00 - 7.50	B8											s subangular fine to coarse.		2,0
			TCR	SCR	RQD	-			1					
ruck at (m) C	Water Casing to (m)		Rose	to (m) Han		g inspec	ction pit e encount	xcavated ered.	to 1.50m.				
Casing D	Details Diam (mm)	Core	Barre K6L	el										
		Flush	n Typ	e	Date of the last			teason cheduled	depth.					Updated /11/2022 AG

	C	AUS	E	W	A	Y			ject No. -0403S	Client:		North Apror		ron GI Ki	lwex	В	orehole ID RC08
	-	Diant I	lend		Ton	(m)	Base (m) Con	adia stor	Client's	Rep AECOM			_			hoot 2 of 2
Inspection		Plant U			-	(m) 00	1.50		rdinates	Final De	epth: 10.00 m	Start Date:	17/08/2022	Driller:	MW		Sheet 2 of 2 Scale: 1:40
Rotary Co		Beretta			1.5	50	10.0	0	E N	Elevatio	n: mOD	End Date:		Logger:	RW +MRG		DRAFT
Depth (m)	Samples /	Field Records	TCR	SCR	RQD	FI	Casing M Depth D	eter Level		Legend		Desc	cription			Water	Backfill
ini	1	- 100.000.000	James .				(m)	MI INOU	- fund	1-1-1	Very stiff dark brow			lly CLAY. Sa	nd is fine	>	
7.50 - 7.94 7.50	SPT(C) N (10,10/5 285mm) SN = 020	0 for Hammer							7.60		to coarse. Gravel is Very stiff brownish fine to coarse. Grav	grey slightly sa	andy slightly gra		Sand is		2.5
8.40 - 8.70	сэ		100														6.5
9.00 - 9.14 9.00	75mm/5	=50 (25 for 0 for lammer SN															90
10.00				+					10.00			End of Bore	hole at 10.00m				10.0
																	80.1 83.0
																	12)
																	23 23 24
									ŧ								241
			TCR	SCR	RQD	FI				-							14.
		Strikes			R	ema	rks									-	
truck at (m) C	asing to (m)	Time (min)	Rose	to (r				ection pit ter encoun	excavated t tered.	to 1.50m.							
Casing D	etails Nam (mm)	Core I	Barre 6L	el	-												
		Flush	1	e	T	ermi	nation	Reason							Last Up	odat	ed T
		1000						scheduled								7	

Method Inspection Rotary Cor Depth (m)	Pit 8T Exca	Jsed vator	Top 0. 1.	(m) 00 50	1.5 10.0	0	Coord	inates	Client's	Rep AECOM	irport Auth	000000000			SI	RC10
Inspection Rotary Cor	Pit 8T Exca ing Beretta	vator 3 T44	1.	00 50	1.5	0	Coord	inates							SI	hant 1 of
Rotary Cor	ing Beretta	T44	1.	50	1000	200			Final De		63 723	575020				reer I Of Z
	8				20.5	~		Ε	rinar De	pth: 10.00 m	Start Date:	24/08/2022	Driller:	GT	5	Scale: 1:40
Depth (m)	Samples / Field Records	TCR SCI	RQD					N	Elevatio	n: mOD	End Date:	24/08/2022	Logger:	RW+CH	1	DRAFT
				FI	Casing (Depth ((m)	Nation (septh (m)	Level m00	Depth (m)	Legend	BITMAC	Desi	cription			Water	Backfill
							Section Charles	8.39		MADE GROUND: Gr fine to coarse GRAV coarse.	EL of limestor	e with rootlets.	Sand is fin	e to		0.
								1.10		MADE GROUND: So with low cobble cor Gravel is subangula lithologies. Cobbles MADE GROUND: So	ntent and rotte r to subround are subangul	en rootlets. Sand ed fine to coarse ar to angular of	d is fine to e of various mixed litho	coarse.		ı
50 - 1.95	B1 SPT(C) N=9 (2,2/2,3,2,2)							1.50		gravelly CLAY with It is subangular to sub- subangular to subro Loose greyish brow	ow cobble cor brounded of mix ounded of mix n gravelly clay	itent. Sand is fin ixed lithologies. ed lithologies.	e to coarse Cobbles a	e. Gravel re		1
	Hammer SN = 0208	100								subangular fine to o	coarse.					2
.00	SPT(C) N=50 (10,12/50 for 290mm) Hammer							2.80		Very stiff dark brow low cobble content to coarse. Cobbles a	. Sand is fine t	o coarse. Gravel	is subangu			3
	SN = 0208	100														3
1.50 - 4.66 1.50	B2 SPT(C) N=50 (25 for 80mm/50 for 75mm) Hammer SN = 0208	100					30 - 1200									5
.00		100														6
		TCR SC	R RQD	FI					200						3 8	
ruck at (m) Cas	Water Strikes ing to (m) Time (min)	Rose to	(m)		dug ins		ion pit ex		o 1.50m.							
							encounter									
	im (mm)	Barrel KGL														N.
1.50	150	Туре	7	ermi	inatio	n Re	ason							Last Up	date	d L

	C	AUS	E	W T	/A	Y				ect No. 0403S	Project Client: Client's		North Apron		on GI Kil	wex	В	RC10	
Meth		Plant I				(m) .00	Base 1.	(m) 50	Coor	dinates	Final De	epth: 10.00 m	Start Date:	24/08/2022	Driller:	GT	1	heet 2 o Scale: 1:	
Rotary C	oring	Beretta	T44		1	.50	10	.00		E N	Elevatio	n: mOD	End Date:	24/08/2022	Logger:	RW+CH		DRAF	0.00
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	п	Casing Depth (m)	Water Depth Inti	Level m00	Depth (m)	Legend		Desc	ription			Water	Backfill	
7.50 - 7.95 7.50 8.50 - 9.00		N=53 2,14,14,13) or SN = 0208	100							8.10		Very stiff dark brow low cobble content to coarse. Cobbles a Very stiff light greyi Sand is fine to coars	Sand is fine to are subrounde sh brown sligh	o coarse. Gravel d of limestone. tly sandy slighth	is subangu	lar fine			7.5
9.00 - 9.45 9.00	Hamme	N=54 15,13,14,12) r SN = 0208	100																9.1
10.00	C4																		
										- 10.00			End of Borel	nole at 10.00m					10:
																			111
																			11.1
																			12.0
Š																			121
8																			184
																			183
																			14.0
																			14.5
	Water	Strikes	TCR	SCR	_	Fi	rke								-				_
uck at (m) Ca		Time (min)	Rose	to (m	n) H	and d	lug ins		on pit exi	cavated to red.	1.50m.								
Casing D	etails iam (mm)	Core E		ı															
1.50 10.00	200 150	Flush			To	ermir	natio	n Rea	son							Last Up	date	d =	÷
		Was							iduled de	noth						07/11/		* A	å

	C	AUS		ECH			22.000	ct No. 403S	Project Name: NASAH North Apron & South Apron GI Kilwex Client: Dublin Airport Authority Client's Rep AECOM	Borehole ID RC11
Metho	-	Plant U 8T Trac		Top (n	n) Base		Coord	linates	Final Depth: 10.00 m Start Date: 22/08/2022 Driller: MRG +GT	Sheet 1 of 2 Scale: 1:40
Rotary Co	oring	Excava Beretta		1.50	10.	00		E N	Elevation: mOD End Date: 23/08/2022 Logger: CH+RW	
Depth		/ Field Records			Carring	Water	Level	Depth	Legend Description	
(m)	Samples	/ Field Records	ICK SC	R RQD F	Casing Depth (m)	Worker Chaptin (m)	mOD	(m) 0.08	BITMAC	Backfill
								0.35	CONCRETE with rebar MADE GROUND: Dark greyish brown gravelly clayey medium to coarse SAND. Gravel is subangular to subrounded fine to coarse of various lithologies. Cobbles are subangular to subrounded of various lithologies.	93
50 - 1.95	SPT(C) 1 (7,5/4,3 Hamme		67					1.50	Medium dense brown slightly gravelly slightly clayey fine to coarse SAND. Gravel is subangular fine to coarse.	21
2.40 - 2.90	84						j.	2.90		2.
3.00 - 3.45 3.00	SPT(C) (7,5/5,4 Hamme							3.40	Grey subrounded COBBLES of limestone with much gravel. Gravel is subrounded medium to coarse.	3.
			100						Very stiff dark greyish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subrounded of limestone.	4
1.50 - 4.90 1.50 - 4.94 1.50 1.50	B3 SPT(C) (12,14/ 290mm SN = 02 C2	50 for n) Hammer	100							5
5.00 - 6.15	75mm/	Hammer SN	100							5
			TCR S	CR RQD	FI			-		
touck as in the		r Strikes		Re	marks					
Casing C			Barrel				tion pit ei encounte		1.50m.:	
	Diam (mn 200	n) Sk	K6L							
10.00	150	Flush	Туре	Те	rminat	ion R	eason		STATE	Jpdated
		100	ater				heduled	depth.	STATE	1/2022

28	24 -	AUS			IA	V				ct No.		Name: NASAH N			on GI KI	wex	В	orehole	
-8		AUS	SEC	OTE	ECH	I			21-0	4035	Client:		irport Auth	ority				RC11	
	,						-		-		Client's	Rep AECOM				2000			
Metho		Plant I	cked	_	Top		Base 1.5		Coord	linates	Final De	pth: 10.00 m	Start Date:	22/08/2022	Driller:	MRG +GT	100	heet 2 o Scale: 1	
Rotary Co	oring	Beretta			1.5	50	10.	.00		E N	Elevatio	n: mOD	End Date:	23/08/2022	Logger:	CH+RW		DRAF	Т
Depth (m)	Samples /	Field Records	TCR	SCR	RQD	FI	Cesing Depth (m)	Water Depth (m)	Level	Depth (m)	Legend			cription			Water	Backfill	
.70 - 9.00	B5		100							8.00		Very stiff dark greyi low cobble content to coarse. Cobbles a Very stiff greyish bri fine to coarse. Grav	Sand is fine to are subrounde own slightly s	o coarse. Gravel ed of limestone. andy slightly gra	is subang	ular fine			81
.00 - 9.44 .00 20 - 9.60	SPT(C) N (13,14/5 290mm) SN = 020 C1	0 for Hammer	90																9.
														hole at 10.00m					30
																			31
Y																			13
			TCR	SCR	RQD	Fì													24
ruck at (m) C		Strikes Time (min)	Rose	to (r		ema		spect	ion pit ex	cavated to	o 1.50m								
									encounte										
To (m) 0	Details Diam (mm) 200 150	Core Si Flush	K6L		T.	erm	inatio	on Re	ason							Last Up	odat	ed 🖃	_
775		00.0000	ater		13				eduled d	enth						07/11			ď

	C	AUS	EN	N	A	1		1	ect No. 1403S	Project Client:	Name: NASAH N Dublin A	North Apro		ron GI Kilwex	В	RC13
-9/		0	EO	1.0		•				Client's	Rep AECOM					
Metho	The same of the sa	Plant L	_		_	_	Base (m)	Coord	dinates	Final De	enth: 10.00 m	Start Date:	18/08/2022	Driller: GT	1	Sheet 1 of 2
Inspectio Rotary Co	000.00.000	8T Exca Beretta			1.5		1.50		E	-	20.00 11	Start Dute.	10/00/2022	Dimer. Of	+	Scale: 1:40
			_		_				N	Elevatio	m: mOD	End Date:	22/08/2022	Logger: CH+RW		DRAFT
Depth (m)	Samples /	Field Records	TCR S	SCR	RQD	FI	Caning Water Depth Depth (m) (m)	Level m00	Depth (m)	Legend	BITMAC	Des	cription		Water	Backfill
											Ditimac					
									0.35		CONCRETE with 2 in	nch rebar			1	0.5
									0.70		MADE GROUND: DA	ark grevish bro	own gravelly clay	ev medium to	+	
											coarse SAND, Grave	el is subangula	r to subrounded		A	110
											lithologies.		•			
50 - 1.95	SPT(C) N	=9							1.50							2.5
	(2,2/2,3,										Medium dense gre- SAND. Gravel is sub					
00 - 2.50	C4	311-0200									pour sirectorements					
JU - 2.50	C4								F	73.						21
			83							7						•
									ţ							2.5
00 - 3.45 00	SPT(C) N (10,12/1	=54 4,14,12,14)			П				-	71.5						3.7
		SN = 0208														
									F	7						3
			77													
									-	7						4
									-	73.7						
50 - 5.00	СЗ				Щ				4.50		Daniel de de constate					4.5
50 - 4.64 50	SPT(C) N 75mm/5	=50 (25 for 0 for							-		Dense dark greyish	brown very c	layey fine to coal	rse SAND.		
	60mm) H = 0208	lammer SN							E							
			100						5.05		Stiff dark greyish br fine to coarse. Grav					
			100								Grey subrounded C fine to coarse.				1	
					Н				5.50		Very stiff dark brow cobble content. Sar				1	
									1		coarse. Cobbles are			sorounded fine to		
00					П				F							6.1
									1							
									F							4.5
			100						1	2.0						
									-							7.0
_	Water	Striker	TCR S	SCR	RQD	FI	te.									
ick at (m) Ca		Time (min)	Rose t	to (m	n) Ha	nd d	ug inspec	tion pit ex encounte		o 1.50m.						
Casing D	otalle	Core I	Barrel	÷												
	Diam (mm) 200	5,00000	6L	30												
10.00	200	Flush	Туре	-	Te	rmir	nation R	eason						Last U	pdat	ed
		144	ter		-			heduled d	and a					07/1		Peri

	97		SEC	T	EC	Н			21-0	ct No. 403S	Client's		North Apror		ron GI KI	wex		RC13	
Metho	on Pit	Plant U	vato	r)	0.	.00	1.	e (m) 50	Coord	linates	Final De	pth: 10.00 m	Start Date:	18/08/2022	Driller:	GT	100	sheet 2 of Scale: 1:4	
Rotary Co	oring	Beretta	1744		1.	50	10	.00		E N	Elevatio	n: mOD	End Date:	22/08/2022	Logger:	CH+RW		DRAFT	
Depth (m)	Samples /	Field Records	TCR	SCR	RQD	Ħ	Casing Depth (m)	Water Depth [m]	Level mOD	Depth (m)	Legend		Desc	ription			Water	Backfill	
7.50 - 7.95 7.50 - 8.20		-53 14,14,13) SN = 0208	100							8.40		Very stiff dark brow cobble content. San coarse. Cobbles are Very stiff light greyit Sand is fine to coars	nd is fine to con subangular of sh brown sligh	arse. Gravel is su filmestone.	y gravelly (fine to			8.0
.00 - 9.45 .00		54 ,13,14,12) SN = 0208	100																95
0.70 - 10.00	C1									10.00	選								
0.00										- 10.00			End of Borel	nole at 10.00m					10.0
																		31	10.5
									100									ja.	11.0
									0.000000									is:	11.5
									2000									10.0	12.0
									25,000									ha	2.5
																		21	30
																		2.7	3.5
																		54	40
										V.								24	4.5
	Water S		TCR	SCR	_		-												_
Casing De	sing to (m) 1				n) H		lug in		on pit exc ncounter	avated to	1.50m.								
To (m) Di 1.50 10.00	200 200	SK6			T-	erm!	natio	n Rea	ison.							Last He	date	4	_
130000756	5450	Wat	ype		16	21 (11)()	iatio		i son iduled de							07/11/7	uate	0	

78	C	AUS	EOT				21-0	1403S	Client:	Dublin A	irport Auth	ority				RC19	
-0)	/	G	EOI	ECF	!				Client's	Rep: AECOM							
Metho		Plant U		Top (m) Base	(m) 20	Coord	dinates	Final De	pth: 10.50 m	Start Date:	26/07/2022	Driller:	GT		eet 1 d	so.
Rotary Dr Rotary Co		Beretta Beretta		1.5	200	50 .50		E N	Elevation	n: mOD	End Date:	27/07/2022	Logger:	MRG		DRAFT	
Depth (m)	Sample / Tests	Fie	ld Record	5	Carry Supin	ij.	Level m00	Depth (m)	Legend		Des	cription			Water	Backfill	
	1	17.17.1						0.20		TOPSOIL with rootle MADE GROUND: Gr			L. CLAV				
										medium cobble con to subrounded fine Firm to stiff dark bri	tent. Sand is to coarse. Co	fine to coarse. Go bbles are subang	ravel is sub ular.	angular			0.5
								0.75		cobble content. San subrounded fine to	d is fine to co	arse. Gravel is su	bangular t	0			1.5
								1.20		various lithologies.					1		
.50 - 1.95	SPT(C) N			П				1.50	23 22 2	Firm brown sandy C Light grey slightly sa			coarse GR	AVEL of	1		1.5
	(3,3/3,4,4 Hammer	sN = 0208						(0.50)		various lithologies v	with medium						
								2.00		coarse. Cobbles are Very stiff brown slig	htly sandy gr				1		2.0
ro 300			100	1						content. Sand is fin various lithologies.							7.5
50 - 3.00	81									various innologies.	coodies are s	obangolar or va	1003 111101	ogies.			2.5
00																	,
00 - 3.45	SPT(C) N	=40															310
	(4,4/8,10 Hammer),10,12) SN = 0208															
																	3.5
			100			П											
								(4.00)									***
50 - 5.00	82																1.3
50 - 4.95	SPT(C) N	=48 0,12,12,14)															
		SN = 0208							1								5.0
			100														١
																	5.5
00								6.00		Brown slightly grav). Gravel is	ś.	1		60
										subangular fine of	various lithoic	gies.					
								(1.15)									6.5
			100														
								7.15		Many stiff by	abth	munific #1 ass color	Inux ex L.L.	s control			.77
								(0.35)		Very stiff brown sli Sand is fine to coar	rse. Gravel is s	ubangular fine to	coarse of	various			
50 - 8.10	83		\vdash	\top				7.50	77	lithologies predom	inantly limest	one. Cobbles are	subangul	ar of	/		7.5
50 - 7.95	SPT(C) N								77	Brown gravelly clay	yey fine to coa	rse SAND. Grave	l is subrou	nded fine			
	(7,8/8,1) Hammer	0,10,12) r SN = 0208	0.00					(1.00)	7.5	to medium.							8.0
			86						71								3
								8.50		Very stiff brown sli							8.5
1000								(0.50)		content. Sand is fir various lithologies				coarse of			
.00			\Box					9.00		subrounded . Dense brown claye	y fine to coan	se SAND.			1		9.0
			TCR S	R RQD	FI				1000	and a second cools							
		Strikes	1-			-	g Detai		Remarks		THE STREET						
uck at (m) C	asing to (m	Time (min)	Rose to	(m) Fr	rom (m)	То	(m) Ti	me (hh:mm)		inspection pit excavi dwater encountered							
Casing D	-	Water From (m)	Added	-													•
.o my	- Anna Cama	Train (III)	10 (1														_

9.00 - 9.15 SI 61	pit 8T Exc. ling Berett	a T44 a T44 TCR	SCR	1.	00 20 50		20 50	Level moo	E N Depth	Final De			26/07/2022	Driller:	GT	Sheet 2 of 2 Scale: 1:50
Rotary Corin Depth (m) 9 9.00 - 9.15 56 67 75	Samples / Field Records SPT(C) N=50 (25 for 58mm/50 for 79mm) Hammer SN	TCR	SCR	1.5	50	10.	.50		N	Elevatio	on: mOD			+		The second second
(m) 9.00 - 9.15 Si 60 7:	SPT(C) N=50 (25 for 58mm/50 for 79mm) Hammer SN			RQD	п	See and the second	H		Depth			End Date:	27/07/2022	Logger:	MRG	DRAFT
67:	68mm/50 for 79mm) Hammer SN							-	(m)	Legend		Desc	cription		Water	Backfill
	Water Strikes			RQD			To (r	Details n) Time	(1.50)		inspection pit excavat water encountered.	End of Borel	e SAND.			10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0
Casing Detail	ails Water	_	r d (m)													
				C												

	1			T				7	Proje	ct No.	Project	Name: NASAH N	North Apro	n & South Ap	ron GI Kil	wex	Boreh	ole ID
9	C	AUS	E١	W	A١				21-0	4035	Client:	Dublin A	irport Auth	ority			RC	20
	97 -	——G	EO	TE	CH	1					Client's	Rep AECOM						
Metho		Plant U	_	-	Top (_		-	Coord	inates	Final De	oth: 10.50 m	Start Date:	27/08/2022	Driller:	GT	Sheet	1 of 2
Inspectio Rotary Dr	T. F. 1971 and	8T Excav Beretta			1.20	5.5	1.50	8.00		E		10.50 11.	July Dute.	LIJOGILOLL	- I		Scale	: 1:40
Rotary Co	oring	Beretta	T44		1.50	0	10.5	0		N	Elevatio	n: mOD	End Date:	28/08/2022	Logger:	TH +MRG	DR	AFT
Depth (m)	Samples /	Field Records	TCR	SCR	RQD	FI	Cooling 9 Depth 5 (m)	Galant Jagath (m)	Level mOD	Depth (m)	Legend		Des	cription			Baci	kfill
										0.15		TOPSOIL MADE GROUND: Fit CLAY with high cob subangular to subre subangular to subre	ble content. S ounded fine t	and is fine to co coarse of limes	arse. Grave	lis		as -
										0.60		Firm brown slightly content. Sand is fin fine to coarse. Cobb	sandy slightle e to coarse. G	y gravelly CLAY w ravel is subangu	lar to subn	ounded		
										1.00		lithologies. Firm greyish brown						1.0-
										1.20		content. Sand is fin subrounded fine to	e to coarse. G	ravels are suban	gular to			
.50 - 1.95	SPT(C) N		-	-	-					1.50		limestone.	- Carrier Service Control	3.75-030-7 E-0-07-10 - 03				1.5
	(4,7/7,8, Hammer	10,10) SN = 0208										Very stiff brown sar subangular fine to	coarse.	Selective International Confession	O Leave Control			
										_		Very stiff dark grey cobble content. San						2.0 -
												coarse. Cobbles are						
		1	87															_
.50 - 3.00	81									į.	24.5							2.5
.00 - 3.45	SPT(C) N	=48		_	Ш					-	2 2 2							3.0
.00		,12,12,12) SN = 0208								1								
	Hammer	SN = 0208									4							
										ŀ	4.4							3.5
			100							-	24.2							
										-	2							
					Н					F	44 34							4.0
											41							
50					Ш						21.2							45
											200							
								П		4.80		Very stiff dark grey	THE RESERVE OF THE PARTY OF THE		illy CLAY, Sa	nd is fine		
										-		t coarse. Gravel is: 4.80m to 5.00m: Dark g	subangular fir my angular fine to	e to coarse.	one.			5.0
			100								-7-							
E0 600	22																	
.50 - 6.00	B2									-								
.00 - 6.45	SPT(C) N	¥=48			Н					F								6.0
5.00),12,12,14) r SN = 0208									1							
	riamme	314 = 0200																
			0.00															6.5
			100							t	7.7							
																		**
										7.10		Very stiff dark brow			elly CLAY, S	and is fine	1	
			TOP	SCP	RQD	FI				-	4 14	to coarse. Gravel is	s subangular i	ine to coarse.				
	Water	Strikes	1.50		-	ema	ırks											_
truck at (m) (Casing to (m) Time (min)	Rose	to (r	m) H:	and o	dug in		tion pit e	xcavated t	o 1.20m.							
							47000											
		C-1-	Daniel	al														
To (m)	Details Diam (mm	Core		ei														4
1.50	200	3	K6L															
		Flush	н Тур	e	Te	ermi	inatio	n R	eason								pdated	L
		W	ater		Te	ermir	nated	at sc	heduled	depth.						07/11	/2022	MAN

· S		CAUS	E	W OT	EC	Н			21-0	ect No. 1403S	Project Client: Client's		North Apror		ron GI Ki	lwex	В	RC20	
	thod tion Pit	Plant I 8T Exca				(m)		e (m) 20	Coord	dinates	Final De	pth: 10.50 m	Start Date:	27/08/2022	Driller:	GT	1 2	sheet 2 c	
	Drilling Coring	Beretta Beretta				20 50		50 .50		E N	Elevatio	n: mOD	End Date:	28/08/2022	Logger:	TH +MRG		DRAF	
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level	Depth (m)	Legend		Desc	cription			Water	Backfill	
7.50 - 7.95 7.50	(7,7/8,5		100							7.85		Very stiff dark brow to coarse. Gravel is Dark greyish brown	subangular fir	e to coarse.	ly CLAY. Sai	nd is fine			80
9.00 - 9.50 9.00 - 9.45 9.00	SPT(C) (6,6/9,5	N=39 ,11,10) er SN = 0208	100							9.35		Dark greyish brown	slightly clayey	fine to coarse S	SAND.				9.1
10.50										10.50		10 35n to 10 50m. Subar		hole at 10.50m					20.5
																			11.0
																			11.1
																			12.0
																			13:1
á																			13.0
																			23.5
																			34.0
																			34.5
			TCR	SCR	_		_												L
ruck at (m)		Strikes Time (min)	Rose	to (n) н		lug in		on pit ex ncounter	avated to ed.	1.20m.								
	Diam (mm)	Core E		ı															
1.50	200	Flush	Туре	:				n Rea	ason eduled de	opth						07/11/		. P•	1

	4							Projec	ct No.	Project	Name: NASAH N	North Apror	a & South Ap	ron GI Kil	wex	Во	rehole ID
-8 5	CAL	JS G	E V	EC	H			21-0	403S	Client:		irport Auth	ority				RC21
-		-	2007		3000	-				Client's	Rep AECOM					_	
Metho		Excav	-	_	p (m) 0.00	Base 1.		Coord	inates	Final De	oth: 10.50 m	Start Date:	29/07/2022	Driller:	GT		eet 1 of 2
Inspection Rotary Dri	20,000	retta		1.0	1.20		50		E							S	cale: 1:40
Rotary Co	ring Be	eretta '	T44	1	1.50	10.	.50		N	Elevatio	n: mOD	End Date:	29/07/2022	Logger:	MRG +TH	1	DRAFT
Depth (m)	Samples / Field Re	cords	TCR SC	R RQ	D FI	Casing Depth (m)	Mater Empth (m)	Level mOD	Depth (m)	Legend		Des	cription			Water	Backfill
									0.15		TOPSOIL MADE GROUND: Fit	on to still over	ileh hennin ellehi	this consider to	racadh.		
											CLAY with high cobi						
											subangular to subro angular of limeston		coarse. Cobble	s are subar	igular to		0.5
							Ш				angular or innexton						
									0.80		Firm brown slightly					1	
											content. Sand is fin fine to coarse. Cobl				ounded		3.0
					1				1.20	4.24	Stiff brown sandy s		· Control of the cont			1	
										×							
50 - 1.95	SPT(C) N=30 (4,4/7,7,8,8)	- [1.50		Very stiff brown sar		LAY, Sand is fine	to coarse.	Gravel is		
	Hammer SN = 0	0208									subangular fine to	coarse.					
									1.90		Dark brown slightly	y sandy CLAY v	vith occasional r	ootlets. Sa	nd is fine	1	.21
											to coarse.						
30 - 2.80	B1		100						2.25	47.00	Very stiff dark grey					1	ш,
											widely spaced thin limestone.	beds of subar	ngular fine to co	arse GRAVE	Lof		2.5
00 - 3.00	SPT(C) N=50 (2	PARK 270	+	+					-								3.0
00	Omm/50 for 0n Hammer SN = 0									1							
	130,000,000,000,000	0.0019-000							-								
			100														
									Ł								
									4.25	orth Lord a	Brown slightly sand	dy CLAY. Sand	is fine to mediu	m.		1	
.50 - 5.00	82	- 1	-	+					4.50		Very stiff dark grey	ich benum elin	hthe cando clight	the armially	CLAV	-	4
1.50 - 4.95 1.50	SPT(C) N=48 (10,10/10,12,1	214)									Sand is fine to coar				CLONI.		
50	Hammer SN = 1								4.90	1000					722 07127		
	100000000000000000000000000000000000000								-		Dark greyish brown of limestone with						5
			93						-		are subangular of						
			25.5						-	-]						
									ţ	-]						·
									V. 19032	-	-						
.00 - 6.45	SPT(C) N=48								5.85		Dark greyish brown	AND DESCRIPTION OF THE PARTY OF	and the latest and th				
.00 - 6.45	(8,8/10,12,12,								0.00		Very stiff dark brow coarse. Gravel is su			. Sand is fir	ne to		
.10 - 6.60	Hammer SN = B3	0208							F		diameter is so	Guidi IIIIC	A SAME OF				
10-0.00	0.5								F								
			100														
									1								2
									7.20	753 3	Dark greyish brow	n clayey fine t	o coarse SAND.				
			TCR S	CR RC	QD FI												
met at the sta	Water Strike		D	1		arks											
ruck at (m) C	asing to (m) Time	(min)	nose to	o (m)				tion pit e encounte		to 1.20m.							
Casing D	etails	Core	Barrel														
	Diam (mm)	SK	CEL.														
		Flush	Туре		15/15/15			eason	STY STATE						Last U		
		Wa	ater		Term	inate	d at so	heduled o	depth.						07/1	1/2022	I I I

		CAUS			/A					ect No. 1403S	Project Client: Client		Vorth Apror		ron GI K	ilwex	В	RC21
Meth		Plant					-	e (m)	Coord	dinates			Start Date:	30/07/2022	Driller	CT	- 5	Sheet 2 of 2
Inspecti Rotary (8T Exca Beretta			100	20	1000	20 50		Ε	Final D	eptn: 10.50 m	Start Date:	29/07/2022	Driller:	GI		Scale: 1:40
Rotary (Coring	Beretta	3 T44		1.	.50	10	.50		N	Elevation	on: mOD	End Date:	29/07/2022	Logger	MRG +TH		DRAFT
Depth (m)	Sample	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level m00	Depth (m)	Legend			cription			Water	Backfill
7.50 - 7.95	SPT(C)	N=36								7.50		Dark greyish brown						,
7.50		8,10,10) er SN = 0208	100							8.60		Dark grey fine to co 7.50m to 7.70m Subangs Dark grey clayey fine 8.50m to 8.50m Dark grey						
0.00 - 9.18	SPT(C)	N=50 (25 for										8.60m to 8.80m. Dark gre	yish brown clayey	fine to medium sand.				
0.00	79mm/ 98mm) = 0208	50 for Hammer SN																
	- 0206											9.50m to 9.60m. Subangu	lar coarse gravel o	Zimestone.				3
			100															
										-								100
(Inches)																		
10.50	+									10.50			End of Borel	hole at 10.50m				50
																		111
																		11.
																		12
																		32
0																		13.
																		13
																		14
			***			_											4	14
	Water	Strikes	ICR	SCR	RQD	ema	rks											
ruck at (m) C	asing to (m) Time (min)	Rose	to (n	n) H	and o	dug in		on pit ex ncounter	avated to ed.	1.20m.							
Casing E	Details Diam (mm	Core I	Barre 6L	el														
		Flush	Туре	e				n Rea								Last U	pdate	ed
		Wa	ter		Te	ermin	ated	at sche	duled de	epth.						07/13	1/2022	AG

•	C	AUS	E۷	N	AY			1000	ct No. 403S	Client:	Name: NASAH N Dublin A	irport Auth		on Gi Ki	wex	Borehole II
		—-G	EO	TE	СН					Client's	Rep AECOM					
Metho	od	Plant U	sed	T	Top (m	n) Ba	ise (m)	Coord	linates	-	S seek	1 725	TOMOTION	Seg.	GT+8T	Sheet 1 of 2
Inspection	n pit	8T Trac			0.00		1.50			Final De	pth: 10.50 m	Start Date:	27/07/2022	Driller:	Excavat	Scale: 1:40
Rotary Co	oring	Excava Beretta			1.50	1	10.50		E N	Elevatio	n: mOD	End Date:	02/08/2022	Logger:		DRAFT
Depth (m)	Samples / F	ield Records	TCR 5	CR F	IQD F	1 0	oring Waster path Depath mi (mi)	Level mOD	Depth (m)	Legend		Desi	ription			Backfill
									0.15		TOPSOIL MADE GROUND: Fit with high cobble co to angular of limest limestone.	intent. Sand is	fine to coarse.	Gravel is su	bangular	
									1.10	-5-5	Firm brown slightly					
50 - 2.00 50 - 1.95	B1 SPT(C) N= (4,4/8,10,								1.50		content. Sand is fin fine to coarse. Very stiff dark grey cobble content. San	ish brown sligh nd is fine to co	ntly sandy grave arse. Gravel is s	lly CLAY wi	th low	
	(4,4,0,10,	10,10)	100								coarse. Cobbles are	e subangular o	f limestone.			2
.00 - 3.44 .00	SPT(S) N= (10,10/50 290mm)															
			100													
3.50 - 5.00 3.50	82								4.50		Dark greyish brown	n sandy CLAY.	Sand is fine to m	edium.		
			100						5.10		Dark greyish brow	n very clayey f	ine to coarse SA	ND.		
5.00 - 6.45	SPT(C) N=	=50							- 5.60 - 6.00		Dark grey subangu dark greyish brown to coarse. Gravel is Dark greyish brown	n slightly sand s subangular fi	y slightly gravell ne to coarse.	y CLAY, Sar	nd is fine	
5.00	(7,10/10,	12,12,16)	100								Gravel is subround					
			TCB	SCR	RQD	FI				TO						
	Water 5	Strikes	1.50	A. T. (1)	_	mar	ks									
ruck at (m) C	Casing to (m)		Rose	to (n	n) Hai	nd di	ig inspe	ction pit e r encount		to 1.50m.						
Casing I	Details Diam (mm)		Barre K6L	ıl												
		-	туре		Te	rmir	ation I	Reason							Last U	pdated

	C	AUS	E	W T	A EC	Y				ect No. 04035	Project Client: Client's		North Apron		ron GI Ki	lwex	В	RC22
Metho		Plant					Base	_	Coord	dinates	Final De	onth: 10.50 m	Start Date:	27/07/2022	Driller	GT+8T Excavat	S	heet 2 of
Inspectio		8T Tra Excav	ator			.00		50		Ε		10.50 m	start bate.	27/07/2022	Driller:	Or	- 1	Scale: 1:40
Rotary Co	oring	Beretta	1.144	_	1.	.50	10			N	Elevation	m: mOD	End Date:	02/08/2022	Logger:	СН		DRAFT
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level	Depth (m)	Legend			cription			Water	Backfill
7.50 - 7.90 7.50 7.50 7.50	SPT(C) N 60mm/5 75mm)	l=50 (25 for 0 for	100							7.90		Dark greyish brown Gravel is subrounde 7.30m to 7.50m Gravel o Dark greyish brown coarse. 8.80m to 9.00 Subangui Dark grey subangula conetent. Cobbles a	of fine to coar slightly sandy ar coarse gravet of	fine GRAVEL. Sa	and is fine			50
uck at (m) Car	Water sing to (m)		TCR		R) H	emai and d	ug ins		on pit exc ncounter	avated to	1.50m.							13 13 13 14
Casing De To (m) Di	etails am (mm)	Core B	5L		Te	ermir	natio	n Rea	son							Last Upo	iate	
		Wat	004						duled de	enth :						07/11/2		

	C	AUS			AY			N	ct No. 403S	roject Name: NASAH North Apron & South Apron GI lient: Dublin Airport Authority lient's Rep AECOM	(ilwex	Borehole I RC25
Metho Trial Pitt Rotary Co	ting	Plant U 8T Excav Beretta	vator		0.00 1.50)	ase (m) 1.50 10.50	Coord	linates E	inal Depth: 10.50 m Start Date: 27/07/2022 Driller	: GT	Sheet 1 of Scale: 1:40
D	_					0	using Womer	Level	N	2000 CONTRACTOR 1000 CONTRAC	r: EM+CH	DRAFT
Depth (m)	Samples	/ Field Records	TCR :	SCR	RQD	FI 0	epith Depth mj (m)	mOD	Depth (m)	Legend Description TOPSOIL		§ Backfill
									0.15	MADE GROUND: Firm to stiff greyish brown sandy very gr with high cobble content. Sand is fine to coarse. Gravel is to subrounded fine to coarse.		
									1.00	Stiff dark grey slightly sandy gravelly CLAY with medium of content. Sand is fine to coarse. Gravel is subangular to su	prounded	
50 - 2.10	81								1.40	fine to coarse. Cobbles are subangular to subrounded of l	ble	
50 - 1.95	SPT(C)	N=50 ,10,14,16)								content. Sand is fine to coarse. Gravel is subangular to su fine to coarse. Cobbles are subangular to subrounded.		
		er SN = 0208								Firm greyish brown slightly sandy slightly gravelly CLAY. So to coarse. Gravel is subangular to subrounded fine to me		
		87 SPT(C) N=S0 (25 for							2.10	Firm brown slightly sandy slightly gravelly CLAY with high content. Sand is fine to coarse. Gravel is subangular fine to various lithologies predominantly limestone. Cobbles are subrounded of limestone.		
3.00 - 3.15 3.00	75mm/	50 for Hammer SN							3.00	Firm greyish brown slightly sandy slightly gravelly CLAY. S to coarse. Gravel is fine of various lithologies predominal limestone.		
			100						3.55	Stiff brownish grey sandy very gravelly CLAY with low cob Sand is fine to coarse. Gravel is subangular fine to coarse lithologies predominantly limestone. Cobbles are subang limestone.	of various	
4.50 - 5.00 4.50	82								4.50	Soft greyish brown slightly sandy gravelly CLAY. Sand is fir Gravel is subangular fine of various lithologies predominal limestone.		
			100						5.00	Very stiff brown slightly sandy gravelly CLAY with medium content. Sand is fine to coarse. Gravel is subangular fine various lithologies predominantly limestone. Cobbles are of limestone.	o coarse of	
6.00			Ш		Ц				6.00	Soft greyish brown slightly sandy slightly gravelly CLAY. S	and is fire	
									6.25	to coarse. Gravel is subangular fine to medium of variou		
			100							Very stiff brown slightly sandy slightly gravelly CLAY with content. Sand is fine to coarse. Gravel is subangular fine various lithologies predominantly limestone.		
	Wate	er Strikes	ICR	SCR	RQD	mar	ks					
truck at (m) (Casing to (r	m) Time (min)	Rose	to (r	m) Ha	end di	ug insper	tion pit e encount	xcavated tered.	.5m.		
Casing I	Details	Core	Barre	el								
	Diam (mn	n)	K6L	:0								
		Flush	h Тур	e	Te	rmir	nation R	teason			Last U	pdated
		w	ater		Se	rvice	s cleared	Rotary D	rilling to	ow.	07/11	1/2022

Final Verting Control	8	9		GE(TC	EC	Н				0403S	Client:		Airport Auth	ority			RC25
Second Content of the Content of t								-		Coon	dinates	Final D	epth: 10.50 m	Start Date:	27/07/2022	Driller:	GT	Sheet 2 of
Set at (in) Casing to (in) Time (init) Rose to (in) Water Strikes No color and color	Rotary Co	oring	Beretta	144		1	.50	10.	.50			Elevation	on: mOD	End Date:		Logger:	EM+CH	DRAFT
150 - 260 100 - 244 100 - 244 100 - 246 100 - 200mm) Hammer SN = 0208 200mm) Hammer SN = 0208 200 - 200mm Hamm		Samples / Fi	ield Records	TCR	SCR	RQD	FI	Cooling Depth (m)	Water Depth (m)		Depth (m)	Legend		Desc	ription			Backfill
SPTICE N-SD	7.50 - 7.93	SPT(C) N=5 (10,10/50 280mm) H	for	100									content. Sand is fine various lithologies; Brown very clayey fi Brown sandy very cl lithologies with me	e to coarse. G predominantly ine to medium layey subangu dium cobble c	ravel is subangu limestone. I SAND.	e GRAVEL o	of various	
290mm) Hammer SN = 0208 100 100 101 101 102 100 100											9.00							
TCR SCR ROD F1 TCR SCR ROD F1	.00	290mm) H	ammer	100							9.30		Brown slightly clayer	y gravelly fine	to coarse SAND.		angular	
Water Strikes Water Strikes Water Strikes Casing Details Core Barrel SKEL				100							10.10							
Water Strikes k.at (m) Casing Details Core Barrel SKSL Core Barrel SKSL												200		subrounded to	subangular COI	BBLES of va	arious	
Water Strikes ck at (m) Casing to (m) Time (min) Rose to (m) Casing Details o (m) Diam (mm) Remarks Hand dug inspection pit excavated to 1.5m. No groundwater encountered.																		12 12 13 14
	ck at (m) Casi	ng to (m) Tim	kes ne (min) R	ose to		Re	mari nd du	g insp	ection er enc	n pit exca	vated to 1	.5m.						34
Flush Type Termination Reason Last Updated			Flush T	ype		Ter	rmina	ition	Reas	on							Last Updat	ted

	-	ALIC	-		AV			Projec		and the	Name: NASAH N						orehole II
	C	AUS G	EOT	LE	CH			21-04	1035	Client:		irport Auth	ority				RC27
-		Plant U		1	Fon In) Base	· (m)	Coordi	nator	Client's	Rep AECOM			1		5	heet 1 of 2
Method	No.	8T Excav	_	1	0.00	1.	20	19089-033	rassand T	Final De	pth: 10.50 m	Start Date:	03/08/2022	Driller:	GT		Scale: 1:40
Rotary Dri Rotary Co		Beretta Beretta			1.50	9 1000	.00	317126 242415		Elevatio	n: mOD	End Date:	04/08/2022	Logger:	MRG	1	DRAFT
Depth (m)	Samples /	Field Records	TCR S	CR S	RQD F	Easing Depth (m)	Water Depth (m)	Level m00	Depth (m)	Legend		Des	cription			Water	Backfill
									0.20		TOPSOIL MADE GROUND: Fir	rm light brown	n sandy gravelly	CLAY with n	nedium		
60	B1										cobble content. San subrounded fine to mixed lithologies.	nd is fine to co	arse. Gravel is su	bangular t	0		0.
							Н		0.80		MADE GROUND: Fi	rm to stiff bro	wn slightly sand	y gravelly C	LAY with		
00	B2										medium cobble cor to subrounded fine	to coarse. Co	fine to coarse. G bbles are suban	ravel is sub gular to sub	angular rounded		1
									1.20		of mixed lithologies Stiff greyish brown	sandy gravell	y CLAY (Driller's	description)	1	1	
50 - 1.95	SPT(C) No (4,4/5,6,2	07.000.00	+	+	-		Dry		1.50	1	Greyish brown sligh	ntly gravelly v	ery clayey fine to	coarse SAN	ND.	1	1
	(4,4) 3,0,	0,01							1.85	77.5	Gravel is subangula						
									-		Very stiff slightly sa Sand is fine to coar	se. Gravel is	subangular fine t	o coarse of	various		2
			100								lithologies. Cobble	s are subangu	lar of limestone.				
.50 - 3.00	B3																2
3.00	0.5									24 24 3 24 74 8							
.00 - 3.12 .00	SPT(C) N 47mm/5	=50 (25 for 0 for	П				Dry		F								
	69mm)																
																	1
			100														
									F								
.50 - 5.00 .50 - 4.95	B4 SPT(C) N		П				Dry		[2 2 2							
.50	(10,12/1	(0,12,14,14)							ţ	200							
									-	200							
			100						ļ	200							
									1	4							
									F	2							
	101,010								-	2 22							
.00 - 6.00 .00		N=50 (25 for 0 for 0mm)	П		П		Dny		6.00		Greyish brown slig Gravel is subangu			to coarse SA	ND.		
									6.35	61 ° E	Very stiff greyish t	brown slightly	sandy gravelly (LAY with m	edium	1	
			100						[cobble content. S coarse of various						
									1		and sandstone. 6.35-6.55m Bed of co.	arse gravel and cot	objes of limestone.				
7.00 - 7.50	85								-								
					-				-	T. P.	-					-	
	Wate	r Strikes	TCR	SCR	RQD	emark	s										
truck at (m) () Time (min) Rose	to (m) H:	and du	g inspe	ction pit e		to 1.20m.							
						25											
Casing I		2000	Barre	el													
To (m)	Diam (mm	,	K6L				able -	20200							Last	Upda	rted -
1		Flus	h Typ	e	10	ermina	ation	Reason							100	11/20	- Pv

	-									ct No.	,	Name: NASAH 1	voi tii Apioi	· cc ooder rep				orehole
7		AUS	GEC						21-0	4035	Client:	Dublin A	irport Auth	ority				RC27
9			3 E C)	EC	П					Client's	Rep AECOM						
Metho		Plant I	_				Base	_	Coord	finates	Final De	onth: 10.50 cc	Start Date:	03/00/2022	Della	GT		sheet 2 of
Inspection Rotary Dr	510000000	8T Exca Beretta			1000	20	1.	7.5 6.5	31712	6.20 E	rinal De	pun : 10.50 m	start Date:	03/08/2022	Driller:	G1		Scale: 1:4
Rotary Co	TO A	Beretta	T44		2000	50	10	00		5.80 N	Elevatio	n: mOD	End Date:	04/08/2022	Logger:	MRG		DRAFT
Depth (m)	Samples /	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	mOD	Depth (m)	Legend			cription			Water	Backfill
50 - 7.95		,12,12,14)	100					Dry		7.50 8.40 8.75		Very stiff greyish bri cobble content. San coarse of various lit and sandstone. Greyish brown very Grey subangular co- are subangular of lin Very stiff brown slig coarse. Gravel is sut	d is fine to co hologies. Cobi clayey fine to arse GRAVEL v mestone. htty sandy slig	arse. Gravel is subles are subangu coarse SAND. with low cobble of	abangular f alar of lime content. Co	ine to stone	/	
00 - 9.17	SPT(C) N 75mm/S 98mm)	=50 (25 for 0 for	100					Dry		10.30		Greyish brown sligh Gravel is subangular Grey slightly clayey: with low cobble con	tly gravelly ve r fine of variou subangular co tent. Cobbles	ry clayey fine to us lithologies.	coarse SAf	ND.		10 10 10 10 10 10 10 10 10 10 10 10 10 1
•																		13
										3								1.3
									3									34
			TCR 1	900	900	F			97		\vdash							JA.
	Water 5		, or i	out!	$\overline{}$	mai	rks											
rk at (m) Cas	sing to (m)	Time (min)	Rose t	to (m) на	nd d	ug ins		on pit exc ncounter	avated to ed.	1.20m.							
Casing De	tails am (mm)	Core B	5L		T.	ren!		, Par	***						,			
		Flush	ype		1e	rmit	nation	т кеа	son							Last Up	date	d

	4							Proj	ect No.	Project	Name: NASAH N	North Apro	n & South Apr	ron GI Kili	wex	Bor	ehole ID
	CA	US	E١	N	A	1		21-	04035	Client:	Dublin A	irport Auth	ority			1	RC28
	, —	—G	EO	TE	CH	1				Client's	Rep AECOM						~
Method	d	Plant U	sed		Тор (m) E	Base (m	Coo	rdinates				ar inn mass			She	eet 1 of 2
Inspection Rotary Dril	0.5000	8T Excav Beretta			0.0	250	1.20 1.50	217	176.80 E	Final De	pth: 10.50 m	Start Date:	05/08/2022	Driller:	GT	Sc	ale: 1:40
Rotary Con		Beretta			1.5		10.50	200	112.30 N	Elevation	n: mOD	End Date:	05/08/2022	Logger:	MRG	0	RAFT
Depth	2 2 2 2 2						Carsing Wester	Level	Depth				cription		11/41/74/15	2.1	Backfill
(m)	Samples / Fiel	id Records	TCR S	SCR	RQD	FI	Carding Motor Doubth (m) (m)	mOD	(m)	Legend		Des	cription	_		3	Backfill
										:							
									1								0.5
									ł								
									ŀ								
									F								3.0
									1.20		Brown gravelly CLA	Y (Driller's de	scription)				
.50 - 1.95	SPT(C) N=35 (4,7/8,9,10,	To the second se							1.50	25	Brown gravelly very content. Gravel is s						4.5
									-		Cobbles are subrou		e to coarse or va	HOUS HEROIC	gres.		
																	2.0
2.10 - 2.60	B1								2.10	2.22	Very stiff sandy gra					1	
			100							22	fine to coarse. Grav lithologies. Cobblet						.
									1	2.2	37						2.
00 245	parter to a																2
1.00 - 3.45 1.00	SPT(C) N=5 (10,10/12,1								F	-74							,
955									F	47.5							
										22.5							3.
			,,,,														
			100							200							
1.00 - 4.50	B2																4
150 452	COTICAL	n Ine t							4.50		A second of the second		- <u> </u>				
4.50 - 4.63 4.50	SPT(C) N=5 58mm/50 f								4.50	74.5	Greyish brown gra- fine of various lithe		ne to coarse SAN	D. Gravel is	angular		
	75mm)								4.85	773		300	to and the second	LLL			
									-		Very stiff brown sa fine to coarse, Grav						5
			100								lithologies . Cobble						
			100														
										4.2							3
										2.22							
5.00 - 6.22	SPT(C) N=5	0							6.00	22.0							
5.00 - 6.22	(10,15/50									73.5	Greyish brown gra angular fine of var			e SAND. Gra	avel is		
	69mm)								6.25	272	Very stiff greyish b	rown slightly	sandy gravelly C			1 I	
									F	22.5	cobble content. Sa fine to coarse of vi						4
			100						-	27.6	limestone and san 6.25-6.45m Bed of coe	dstone.	TO DAY TO THE OWNER, THE OWNER,		WE6		
									F	a 22.0		2000	and a second				
7.00 - 7.50	83								-	4.5							
			Ш			_			1	1						+ 1	
	Water St	elle	TCR	SCR	RQD	_	4.									Ш	
truck at (m) Ca			Rose	to (-	lema land		ction plt	excavated	to 1.20m.							
					-		undwate										
Casing D		Core	Barre	el													á
To (m) D	200	5	K6L				- u										
		Flush	тур	e	T	erm	ination	Reason							Last U	pdate	d
																1/2022	

		GEC	TC	EC	Н				1403S	Client:		irport Auth	ority			RC28
Metho					(m) .00	Base 1.	20 20	Coord	dinates	Final De	epth: 10.50 m	Start Date:	05/08/2022	Driller:	GT	Sheet 2 of
Rotary Dr Rotary Co					.20 .50		50 .50	13190383	76.80 E 12.30 N	Elevatio	on: mOD	End Date:	05/08/2022	Logger:	MRG	Scale: 1:40 DRAFT
Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend		Desc	ription			Backfill
7.50 - 7.95 7.50	SPT(C) N=46 (8,10/10,10,12,14)	100							7.50		Very stiff greyish bro cobble content. San fine to coarse of var limestone and sand: Greyish brown grave subangular fine of v	d is fine to co- ious lithologie stone. elly very claye	arse, Gravel is su s. Cobbles are s y fine to coarse !	ibanguar to ubangular	of angular	
.00 - 9.08	SPT(C) N=50 (25 for 5mm/50 for 75mm)	100														9
0.50									10.50			End of Boreh	ole at 10.50m			11 11 12
rick at (m) Casi	Water Strikes	TCR \$		Re Ha	mari	ig ins		on pit exconcountere	evalted to 3	1.20m.						141
	m (mm) 200 SK6	L														
	Flush 1	ype		Te	rmin	ation	Rea	son							Last Upda	ated

- 30	1							Proje	ct No.	Project	Name: NASAH N	North Apror	n & South Apr	on GI Kil	wex	Be	orehol	e ID
C S	CA	LUS	E)	W	A'	Y		21-0	403S	Client:	Dublin A	irport Auth	ority				RC29	9
	/	—-G	EC	TE	:Cl	1				Client's	Rep AECOM							
Metho		Plant U		-	-	discounting the last	Base (m	Coor	dinates	Final De	pth: 10.00 m	Start Date:	04/08/2022	Driller:	GT		heet 1	
Inspection Rotary Co	the second second	8T Excav			1.6	73.8	1.60	3172	28.60 E					2000000	100		Scale: 1	:40
								2424	13.10 N	Elevatio	n: mOD	End Date:	08/08/2022	Logger:	+MRG		DRAF	Т
Depth (m)	Samples / Fi	eld Records	TCR	SCR	RQD	н	Casing Water Depth Depth (m) (m)	Level mOD	Depth (m)	Legend	TORCO	Des	cription	-LF		Water	Backfill	
									0.25		TOPSOIL							
									1		Firm light brown sli content. Sand is fin	e to coarse. G	ravel is subangu	lar to subn	ounded			
.50	B1								E .		fine to coarse. Cob	bles are subar	ngular to subrour	nded of lim	estone.			
									0.85	200	Firm to stiff dark be	rown slightly s	andy gravelly CI	AY with me	dium			
									+	200	cobble content. Sar	nd is fine to co	parse. Gravel is s	ubangular	to			1.0
.20	B2								1	a de la	subrounded fine to limestone.	coarse. Cobb	nes are subangul	ar to subro	runged of			
.50 - 1.95	SPT(C) N=5	54					1.50		1.50		Manager	ahahi men ing	ellahth, ear d. C	AV wish for	ouest.			1.5
20 - 1.33	(8,10/12,1	2,14,16)					7725	1	1		Very stiff brown sli rootlets. Sand is fir							
90 - 2.30	Hammer S B3	M = 0208																J.
	5577								-	-								2
			100						1									١
									2.50		Dense greyish broa	en slightly car	ndy slightly class	v suhaneni	ar fine to	-		2.
										-	coarse GRAVEL wit	th high cobble	content. Sand is	fine to co	arse.			
										-								
1.00 - 3.45 1.00	SPT(C) N= (7,8/10,12					1	3.00		3.00		Firm greyish brow Gravel is subangul		sandy CLAY, San	d is fine to	coarse.			ľ
A TE C	Hammer S										Graver is subangui							
									E									3
			100															
			.00						3.80		Very stiff greyish b	rown gravelly	slightly sandy C	LAY with lo	w cobble coarse			I,
											Content Send is it	and the second second	- are a samuel (E)					ľ
4.50 - 4.82		50 (25 for	-		+	+	4.50		4.50		Very stiff greyish b	orown gravelly	very sandy CLA	. Sand is fi	ne to			4
4.50	75mm/50 250mm) I	Hammer									coarse. Gravel is s	ubangular fin	e to medium.					
4.95 - 5.35	SN = 0208 B4	8								1								5
	13.57																	
			100	2														
																		1
										772	5.70-6.00m: Bed of see Sand is fine to coarse	ndy cieyey subang	ylar fine to coarse grave	el with low cob	ble content.			
6.00 - 6.30	SPTICI N	50 (25 for	L		1		6.00		-				_					,
6.00	75mm/50	0 for							ţ		7							
	225mm) SN = 020								1		* ·							
			100						ţ	77.4								ľ
			100						1									
									-		*							
									E		-							
		2002	TC	RSC	R RQ	_												
Struck at (m)	Water Casing to (m)		n) Ros	se to	-		arks	ection oil	excavated	to 1.60m								
at (m)	and hard	Trine			_			er encou										
Casing To (m)	Details Diam (mm)	1000	e Bar	rel														
1.50	200	100	SK6L												1 cont	Hed	ted le	
10.00	150	Flu	sh Ty	pe		Terr	mination	Reason							Last			,
			Water		- 1										07/	11/20	022	AL.

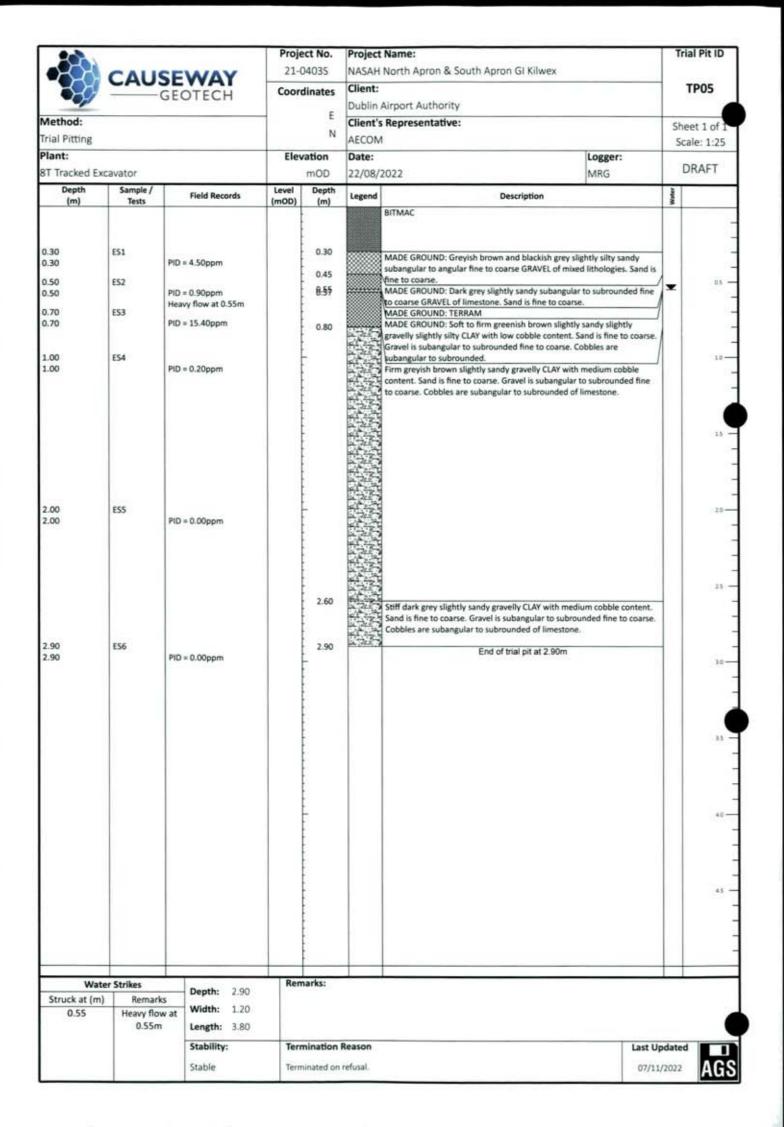
Act Display	8	CAI	—GE	0.	ГЕ	СН	Ė.		21-	ect No. 0403S	Client:		irport Auth				Boreho RC2	
Service No. 1					1				the same of the sa	dinates	Final D	epth: 10.00 m	Start Date:	04/08/2022	Driller:	GT	255000000000000000000000000000000000000	
Description Security / Fried National TCS SCS	AC 5 5 5 5 10 1 1 1 1 1 1 1 1 1	C2 (C0 C0 C					Carl III		3172						-	1000000		
whether form land is the control of	Denth	1			-			ning War	357440.7		Elevation	on: mOD	End Date:	08/08/2022	Logger:		DRA	-T
Section Sect		Samples / Field Ru	ecords TC	R SC	R	QD I	FI D	epth Dep (m) (m	moo		Legend	Manual and the book		-Account			Backfil	I.
75mm/y50 for 250mm/y10 for 250	.50 - 7.94 .50	(4,10/50 for 290mm) Hamm 5N = 0208		0			7	50		8.40		coarse. Gravel is sub	pangular fine t	to medium.	ır fine to cc			
75mm/y50 for 250mm/y10 for 250										ŀ								ı
Water Strikes As I mil Carring to (mil Time (min) Rose to (m) No groundwater encountered. Water Strikes As I mil Carring to (mil Time (min) Rose to (m) No groundwater encountered. Last Updated	00 - 9.32 00	75mm/50 for 250mm) Hamm			1		9.	00		9.00		Very stiff greyish bro coarse. Gravel is sub	own gravelly vi pangular fine.	ery sandy CLAY.	Sand is fine	e to		9
Water Strikes Water Strikes A at (m) Carring to (m) Time (min) Rose to (m) No groundwater encountered. Sale (m) Carring to (m) Time (min) Rose to (m) No groundwater encountered. Last Updated		SN = 0208	100	,			1			9,40		Very stiff greyish bro	wn slightly sa	ndy gravelly CLA	Y with low	cobble		,
Water Strikes X										E		content. Sand is fine	to coarse. Gr	avel is subangul	ar fine to c	oarse.		
Water Strikes A Remarks k at (mi) Casing to (mi) Time (min) Rose to (m) Casing Details (mi) Diam (min) Soci Do (mi) Core Barrel Soci 20 Last Updated Last Updated	0.00			-	1	-				10.00			End of Bouch	nole at 10 00cm				30
Water Strikes Remarks k at (m) Casing to (m) Time (min) Rose to (m) Hand dug inspection pit excavated to 1.60m. No groundwater encountered. Casing Details L(m) Diam (mm) SK6L Termination Reason Last Updated	2.																	11 12 12 12 12 12 12 12 12 12 12 12 12 1
Casing Details (m) Diam (mm) Sx 6L Core Barrel Sx 6L Flush Type Termination Reason Hand dug inspection pit excavated to 1.60m. No groundwater encountered. Hand dug inspection pit excavated to 1.60m. No groundwater encountered. Last Updated		Water Strikes		SCR	٠,	-	-	_										L
(m) Diam (mm) SK6L	ck at (m) Cas	ing to (m) Time (n	nin) Rose	to (m)	Hand	dug	inspec	tion pit exc encounter	avated to ed.	1.60m.							
Flush Type Termination Reason Last Updated	o (m) Dia 1.50	am (mm) 200		el														
	0.00	150 FI		•		Term	inat	ion Re	eason							Last Upd	ated	I

	C	AUS G	EV				Project 21-04		Project Client: Client's	Dublin A	lorth Apron & South Ap	ron GI Kilwex	Borehole ID RC30
Metho		Plant U: 8T Excav	-	Top		Base (m) 1.50	Coord	inates	Final De		Start Date: 04/08/2022	Driller: GT	Sheet 1 of 2 Scale: 1:40
Rotary Co	2/12/20	T44 Ber	etta	1.5	50	10.00	31715 24237		Elevation	n: mOD	End Date: 09/08/2022	MRG Logger: +DM +CM	DRAFT
Depth (m)	Samples /	Field Records	TCR SC	R RQD	FI	Casing Weter Depth Depth (m) (m)	Level mOD	Depth (m)	Legend		Description	1300	Backfill
50 - 1.95 .00 - 2.50	SPT(C) N- (4,8/10,1	17770 41				1.50		0.15		low cobble content subrounded fine to limestone. Firm to stiff dark br cobble content. Gra Cobbles are subang	rm light brown slightly sandy . Sand is fine to coarse. Grave coarse. Cobbles are subangu rown slightly sandy gravelly C avel is subangular to subroun gular to subrounded of limest rown slightly sandy gravelly C rown slightly sandy gravelly C rown slightly sandy gravelly C	I is subangular to lar to subrounded of LAY with medium ded fine to coarse. one.	10
00 - 2.30			100					2.10		Very stiff greyish bi content. Sand is fin	rown slightly sandy gravelly C ne to coarse. Gravel is subang	LAY with low cobble ular fine to coarse.	2.2
8.00 - 3.19 8.00	SPT(C) N 50mm/5 143mm)		100			3.00		4.15		coarse. Gravel is su	rown slightly gravelly sandy (
4.50 - 4.72	SPT(C) N	1=50	Ш			4.50		4.50		fine to coarse GRA	VEL. Sand is fine to coarse.		
4.50 5.00 - 5.50	(10,15/5 69mm) B2	60 for	100								rown gravelly very sandy CLF ubangular fine to medium.	and a mile to	
6.00 - 6.20 6.00	SPT(C) N 75mm/ 125mm		100			6.00		6.75		Very dense greyis	inquisir frie to coerner Grevel of various I h brown slightly sandy slightl AVEL. Sand is fine to coarse.	mologies. y clayey subangular	
			TCR	SCR RQ	_				144	1			
Struck at (m)		r Strikes) Time (min) Rose	to (m)		dug inspe	ection pit e er encount		to 1.50m.				
To (m) 1.50 10.00	Details Diam (mm 200 150	5	Barre 6K6L									15.00	Updated
10.00	130	950.00	h Type		3333	nination	Reason scheduled	death				9.59	11/2022 A

		GEC	TC	EC	Н			21-0	ect No. 04035	Client:		irport Auth			ALC NOTE:		RC30
Metho	The second secon	Used avato			(m)	Base 1.		Coord	dinates	Final De	pth: 10.00 m	Start Date:	04/08/2022	Driller:	GT		Sheet 2 of 2 Scale: 1:40
Rotary Co	oring T44 E	eretta		1.	50	10.	.00		72.10 N	Elevatio	n: mOD	End Date:	09/08/2022	Logger:	MRG +DM +CM		DRAFT
Depth (m)	Samples / Field Record	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level	Depth (m)	Legend		Desc	ription		-CA-DI	Water	Backfill
50 - 7.94 50	SPT(C) N=50 (10,10/50 for 285mm)	100				7.50			7.50		Very dense greyish fine to coarse GRAV Very dense greyish SAND. Gravel is sub	EL. Sand is fin- brown very cla angular fine.	e to coarse. nyey slightly grad	velly fine to	o coarse		
											Very dense greyish I fine to coarse GRAV			layey suba	ngular		
00 - 9.38 00	SPT(C) N=50 (10,10/50 for 225mm)	100				9.00			9.00		Very dense greyish I with low cobble con				SAND		
0.00		_							10.00	75.5		End of Boreh	noie at 10.00m			4	H
																	12.5 12.5 13.6 13.6
		TCR	SCR	RQD	FI												14.5
ck at (m) Car	Water Strikes sing to (m) Time (min	Rose	to (m	7	emai and d		pectic	n pit evo	avated to	1.50m							
Casing De		Barre						ncountere									
0 (m) Dia 1.50 0.00	200	(6L		-													
110012	Flusi	Туре		Te	rmir	nation	n Rea	son duled de							Last Up	date	d

	C	AUS	EV					Project 21-0		Project Client: Client's		Jorth Apron & So irport Authority		on GI Kil	wex	Вс	RC31
Metho Inspection Rotary Co	n Pit	Plant L Beretta		1	0.00 1.50	1.	(m) 50 .00	Coord	inates E N	Final De		Start Date: 16/0		Driller:	RW	- 73	heet 1 of 2 Scale: 1:40 DRAFT
Depth	Samples /	Field Records	TCR S	CR E	IQD FI	Casing Dayah	Worler Depth (m)	Level	Depth	Legend		Description			+WING	Water	Backfill
(m)	samples /	Piess Necorus	ICA .	- I	THE PERSON NAMED IN	[m]	IM	m00	(m)		CONCRETE with reb	The state of the s				3	CSHS/KCH-
50	B1								0.20		medium cobble con plastic. Sand is fine fine to coarse. Cobb lithologies. MADE GROUND: Fire	eyish brown slightly itent and fragments to coarse. Gravel is soles are subangular to rm greyish brown slight. Sand is fine to coar	of red bric subangular to subroun ghtly sand	k, timber to subrou ded of var y gravelly	and unded rious CLAY with	1	0.5
00	82								1.20			coarse. Cobbles are					
.40	83					1				<u>x_</u> _	Soft greenish grey s Sand is fine to med	lightly sandy silty CL	LAY with lo	w cobble	content.		
.50 - 1.95	SPT(C) N	(2,2/3,3,4,4)					Dry		1.50			ndy gravelly CLAY. Sa	and is fine	to coarse.	Gravel is		26
									2.50		low cobble content	rnish grey slightly sa . Sand is fine to coar re subrounded of lin	rse. Gravel				21
i.00 - 3.45 i.00	SPT(C) N (7,8/10,	I=44 12,12,10)				1.50	Dry		3.00		Dense dark brown subangular fine to	slightly gravelly silty medium.	fine to coa	arse SAND	. Gravel is		3.4
3.80 - 4.30	64		100	Very stiff dark brown slightly sandy gravelly CLAY with content. Sand is fine to coarse. Gravel is subangular fit Cobbles are subangular of limestone.									4.				
4.50 - 5.00 4.50	B5		100						4.50		Brownish grey slig subangular fine to	ntly gravelly silty fine medium.	e to coarse	SAND. Gr	avel is		5
6.00									6.00		low cobble conten	wnish grey slightly sa t. Sand is fine to coa are subrounded of t	arse. Grave	l is subrou			
7.05 - 7.50	C7		100														- 7
			TCR	SCR	RQD F	1				A. 14.5							
truck at (m) (Time (min) Rose	to (n	n) Han		inspec	tion pit e encount		to 1.20m							
Casing I	Details	0	e Barro	el													1
		Flus	sh Typ	e				leason cheduled	death						Last U	Jpda:	

252	2	101,0110am				- 15			Proje	ct No.	Project	Name: NASAH N	North Apror	& South Apr	ron GI Ki	wex	Bor	ehole ID
*	C	AUS	E	W	A	Y			21-0	4035	Client:	Dublin A	irport Auth	ority			F	RC31
9											Client's	Rep AECOM						
Metho		Plant l	Jsed	G []	Top		Base 1.5		Coord	dinates	Final De	pth: 10.00 m	Start Date:	16/08/2022	Driller:	GT	100	et 2 of 2 ale: 1:40
Rotary Co	777 S 5 7 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Beretta	T44		1.5		10.0			E		+			-	RW		
										N	Elevatio	n: mOD	End Date:	16/08/2022	Logger:	+MRG	D	RAFT
Depth (m)	Samples	Field Records	TCR	SCR	RQD	FI	Casing 1 Depth 1 (m)	epth (m)	m00	Depth (m)	Legend			ription			Water	lackfill
7.50 - 8.00 7.50	B6		100							7.50		Very stiff dark brow low cobble content to coarse. Cobbles a Brownish grey sligh subangular fine to r	Sand is fine to are subrounded thy gravelly silt medium.	o coarse. Gravel d of fine to coar y fine to coarse	is subrour ise. SAND. Gra	ivel is		8.0
9.00 50 - 10.00	C8		100									cobble content. Sar coarse.						9.0
10.00										10.00			End of Bore	hole at 10.00m				20.
																		10
																		111
																		11.
										-								12.0
)																		12:
																		13.
																		13.5
										-								341
																		14.
			TCR	SCR	RQD	_	Ш											
ruck at (m) Ca		Strikes Time (min)	Rose	to (n	n) H		dug ins		on pit ex	cavated to red.	1.20m							
Casing D	etails	Core	Barre	el .														
	iam (mm)		6L															
58		Flush	Type	0	13		nation		ason eduled d	eath						07/11		ΛC
		W/S	LET.		16	4 1 1 1 1 1 1	aren g	>UII	coured d	ehin.						17/144	AVEE	AU



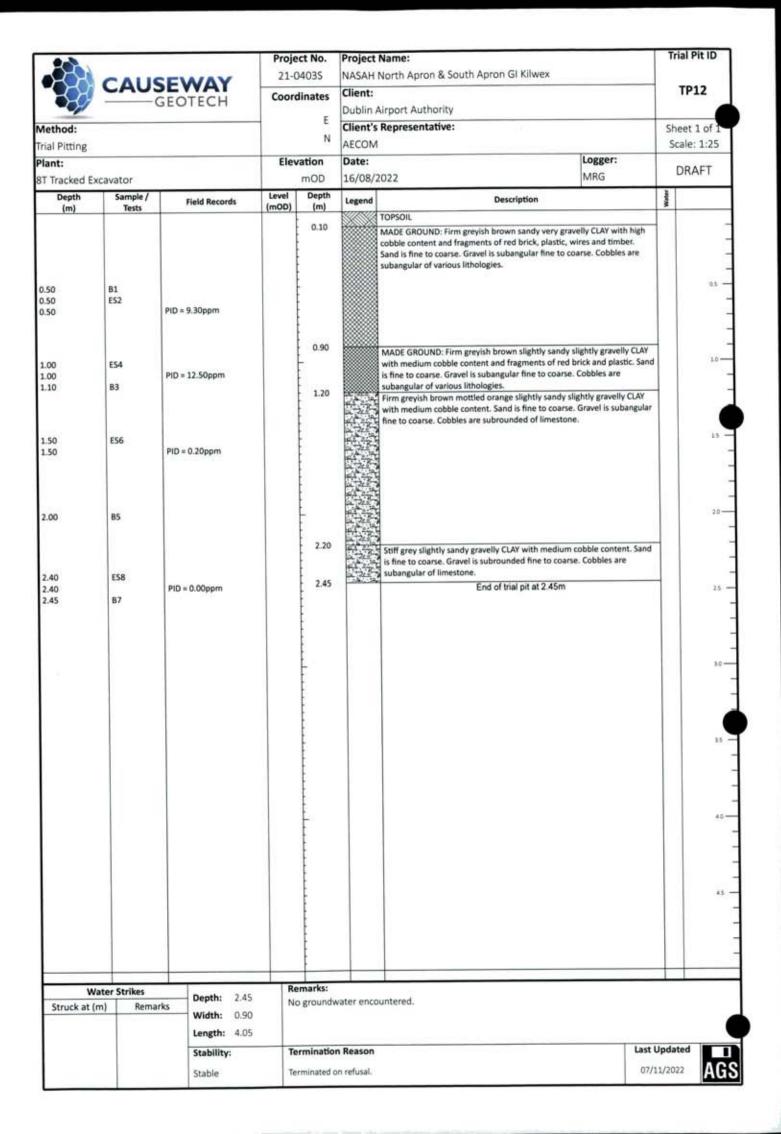
	CAUS	EOTECH	21-0	ect No. 04035 dinates	NASAH Client:	t Name: I North Apron & South Apron GI Kilwex Airport Authority	[Trial Pit ID
Method: Trial Pitting Plant:			24306	00.00 E 55.00 N	100000000000000000000000000000000000000	s Representative:		heet 1 of 1 Scale: 1:25
8T Tracked E	xcavator		32355	mOD	09/08/			DRAFT
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	EDWARD DOWN	Water	
0.30 0.30	81 ES2		62.59 62.24 62.19	0.10 0.45 0.50		TARMAC MADE GROUND: Greyish brown silty sandy subangular fine to coarse GRAVEL. Sand is fine to coarse. MADE GROUND: TERRAM MADE GROUND: Firm greyish brown slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular.		05
1.00 1.00 1.50 1.60	B3 E54		61.24	1.45		Stiff dark grey slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are subrounded of limestone.		10-
			60.84	1.85		End of trial pit at 1.85m		20-
								25
								3.5
								40-
								45
	er Strikes	Depth: 1.85	Rema		nain enc	ountered and damaged at 0.60m. Repaired in 1 hour.		
Struck at (m)	Remarks	Width: 1.20 Length: 2.80 Stability:	No gr		er encou		wint-	d ===
		Stabile Stable	100	nated on re		07/11/		

200			(1)	ect No.	100000000000000000000000000000000000000	t Name: I North Apron & South Apron GI Kilwex	Ti	rial Pit ID
	CAUS	SEWAY	_	04035	Client:			TP07
	(GEOTECH	Coord	dinates	-	Airport Authority		1107
Method:			31712	25.00 E	25/15/1	s Representative:	SH	eet 1 of 1
rial Pitting			24302	23.00 N	AECON	portion and the contract of the contract of	1000	cale: 1:25
Plant:			Elev	ation	Date:	Logger:		
Tracked Exc	avator		62.65	mOD	08/08/			DRAFT
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
(m) 0.30 0.50 0.70 0.70 0.80 1.50 1.50 2.00 2.50 2.50 2.50	ES1 ES ES ES3 B2 ES ES4 ES ES57	Hard flow at 1.80m Sewage smell	62.45 62.25 60.85 60.05	(m) 0.20 0.40		MADE GROUND: Greyish brown slightly sandy clayey subangular to subrounded fine to coarse GRAVEL of mixed lithologies with fragments of concrete and red brick. Sand is fine to coarse. Cobbles are subangular to subrounded of mixed lithologies. MADE GROUND: Firm greyish brown slightly sandy gravelly CLAY with medium cobble content and fragments of plastic pipes, red brick and concrete. 1 00m: 4 inch sewer pipe encountered at 1.0m. Firm greyish brown slightly sandy slightly gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Stiff dark grey slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded fine to coarse. End of trial pit at 2.60m	*	10 - 15 - 15 - 15 - 15 - 15 - 15 - 15 -
Wate Struck at (m) 1.80	r Strikes Remark Hard flow	vat Width: 1.13	Tre			to avoid service at 1.00m. and back of the trench could not extend pit.		
	1.80m Sewage sr	mell						
	Semage Si	Stability:	Ter	mination	Reason	Last U	pdate	ed I
	1	Stable	Terr	minated on	refusal.	07/1	1/202	AG

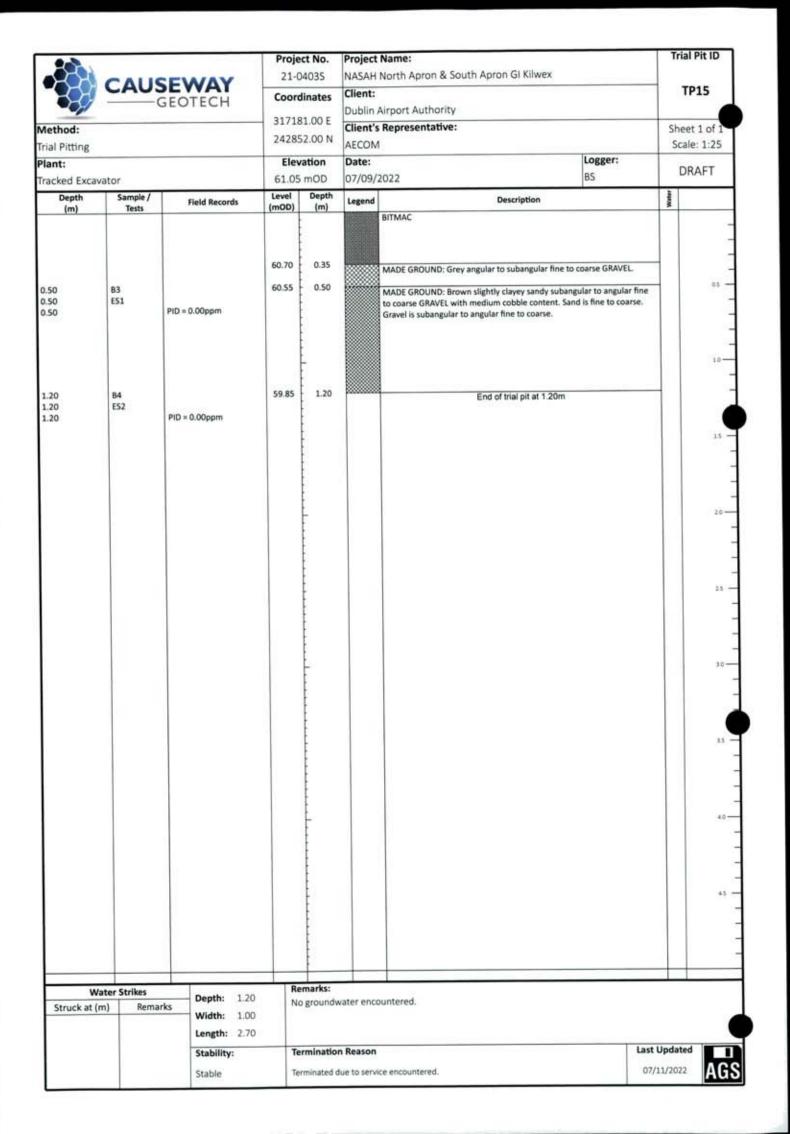
0			Proje	ct No.	Project	t Name:	,	rial Pit ID
223	CALL	CEVAVAV	21-0)403S	NASAH	North Apron & South Apron GI Kilwex		
	CAU	SEWAY GEOTECH	Coord	dinates	Client:		1	TP08
-0,		GEOTECH	3250	254.00 ±	Dublin	Airport Authority		
lethod:				33.00 E	Client's	s Representative:	St	neet 1 of
table			24303	38.00 N	AECON	1	S	cale: 1:25
lant:			Elev	ration	Date:	Logger:		DRAFT
T Tracked Ex	cavator		63.10	mOD	15/08/	2022 MRG		DRAFT
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
(m)	reacs		63.08	(m) 0.02	WWW	MADE GROUND: Slightly sandy very gravelly TOPSOIL with fragments of	1	
						plastic. Sand is fine to coarse. Gravel is subangular to subrounded of mixed lithologies.	/	
30	ES		[MADE GROUND: Dark grey slightly sandy slightly clayey subangular to		
30	ES1		1	j.		angular fine to coarse GRAVEL of mixed lithologies with 5to 7% waste including building materials. Sand is fine to coarse.		
50	86		1	8				0.5
50		PID = 2.80ppm						
			62.40	0.70		Firm greenish brown slightly sandy slightly gravelly CLAY with low cobble	+	
						content. Sand is fine to coarse. Gravel is subangular to subrounded fine		
90 90	87			Š.	4	to coarse. Cobbles are subangular to subrounded.		pilat
90	ES ES2			5	0.5 0.0			11
00	5,550	PID = 1.40ppm			44. C			
			61.90	1.20	04 de 1	Firm light brown slightly sandy gravelly CLAY with low cobble content.	1	
			1	3)	474	Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded of mixed lithologies.		
in.	8.9				474	are severing and the severine of the severine		1
60 60	B8 ES			ic.	27.2			Ι.
60	ES3	DID = 1 000000	61.40	1.70	7-7-			
0		PID = 1.00ppm Moderate flow at 1.70m				Light brownish grey slightly sandy clayey subangular to subrounded fine to medium GRAVEL of limestone. Sand is fine to coarse.		
0	B9					The state of the s		
0	ES4	DID. 4.44			-			2
10		PID = 0.00ppm						
			1	Š	-			
					الفدام			
10	810		60.70	2.40	C 1 0 2	Stiff dark grey slightly sandy gravelly CLAY with medium cobble content.	1	
0	ES5	DID = 0.00===			200	Sand is fine to coarse Gravel is subangular to subrounded fine to coarse.		
0		PID = 0.00ppm	60.50	2.60	Mikutinu.	Cobbles are subangular to subrounded of limestone. End of trial pit at 2.60m	1	
						- 0		
								3
			1 8					
			1 3					
								3
	1		8					
			3					3
	1							
	1							
	1							
	1							- 4
				3				
	1							
			Por	arks:				
	er Strikes Remar	Depth: 2.60	Kem	idTKS:				
FUCK at (m)		4445.444. 4 70.0						
1.70	Moderate							
	Moderate at 1.70	ACCOUNT OF THE PARTY OF THE PAR						
truck at (m) 1.70	110000000000000000000000000000000000000		Tern	nination I	Reason	Last U	pdate	ed T

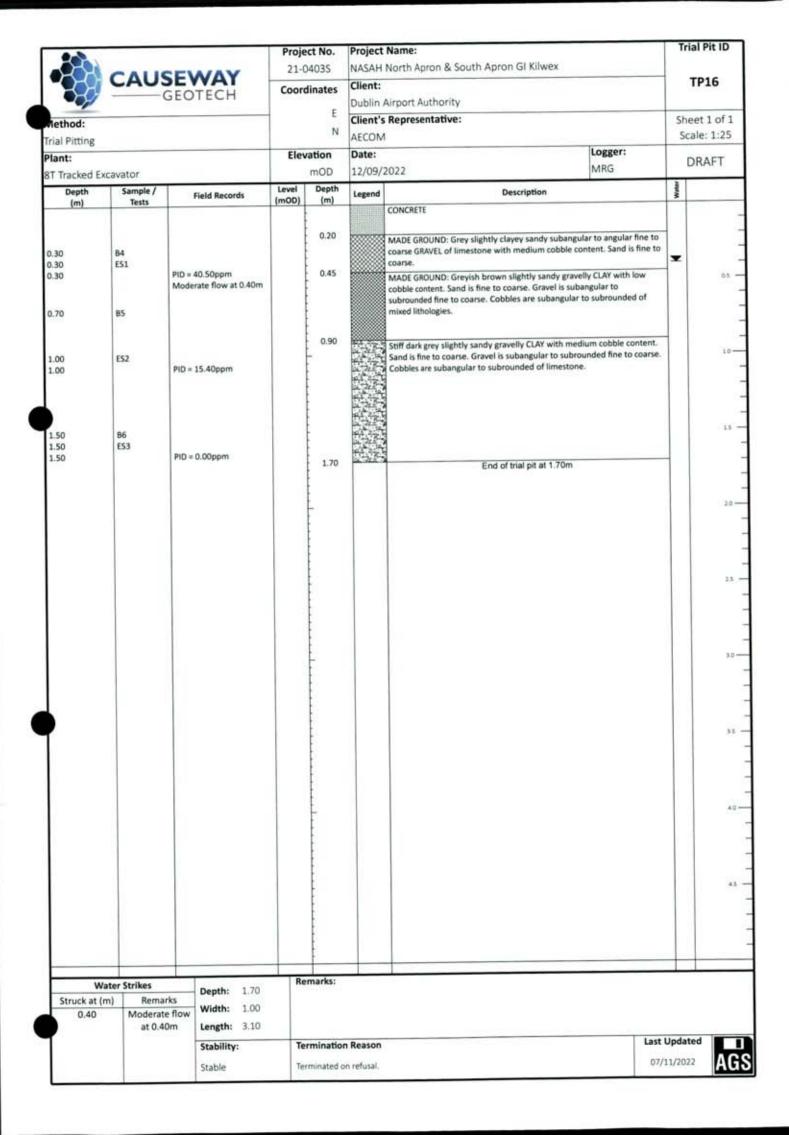
•			Proje	ect No.	Projec	t Name:		Trial Pit ID
202	CALL	SEWAY	21-	04035	100000000000000000000000000000000000000	H North Apron & South Apron GI Kilwex		
520	CAU	SEWAY GEOTECH	Coor	dinates	Client			TP09
-		725-110-224	3171	05.00 E	The second second	Airport Authority		
Method:			1000000	86.00 N	1000	's Representative:		sheet 1 of 1
rial Pitting			Flor	ation	AECON Date:		-	Scale: 1:25
Tracked Exca	vator			mOD	09/09/	/2022 BS		DRAFT
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
(m)	iests			Union	1886	CONCRETE	- 8	
			61.70	0.10		MADE GROUND: Grey angular to subangular fine to coarse GRAVEL.		
			61.35	0.45				1
0.50 0.50	83 ES1		10.0000			MADE GROUND: Brown sandy clayey angular to subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Gravel	is	0.5 -
0.50		PID = 0.00ppm				angular to subangular fine to coarse.		5
			1 3					
								1.0-
		Fast flow at 1.30m					•	
			1 3					
1.50 1.50	B4 ES2		60.30	1.50	0000000	End of trial pit at 1.50m		15 -
1.50	0.000	PID = 0.00ppm	1 3					
								33
								2.0 —
			1 8					
			1 %	3				6
								2.5
			1 2					25 -
								2
			1 6					8
			1 8	8				
			1 3					3.0
			1 3					13
			1 9					35 -
				į				1
	1							9
			1 9					
	1							4.0 -
			1					
								1 8
			1 /					1 8
								45 -
								0
Wat	er Strikes	Section Control	Ren	arks:				
Struck at (m) Remar	******* * * * * * * * * * * * * * * *	10.000	2000				
1.30	Fast flow 1.30n							4
	1.301			nineties !	Dans -			
		Stability:		nination			t Updat	- Pori
		Stable	Term	inated due	e to water	ingress.	7/11/202	2 ACS

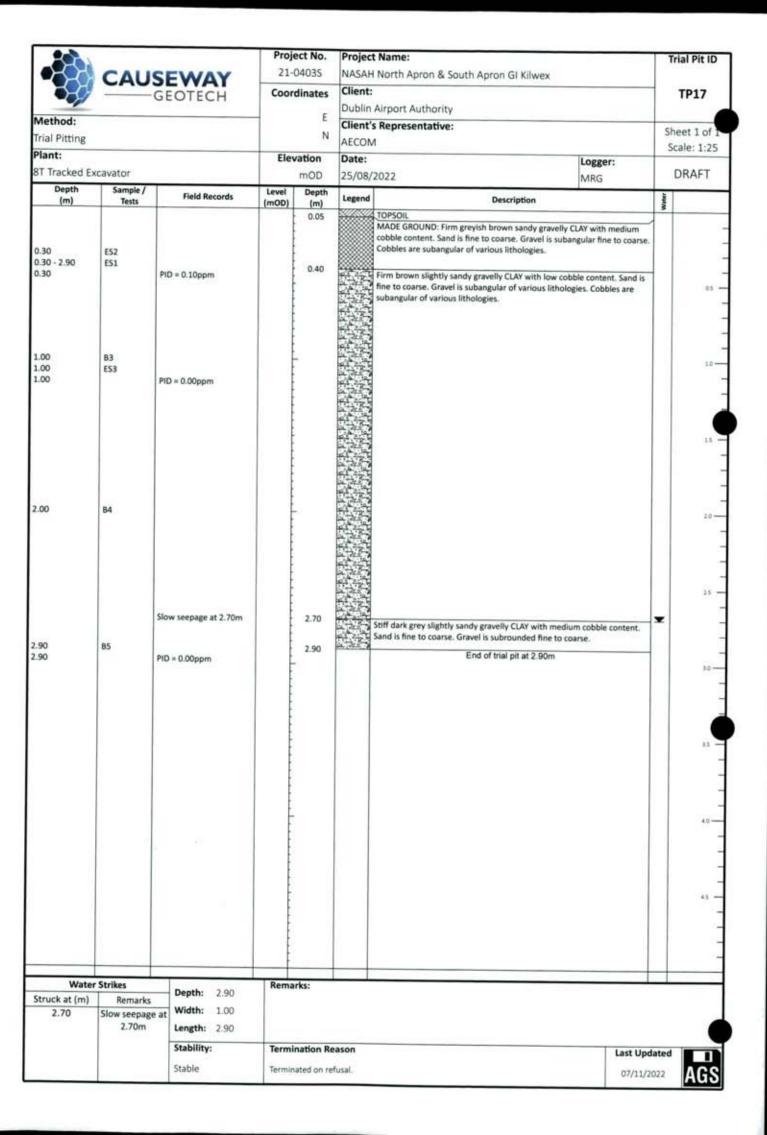
202	6		Proj	ect No.	Projec	t Name:		1	Trial Pit ID
	CAU	SEWAY	21-	0403S	NASAH	North Apron & South Apron GI Kilwex			
585	0,10	GEOTECH	Coor	dinates	Client			7	TP10
Method:			4	Ε	Service of the	Airport Authority			
Trial Pitting				N	AECON	s Representative:			heet 1 of 1
Plant:			Ele	vation	Date:	A .	Logger:	1 3	Scale: 1:25
8T Tracked Ex	xcavator		55350	mOD	13/09/	2022	MRG		DRAFT
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water	
			(CONCRETE		>	
0.25	85			0.20		MADE GROUND: Grey slightly silty sandy subangu	ar to annular fine to	-	
0.25 0.25	ES1	ND 430		0.35		coarse GRAVEL of limestone. Sand is fine to coarse			
0.23		PID = 8.20ppm				Reworked MADE GROUND: Soft to firm dark greer greyish brown slightly silty slightly sandy gravelly (LAY with medium	1	0.5 -
						cobble content, and fragments of plastic and steel Gravel is subangular to subrounded fine to coarse	 Sand is fine to coarse. of mixed lithologies. 		
0.70	86 ES2						858		
0.70		PID = 16.40ppm							
				2					1.0
									198
									18
				1.40				1	1.5
1.50 1.50	ES3	DID - 0.20		CHRAN		Firm greyish brown slightly sandy slightly gravelly of content. Sand is fine to coarse. Gravel is subangula	LAY with low cobble r to subrounded fine		15 -
1.60	87	PID = 0.20ppm				to coarse. Cobbles are subangular to subrounded.			85
l				1.70		Stiff dark grey slightly sandy gravelly CLAY with me Sand is fine to coarse. Gravel is subangular to subri	dium cobble content.	1	
			1 1			Sand is the to coarse, draver is satisficate to subtr	ounded fine to coarse.		
2.00	ES4	PID = 0.00ppm	1	2.00	0.5	End of trial pit at 2.00m		1	20-
657023		100000000000000000000000000000000000000							5.5
2.30	B8		1 1						-
			1						
			E						25 -
									-
									-
			1 1						3.0
									74
			1						-
4			1 1						35
									_
									= ==
									4.0
									-
									-
									_
									45 -
									_
									=
									-
Water	Strikes	01- 0.5 eve	Rema	rks:					
Struck at (m)	Remarks		100000000000000000000000000000000000000	oundwater	rencoun	tered.			
\		Width: 1.10							
		Length: 2.70	7					-	
		Stability:	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	nation Re			Last Up		
		Stable	Termin	ated on ref	usal.		07/11/	2022	AGS



-23	CALL	SEWAY		ect No. 0403S	Project NASAF	North Apron & South Apron GI Kilwex		Trial Pit IC
5	CAO	GEOTECH	Coor	dinates	Client			TP13
lethod:			3172	26.00 E		Airport Authority		
			2429	69.00 N		s Representative:	S	heet 1 of
ial Pitting			1000000	7025 S. U.S.	AECON	A.		Scale: 1:2
ant:			Elev	vation	Date:	Logger:		
Tracked Ex		_	10000000	mOD	12/09/	/2022 MRG		DRAFT
Depth (m)	Sample / Tests	Field Records	(mOD)	Depth (m)	Legend	Description	Water	
30	86		61.76	0.08		MADE GROUND: Light greyish white slightly silty sandy subangu angular fine to coarse GRAVEL. Sand is fine to coarse. MADE GROUND: Dark grey slightly sandy clayey subangular to a		
30 30 50	E51 B7 E52	PID = 7.40ppm				fine to coarse GRAVEL of limestone. Sand is fine to coarse.	rigular	0.5
50 85 85	B8 ES3	PID = 4.20ppm	61.42	0.65		MADE GROUND: Firm greyish brown sandy gravelly CLAY with m cobble content. Sand is fine to coarse. Gravel is subangular to ro fine to coarse. Cobbles are subangular to subrounded.	edium unded	
00	1535	PID = 0.10ppm	61.06	- 1.00		Firm greyish brown slightly sandy gravelly CLAY with low cobble Sand is fine to coarse. Gravel is subangular to subrounded fine to Cobbles are subangular to subrounded.	content. o coarse.	10
50		PID = 0.00ppm						15
00	B9 ES4			-				26
0		PID = 0.00ppm						
60		PID = 0.00ppm	59.46	2.60		Stiff dark grey slightly sandy gravelly CLAY with medium cobble or Sand is fine to coarse. Gravel is subangular to subrounded fine to Cobbles are subangular to subrounded.	ontent. coarse.	2.5
0	B10 ES5		59.06	3.00		End of trial pit at 3.00m		3.0
								33
								40
								-
Water	r Strikes	Donth: 200	Rema					
ruck at (m)	Remarks	Depth: 3.00 Width: 1.05 Length: 3.00	No gro	oundwate	r encoun	tered.		
		Stability:	Termin	nation Re	ason		Last Updated	1
		Stable		ated on ref		The state of the s		100







0.0			Proj	ect No.	Projec	t Name:			Trial Pit ID
2	CALL	SEWAY	21-	04035	NASAH	North Apron & South Apron GI Kilwex			
52	CAO	GEOTECH	Coor	dinates	Client:				TP18
- 4/1				Ε	DE CRUCY :	Airport Authority			
lethod:				N		s Representative:		1.55	heet 1 of 1
rial Pitting			-	- 600	AECON	А		_	Scale: 1:25
Plant: BT Tracked E:	venuator		Ele	mOD	Date: 24/08/	(2022	Logger: MRG		DRAFT
Depth .	Sample /		Level	Depth	-		IVIRG	- 1	
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description TOPSOIL with rootlets.		Water	
0.50 0.50	ES1	PID = 1.20ppm		0.10		MADE GROUND: Greyish brown sandy gravelly CL/ content. Sand is fine to coarse. Gravel is subangula various lithologies. Cobbles are subrounded of mio MADE GROUND: Greyish brown slightly gravelly sli	er fine to coarse of ked lithologies.		0.5
.80 .80	ES2	PiD = 1.10ppm		0.90		coarse SAND with low cobble content. Gravel is su coarse. Cobbles are subangular of various lithologi MADE GROUND: Firm greenish grey slightly sandy with low cobble content. Sand is fine to coarse. Gr to coarse. Cobbles are subrounded of various litho	ies. slightly gravelly CLAY avel is subrounded fir		10-
50	ES3	PID = 12.20ppm							15
.50	ES4			2.40	XXXX XXXX XXXX XXXX XXXX	Stiff dark grey slightly sandy gravelly CLAY with me Sand is fine to coarse. Gravel is subangular fine to subrounded of limestone.			25
						End of trial pit at 2,70m			10-
									35
									40-
									45
Wate	er Strikes	Depth: 2.70	100000000000000000000000000000000000000	arks:	ACTION STATE			_	
truck at (m)	Remark	Width: 1.00		store drain roundwat		tered at 2.00m. Intered			
		Length: 3.00				10.000			
		Stability:	Torr	ination R	easer		Inchi	Indet	4
		D1	25.0	0.000	33.5		1	Jpdate	
		Stable	Term	inated on re	efusal.		07/3	1/2022	

- 33	CAUS	SEWAY	21-	ect No. 04035	NASAH	Name: North Apron & South Apron GI Kilwex		Т	rial Pit ID
		GEOTECH	Coor	dinates E		Airport Authority		- 15	
Method:				N	100 CO 10	s Representative:		100	neet 1 of 1
Trial Pitting					AECON			S	cale: 1:25
Plant:			Elev	vation	Date:		gger:		DRAFT
BT Tracked Ex			Level	mOD	24/08/	2022 M	RG	_	DIGIT
Depth (m)	Sample / Tests	Field Records	(mOD)	Depth (m)	Legend	Description		Water	
0.30 0.30 0.30 0.60 0.60 1.00 1.10 1.50 1.80 1.90 1.90	B5 ES1 B6 ES2 B7 ES3	PID = 17.80ppm Moderate flow at 0.40m PID = 12.20ppm PID = 0.20ppm PID = 0.00ppm		0.06		MADE GROUND: Grey slightly sandy slightly silty subanguline to coarse GRAVEL of limestone. Sand is fine to coarse MADE GROUND: Greyish brown slightly silty gravelly fine Gravel is subangular to subrounded fine to medium of mi Firm greyish brown slightly sandy slightly gravelly CLAY with reduce subrounded fine to coarse. Cobbles are subangular to sublimestone. Stiff dark grey slightly sandy gravelly CLAY with medium of Sand is fine to coarse. Gravel is subangular to subrounded cobble are subangular to subrounded of limestone. End of trial pit at 1.90m	to coarse SAND. xed lithologies. ith medium ar to prounded of		25 25 30 40
	ter Strikes	Depth: 1.90	Rei	marks:		·			
Struck at (m		ks under 110							
		flow Tilder 1.10							
0.40	Moderate								
	at 0.40	m Length: 2.70		<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>					
	100000000000000000000000000000000000000		Ter	mination	Reason		Last U	pdat	ed

Plant: ST Tracked Excava Depth (m) 0.30 B1 0.30 B3 0.30 B5	Vator Sample / Tests S1 S2 P N S4 P S6	Field Records Field Records Field Records Field Records FID = 2.90ppm Medium flow at 0.50m	Coore	0403S dinates E N ration mOD Depth (m) 0.10 - 0.50	Client: Dublin	Airport Authority s Representative: // Logger: //2022 MRG	Water	heet 1 of 1 Scale: 1:25 DRAFT
Plant: BT Tracked Excava Depth (m) 0.30 81 0.30 ES 0.30 ES 0.80 ES 0.80 B3 1.30 ES 1.50 B7	vator Sample / Tests S1 S2 P N S4 P S6	Field Records PID = 2.90ppm Medium flow at 0.50m PID = 29.10ppm	Elev	E N / Ation mOD Depth (m) 0.10	Client's AECON Date: 30/08/	Description TARMAC MADE GROUND: Grey slightly sandy slightly clayey subangular fine to coarse. Cobbles are subrounded of limestone. MADE GROUND: Soft to firm dark greyish brown slightly sandy gravelly CLAY with medium cobble content and fragments of plastic, rubber, rebar and construction waste. Sand is fine to coarse. Cobbles are subrounded of limestone. MADE GROUND: Firm brownish grey slightly sandy gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of various lithologies.	Water	heet 1 of 1 Scale: 1:25 DRAFT
Plant: ET Tracked Excava Depth (m) 0.30 81 0.30 ES 0.30 ES 0.30 ES 0.30 ES 0.30 ES 0.30 ES 0.50 B3	Sample / Tests 11	PID = 2.90ppm Medium flow at 0.50m PID = 29.10ppm	Level	N /ation mOD Depth (m) 0.10 - 0.50	AECON Date: 30/08/	Description TARMAC MADE GROUND: Grey slightly sandy slightly clayey subangular fine to coarse GRAVEL of limestone with high cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone. MADE GROUND: Soft to firm dark greyish brown slightly sandy gravelly CLAY with medium cobble content and fragments of plastic, rubber, rebar and construction waste. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of various lithologies. MADE GROUND: Firm brownish grey slightly sandy gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine	Water	DRAFT
Plant: BT Tracked Excava Depth (m) 0.30 81 0.30 ES	Sample / Tests 11	PID = 2.90ppm Medium flow at 0.50m PID = 29.10ppm	Level	vation mOD Depth (m) 0.10 - 0.50	Date: 30/08/	Description TARMAC MADE GROUND: Grey slightly sandy slightly clayey subangular fine to coarse GRAVEL of limestone with high cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone. MADE GROUND: Soft to firm dark greyish brown slightly sandy gravelly CLAY with medium cobble content and fragments of plastic, rubber, rebar and construction waste. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of various lithologies. MADE GROUND: Firm brownish grey slightly sandy gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine	Water	DRAFT
Depth (m) 30.30 81 85 85 85 85 87 85 87 85 85 87	Sample / Tests 11	PID = 2.90ppm Medium flow at 0.50m PID = 29.10ppm	Level	mOD Depth (m) 0.10 - 0.50	30/08/	Description TARMAC MADE GROUND: Grey slightly sandy slightly clayey subangular fine to coarse GRAVEL of limestone with high cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone. MADE GROUND: Soft to firm dark greyish brown slightly sandy gravelly CLAY with medium cobble content and fragments of plastic, rubber, rebar and construction waste. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of various lithologies. MADE GROUND: Firm brownish grey slightly sandy gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine	Water	DRAFT
Depth (m)	Sample / Tests 11	PID = 2.90ppm Medium flow at 0.50m PID = 29.10ppm		Depth (m) 0.10 0.50 - 1.00	-	Description TARMAC MADE GROUND: Grey slightly sandy slightly clayey subangular fine to coarse GRAVEL of limestone with high cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone. MADE GROUND: Soft to firm dark greyish brown slightly sandy gravelly CLAY with medium cobble content and fragments of plastic, rubber, rebar and construction waste. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of various lithologies. MADE GROUND: Firm brownish grey slightly sandy gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine	•	0.5
0.30 81 0.30 ES 0.30 ES 0.80 ES 0.80 ES 0.80 B3 1.30 ES 1.30 ES 1.50 B7	Tests 31 32 P N 33	PID = 2.90ppm Medium flow at 0.50m PID = 29.10ppm		(m) 0.10	Legend	TARMAC MADE GROUND: Grey slightly sandy slightly clayey subangular fine to coarse GRAVEL of limestone with high cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone. MADE GROUND: Soft to firm dark greyish brown slightly sandy gravelly CLAY with medium cobble content and fragments of plastic, rubber, rebar and construction waste. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of various lithologies. MADE GROUND: Firm brownish grey slightly sandy gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine	•	
0.30 ES 0.30 ES 0.80 ES 0.80 B3 0.90 B3 0.30 ES 0.30 ES 0.30 ES 0.30 ES 0.30 ES 0.30 ES 0.30 ES	S4 P S6 P	Medium flow at 0.50m		- 1.00		MADE GROUND: Grey slightly sandy slightly clayey subangular fine to coarse GRAVEL of limestone with high cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone. MADE GROUND: Soft to firm dark greyish brown slightly sandy gravelly CLAY with medium cobble content and fragments of plastic, rubber, rebar and construction waste. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of various lithologies. MADE GROUND: Firm brownish grey slightly sandy gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine		250
2.50	9 Pi	ID = 19.00ppm ID = 0.00ppm ID = 0.00ppm		1.65 - 3.00 3.10		Firm greenish brown mottled orange and black slightly sandy slightly gravelly SILT with rotted rootlets. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are subrounded of various lithologies. Firm greyish brown slightly sandy slightly gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are subrounded of various lithologies. Stiff dark grey slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subrounded of various lithologies. End of trial pit at 3.10m		20 25
Water Str Struck at (m) 0.50 M	Remarks Medium flow a	Party Company of the	Rema	arks:				40
	0.50m	Length: 3.30 Stability:	Torre	ination R	03505	Last Up	vda+-	w =
		Stability:		nated on re		07/11/		

	CAU	SEWAY GEOTECH	21-0	oct No. 04035 dinates	NASAH Client:	Name: North Apron & South Apron GI Kilwex Airport Authority			Pit ID
lethod:				E N	12 Technology	Representative:		Sheet	t 1 of 1
able					AECON			Scale	e: 1:25
ant:			Elev	ration	Date:		ger:	DR	AFT
Tracked Ex			Level	mOD	06/09/				7844
Depth (m)	Sample / Tests	Field Records	Level (mOD)	0.15 0.30	Legend	BITMAC MADE GROUND: Grey slightly sandy angular to subangular GRAVEL with low cobble content. Sand is fine to coarse. Congular. Brown sandy clayey angular to subangular fine to coarse Ghigh cobble content. Sand is fine to coarse. Cobbles are substituted.	obbles are RAVEL with	Weter	0s —
60 60 60	B5 ES2	PID = 1.00ppm		- 2.00		Firm to stiff dark brownish sandy gravelly CLAY with low co Sand is fine to coarse. Gravel is angular to subangular fine Cobbles are subangular.	obble content. to coarse.		15 -
.50 .50 .50	ES3	PID = 0.00ppm		2.60		End of trial pit at 2.60m			33 -
Wa Struck at (m	ter Strikes	Width: 1.00 Length: 3.00	No	marks:		untered.			45 -
		Stability: Stable	0.00	mination		es encountered.		pdated /2022	AGS

TO COORDINATE OF THE ABSOLUTE	1		CENNAN	100	ect No. 04035		Name: North Apron & South Apron GI Kilwex			Trial Pit ID
Clear's Representative: Sneet 1 or Scale 3 in the scale 3	33	CAU	GEOTECH	_	dinates	Client:				TP24
Depth Company Depth Company Depth	Method: table					Client'	s Representative:			Sheet 1 of : Scale: 1:25
Depth Sample Field Records Legend Description	Plant: T Tracked E	xcavator		Elev		17.000000	2022	The second secon		DRAFT
Water Strikes Groundwater ercountered at 3.00m Remarks: Depth: 3.00 Remarks: Application Research Property Prop	Depth	Sample /	Field Records		Depth	-	There are the con-	65	later	
uck at (m) Remarks 3.00 Groundwater encountered at 3.00m Stability: Termination Reason Depth: 3.00 Width: 1.00 Length: 3.00 Stability: Termination Reason	(m) 0.50 0.50	B3 ES1 B4	PID = 0.00ppm Groundwater encountered at 3.00m	(mOD)	0.23		MADE GROUND: Grey angular to subangular fine to subangular fine to high cobble content. Sand is fine to coarse. Grave subangular fine to coarse. Cobbles are subrounded to subangular fine to coarse. Stiff greyish brown sandy gravelly CLAY. Sand is fit subangular to angular fine to coarse.	e is angular to ed to rounded.	ith	1.5 1.5 2.0
3.00 Groundwater encountered at 3.00m Stability: Termination Reason Last Updated			Depth: 3.00	Rema	arks:					
3.00m Stability: Termination Reason Last Updated	3.00	Groundwa	ter Width: 1.00							
			2224							
Stable Terminated on refusal. 07/11/2022			Stability:					1.100		

20%		Project No.		Project	Т	Trial Pit ID			
	CAU	SEWAY	21-04035 Coordinates			North Apron & South Apron GI Kilwex		TDOE	
		GEOTECH			Client:		TP25		
1ethod:	lethod:		+	E		Airport Authority s Representative:	St	eet 1 of 1	
ial Pitting				N	AECON	A Commence of the Commence of		cale: 1:25	
ant:			Ele	vation	Date:	Logger:		DRAFT	
			Level	mOD Depth	19/08/	2022 MRG	_	DIALL	
Depth (m)		Field Records	(mOD)	(m)	Legend	Description TARMAC	Water		
00 00 00	B3 ES1	PID = 1.00ppm		0.30		CONCRETE MADE GROUND: Dark greyish brown gravelly clayey fine to coarse SA Gravel is subangular fine to coarse of various lithologies. Cobbles are subrounded of various lithologies.	ND.	0.5	
00	84							2.0	
.20 .20 .20	B5 E52	PID = 0.00ppm		3.40		Firm greenish grey slightly sandy slightly gravelly CLAY with low cobb content. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are subrounded. End of trial pit at 3.40m	sle	3.0	
						٥		40	
Wate Struck at (m)	er Strikes Remai	Depth: 3.40 Width: 1.20 Length: 4.00	No	marks:	ater enco	untered.			
			-	rmination	Passan		ast Updat	od =	
		Stability:							
		Stable	Ter	minated or	refusal.		07/11/202	4 AL	

	CAUSEWAY		Project No. 21-0403S		Project Name: NASAH North Apron & South Apron GI Kilwex				Trial Pit ID
8	CAU	-GEOTECH	Coor	Coordinates		Client: Dublin Airport Authority Client's Representative:			
lethod:			E		12 10 10 10 10 10				
Trial Pitting			N		AECON	И		1,000	heet 1 of 1 Scale: 1:25
Plant:			Ele	vation	Date:	ALLHAMING *	Logger:	T	DRAFT
BT Tracked E Depth	xcavator Sample /		Level	mOD	27/07/	/2022	MRG	٠.	DNAFI
(m)	Tests	Field Records	(mOD)	Depth (m)	Legend	Description Light grey slightly clayey sandy subangular to subro	unded fine to coarse	Water	
0.10 0.10	B5	PID = 0.20ppm		0.20		GRAVEL of predominantly limestone with fragments fine to coarse. Light brown slightly silty gravelly fine to coarse SANI	s of concrete. Sand is		8
1.30	ES ES1					content. Gravel is subangular to subrounded fine to lithologies. Cobbles are subrounded of mixed lithologies.	coarse of mixed		200
0.50 0.50 0.60	E52 B6	PID = 0.10ppm		0.60	***	Light brown silty very sandy subangular fine to coars	se GRAVEL Sand is	+	0.5
	1				* * *	fine to coarse.			
				1.00		Firm to stiff brown slightly sandy slightly gravelly CL		+	10-
						cobble content. Sand is fine to coarse. Gravel is sub- subrounded fine to coarse of mixed lithologies. Cobi to subrounded of mixed lithologies.			
.50	ES3								
.50	653								15
00	В7	PID = 0.80ppm							20-
.50	ES4								25 -
									3
				2.80		Stiff dark grey slightly sandy gravelly CLAY with medi Sand is fine to coarse. Gravel is subangular to subrou	ium cobble content. unded fine to coarse		
						a particular de la companya de la c			30-
.20 .20	88	PID = 0.10ppm		3.20	P.1 . 24 L	End of trial pit at 3.20m			
									35 -
									40
									U
									45 -
	er Strikes	Depth: 3.20	0.7730335	arks:					
Struck at (m)	Remark	Width: 1.10 Length: 3.90	No g	roundwat	er encou	ntered.			
		Stability:	Term	nination R	eason		Last U	Jpdate	d I
		Stable	Term	inated on r	efusal.		07/1	1/2022	AGS

200		Project No.		Project	1	Trial Pit ID				
$\mathcal{K}\mathcal{K}$	CALIS	EWAY	21-04035 Coordinates		4.5	North Apron & South Apron GI Kilwex		L Date Section		
	CAUS	EOTECH			Client:		TP40			
-0/						Dublin Airport Authority				
ethod:					100755530	s Representative:	S	heet 1 of 1		
ial Pitting			Elevation		AECON	1		Scale: 1:25		
ant:					Date:	Logger:		DRAFT		
Tracked E			ļ.,	mOD	28/07/	2022 MRG		DRAFT		
Depth (m)	Sample / Tests	Field Records	(mOD)	Depth (m)	Legend	Description	Water			
						TOPSOIL with rootlets		0,		
				0.15		MADE GROUND: Light greyish brown sandy very gravelly CLAY wit	th high	3		
30	ES			-		cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounde	d of	9		
30	ES1		1 1			mixed lithologies.		3		
40 50	B6 ES					CONTRACTOR CONTRACTOR		05 -		
50	ES2							s		
	- C. C.									
				0.80						
				0.80		MADE GROUND: Stiff dark grey and brown sandy very gravelly CL				
						medium cobble content. Sand is fine to coarse. Gravel is subangu subrounded fine to coarse. Cobbles are subangular to subrounde				
				7		mixed lithologies.		1.0		
				1				3		
				t				10		
				1						
40	B7			F						
50	ES3			1				15		
								10		
								1		
	1 1									
				1,80		Firm greenish grey slightly sandy slightly gravelly CLAY with low o	obble			
90	88				2.0	content. Sand is fine to coarse. Gravel is subangular to subrounde				
			1	2.00		to coarse. Cobbles are subangular to subrounded of mixed lithold		2.0		
10	B9					Firm light brown slightly gravelly sandy CLAY with low cobble con Sand is fine to coarse. Gravel is subangular to subronded fine to				
				2.20	20.0	Cobbles are subangular to subrounded of mixed lithologies.	Journe 1			
					4.0	Firm to stiff greyish brown with orange mottling slightly sandy sli	ghtly			
	1 1			t		gravelly CLAY with medium cobble content. Sand is fine to coarse	. Gravel			
				-		is subangular to subrounded fine to coarse. Cobbles are subangu	lar to	25 -		
.50	ES4			F	200	subrounded of limestone.		43.5		
				ţ.	A 18	ž				
				t						
				-	0.00	3				
				F	4	¥				
.00	ESS			-	2.72	Ñ.		10-		
	1			t						
.20	B10			t		4				
.20	810			1	2	3				
				F		3		1		
				3.40		End of trial pit at 3.40m		550		
	1			ţ.		HE PRODUCTION SELECTION FRAME		33.		
				1				1		
				t						
				ł						
				F						
				-				40-		
				t				400		
				ł						
				-						
				F						
				1						
				t				4.5		
				ł						
				F						
				F						
				1				1		
Wa	ater Strikes	2000 200	Re	marks:						
Struck at (n		Depth: 3.40	No	groundwa	ater enco	untered.				
		Width: 4.00								
		Length: 1.10 Stability:	Tor	mination	Reason	T	Last Updat	ted -		
		Lucione E						Peri		
		Stable	Ter	minated on	refusal		07/11/202	AU		

200				ect No.		t Name:		Trial Pit ID
	CAU	SEWAY	100000	04035		1 North Apron & South Apron GI Kilwex		1000000000
	-	GEOTECH	Coor	dinates	Client	Airport Authority		TP41
Method:			-	E	- D. C	s Representative:	100	
rial Pitting				N	AECON		100	Sheet 1 of 1 Scale: 1:25
lant:			Elev	vation	Date:	Logger:	-	CONTRACTOR AND
T Tracked Ex			500-07	mOD	02/08/			DRAFT
Depth (m)	Sample / Tests	Field Records	(mOD)	Depth (m)	Legend		Water	
0.30 0.30 0.50 0.50 0.50 0.50 0.50	ES ES2 B1 ES ES3 B4	PID = 1.70ppm PID = 0.60ppm		0.10		MADE GROUND: Firm greyish brown slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular to subrounded of mixed lithologies. MADE GROUND: Firm brown slightly sandy gravelly CLAY with low co content and fragments of plastic, red brick and concrete. Sand is fine coarse. Gravel is subangular to subrounded fine to coarse. Cobbles as subangular to subrounded of mixed lithologies. MADE GROUND: Soft dark greenish brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded of mixed lithologies.	obble to e	10-
90	85	PID = 2.40ppm		2.10		Firm greyish brown slightly sandy slightly gravelly CLAY with low cobb content. Sand is fine to coarse. Gravel is subangular to subrounded fit to coarse. Cobbles are subangular to subrounded of mixed lithologies	ne e	2.0
50 50 00 00	ES ES8	PID = 0.70ppm		3.20		Stiff dark grey slightly sandy gravelly CLAY with medium cobble conte		30
					0.0	Sand is fine to coarse. Gravel is subangular to subrounded fine to coal Cobbles are subangular to subrounded of limestone.		
.50 .50	B9	PID = 0.00ppm		3.50	a market	End of trial pit at 3.50m		35
								45
	Strikes	Depth: 3.50	Rema		020/02/00	2000		
itruck at (m)	Remark	width: 1.10	No gr	roundwate	er encour	ntered		
		Length: 4.60						
		Stability:	Term	ination R	eason	Las	Updat	ed
		Stable	Termi	nated on re	efusal.	.07	/11/202	≥ AG

		SEWAY	21-	Project No. 21-04035 Coordinates		Project Name: NASAH North Apron & South Apron GI Kilwex Client:				
		GEOTECH	1000		Dublin		TP42			
Method:			+	E	35 TO C. LO.	s Representative:		Sheet 1 of		
rial Pitting				N	AECON	Starting and the start of the s		Scale: 1:2		
lant:			Elevation		Date:	Logger:		Scale: 1:2		
T Tracked Exc	avator		mOD		29/07/			DRAFT		
Depth	Sample /	E-H-P	Level	Depth	Legend	Description		Water		
(m)	Tests	Field Records	(mOD)	(m)	Legend	TOPSOIL with rootlets		ž .		
0.30 0.30 0.30 0.30 0.50	B5 ES ES1 ES ES2	PID = 1.70ppm		0.10		MADE GROUND: Firm to stiff light greyish brown slightly sandy g CLAY with medium cobble content. Sand is fine to coarse. Gravel subangular to subrounded fine to coarse. Cobbles are subangula subrounded of mixed lithologies. MADE GROUND: Firm dark brown slightly sandy gravelly silty CL medium cobble content and fragments of glass, ceramic and cor Sand is fine to coarse. Gravel is subangular to subrounded fine to	AY with	0.		
).70).70	86	PID = 0,70ppm				Cobbles are subangular to subrounded of mixed lithologies.				
				1.00		MADE GROUND: Firm greenish grey slightly sandy gravelly silty (low cobble content. Sand is fine to coarse. Gravel is subangular subrounded fine to coarse. Cobbles are subangular to subround mixed lithologies.	to	5.31		
1.30 1.30 1.50	ES ES3	PID = 0.90ppm		1.30	* * * * ; * * * * ; * * * * ;	Soft to firm light brown with black mottling sandy slightly gravel with low cobble content. Sand is fine to coarse. Gravel is subang subrounded fine to coarse. Cobbles are subangular to subround mixed lithologies.	gular to	1		
1.70 1.70	88	PID = 0.00ppm		1.80	X X X X X X X X X X X X X X X X X X X	Dark grey slightly gravelly slightly silty fine to coarse SAND with cobble content and one bolder. Gravel is subangular to subroun limestone. Cobbles are subangular to subrounded of limestone.	ded of	2		
2.20 2.20	89	PID = 0.10ppm		2.20	X - X - X - X - X - X - X - X - X - X -	Dark grey sandy gravelly SILT. Sand is fine to coarse. Gravel is sulfine to coarse of limestone.	bangular			
2.50	E54			2.60		Stiff dark grey slightly sandy gravelly CLAY with medium cobble Sand is fine to coarse. Gravel is subangular to subrounded fine to Cobbles are subangular to subrouded of limestone.		3		
3.40 3.40	B10	PID = 0.00ppm		3.40	24.70	End of trial pit at 3.40m		,		
322			1.00	marks:						
Struck at (m)	er Strikes Remar	Depth: 3.40 Width: 1.10 Length: 6.10	-973	marks: groundw	ater enco	untered.				
		Stability:		rmination			07/11/2	Pv		

CAUSEWAY GEOTECH		Project No. 21-0403S Coordinates		Project NASAH Client: Dublin		Trial Pit ID			
Method: Trial Pitting			Elevation mOD		AECON	Client's Representative: AECOM			
Plant: ST Tracked Ex	xcavator				Date: 08/09/	Logger: 2022 BS		DRAFT	
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water		
0.50 0.50 0.50	B5 E51	PID = 0.20ppm		0.12		TOPSOIL MADE GROUND: Brown sandy gravelly CLAY with low cobble conte Sand is fine to coarse. Gravel is fine to coarse. Firm brown sandy gravelly CLAY with low cobble content. Sand is fi	ine to	0.5	
20 20 20	B6 ES2	PID = 0.20ppm		1.20	7 TO	coarse. Gravel is angular to subangular fine to coarse. Cobbles are subangular. Stiff sandy gravelly CLAY with low cobble and boulder content. San fine to coarse. Cobbles and boulders are subangular.		18-	
2.00 2.00	B7 ES3	PID = 0.20ppm						13	
2.50 2.50 2.50	B8 E54	PID = 0.00ppm		2.30		Very stiff grey slightly silty slightly sandy gravelly CLAY. Sand is fine coarse. Gravel is subangular to angular fine to coarse. End of trial pit at 2.50m	to	25	
								10-	
								4.0 -	
								45	
Wate Struck at (m)	er Strikes Remark	Width: 1.00	Rema No gr	arks: roundwat	er encour	ntered.			
		Stability: Stable	91.00	ination R			07/11/2022		

			Project No.		Project	Trial Pit ID			
	CAUS	SEWAY	21-04035 Coordinates		NASAH North Apron & South Apron GI Kilwex Client: Dublin Airport Authority			TDAA	
		GEOTECH						TP44	
1ethod:				E	22.350 A.M.	Representative:	Shi	eet 1 of	
rial Pitting				N	AECON	12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	ale: 1:25	
lant:			Elevation		Date:	Logger:			
T Tracked Exc			mOD		31/08/	2022 MRG	DRAFT		
Depth (m)	Sample / Tests	Field Records	(mOD)	Depth (m)	Legend	Description	Water		
				50000		TOPSOIL			
1.40 1.50 1.50	B5 ES1	PID = 7.20ppm		0.15 8.69		MADE GROUND: Grey slightly sandy slightly silty subangular to angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. MADE GROUND: TERRAM MADE GROUND: Firm dark brown slightly silty slightly sandy gravelly CLAY with medium cobble content and fragments of red brick, concrete, tarmac, plastic and timber. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies.		0.5	
.00	86			-				1.0	
.00	ES2	PID = 52.40ppm	1						
.50 .50	ES3	PID = 75.30ppm		1.20		MADE GROUND: Soft to firm greenish brown slightly sandy slightly gravelly CLAY with low cobble content and fragments of ceramics, lead, rope, plastic, fabric and timber. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded of mixed lithologies.		13	
		Moderate flow at 2.70m		2.60	200 (200) 200 (2	Soft to firm greenish grey slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies.	•	2	
10 50	B8	PID = 12.40ppm		3.60				1	
				3.00		End of trial pit at 3.60m			
								4	
	r Strikes	Depth: 3.60	Ren	narks:			7.79		
Struck at (m)	Remark	KS 145.444 3.45							
2.70	Woudlate	III W							
2,70	at 2.70	m Length: 1.65							
2,70	at 2.70	Length: 1.65 Stability:	Terr	mination	Reason	Last U	pdate	d	

CAUSEWAY					Project NASAH Client:	Trial Pit ID		
Method: Trial Pitting		GEOTECH		E N	The second of the	Airport Authority s Representative:		heet 1 of 1 Scale: 1:25
Plant:			Ele	vation	Date:	Logger:	+	
3T Tracked Ex	A CHARLES		mOD		14/09/	2022 MRG	\perp	DRAFT
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	I SOLICE AND ADDRESS.	Water	
0.30 0.30 0.30	84 ES1	PID = 1.40ppm		0.15		MADE GROUND: Firm greyish brown slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded of mixed lithologies. MADE GROUND: Firm dark brown slightly sandy slightly gravelly CLAY with low cobble content and rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subanguar to subrounded of mixed lithologies.		0.5
00 00	B5 ES2	PID = 3.20ppm		1.10		MADE GROUND: Firm light greyish brown slightly sandy gravelly CLAY with low cobble content an d fragments of brick, concrete, plastic and timber. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		10-
.60 .60 .60	86 ES3	PID = 1.80ppm						15
				2.10		End of trial pit at 2.10m		25
								30-
								40-
								45
Wate Struck at (m)	er Strikes Remark	Depth: 2.10	1 5 5 5 5 5 5 5	narks: groundwat	ter encou	intered.		The second
STOCK SE (III)	neman	Width: 1.05	17553			200		
į.		Length: 3.40						
		Stability:	Terr	mination R	Reason	Last L		
		Stable	Term	ninated due	to service	s encountered. 07/1	1/202	≥ IA(G

4.4			Proi	ect No.	Project	Name:			Trial Pit ID	
	-		W. C. C.	04035	- C. L. C. W.	North Apron & South Apron GI Kilwex		1 8	mai ricio	
	CAU	SEWAY		dinates	Client:			1	TP46	
		GEOTECH	Cool	umates		Airport Authority				
Method:			-	E	1 200 10 10	Client's Representative:				
Stable				N	AECON	A CONTRACT C			heet 1 of 1 Scale: 1:25	
Plant:			Ele	vation	Date:		Logger:	+	Jedici Liko	
BT Tracked Ex	cavator		mOD		29/07/		MRG		DRAFT	
Depth	Sample /	Field Records	Level	Depth	Legend	Description		Water		
(m)	Tests		(mOD)	(m)	NUNIU.	TOPSOIL with rootlets.		3		
				0.10		MADE GROUND: Firm to stiff light greyish brown slightl	y sandy gravelly	1		
						CLAY with medium cobble content. Sand is fine to coars	se. Gravel is			
0.30	B5 ES					subangular to subrounded fine to coarse.			1	
0.30	ES1									
0.30	100000	PID = 1.50ppm		0.50		MADE GROUND: Firm to stiff dark brown sandy very gra	avelly CLAY with	1	0.5	
0.50 0.50	ES ES2					medium cobble content and fragments of concrete and				
	12500-					fine to coarse. Gravel is subangular to subrounded fine Cobbles are subangular to subrounded of limestone.	to coarse.			
0.80	B6	P1D = 0.80ppm								
J.0U		Pib = 0.ooppiii								
				1.00		Soft to firm greenish grey and light brown slightly sand	y slightly gravelly	1	10-	
					24	CLAY with low cobble content. Sand is fine to coarse. G		ř.		
					a Vie	to subrounded fine to coarse. Cobbles are subangular t limestone.	o subrounded of			
					200	milescore.			1 4	
	la contract									
1.50	ES			ŀ					15	
1.50	ES3			E.						
			1	-	7					
					2.72.6					
2.00	B7			-					2.0	
2.00		PID = 0.00ppm			24					
					270					
				2.30	32.5			-		
2.40	88				2.76.6	Soft grey sandy slightly gravelly CLAY with low cobble of fine to coarse. Gravel is subangular to subrounded fine				
2.40	CERTIFICATION OF THE PERSON OF	PID = 0.00ppm		2.50		Cobbles are subangular to subrounded of limestone.			25	
2.50	ES4					Stiff dark grey slightly sandy gravelly CLAY with medium				
					10.1 Jun 1	Sand is fine t coarse. Gravel is subangular to subrounde Cobbles are subangular to subrounded of limestone.	ed fine to coarse.			
			1	į.	200	•				
				1	200					
				-	2.2				10-	
				1						
3.20	B9			t						
3.20	435	PID = 0.00ppm		3.30	4			_		
		1000		1		End of trial pit at 3.30m				
				t						
				Ł					550	
				E						
				F						
		1		F					200	
				F					40	
			1	1						
				1						
				t						
				į.						
				t					4.5	
				t						
				Ł						
				ł						
				1						
14/	as Chelless	_	Par	narks:						
Struck at (m)	er Strikes Reman	Depth: 3.30	1,000	groundwa	iter encou	intered.				
Struck dt (III)	nemar	Width: 1.15	0.22		A VAN					
		Length: 4.70								
		Stability:	Ter	mination	Reason		Last U	Jodai	ed =	
			1000							
		Stable	Jen	minated on	rerusal.		07/1	1/202	4 1415	

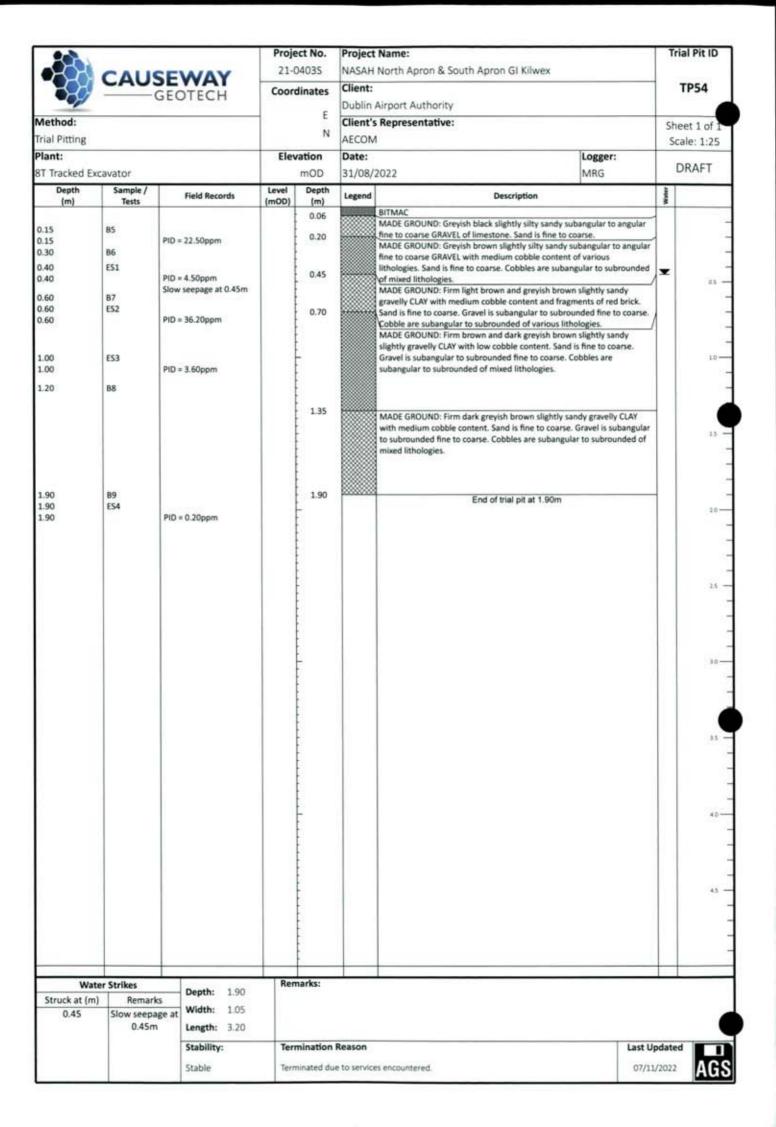
- SEO			1 1 1 1 1 1 1	ect No. 04035		t Name:		Tri	ial Pit ID	
Q - Q	CAU	SEWAY	-	dinates	Client	H North Apron & South Apron GI Kilwex		TP47		
		GEOTECH	Coor	uinates		Airport Authority			1747	
lethod:			Elevation		100000000000000000000000000000000000000	Client's Representative:				
ial Pitting					AECON		Sheet 1 o			
lant:					Date:	ger:				
T Tracked Exc				mOD	05/08/	/2022 MR	G	[DRAFT	
Depth (m)	Sample / Tests	Field Records	(mOD)	Depth (m)	Legend	552775757		Water		
.50 .50 .50 .00 .00 .00 .00 .00 .50	B1 ES ESS ESS ESS ESS ESS ESS ESS ESS ESS	PID = 1.80ppm PID = 0.00ppm	Rema	0.15 0.80 1.10		MADE GROUND: Firm grey slightly sandy gravelly CLAY with cobble content. Sand is fine to coarse. Gravel is subangular subrounded fine to coarse. Cobbles are subangular to subrounded lithologies predominantly limestone. Firm to stiff light brown mottled orange and black slightly s gravelly CLAY with low cobble content. Sand is fine to coarse subangular to subrounded fine to coarse. Cobbles are suba subrounded of limestone. Firm dark greyish brown slightly sandy gravelly CLAY with motontent. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to coarse. Cobbles are subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Sand is fine to coarse. Gravel is subangular to subrounded of limestone.	andy slightly e. Gravel is ngular to ledium cobble ounded fine ine.		2.0 2.5 3.0 4.0	
ruck at (m)	Remarks	Depth: 2.80 Width: 1.10	145000000000000000000000000000000000000	oundwate	er encour	stered.				
		Length: 4.70 Stability:	Termi	nation Re	eason		Last Upda	ited		
							1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		100	

	CAUS	SEWAY	21-0	ot No. 0403S dinates	Project NASAH Client:	Name: North Apron & South Apron GI Kilwex		Trial Pit ID
Method:		SEOTECH	31712	23.60 E 47.30 N		Airport Authority Representative:	111 0	Sheet 1 of 1 Scale: 1:25
lant:			Elev	ation	Date:	Logger:		DRAFT
T Tracked Exc	W631115104		ļ.,,	mOD	04/08/2	2022 MRG		110000000000000000000000000000000000000
Depth (m)	Sample / Tests	Field Records	(mOD)	Depth (m)	Legend	Description	Water	
.50 .50 .50 .50	B1 ES ES2	PID = 1.10ppm		0.20		MADE GROUND: Firm light brown slightly sandy gravelly CLAY we cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subround limestone. Firm to stiff dark brown slightly sandy gravelly CLAY with medium content. Sand is fine to coarse. Gravel is subangular to subrounded to coarse. Cobbles are subangular to subrounded of limestone.	ed of	10-
20 20 50	ES E54 B3	PID = 0.00ppm		1.70		Stiff dark grey slightly sandy gravelly CLAY with medium cobble Sand is fine to coarse. Gravel is subangular to subrounded fine t Cobbles are subangular to subrounded of limestone.		1.5
2.00	ES6	PID = 0.00ppm		2.40		End of trial pit at 2.40m		20-
								30-
								4.0
								43
Wat	ter Strikes		Re	marks:				
Struck at (m		bepth: 2.40 Width: 1.20 Length: 4.20	140	groundw	ater enco	untered.		
		Stability: Stable	Te	rmination			07/11/2	Peri

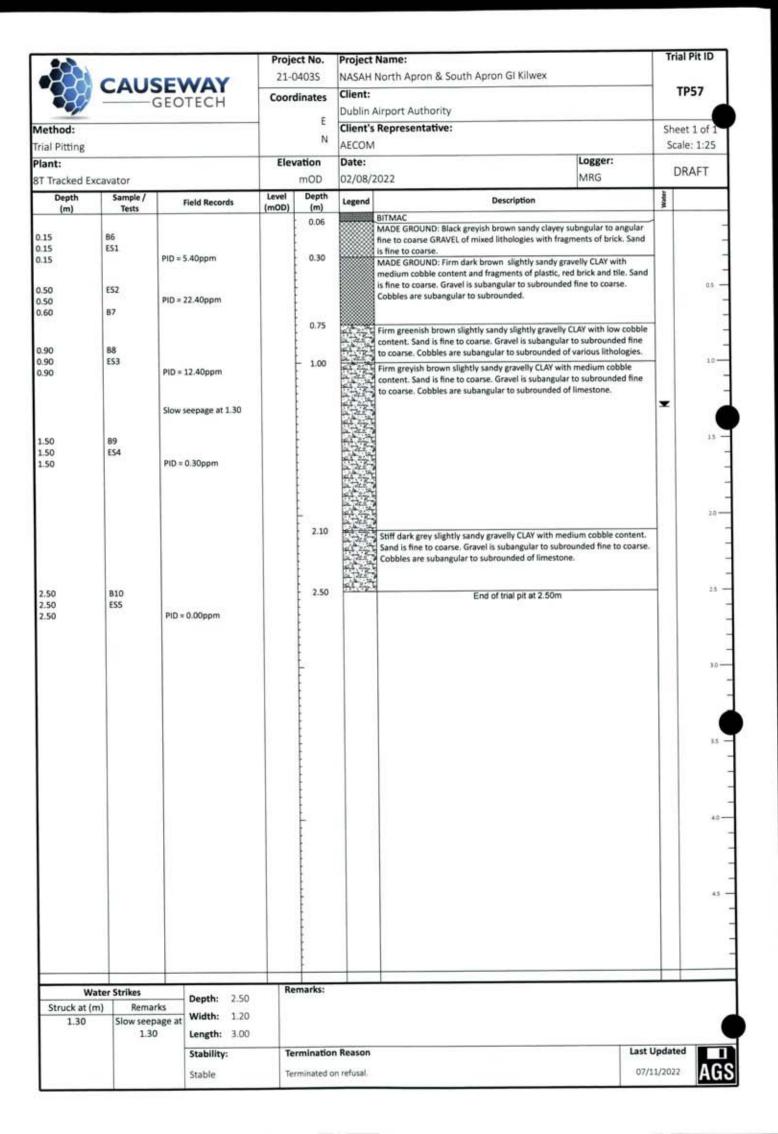
200			1	ect No.	111111111111111111111111111111111111111	t Name:		1 3	Trial Pit ID	
	CAU	SEWAY	21-0	0403S		North Apron & South Apron GI Kilwex				
B = B	CAO	GEOTECH	Coord	dinates	Client:				TP49	
-01			3171	70.60 E	100 LODGE	Dublin Airport Authority				
lethod:			242446 70 N		100000	s Representative:		Sheet 1 o		
rial Pitting			3352			AECOM			Scale: 1:25	
lant: T Tracked Ex	enuntar.		Elev	ration	Date:	2022	Logger:		DRAFT	
Depth Depth	Sample /		Level	mQD Depth	04/08/	- Caracteristics	MRG	-		
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description TOPSOIL		Water		
				0.15		N. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.				
				0,13		MADE GROUND: Firm light brown slightly sandy gr medium cobble content. Sand is fine to coarse. Gr.				
						subrounded fine to coarse. Cobbles are subangula				
50	83					limestone.			0.5	
50	ES									
50 50	ES1	PID = 0.80ppm								
		- in - a support								
00	ES ES2		[1.0	
00	£32	PID = 0.00ppm		1.10	64.00	Firm to stiff dark brown slightly sandy gravelly CLA				
					4 4 4	content. Sand is fine to coarse. Gravel is subangula to coarse. Cobbles are subangular to subrounded of	r to subrounded fine			
					4 25	to course, coodies are subangular to subrounded o	a amestone.			
			[472.0				1.0	
50	85		[220					
30					2.2					
			1		7					
00	ES								90	
00	ES4	PID = 0.00ppm	[
		155		2.20		Stiff dark grey slightly sandy gravelly CLAY with me	dium cobble content.	1		
						Sand is fine to coarse. Gravel is subangular to sub- Cobbles are subangular to subrounded of limeston	ounded fine to coarse.	3		
						couples are subangular to subrounded of limeston	W		99	
			E		2.0				2.5	
70	86			2.70	200	F-4-711-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		1		
						End of trial pit at 2.70m				
			E						3.0	
			1							
			E						38	
									100	
			E						40	
			1							
									35	
			1						4.5	
			1							
			1							
	er Strikes	Depth: 2.70	Rema		CNOCK TO SERVE	CONTRACT AND				
truck at (m)	Remarks	Width: 1.20	No gr	oundwat	er encour	ntered.				
		Length: 4.10								
		TO SOLD STATE OF THE STATE OF T	7	lastic - T			1 4000			
		Stability:	12000	ination R			Last U			
		Stable	400	nated on re			07/1			

	CAU	SEWAY GEOTECH	21-	o403S	NASAH	Name: North Apron & South Apron GI Kilwex			TP50
Method:		GEOTECH	100000000	dinates 25.10 E		Airport Authority s Representative:			
Frial Pitting			2424	46.80 N	AECON				heet 1 of 1 Scale: 1:25
Plant:			Elev	vation	Date:		Logger:	+	
BT Tracked Ex	xcavator			mOD	05/08/	2022	MRG		DRAFT
Depth (m)	Sample / Tests	Field Records	(mOD)	Depth (m)	Legend	Description		Water	
0.50 0.50 0.50 0.50 0.50 1.00 1.00 1.00	B1 ES ES2 B3 ES4 ES6	PID = 0.10ppm PID = 0.00ppm		0.15		MADE GROUND: Firm light brown slightly sandy grave cobble content. Sand is fine to coarse. Gravel is suban subrounded fine to coarse. Cobbles are subangular to mixed lithologies. Firm to stiff dark brown slightly sandy gravelly CLAY wontent. Sand is fine to coarse. Gravel is subangular to coarse. Cobbles are subangular to subrounded of limestone. Stiff dark grey slightly sandy gravelly CLAY with media. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. End of trial pit at 2.40m	gular to subrounded of ith medium cobb o subrounded fine mestone.	ie :	15 15 15 15 15 15 15 15 15 15 15 15 15 1
								+	
Struck at (n	ater Strikes m) Remar	Depth: 2.40 Width: 1.10 Length: 4.50	100,000	marks: groundwa	ater enco	untered.			
		Stability: Stable	100	rmination				t Upda 7/11/20	

	CAUSEWAY			ect No. 0403S	NASAH	t Name: I North Apron & South Apron GI Kilwex			Trial Pit ID
Method: Trial Pitting		GEOTECH	Coord	dinates E N	11/20 11/01	Airport Authority s Representative:		1000	TP53 Sheet 1 of 1 Scale: 1:25
Plant:	magness		Elev	ation	Date:		Logger:		DRAFT
Tracked Excar Depth	Sample /	Field Percede	Level	mOD Depth	09/09/	V-2000	BS	ž ž	
(m) 0.50 0.50 0.50 0.50 1.50 1.50 1.50 2.50 2.50 2.50	B4 E51 B5 E52	PID = 0.00ppm	(mOD)	(m) 0.25 0.70	Legend A DATE OF THE PARTY OF	TOPSOIL MADE GROUND: Soft brown sandy gravelly CLAY content. Sand is fine to coarse. Gravel is angular to coarse. Cobbles are subrounded to rounded. Stiff brown sandy gravelly CLAY with low cobble coarse. Gravel is angular to subangular fine to coasubangular to angular. Stiff to very stiff dark brownish grey sandy gravelly content. Sand is fine to coarse. Gravel is fine to coasubangular to subrounded. End of trial pit at 2.50m	o subangular fine i	ne to	25 25 46-
Wate Struck at (m)	er Strikes) Remark	Width: 1.00	Rema No gr		ter encou	ntered.			
		Length: 2.40 Stability: Stable		ination R				ast Updat 07/11/202	- Pori



	CALL	CENACANO		ect No. 0403S	7.0	t Name: H North Apron & South Apron GI Kilwex		1	Trial Pit II	
	CAU	SEWAY	-	dinates	Client			TP56		
-0,7		GEOTECH	Coor		A	Airport Authority			1730	
lethod:			7	E	Client	Shoot 1				
ial Pitting				N	AECON	M.			sheet 1 of Scale: 1:2	
lant:			Elev	vation	Date:		Logger:		Julie, 1,2	
T Tracked E	xcavator			mOD	02/08/	/2022	MRG		DRAFT	
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water		
30 30 30 30 50 50 50 50 50 60	B1 E5 E52 B4 E5 E53 B6	PID = 8.20ppm PID = 0.20ppm PID = 2.40ppm	(moo)	0.10		TOPSOIL MADE GROUND: Firm greyish brown slightly sandy gradelium cobble content. Sand is fine to coarse. Grave subrounded fine to coarse. Cobbles are subangular to mixed lithologies. MADE GROUND: Firm brown slightly sandy gravelly C content. Sand is fine to coarse. Gravel is subangular to coarse. Cobbles are subangular to subrounded of v MADE GROUND: Firm greenish grey slightly sandy gravelly C cobble content. Sand is fine to coarse. Gravel is subangular to coarse. Gravel is subangular to coarse. Gravel is subangular to coarse. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Gravel is subangular to subrounded of lift ocoarse. Cobbles are subangular to subrounded of lift ocoarse. Cobbles are subangular to subrounded of lift ocoarse. Cobbles are subangular to subrounded of lift ocoarse.	LAY with low cobble of subrounded fine carious lithologies. Invelly CLAY with low igular to cobble of subrounded. Journal of the cobble of subrounded fine cobble of subrounded fine cobble of subrounded fine.	3	1.1	
0	E58	PID = 0.00ppm		2.70		Stiff dark grey slightly sandy gravelly CLAY with mediu Sand is fine to coarse. Gravel is subangular to subroun Cobbles are subangular to subrounded of limestone.	m cobble content. ded fine to coarse.		2.5	
				3.50		End of trial pit at 3.50m			40	
Water ruck at (m)	Strikes Remarks	Depth: 3,50 Width: 1.20 Length: 4.10	Remar No gro	rks: oundwater	rencoun	tered.				
		Stability:	Termin	nation Rea	ason		Last Upd	atec		
	1	Stable	Termina	ated on refu	usal		07/11/20			

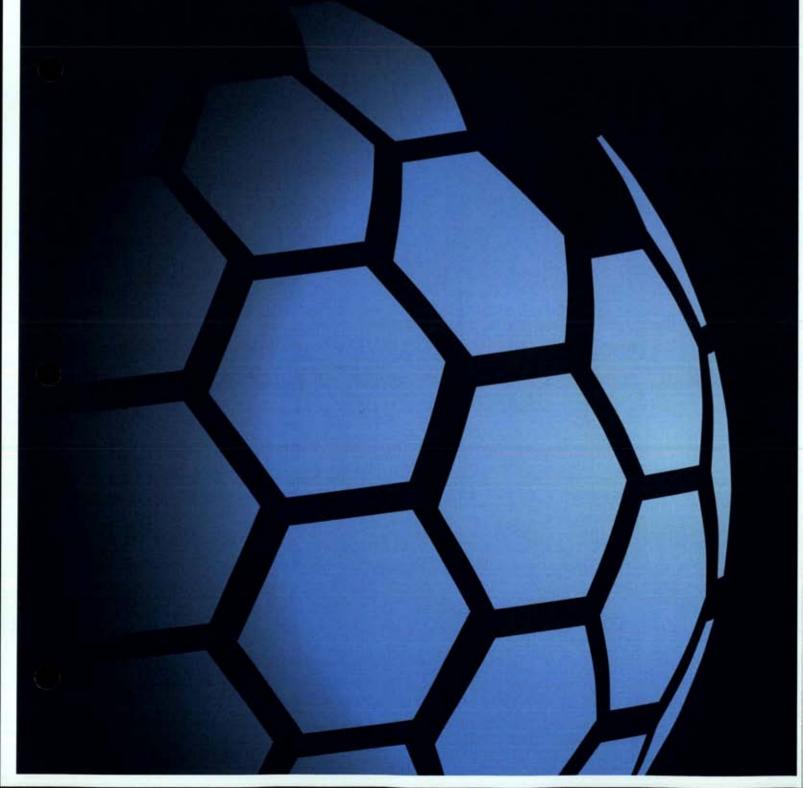


CAUSEWAY				ect No. 0403S dinates	NASAH Client:			Trial Pit ID
Method: Trial Pitting			Elevation		Client's AECON			heet 1 of 1 Scale: 1:25
Plant: BT Tracked Exc	cavator		Ele	mOD	Date: 01/09/	2022 Logger: MRG		DRAFT
Depth (m)	Sample /	Field Records	Level (mOD)	Depth (m)	Legend	Description	Vater	
Depth (m) 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	## Tests ## B5 ## E51 ## B6 ## E52 ## E53 ## E54 ## B7	Field Records PID = 10.20ppm PID = 41.30ppm PID = 12.40ppm Slow seepage at 2.10m	(mOD)	0.80 1.35	Legend The second seco	BITMAC MADE GROUND: Blackish grey slightly silty slightly sandy subangular to angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. MADE GROUND: Soft dark greenish brown slightly silty gravelly CLAY with medium cobble content, fragments of timber and plastic. Gravel is subangular to subrounded fine to coarse. Firm greyish brown and brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded of mixed lithologies. Soft to firm dark blackish grey slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	Nation A	25 25 25 40-
Water itruck at (m) 2.10	r Strikes Remarks Slow seepage 2.10m	Depth: 2.90 Width: 1.05 Length: 3.00	Rem	arks:				43
		Stability: Unstable	- U	nination R		07/11		Peri

•			Proje	ect No.	Project	Name:	Т	rial Pit ID
223	CALIS	EWAY	10000	04035		North Apron & South Apron GI Kilwex		
+38	CAUS	SEOTECH	Coord	dinates	Client:		1	TP59
-07/		JEO I ECIT		Е		Airport Authority		
ethod:				N	Mr. 2000	Representative:		neet 1 of
al Pitting					AECOM		S	cale: 1:25
ant: Tracked Exc	auatar.		Elev	mOD	Date: 02/09/3	Logger: MRG	1	DRAFT
Depth Depth	Sample /	Fold Bereite	Level	Depth	-		-	16100000.0
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description BITMAC	Wate	
50 50 20 20 20 00 00	B5 E51 B6 E52 B7 E53	Slow seepage at 1.55m		0.12 0.95 1.35		MADE GROUND: TERRAM Soft greenish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded of mixed lithologies. Firm greyish brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded of limestone. Stiff dark grey slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded of limestone. End of trial pit at 2.80m	*	10 13 25 30 40
Wate Struck at (m) 1.55	Remarks Slow seepag	e at Width: 1.25	Ren	narks:				
	1.55m	Length: 3.15						CONT.
		Stability:	Terr	mination	Reason	Last U	pdate	ed
		Unstable		ninated on		07/11		



APPENDIX C Environmental and Geotechnical Laboratory Results



Eurofins Chemtest Ltd

Depot Add Newmarket CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.: 22-22671-1

Initial Date of Issue: 28-Jun-2022

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road

Balnamore Ballymoney County Antrim BT53 7QL

Contact(s): Carin Cornwall

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Project 21-0403S DAA South Apron

Quotation No.: Q21-23509 Date Received: 17-Jun-2022

Order No.: Date Instructed: 20-Jun-2022

No. of Samples: 3

Turnaround (Wkdays): 7 Results Due: 28-Jun-2022

Date Approved: 28-Jun-2022

Approved By:

Details: Stuart Henderson, Technical

Manager



Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL

Tel: 01638 606070 Email: info@chemtest.com

Results - Leachate



Client: Causeway Geotech Ltd		ob No.:	22-22671					
Quotation No.: Q21-23509				st Sam		1450588		
			S	ample L		BH03		
					e Type:	SOIL		
					pth (m):	0.50		
				Date Sa	ampled:	15-Jun-2022		
Determinand	Accred.	SOP	Type	Units	LOD			
pH	U	1010	2:1		N/A	8.1		
Ammonia (Free)	N	1220	2:1	mg/l	0.050	< 0.050		
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.078		
Nitrite	U	1220	2:1	mg/l	0.020	0.047		
Nitrate	U	1220	2:1	mg/l	0.50	5.8		
Sulphate	U	1220	2:1	mg/l	1.0	4.8		
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050		
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050		
Hardness	U	1415	2:1	mg/l	15	120		
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	< 0.20		
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	13		
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	1.9		
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05		
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50		
Lead (Dissolved)	U	1455	2:1	µg/I	0.50	< 0.50		
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	1.0		
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5		
Cadmium (Total)	N	1455	2:1	µg/l	0.11	< 0.11		
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	< 5.0		
Chromium (Trivalent)	N	1490	2:1	µg/I	20	< 20		
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20		
Total Organic Carbon	U	1610	2:1	mg/l	2.0	5.5		
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010		
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010		
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010		
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010		
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010		
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010		
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010		
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010		
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010		
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010		
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010		
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010		
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010		
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010		
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010		
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010		
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20		

Client: Causeway Geotech Ltd	THE RE	Che	mtest J	ob No.:	22-22671	22-22671
Quotation No.: Q21-23509		Chemte	st Sam	ple ID.:	1450588	1450591
		Sa	ample Lo	ocation:	BH03	BH04
				e Type:	SOIL	SOIL
			Top Dep	0.50	0.30	
			Date Sa	15-Jun-2022	15-Jun-2022	
			Asbest	NEW-ASB	,	
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A		
Asbestos Identification	U	2192		N/A	No Asbestos Detected	
Moisture	N	2030	%	0.020	15	6.0
pH	U	2010		4.0	8.4	9.7
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.70	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.028	0.23
Total Sulphur	U	2175	%	0.010	0.068	0.35
Sulphur (Elemental)	U	2180	mg/kg	1.0	2.7	< 1.0
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010	< 0.010
Cyanide (Free)	U		mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300			< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325			0.58	4.1
Sulphate (Total)	U	2430	%	0.010	0.086	0.64
Arsenic	U	2455	mg/kg	0.5	7.8	4.2
Cadmium	U		mg/kg		1.2	0.44
Chromium	U	2455			-11	7.4
Copper	U		mg/kg		20	12
Mercury	U		mg/kg		0.09	< 0.05
Nickel	U		mg/kg		22	21
Lead	Ü		mg/kg		36	7.4
Selenium	U		mg/kg		0.33	0.59
Zinc	U		mg/kg		71	43
Chromium (Trivalent)	N		mg/kg	1.0	11	7.4
Chromium (Hexavalent)	N		mg/kg		< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	6.2	2.9
Total TPH >C6-C40	U	2670	mg/kg	10	77	< 10
Aliphatic TPH >C5-C6	N	2680		1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680		1.0	< 1.0	
Aliphatic TPH >C8-C10	Ü	2680		1.0	< 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	
Aliphatic TPH >C12-C16	Ü	2680		1.0	< 1.0	
Aliphatic TPH >C16-C21	U	2680		1.0	< 1.0	
Aliphatic TPH >C21-C35	U	2680			< 1.0	
Aliphatic TPH >C35-C44	N	2680		1.0	< 1.0	
Total Aliphatic Hydrocarbons	N	2680		5.0	< 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg		< 1.0	
Aromatic TPH>C7-C8	N	2680	mg/kg	1.0	< 1.0	
Aromatic T C8-C10	Ü	2680	mg/kg		< 1.0	



Client: Causeway Geotech Ltd		Che	mtest J	22-22671	22-22671	
Quotation No.: Q21-23509			st Sam	1450588	1450591	
		Sa	ample Lo	BH03	BH04	
			Sampl	e Type:	SOIL	SOIL 0.30
			Top De	pth (m):	0.50	
			Date Sa	15-Jun-2022	15-Jun-2022	
			Asbest	NEW-ASB		
Determinand	Accred.	SOP	Units	LOD		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	
Aromatic TPH >C16-C21	U		mg/kg		< 1.0	ž –
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	
Aromatic TPH >C35-C44	N		mg/kg		< 1.0	3
Total Aromatic Hydrocarbons	N		mg/kg		< 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	
Dichlorodifluoromethane	N		µg/kg		< 0.20	
Chloromethane	N		µg/kg	0.20	< 0.20	
Vinyl Chloride	N	2760			< 0.20	
Bromomethane	N		µg/kg		< 0.20	
Chloroethane	N	2760	µg/kg	0.20	< 0.20	
Trichlorofluoromethane	N	2760		0.20	< 0.20	
1,1-Dichloroethene	N		µg/kg	0.20	< 0.20	
Trans 1,2-Dichloroethene	N	2760	µg/kg		< 0.20	6
1,1-Dichloroethane	N		µg/kg		< 0.20	
cis 1,2-Dichloroethene	N		µg/kg		< 0.20	
Bromochloromethane	N		μg/kg	0.50	< 0.50	
Trichloromethane	N	2760	µg/kg	0.20	< 0.20	
1,1,1-Trichloroethane	N	2760	µg/kg		< 0.20	
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20	
1,1-Dichloropropene	N	2760	μg/kg	0.20	< 0.20	
Benzene	N	2760		0.20	< 0.20	i.
Benzene	U		µg/kg	1.0	< 1.0	
1,2-Dichloroethane	N	2760	μg/kg		< 0.20	
Trichloroethene	N		µg/kg		< 0.20	
1,2-Dichloropropane	N		µg/kg		< 0.20	
Dibromomethane	N		µg/kg		< 0.20	
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20	-
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	
Toluene	N	2760	µg/kg	0.20	< 0.20	7
Toluene	U	2760		1.0	< 1.0	
Trans-1,3-Dichloropropene	N		µg/kg		< 0.20	
1,1,2-Trichloroethane	N		µg/kg		< 0.20	
Tetrachloroethene	N		µg/kg		< 0.20	
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	
Dibromochloromethane	N	2760			< 0.20	
1,2-Dibromoethane	N	2760			< 0.20	
Chlorobenzene	N	2760			< 0.20	

Client: Causeway Geotech Ltd	F 30 F 19	Che	mtest Jo	22-22671	22-22671	
Quotation No.: Q21-23509			st Sam		1450588	1450591
		Sa	ample Lo		BH03	BH04
			Sample	e Type:	SOIL	SOIL
			Top Dep		0.50	0.30 15-Jun-2022
			Date Sa	impled:	15-Jun-2022	
			Asbest	NEW-ASB		
Determinand	Accred.	SOP	Units	LOD		
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20	
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20	
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20	
m & p-Xylene	U	2760	μg/kg	1.0	< 1.0	
o-Xylene	N	2760	µg/kg	0.20	< 0.20	
o-Xylene	U	2760	μg/kg	1.0	< 1.0	
Styrene	N	2760	µg/kg	0.20	< 0.20	
Tribromomethane	N	2760	µg/kg	0.20	< 0.20	
Isopropylbenzene	N	2760		0.20	< 0.20	
Bromobenzene	N	2760		0.20	< 0.20	
1,2,3-Trichloropropane	N	2760		0.20	< 0.20	
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20	
2-Chlorotoluene	N	2760		0.20	< 0.20	
1,3,5-Trimethylbenzene	N	_	µg/kg	0.20	< 0.20	
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	
Sec-Butylbenzene	N	2760		0.20	< 0.20	
1,3-Dichlorobenzene	N	2760			< 0.20	
4-Isopropyltoluene	N	2760		0.20	< 0.20	
1,4-Dichlorobenzene	N	2760	µg/kg		< 0.20	
N-Butylbenzene	N	2760			< 0.20	
1,2-Dichlorobenzene	N		µg/kg	0.20	< 0.20	
1,2-Dibromo-3-Chloropropane	N	2760		0.20	< 0.20	
1,2,4-Trichlorobenzene	N	2760		0.20	< 0.20	
Hexachlorobutadiene	N	2760			< 0.20	
1.2.3-Trichlorobenzene	N	2760	µg/kg		< 0.20	
Methyl Tert-Butyl Ether	N	2760			< 0.20	
N-Nitrosodimethylamine	N	2790			< 0.050	
Phenol	N	2790			< 0.050	
2-Chlorophenol	N	2790		0.050	< 0.050	
Bis-(2-Chloroethyl)Ether	N	2790		0.050	< 0.050	
1,3-Dichlorobenzene	N	2790		0.050	< 0.050	
1,4-Dichlorobenzene	N	2790		0.050	< 0.050	
1,2-Dichlorobenzene	N	2790		0.050	< 0.050	
	N	2790	ma/ka	0.050	< 0.050	
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050	
Bis(2-Chloroisopropyl)Ether Hexachlord	N	2790	mg/kg	0.050	< 0.050	



Client: Causeway Geotech Ltd	11		mtest J	22-22671	22-22671	
Quotation No.: Q21-23509			st Sam		1450588	1450591
		S	ample Lo		BH03	BH04
				e Type:	SOIL	SOIL
			Top De		0.50	0.30
			Date Sa	ampled:	15-Jun-2022	15-Jun-2022
			Asbest	NEW-ASB		
Determinand	Accred.	SOP	Units	LOD		The state of the s
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050	7
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050	
Nitrobenzene	N		mg/kg		< 0.050	
Isophorone	N	2790	mg/kg		< 0.050	
2-Nitrophenol	N	2790	mg/kg		< 0.050	6
2,4-Dimethylphenol	N	2790			< 0.050	
Bis(2-Chloroethoxy)Methane	N	_	mg/kg		< 0.050	
2,4-Dichlorophenol	N	2790	mg/kg		< 0.050	
1,2,4-Trichlorobenzene	N	2790	mg/kg		< 0.050	
Naphthalene	N	2790	mg/kg		< 0.050	
4-Chloroaniline	N		mg/kg		< 0.050	
Hexachlorobutadiene	N		mg/kg		< 0.050	-
4-Chloro-3-Methylphenol	N		mg/kg		< 0.050	
2-Methylnaphthalene	N		mg/kg		< 0.050	
Hexachlorocyclopentadiene	N		mg/kg		< 0.050	
2,4,6-Trichlorophenol	N		mg/kg		< 0.050	
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	
2-Chloronaphthalene	N	2790			< 0.050	
2-Nitroaniline	N	2790			< 0.050	
Acenaphthylene	N		mg/kg		0.19	
Dimethylphthalate	N		mg/kg		< 0.050	
2,6-Dinitrotoluene	N		mg/kg		< 0.050	
Acenaphthene	N		mg/kg		< 0.050	
3-Nitroaniline	N		mg/kg		< 0.050	
Dibenzofuran	N		mg/kg		< 0.050	
4-Chlorophenylphenylether	N	2790			< 0.050	
2,4-Dinitrotoluene	N	2790			< 0.050	
Fluorene	N	2790	mg/kg		< 0.050	77
Diethyl Phthalate	N	2790			< 0.050	
4-Nitroaniline	N	2790	mg/kg		< 0.050	7
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg		< 0.050	
Azobenzene	N	2790	mg/kg		< 0.050	
4-Bromophenylphenyl Ether	N	2790	mg/kg		< 0.050	
Hexachlorobenzene	N	2790	mg/kg		< 0.050	
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050	
Phenanthrene	N	2790	mg/kg		0.18	
Anthracene	N	2790	mg/kg		0.083	
Carbazole	N	2790	mg/kg		< 0.050	
Di-N-Butyl Phthalate	N	2790	mg/kg		0.071	

Client: Causeway Geotech Ltd	1.00		mtest Jo		22-22671	22-22671
Quotation No.: Q21-23509		Chemte	st Sam	1450588	1450591	
		Sa	ample Lo	BH03	BH04	
				e Type:	SOIL	SOIL
			Top Dep		0.50	0.30
			Date Sa	ampled:	15-Jun-2022	15-Jun-2022
			Asbest	os Lab:	NEW-ASB	
Determinand	Accred.	SOP	Units	LOD		
Fluoranthene	N	2790	mg/kg	0.050	0.39	
Pyrene	N	2790			0.34	
Butylbenzyl Phthalate	N	2790	mg/kg		< 0.050	
Benzo[a]anthracene	N	2790	mg/kg	0.050	0.25	
Chrysene	N	2790		0.050	0.25	
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050	
Di-N-Octyl Phthalate	N	2790		0.050	< 0.050	
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	0.37	
Benzo[k]fluoranthene	N	2790	mg/kg		0.13	
Benzo[a]pyrene	N	2790	mg/kg	0.050	0.22	
Indeno(1,2,3-c,d)Pyrene	N	2790			< 0.050	
Dibenz(a,h)Anthracene	N	2790			< 0.050	
Benzo[g,h,i]perylene	N	2790	mg/kg		0.21	
4-Nitrophenol	N	2790			< 0.050	
	U	2800			< 0.10	< 0.10
Naphthalene	N	2800			< 0.10	< 0.10
Acenaphthylene	U	2800	mg/kg		< 0.10	< 0.10
Acenaphthene	U	-			< 0.10	< 0.10
Fluorene	U	2800	mg/kg		< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg		< 0.10	< 0.10
Anthracene	U		mg/kg		0.51	< 0.10
Fluoranthene		2800				
Pyrene	U	2800			0.47	< 0.10
Benzo[a]anthracene	U	2800			< 0.10	< 0.10
Chrysene	U	-	mg/kg		< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	9 9	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800			< 0.10	< 0.10
Benzo[a]pyrene	U	2800			< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800			< 0.10	< 0.10
Dibenz(a,h)Anthracene	N		mg/kg		< 0.10	< 0.10
Benzo[g,h,i]perylene	U		mg/kg		< 0.10	< 0.10
Total Of 16 PAH's	N	2800		2.0	< 2.0	< 2.0
Demeton-O	N	2820		0.20	< 0.20	
Phorate	N		mg/kg		< 0.20	
Demeton-S	N		mg/kg		< 0.20	
Disulfoton	N		mg/kg		< 0.20	
Fenthion	N	2820	mg/kg	0.20	< 0.20	
Trichloronate	N	2820			< 0.20	
Prothiofos	N	2820	mg/kg		< 0.20	
Fensulphot	N	2820			< 0.20	

Client: Causeway Geotech Ltd	Chemtest Job No.:				22-22671	22-22671
Quotation No.: Q21-23509	(Chemte	st Sam	1450588	1450591	
		Sa	BH03	BH04		
			SOIL	SOIL		
			0.50	0.30		
			Date Sa	mpled:	15-Jun-2022	15-Jun-2022
			Asbest	os Lab:	NEW-ASB	
Determinand	Accred.	SOP	Units	LOD		S. S. L. E. L.
Sulprofos	N	2820	mg/kg	0.20	< 0.20	
Azinphos-Methyl	N	2820	mg/kg	0.20	< 0.20	
Coumaphos	N	2820	mg/kg	0.20	< 0.20	
Alpha-HCH	N	2840	mg/kg	0.20	< 0.20	
Gamma-HCH (Lindane)	N	2840	mg/kg	0.20	< 0.20	
Beta-HCH	N	2840	mg/kg	0.20	< 0.20	
Delta-HCH	N	2840	mg/kg	0.20	< 0.20	
Heptachlor	N	2840	mg/kg	0.20	< 0.20	
Aldrin	N	2840		0.20	< 0.20	
Heptachlor Epoxide	N	2840	mg/kg	0.20	< 0.20	
Gamma-Chlordane	N	2840	mg/kg	0.20	< 0.20	
Alpha-Chlordane	N	2840	mg/kg	0.20	< 0.20	
Endosulfan I	N	2840	mg/kg	0.20	< 0.20	
4,4-DDE	N	2840	mg/kg	0.20	< 0.20	
Dieldrin	N	2840	mg/kg	0.20	< 0.20	
Endrin	N	2840	mg/kg	0.20	< 0.20	
4,4-DDD	N	2840	mg/kg	0.20	< 0.20	
Endosulfan II	N	2840	mg/kg	0.20	< 0.20	J
Endrin Aldehyde	N	2840	mg/kg	0.20	< 0.20	J
4,4-DDT	N	2840	mg/kg	0.20	< 0.20	
Endosulfan Sulphate	N	2840	mg/kg	0.20	< 0.20	
Methoxychlor	N	2840	mg/kg	0.20	< 0.20	2/
Endrin Ketone	N	2840	mg/kg	0.20	< 0.20	
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10

Results - Water

Client: Causeway Geotech Ltd	Res (22-22671			
Quotation No.: Q21-23509		1450593			
	73	BH04			
		e Type: pth (m):	WATER		
		0.55			
			Date Sa	ampled:	15-Jun-2022
Determinand	Accred.	SOP	Units	LOD	
pH	U	1010		N/A	7.6
Ammonia (Free)	N	1220	mg/l	0.050	0.18
Ammoniacal Nitrogen	U	1220	mg/l	0.050	9.4
Nitrite	U	1220	mg/l	0.020	0.71
Nitrate	U	1220	mg/l	0.50	24
Sulphate	U	1220	mg/l	1.0	36
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050
Cyanide (Free)	U	1300	mg/l	0.050	< 0.050
Total Hardness as CaCO3	U	1270	mg/l	15	250
Arsenic (Dissolved)	U	1455	µg/l	0.20	1.4
Boron (Dissolved)	U	1455	µg/l	10.0	34
Cadmium (Dissolved)	U	1455	µg/l	0.11	< 0.11
Chromium (Dissolved)	U	1455	µg/l	0.50	< 0.50
Copper (Dissolved)	U	1455	µg/l	0.50	1.1
Iron (Dissolved)	N	1455	µg/l	5.0	< 5.0
Mercury (Dissolved)	U	1455	µg/l	0.05	< 0.05
Nickel (Dissolved)	U	1455	µg/l	0.50	< 0.50
Lead (Dissolved)	U	1455	µg/l	0.50	< 0.50
Selenium (Dissolved)	U	1455	µg/l	0.50	2.8
Zinc (Dissolved)	U	1455	µg/l	2.5	18
Chromium (Trivalent)	N	1490	µg/l	20	[B] < 20
Chromium (Hexavalent)	U	1490	µg/l	20	[B] < 20
Total Organic Carbon	U	1610	mg/l	2.0	2.4
Total TPH >C6-C40	U	1670	µg/l	10	< 10
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10
Aromatic TPH>C16-C21	N	1675	µg/l	0.10	≤ 0.10
Aromatic T	N	1675	µg/l	0.10	75



Client: Causeway Geotech Ltd	De la	22-22671			
Quotation No.: Q21-23509		1450593			
		ocation:	BH04		
		e Type:	WATER		
			Top De		0.55
			Date Sa	ampled:	15-Jun-2022
Determinand	Accred.	SOP	Units	LOD	
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	75
Total Petroleum Hydrocarbons	N	1675	µg/l	10	75
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0
Bromomethane	U	1760	μg/l	5	< 5
Chloroethane	U	1760	µg/l	2.0	< 2.0
Trichlorofluoromethane	U	1760	μg/l	1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5	< 5
Trichloromethane	U	1760	µg/l	1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/ї	1.0	< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0
Benzene	U	1760	µg/l	1.0	< 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0
1,2-Dichloropropane	U	1760	μg/l	1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10
Bromodichloromethane	U	1760	µg/l	5	< 5
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10
Toluene	U	1760	µg/l	1.0	< 1.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0
Dibromochloromethane	U	1760	µg/l	10	< 10
1,2-Dibromoethane	U	1760	µg/l	5	< 5
Chlorobenzene	N	1760	µg/l	1.0	< 1.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0
Ethylbenzene	U	1760	µg/l	1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0
Styrene	U	1760	µg/l	1.0	< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0
sopropylbenzene	U	1760	µg/l	1.0	< 1.0

Results - Water

Client: Causeway Geotech Ltd	11 -011	22-22671			
Quotation No.: Q21-23509	(1450593			
		BH04			
		WATER			
		0.55			
			Date Sa	ampled:	15-Jun-2022
Determinand	Accred.	SOP	Units	LOD	
Bromobenzene	U	1760	µg/l	1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/I	1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0
N-Nitrosodimethylamine	N	1790	µg/l	0.50	< 0.50
Phenol	N	1790	µg/l	0.50	< 0.50
2-Chlorophenol	N	1790	µg/l	0.50	< 0.50
Bis-(2-Chloroethyl)Ether	N	1790	µg/l	0.50	< 0.50
1,3-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50
1,4-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50
1.2-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50
2-Methylphenol (o-Cresol)	N	1790	µg/l	0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	1790	µg/l	0.50	< 0.50
Hexachloroethane	N	1790	µg/l	0.50	< 0.50
N-Nitrosodi-n-propylamine	N	1790	µg/l	0.50	< 0.50
4-Methylphenol	N	1790	μg/l	0.50	< 0.50
Nitrobenzene	N	1790	µg/I	0.50	< 0.50
Isophorone	N	1790	µg/l	0.50	< 0.50
2-Nitrophenol	N	1790	μg/l	0.50	< 0.50
2,4-Dimethylphenol	N	1790	µg/l	0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	1790	µg/l	0.50	< 0.50
2,4-Dichlorophenol	N	1790	µg/l	0.50	< 0.50
1,2,4-Trichlorobenzene	N	1790	µg/l	0.50	< 0.50
Naphthalene	N	1790	µg/l	0.50	≤ 0.50
4-Chloroan	N	1790	µg/l	0.50	0.50



Client: Causeway Geotech Ltd	1000	22-22671			
Quotation No.: Q21-23509	(1450593			
		BH04			
				e Type:	WATER
			Top Dep	oth (m):	0.55
			Date Sa	ampled:	15-Jun-2022
Determinand	Accred.	SOP	Units	LOD	
Hexachlorobutadiene	N	1790	µg/l	0.50	< 0.50
4-Chloro-3-Methylphenol	N	1790	μg/l	0.50	< 0.50
2-Methylnaphthalene	N	1790	µg/l	0.50	< 0.50
Hexachlorocyclopentadiene	N	1790	μg/l	0.50	< 0.50
2,4,6-Trichlorophenol	N	1790	µg/l	0.50	< 0.50
2,4,5-Trichlorophenol	N	1790	µg/l	0.50	< 0.50
2-Chloronaphthalene	N	1790	µg/l	0.50	< 0.50
2-Nitroaniline	N	1790	µg/l	0.50	< 0.50
Acenaphthylene	N	1790	µg/l	0.50	< 0.50
Dimethylphthalate	N	1790	µg/l	0.50	< 0.50
2,6-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50
Acenaphthene	N	1790	µg/l	0.50	< 0.50
3-Nitroaniline	N	1790	µg/l	0.50	< 0.50
Dibenzofuran	N	1790	µg/l	0.50	< 0.50
4-Chlorophenylphenylether	N	1790	µg/l	0.50	< 0.50
2.4-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50
Fluorene	N	1790	µg/l	0.50	< 0.50
Diethyl Phthalate	N	1790	µg/l	0.50	< 0.50
4-Nitroaniline	N	1790	µg/l	0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	1790	µg/l	0.50	< 0.50
Azobenzene	N	1790	µg/l	0.50	< 0.50
4-Bromophenylphenyl Ether	N	1790	µg/l	0.50	< 0.50
Hexachlorobenzene	N	1790	µg/l	0.50	< 0.50
Pentachlorophenol	N	1790	µg/l	0.50	< 0.50
Phenanthrene	N	1790	µg/l	0.50	< 0.50
Anthracene	N	1790	µg/l	0.50	< 0.50
Carbazole	N	1790	µg/l	0.50	< 0.50
Di-N-Butyl Phthalate	N	1790	µg/l	0.50	< 0.50
Fluoranthene	N	1790	µg/l	0.50	< 0.50
Pyrene	N	1790	µg/l	0.50	< 0.50
Butylbenzyl Phthalate	N	1790	µg/l	0.50	< 0.50
Benzo[a]anthracene	N	1790	µg/l	0.50	< 0.50
Chrysene	N	1790	µg/l	0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate	N	1790	µg/l	0.50	< 0.50
Di-N-Octyl Phthalate	N	1790	µg/l	0.50	< 0.50
Benzo[b]fluoranthene	N	1790	µg/l	0.50	< 0.50
Benzo[k]fluoranthene	N	1790	µg/l	0.50	< 0.50
Benzo[a]pyrene	N	1790	µg/l	0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene	N	1790	μg/l	0.50	< 0.50
Dibenz(a,h)Anthracene	N	1790	µg/l	0.50	< 0.50

Results - Water

Client: Causeway Geotech Ltd	1501	Cher	ntest J	ob No.:	22-22671		
Quotation No.: Q21-23509		Chemtest Sample ID.: Sample Location:					
	1						
			Sampl	e Type:	WATER		
			Top De	oth (m):	0.55		
			Date Sa	ampled:	15-Jun-2022		
Determinand	Accred.	SOP	Units	LOD			
Benzo[g,h,i]perylene	N	1790	µg/l	0.50	< 0.50		
4-Nitrophenol	N	1790	µg/l	0.50	< 0.50		
Naphthalene	N	1800	µg/l	0.010	< 0.010		
Acenaphthylene	N	1800	µg/l	0.010	< 0.010		
Acenaphthene	N	1800	µg/l	0.010	< 0.010		
Fluorene	N	1800	µg/l	0.010	< 0.010		
Phenanthrene	N	1800	µg/l	0.010	< 0.010		
Anthracene	N	1800	µg/l	0.010	< 0.010		
Fluoranthene	N	1800	µg/l	0.010	< 0.010		
Pyrene	N	1800	µg/l	0.010	< 0.010		
Benzo[a]anthracene	N	1800	µg/l	0.010	< 0.010		
Chrysene	N	1800	µg/I	0.010	< 0.010		
Benzo[b]fluoranthene	N	1800	µg/l	0.010	< 0.010		
Benzo[k]fluoranthene	N	1800	μg/l	0.010	< 0.010		
Benzo[a]pyrene	N	1800	µg/l	0.010	< 0.010		
Indeno(1,2,3-c,d)Pyrene	N	1800	µg/l	0.010	< 0.010		
Dibenz(a,h)Anthracene	N	1800	μg/l	0.010	< 0.010		
Benzo[g,h,i]perylene	N	1800	µg/l	0.010	< 0.010		
Total Of 16 PAH's	N	1800	µg/l	0.20	< 0.20		
Total Phenois	U	1920	mg/l	0.030	< 0.030		

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1450593			BH04	15-Jun-2022	В	Coloured Winchester 1000ml
1450593			BH04	15-Jun-2022	В	EPA Vial 40m
1450593			BH04	15-Jun-2022	В	Plastic Bottle 1000ml

Test Methods

1220 1270 1300 1415	Total Hardness of Waters Cyanides & Thiocyanate in	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium Total hardness	pH Meter Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser. Calculation applied to calcium and magnesium results, expressed as mg I-1 CaCO3
1270 1300 1415	Total Hardness of Waters Cyanides & Thiocyanate in Waters	Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium Total hardness	'Aquakem 600' Discrete Analyser. Calculation applied to calcium and magnesium
1300	Cyanides & Thiocyanate in Waters		
1415	Waters		equivalent.
	Cations in Waters by ICP-MS	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1455		Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5-C6, >C6-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21- C35, >C35-C44Aromatics: >C5-C7, >C7-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenois in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	рН	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection

Test Methods

SOP	Title	Parameters included	Method summary			
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry			
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.			
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.			
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.			
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.			
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600 Discrete Analyser using 1,5-diphenylcarbazide			
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.			
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID			
2680	TPH A/A Split	Aliphatics: >C5-C6, >C6-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21- C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44	Dichloromethane extraction / GCxGC FID detection			
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.			
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS			
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS			
2820	Organophosphorus (O-P) Pesticides in Soils by GC-MS	Organophosphorus pesticide representative suite including Parathion, Malathion etc, plus client specific determinands	Dichloromethane extraction / GC-MS			
2840	Organochlorine (O-CI) Pesticides in Soils by GC-MS	Organochlorine pesticide representative suite including DDT and its metabolites, 'drins' and HCH etc, plus client specific determinands	Dichloromethane extraction / GC-MS			
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1- Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.			
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge			
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge			

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
s	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection
	Comments or interpretations are bound the same of LIVAS accorditation

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: customerservices@chemtest.com

Eurofins Chemtest Ltd Depot Road

Newmarket CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.:

22-29102-1

Initial Date of Issue:

26-Aug-2022

Client

Causeway Geotech Ltd

Client Address:

8 Drumahiskey Road

Balnamore Ballymoney County Antrim BT53 7QL

Contact(s):

Colm Hurley

Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert Neil Haggan Paul Dunlop

Sean Ross Stephen Franey Stephen Watson Stuart Abraham Thomas McAllister Rachel White

Project

21-0403S DAA South Apron

Quotation No.:

Q21-23509

Date Received:

01-Aug-2022

Order No.:

Date Instructed:

18-Aug-2022

No. of Samples:

2

Turnaround (Wkdays):

Results Due:

26-Aug-2022

Date Approved:

26-Aug-2022

Approved By:

Details:

Stuart Henderson, Technical

Manager



Eurofins Chemtest Ltd Depot F

Newmarket CB8 0AL

Tel: 01638 606070 Email: info@chemtest.com

Results - Leachate

Client: Causeway Geotech Ltd		-	22-29102	22-29102			
Quotation No.: Q21-23509		(st Sam		1479232	1479233
			e Type:	TP40	TP40		
			SOIL	SOIL			
				Top Dep Date Sa		0.3	0.5
			27-Jul-2022	27-Jul-2022			
Determinand	Accred.	SOP	Туре	Units			No de la constante de la const
pH	U	1010	2:1		N/A	8.5	8.5
Ammonia (Free)	N	1220	2:1	mg/l	0.050	0.096	< 0.050
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.68	0.12
Nitrite	U	1220	2:1	mg/l	0.020	2.3	1.0
Nitrate	U	1220	2:1	mg/l	0.50	6.2	2.7
Sulphate	U	1220	2:1	mg/l	1.0	140	110
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Hardness	U	1415	2:1	mg/l	15	230	190
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	1.9	1.6
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	21	15
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	9.7	6.1
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	2.0	1.3
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	5.3	4.4
Zinc (Dissolved)	U	1455	2:1	μg/I	2.5	2.6	< 2.5
Cadmium (Total)	N	1455	2:1	µg/l	0.11	< 0.11	< 0.11
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	13	21
Chromium (Trivalent)	N	1490	2:1	µg/l	20	< 20	< 20
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20	< 20
Total Organic Carbon	U	1610	2:1	mg/l	2.0	25	23
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/I	0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/I	0.010	< 0.010	< 0.010
Benzo(a)pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20	< 0.20

Client: Causeway Geotech Ltd	1000	Che	mtest J	ob No.:	22-29102	22-29102
Quotation No.: Q21-23509	Chemtest Sample ID.:				1479232	1479233
		S	ample Lo	TP40	TP40	
			Sampl	SOIL	SOIL	
			pth (m):	0.3	0.5	
			Date Sa	27-Jul-2022	27-Jul-2022	
			Asbest	os Lab:	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A		
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	5.3	5.0
pH	U	2010		4.0	8.0	8.2
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.74	0.71
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.26	0.20
Total Sulphur	U	2175	%	0.010	0.063	0.10
Sulphur (Elemental)	U	2180	mg/kg	1.0	9.5	9.7
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010	< 0.010
Cyanide (Free)	U	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50
Cyanide (Total)	U	2300	mg/kg	_	[B] < 0.50	[B] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg		< 0.50	0.72
Sulphate (Total)	U	2430	%	0.010	0.22	0.21
Arsenic	U	2455	mg/kg	0.5	10	8.3
Cadmium	U		mg/kg	0.10	0.87	0.74
Chromium	U		mg/kg	0.5	13	9.9
Copper	U		mg/kg	0.50	26	22
Mercury	U		mg/kg	0.05	0.17	0.15
Nickel	U		mg/kg	0.50	26	20
Lead	U		mg/kg	0.50	49	34
Selenium	U		mg/kg	0.25	1.4	1.2
Zinc	U		mg/kg	0.50	71	57
Chromium (Trivalent)	N		mg/kg	1.0	13	9.9
Chromium (Hexavalent)	N		mg/kg	0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	5.1	3.2
Total TPH >C6-C40	U		mg/kg	10	[B] < 10	[B] < 10
Aliphatic TPH >C5-C6	N		mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C6-C8	N		mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[B] < 5.0	[B] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH > C7-C8	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aromatic T C8-C10	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0



Client: Causeway Geotech Ltd	1		mtest Jo	Control of the Contro	22-29102	
Quotation No.: Q21-23509	Chemtest Sample ID.:				1479232	1479233
		Sa	ample Lo	TP40	TP40	
			Sample	SOIL	SOIL	
(,			Top Dep	0.3 27-Jul-2022	0.5 27-Jul-2022	
			Date Sa			
			Asbest	os Lab:	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		M. 500
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[B] < 5.0	[B] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[B] < 10	[B] < 10
Benzene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0
Toluene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	2.4	< 0.10
Anthracene	U	2800	mg/kg	0.10	0.51	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	3.0	1.1
Pyrene	U	2800	mg/kg	0.10	2.5	1.3
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	8.4	2.4
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1479232			TP40	27-Jul-2022	В	Amber Glass 250ml
1479232			TP40	27-Jul-2022	В	Amber Glass 60ml
1479232			TP40	27-Jul-2022	В	Plastic Tub 500g
1479233			TP40	27-Jul-2022	В	Amber Glass 250ml
1479233			TP40	27-Jul-2022	В	Amber Gl 60ml
1479233			TP40	27-Jul-2022	В	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary		
1010	pH Value of Waters	рН	pH Meter		
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.		
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.		
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).		
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	determination by inductively coupled plasma		
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.		
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation		
1800	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Speciated Polynuclear Benzo[b]Fluoranthene; Benzo[ghi]Perylene;		Pentane extraction / GCMS detection		
2010	pH Value of Soils	pH	pH Meter		
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.		
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930		
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES		
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.		
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection		
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry		
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.		
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.		
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.		
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.		
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.		
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.		

Test Methods

SOP	Title	Parameters included	Method summary		
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID		
2680	TPH A/A Split	Aliphatics: >C5-C6, >C6-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21- C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44	Dichloromethane extraction / GCxGC FID detection		
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.		
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS		
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1- Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.		
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge		
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge		

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U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection
	Comments or interpretations are beyond the scope of UKAS accreditation
	The results relate only to the items tested
	Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>

Chemtest Eurofins Chemtest Ltd

Depot F Newmarket CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.:

22-29677-1

Initial Date of Issue:

24-Aug-2022

Client

Causeway Geotech Ltd

Client Address:

8 Drumahiskey Road

Balnamore Ballymoney County Antrim BT53 7QL

Contact(s):

Colm Hurley

Darren O'Mahony
Gabriella Horan
Joe Gervin
John Cameron
Lucy Newland
Martin Gardiner
Matthew Gilbert
Neil Haggan
Paul Dunlop
Sean Ross
Stephen Franey
Stephen Watson
Stuart Abraham
Thomas McAllister

Project

21-0403S DAA South Apron

Quotation No.:

Q21-23509

Rachel White

Date Received:

04-Aug-2022

Order No.:

Date Instructed:

16-Aug-2022

No. of Samples:

1

Turnaround (Wkdays):

Results Due:

24-Aug-2022

Date Approved:

24-Aug-2022

Approved By:

Details:

Stuart Henderson, Technical

Manager



Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Results - Leachate

Client: Causeway Geotech Ltd		22-29677				
Quotation No.: Q21-23509		1481667				
		TP39				
		SOIL				
	- 3			Top Dep		0.3
				Date Sa		27-Jul-2022
Determinand	Accred.	SOP	Type	Units		
pH	U	1010	2:1		N/A	8.3
Ammonia (Free)	N	1220	2:1	mg/l	0.050	< 0.050
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.16
Nitrite	U	1220	2:1	mg/l	0.020	0.70
Nitrate	U	1220	2:1	mg/l	0.50	0.56
Sulphate	U	1220	2:1	mg/l	1.0	12
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050
Hardness	U	1415	2:1	mg/l	15	26
Arsenic (Dissolved)	U	1455	2:1	µg/I	0.20	110
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	11
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	3.8
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	1.3
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	1.0
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	0.97
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	4.3
Cadmium (Total)	N	1455	2:1	µg/l	0.11	< 0.11
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	270
Chromium (Trivalent)	N	1490	2:1	µg/l	20	< 20
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20
Total Organic Carbon	U	1610	2:1	mg/l	2.0	5.1
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	μg/l	0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20



Client: Causeway Geotech Ltd	<i>i</i>	22-29677			
Quotation No.: Q21-23509		1481667			
	2	TP39			
		e Type:	SOIL		
			Top Dep	oth (m):	0.3
			Date Sa	impled:	27-Jul-2022
			Asbest	os Lab:	DURHAM
Determinand	Accred.	SOP	Units	LOD	E WAY
ACM Type	U	2192		N/A	
Asbestos Identification	U	2192		N/A	No Asbestos Detected
Moisture	N	2030	%	0.020	5.3
pH	U	2010		4.0	9.4
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010
Total Sulphur	U	2175	%	0.010	0.039
Sulphur (Elemental)	U	2180	mg/kg		3.0
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010
Cyanide (Free)	U	2300	mg/kg	0.50	[B] < 0.50
Cyanide (Total)	U	2300	mg/kg	THE RESERVE THE PERSON NAMED IN	[B] < 0.50
Sulphide (Easily Liberatable)	N	2325			< 0.50
Sulphate (Total)	U	2430	%	0.010	0.040
Arsenic	U	2455	-	0.5	59
Cadmium	U	2455			0.12
Chromium	U	2455			6.0
Copper	U	2455			8.3
Mercury	U	2455			< 0.05
Nickel	U	2455	mg/kg		5.8
Lead	U	2455			21
Selenium	U		mg/kg		< 0.25
Zinc	U	2455			33
Chromium (Trivalent)	N	2490	mg/kg	1.0	6.0
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Organic Matter	U	2625	%	0.40	< 0.40
Total TPH >C6-C40	U	2670		10	[B] 60
Aliphatic TPH >C5-C6	N	2680		1.0	[B] < 1.0
Aliphatic TPH >C6-C8	N	2680	9		[B] < 1.0
Aliphatic TPH >C8-C10	U	2680		1.0	[B] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0
Aliphatic TPH >C12-C16	U	2680		1.0	[B] < 1.0
Aliphatic TPH >C16-C21	U		mg/kg		[B] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] < 1.0
Aliphatic TPH >C35-C44	N		mg/kg		[B] < 1.0
Total Aliphatic Hydrocarbons	N		mg/kg	5.0	[B] < 5.0
Aromatic TPH >C5-C7	N	2680		1.0	[B] < 1.0
Aromatic TPH >C7-C8	N		mg/kg	1.0	[B] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] < 1.0

Client: Causeway Geotech Ltd		22-29677			
Quotation No.: Q21-23509	(1481667			
		TP39			
			Sample	e Type:	SOIL
		0.3			
			Date Sa	mpled:	27-Jul-2022
,			Asbest		DURHAM
Determinand	Accred.	SOP	Units		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[B] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[B] < 10
Benzene	U	2760	µg/kg	1.0	[B] < 1.0
Toluene	U	2760	µg/kg	1.0	[B] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[B] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[B] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[B] < 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg		< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0
Total Phenols	U	2920	mg/kg	0.10	< 0.10

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1481667			TP39	27-Jul-2022	В	Amber Glass 250ml
1481667			TP39	27-Jul-2022	В	Amber Glass 60ml
1481667			TP39	27-Jul-2022	В	Plastic Tub 1000g

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters pH		pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
2010	pH Value of Soils	pH	pH Meter
	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.

Test Methods

SOP	Title	Parameters included	Method summary
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5-C6, >C6-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21- C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1- Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
Т	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection
	Comments or interpretations are beyond the scope of LIKAS accreditation

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.:

22-29871-1

Initial Date of Issue:

24-Aug-2022

Client

Causeway Geotech Ltd

Client Address:

8 Drumahiskey Road

Balnamore Ballymoney County Antrim BT53 7QL

Contact(s):

Colm Hurley

Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert Neil Haggan

Neil Haggan
Paul Dunlop
Sean Ross
Stephen Franey
Stephen Watson
Stuart Abraham
Thomas McAllister
Rachel White

Project

21-0403S DAA South Apron

uotation No.:

Q21-23509

Date Received:

05-Aug-2022

Order No.:

Date Instructed:

16-Aug-2022

No. of Samples:

6

Turnaround (Wkdays):

Results Due:

24-Aug-2022

Date Approved:

24-Aug-2022

Approved By:

Details:

Stuart Henderson, Technical

Manager



Chemtest

Eurofins Chemtest Ltd

Depot F Newmarket CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Results - Leachate



Client: Causeway Geotech Ltd	Blanc F	-			ob No.:	22-29871	22-29871	22-29871	22-29871	22-29871	22-29871
Quotation No.: Q21-23509		- 3	Chemte	est Sam	ple ID.:	1482515	1482516	1482517	1482519	1482520	1482521
	Sample Location:					TP42	TP42	TP42	TP46	TP46	TP46
				Samp	le Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					pth (m):	0.30	0.5	1.50	0.30	0.50	1.50
				Date S	ampled:	29-Jul-2022	29-Jul-2022	29-Jul-2022	29-Jul-2022	29-Jul-2022	29-Jul-2022
Determinand	Accred.	SOP	Type	Units	LOD		E-LEVISE				
pH	U	1010	2:1		N/A	7.4	7.4	7.5	7.5	7.6	7.5
Ammonia (Free)	N	1220	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.076	0.52	0.11	0.078	0.093	0.30
Nitrite	U	1220	2:1	mg/l	0.020	0.089	1.3	0.092	0.40	0.37	0.10
Nitrate	U	1220	2:1	mg/l	0.50	2.0	5.1	3.9	1.6	1.4	3.9
Sulphate	U	1220	2:1	mg/l	1.0	52	120	59	23	21	25
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hardness	U	1415	2:1	mg/l	15	110	210	130	110	120	110
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	2.0	4.4	1.6	0.67	0.57	1.1
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	14	110	46	26	24	33
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	3.9	6.7	1.1	2.1	1.2	2.7
Mercury (Dissolved)	U	1455	2:1	ug/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	1.8	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	1.7	< 0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	5.2	1.8	3.1	2.1	1.9	3.9
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	2.8	2.9	< 2.5	5.6	< 2.5	< 2.5
Cadmium (Total)	N	1455	2:1	µg/l	0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	27	< 5.0	20	< 5.0	< 5.0	58
Chromium (Trivalent)	N	1490	2:1	µg/l	20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20	< 20	< 20	< 20	< 20	< 20
Total Organic Carbon	U	1610	2:1	mg/l	2.0	6.5	15	10	6.1	5.9	11
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Client: Causeway Geotech Ltd		Che	ntest Jo	b No.:	22-29871	22-29871	22-29871	22-29871	22-29871	22-29871
Quotation No.: Q21-23509		hemte	st Samp	ole ID.:	1482515	1482516	1482517	1482519	1482520	1482521
		Sa	mple Lo	cation:	TP42	TP42 SOIL	TP42	TP46	TP46	TP46
			Sample	e Type:	SOIL		SOIL	SOIL	SOIL	SOIL
			Top Dep	oth (m):	0.30	0.5	1.50	0.30	0.50	1.50
			Date Sa	mpled:	29-Jul-2022	29-Jul-2022	29-Jul-2022	29-Jul-2022	29-Jul-2022	29-Jul-202
			Asbest	os Lab:	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	Accred.	SOP	Units	LOD		1 2 3 W.S.	Land Brill			10 TO
ACM Type	U	2192		N/A	-			-	*	
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbesto Detected				
Moisture	N	2030	%	0.020	4.5	11	18	6.3	5.5	14
pH	U	2010		4.0	8.7	8.6	8.4	8.7	8.6	8.9
Boron (Hot Water Soluble)	U		mg/kg	0.40	< 0.40	1.3	0.53	< 0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	0.046	0.068	< 0.010	< 0.010	< 0.010
Total Sulphur	U	2175	%	0.010	0.23	0.11	0.13	0.27	0.11	0.13
Sulphur (Elemental)	U		mg/kg	1.0	4.8	10	2.2	3.5	3.3	5.5
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010	< 0.010	0.013	< 0.010	< 0.010	< 0.010
Cyanide (Free)	U	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50
Cyanide (Total)	Ü	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (Total)	U	2430	%	0.010	0.34	0.11	0.13	0.24	0.11	0.070
Arsenic	Ü	2455	mg/kg	0.5	7.5	6.2	6.8	9.3	8.1	9.0
Cadmium	U	2455	mg/kg	0.10	0.85	0.94	1.0	1.1	0.94	1.7
Chromium	U		mg/kg	0.5	14	5.0	14	12	9.9	12
Copper	Ü		mg/kg	0.50	16	11	16	23	20	20
Mercury	Ü		mg/kg	0.05	0.09	0.11	0.14	0.16	0.13	0.08
Nickel	U			0.50	19	11	21	26	23	30
Lead	Ü	2455	mg/kg	0.50	25	26	32	37	34	22
Selenium	Ü	2455		0.25	1.1	0.34	0.73	1.4	1.1	1.1
Zinc	U	2455		0.50	48	75	58	68	57	60
Chromium (Trivalent)	N	2490	mg/kg	1.0	14	5.0	14	12	9.9	12
Chromium (Trivalent) Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	Ü	2625	%	0.40	1.8	7.9	2.1	2.9	2.3	0.83
Total TPH >C6-C40	U	2670	mg/kg	10	[B] 100	[B] 220	[B] < 10	[B] < 10	[B] < 10	[B] < 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	_	[B] < 1.0					
Aliphatic TPH >C5-C6 Aliphatic TPH >C6-C8	N	2680			[B] < 1.0					
Aliphatic TPH >C8-C10	U	2680	mg/kg		[B] < 1.0					
Aliphatic TPH >C10-C12	Ü	2680	mg/kg		[B] < 1.0					
Aliphatic TPH >C10-C12	Ü	2680			[B] < 1.0					
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C10-C21	Ü	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C21-C35 Aliphatic TPH >C35-C44	N		mg/kg		[B] < 1.0					
	N		mg/kg		[B] < 5.0					
Total Aliphatic Hydrocarbons	N		mg/kg		[B] < 1.0					
Aromatic TPH >C5-C7	N		mg/kg		[B] < 1.0					
Aromatic TPH>C7-C8 Aromatic T C8-C10	U		mg/kg	_	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	B] < 1.0	[B] < 1.0



Client: Causeway Geotech Ltd	-	Che	mtest J	ob No.:	22-29871	22-29871	22-29871	22-29871	22-29871	22-29871
Quotation No.: Q21-23509			est Sam		1482515	1482516	1482517	1482519	1482520	1482521
		S	ample L	ocation:	TP42	TP42	TP42	TP46	TP46	TP46
			Sampl	e Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top De	pth (m):	0.30	0.5	1.50	0.30	0.50	1.50
			Date S	ampled:	29-Jul-2022	29-Jul-2022	29-Jul-2022	29-Jul-2022	29-Jul-2022	29-Jul-2022
			Asbest	tos Lab:	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	Accred.	SOP	Units	LOD	THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW		EXCHINA	THE REAL PROPERTY.		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[B] < 10	[B] < 10	[B] < 10	[B] < 10	[B] < 10	[B] < 10
Benzene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Toluene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	0.66	0.52	< 0.10	0.37	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10	0.20	0.12	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	0.67	2.2	0.73	0.86	0.55	< 0.10
Pyrene	U	2800	mg/kg	0.10	0.55	1.9	0.62	0.73	0.49	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	0.36	1.3	< 0.10	0.47	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	0.34	1.1	< 0.10	0.45	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	2.0	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	0.69	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	1.6	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	12	< 2.0	2.5	< 2.0	< 2.0
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1482515			TP42	29-Jul-2022	В	Amber Glass 250ml
1482515			TP42	29-Jul-2022	В	Amber Glass 60ml
1482515			TP42	29-Jul-2022	В	Plastic Tub 1000g
1482516			TP42	29-Jul-2022	В	Amber Glass 250ml
1482516			TP42	29-Jul-2022	В	Amber Gla 60ml
1482516			TP42	29-Jul-2022	В	Plastic Tub 1000g
1482517			TP42	29-Jul-2022	В	Amber Glass 250ml
1482517			TP42	29-Jul-2022	В	Amber Glass 60ml
1482517			TP42	29-Jul-2022	В	Plastic Tub 1000g
1482519			TP46	29-Jul-2022	В	Amber Glass 250ml
1482519			TP46	29-Jul-2022	В	Amber Glass 60ml
1482519			TP46	29-Jul-2022	В	Plastic Tub 500g
1482520			TP46	29-Jul-2022	В	Amber Glass 250ml
1482520			TP46	29-Jul-2022	В	Amber Gla 60ml
1482520			TP46	29-Jul-2022	В	Plastic Tub 500g
1482521			TP46	29-Jul-2022	В	Amber Glass 250ml
1482521			TP46	29-Jul-2022	В	Amber Glass 60ml
1482521			TP46	29-Jul-2022	В	Plastic Tub 500g

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>

Chemtest Eurofins Chemtest Ltd

Depot F Newmarket CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.:

22-30015-1

Initial Date of Issue:

24-Aug-2022

Client

Causeway Geotech Ltd

Client Address:

8 Drumahiskey Road

Balnamore Ballymoney County Antrim BT53 7QL

Contact(s):

Colm Hurley

Darren O'Mahony
Gabriella Horan
Joe Gervin
John Cameron
Lucy Newland
Martin Gardiner
Matthew Gilbert
Neil Haggan
Paul Dunlop
Sean Ross
Stephen Franey
Stephen Watson
Stuart Abraham
Thomas McAllister
Rachel White

Project

21-0403S DAA South Apron

Quotation No.:

Q21-23509

Date Received:

08-Aug-2022

Order No.:

Date Instructed:

16-Aug-2022

No. of Samples:

4

Turnaround (Wkdays):

Results Due:

24-Aug-2022

Date Approved:

24-Aug-2022

Approved By:

Details:

Stuart Henderson, Technical

Manager



Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL

Tel: 01638 606070 Email: info@chemtest.com

Results - Leachate

Client: Causeway Geotech Ltd						22-30015	22-30015	22-30015	22-30015
Quotation No.: Q21-23509	3	- 1		st Sam		1483182	1483183	1483184	1483185
			Sa	ample Lo		TP41	TP41	TP41	TP41
					e Type:	SOIL	SOIL	SOIL	SOIL
			- 3	Top Dep		0.30	0.50	1.50	2.50
Determinand	Accred.	SOP	Type	Units	LOD	Balls Park	0.7		
pH	U	1010	2:1		N/A	7.5	7.6	7.5	7.6
Ammonia (Free)	N	1220	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.086	0.086	0.074	0.086
Nitrite	U	1220	2:1	mg/l	0.020	0.064	0.078	0.025	< 0.020
Nitrate	U	1220	2:1	mg/l	0.50	1.9	2.5	2.1	< 0.50
Sulphate	U	1220	2:1	mg/l	1.0	20	16	21	16
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hardness	U	1415	2:1	mg/l	15	99	110	100	74
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	0.58	0.45	0.40	0.23
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	22	20	21	15
Copper (Dissolved)	U	1455	2:1	µg/ī	0.50	1.7	1.3	< 0.50	< 0.50
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	3.3	3.3	2.6	2.9
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5	< 2.5	< 2.5	< 2.5
Cadmium (Total)	N	1455	2:1	µg/l	0.11	< 0.11	< 0.11	< 0.11	< 0.11
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	< 5.0	13	< 5.0	< 5.0
Chromium (Trivalent)	N	1490	2:1	µg/l	20	[A] < 20	[A] < 20	[A] < 20	[A] < 20
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	[A] < 20	[A] < 20	[A] < 20	[A] < 20
Total Organic Carbon	U	1610	2:1	mg/l	2.0	5.9	7.5	6.9	4.5
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20

Client: Causeway Geotech Ltd		Cher	ntest Jo	b No.:	22-30015	22-30015	22-30015	22-30015	
Quotation No.: Q21-23509	(Chemte	st Samp	ple ID.:	1483182	1483183	1483184	1483185	
		Sa	imple Lo	cation:	TP41	TP41	TP41	TP41	
			Sample	e Type:	SOIL	SOIL	SOIL	SOIL	
			Top Dep	oth (m):	0.30	0.50	1.50	2.50	
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	
Determinand	Accred.	SOP	Units	LOD					
ACM Type	U	2192		N/A					
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbesto Detected	
Moisture	N	2030	%	0.020	7.9	8.5	11	7.4	
pH	U	2010		4.0	[A] 8.8	[A] 9.0	[A] 8.7	[A] 9.1	
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	[A] 0.41	[A] < 0.40	[A] 0.56	[A] 0.84	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
Total Sulphur	U	2175	%	0.010	[A] 0.10	[A] 0.36	[A] 0.068	[A] 0.056	
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] 5.8	[A] 4.6	[A] 3.7	[A] 1.7	
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	
Cyanide (Free)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 2.6	[A] 4.8	[A] 4.9	[A] 5.0	
Sulphate (Total)	U	2430	%	0.010	[A] 0.31	[A] 0.11	[A] 0.13	[A] 0.064	
Arsenic	U		mg/kg	0.5	4.1	9.7	9.5	2.6	
Cadmium	U	2455	mg/kg	0.10	0.44	1.5	1.1	0.34	
Chromium	U	2455	mg/kg	0.5	6.0	12	10	3.3	
Copper	U	2455	mg/kg	0.50	10	23	24	5.8	
Mercury	U	2455	mg/kg	0.05	0.05	0.16	0.09	< 0.05	
Nickel	U	2455	mg/kg	0.50	13	29	29	10	
Lead	U	2455	mg/kg	0.50	12	40	27	4.5	
Selenium	U	2455	mg/kg	0.25	0.39	0.82	0.79	0.72	
Zinc	U	2455	mg/kg	0.50	25	61	55	18	
Chromium (Trivalent)	N	2490	mg/kg	1.0	6.0	12	10	3.3	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Organic Matter	U	2625	%	0.40	[A] 2.1	[A] 4.3	[A] 2.3	[A] 1.2	
Total TPH >C6-C40	U	2670	mg/kg	10	[A] 63	[A] 68	[A] 140	[A] 63	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C16-C21	U	2680	mg/kg		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C21-C35	U		mg/kg		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C35-C44	N		mg/kg		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Total Aliphatic Hydrocarbons	N		mg/kg		[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	
Aromatic TPH >C5-C7	N		mg/kg		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C7-C8	N		mg/kg		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C8-C10	U		mg/kg		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	

Project: 21-0403S DAA South Apron

Client: Causeway Geotech Ltd			mtest J		22-30015	22-30015	22-30015	22-30015
Quotation No.: Q21-23509		Chemte	st Sam	ple ID.:	1483182	1483183	1483184	1483185
		Sa	ample Lo		TP41	TP41	TP41	TP41
2			Sampl	e Type:	SOIL	SOIL	SOIL	SOIL
			Top Dep	oth (m):	0.30	0.50	1.50	2.50
			Asbest	os Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD				
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10	[A] < 10	[A] < 10	[A] < 10
Benzene	U	2760	μg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	0.41	0.72	0.43	< 0.10
Pyrene	U	2800	mg/kg	0.10	0.37	0.58	0.40	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1483182			TP41		Α	Amber Glass 250ml
1483182			TP41		Α	Amber Glass 60ml
1483182			TP41		Α	Plastic Tub 500g
1483183			TP41		Α	Amber Glass 250ml
1483183			TP41		Α	Amber Glass 60ml
1483183			TP41		Α	Plastic Tub 500g
1483184			TP41		Α	Amber Glass 250ml
1483184			TP41		Α	Amber Glass 60ml
1483184			TP41		Α	Plastic Tub 500g
1483185			TP41		Α	Amber Glass 250ml
1483185			TP41		Α	Amber Glass 60ml
1483185			TP41		Α	Plastic Tub 500g

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
Т	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: customerservices@chemtest.com

Chemtest

Eurofins Chemtest Ltd Depot Road

Newmarket CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.: 22-30049-1

Initial Date of Issue: 24-Aug-2022

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road

Balnamore Ballymoney County Antrim BT53 7QL

Contact(s): Colm Hurley

Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert

Matthew Gilbert
Neil Haggan
Paul Dunlop
Sean Ross
Stephen Franey
Stephen Watson
Stuart Abraham
Thomas McAllister
Rachel White

Project 21-0403S DAA South Apron

duotation No.: Q21-23509 Date Received: 08-Aug-2022

Order No.: Date Instructed: 16-Aug-2022

No. of Samples: 3

Turnaround (Wkdays): 7 Results Due: 24-Aug-2022

Date Approved: 24-Aug-2022

Approved By:

Details: Stuart Henderson, Technical

Manager



Eurofins Chemtest Ltd Depot F Newmarket

CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

Results - Leachate



Client: Causeway Geotech Ltd		TIPLE		mtest J	THE RESIDENCE IN CO.	22-30049	22-30049	22-30049
Quotation No.: Q21-23509				st Sam		1483316	1483317	1483318
			S	ample L		TP49	TP49	TP49
				Sampl	e Type:	SOIL	SOIL	SOIL
				Top De	oth (m):	2.00	0.50	1.00
				Date Sa	ampled:	08-Apr-2022	08-Apr-2022	08-Apr-2022
Determinand	Accred.	SOP	Type	Units	LOD	No. of Street,		P 8
pH	U	1010	2:1		N/A	7.8	7.7	7.7
Ammonia (Free)	N	1220	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.078	0.054	0.072
Nitrite	U	1220	2:1	mg/l	0.020	< 0.020	< 0.020	< 0.020
Nitrate	U	1220	2:1	mg/l	0.50	< 0.50	< 0.50	< 0.50
Sulphate	U	1220	2:1	mg/l	1.0	1.6	< 1.0	1.6
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050
Hardness	U	1415	2:1	mg/l	15	55	49	55
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	0.22	< 0.20	0.23
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	18	13	16
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/I	0.50	< 0.50	< 0.50	< 0.50
Zinc (Dissolved)	U	1455	2:1	µg/I	2.5	< 2.5	< 2.5	< 2.5
Cadmium (Total)	N	1455	2:1	µg/l	0.11	< 0.11	< 0.11	< 0.11
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	< 5.0	< 5.0	< 5.0
Chromium (Trivalent)	N	1490	2:1	µg/I	20	[B] < 20	[B] < 20	[B] < 20
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	[B] < 20	[B] < 20	[B] < 20
Total Organic Carbon	U	1610	2:1	mg/l	2.0	5.7	5.2	5.1
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/I	0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20	< 0.20	< 0.20

Client: Causeway Geotech Ltd		Che	mtest Jo	b No.:	22-30049	22-30049	22-30049
Quotation No.: Q21-23509		Chemte	st Sam	ole ID.:	1483316	1483317	1483318
		Sa	imple Lo	cation:	TP49	TP49	TP49
			Sample	e Type:	SOIL	SOIL	SOIL
	A 4		Top Dep	oth (m):	2.00	0.50	1.00
			Date Sa	impled:	08-Apr-2022	08-Apr-2022	08-Apr-2022
		· · · · · · · · · · · · · · · · · · ·	Asbest	os Lab:	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		MINES	
ACM Type	U	2192		N/A		-	
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	5.6	7.8	7.2
pH	U	2010	(= X	4.0	[B] 9.1	[B] 9.2	[B] 9.1
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	[B] 0.95	[B] 2.8	[B] 0.66
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	[B] < 0.010	[B] 1.8	[B] < 0.010
Total Sulphur	U	2175	%	0.010	[B] 0.074	[B] 0.042	[B] 0.056
Sulphur (Elemental)	U	2180	mg/kg	1.0	[B] 2.3	[B] 2.1	[B] 1.9
Nitrate (Water Soluble)	N	2220	g/I	0.010	< 0.010	< 0.010	< 0.010
Cyanide (Free)	U	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[B] 8.8	[B] 7.5	[B] 9.3
Sulphate (Total)	U	2430	%	0.010	[B] 0.16	[B] 0.050	[B] 0.081
Arsenic	U	2455	mg/kg	0.5	4.2	7.9	10
Cadmium	U	2455	mg/kg	0.10	0.96	1.5	1.9
Chromium	U	2455	mg/kg	0.5	7.4	9.3	11
Copper	U	2455	mg/kg	0.50	13	19	24
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	18	38	37
Lead	U	2455	mg/kg	0.50	8.0	13	18
Selenium	U	2455	mg/kg	0.25	0.83	0.68	1.3
Zinc	U	2455	mg/kg	0.50	27	54	65
Chromium (Trivalent)	N	2490	mg/kg	1.0	7.4	9.3	11
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	[B] 0.91	[B] 0.71	[B] 0.72
Total TPH >C6-C40	U	2670	mg/kg	10	[B] 11000	[B] 58	[B] 55
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic 1 C8-C10	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0



Client: Causeway Geotech Ltd			mtest Jo		22-30049	22-30049	22-30049
Quotation No.: Q21-23509	(hemte	st Samp	ole ID.:	1483316	1483317	1483318
		Sa	mple Lo	cation:	TP49	TP49	TP49
			Sample	Type:	SOIL	SOIL	SOIL
			Top Dep	th (m):	2.00	0.50	1.00
		- 5	Date Sa	mpled:	08-Apr-2022	08-Apr-2022	08-Apr-2022
			Asbest	os Lab:	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD	DIAMENO.		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[B] < 10	[B] < 10	[B] < 10
Benzene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Toluene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Total Phenois	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1483316			TP49	08-Apr-2022	В	Amber Glass 250ml
1483316			TP49	08-Apr-2022	В	Amber Glass 60ml
1483316			TP49	08-Apr-2022	В	Plastic Tub 500g
1483317			TP49	08-Apr-2022	В	Amber Glass 250ml
1483317			TP49	08-Apr-2022	В	Amber Glass 60ml
1483317			TP49	08-Apr-2022	В	Plastic Tub 500g
1483318			TP49	08-Apr-2022	В	Amber Glass 250ml
1483318			TP49	08-Apr-2022	В	Amber Glass 60ml
1483318			TP49	08-Apr-2022	В	Plastic Tub 500g

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
Ν	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>

Eurofins Chemtest Ltd Depot R Newman CB8 0AL

Tel: 01638 606070 Email: info@chemtest.com

Final Report

Report No.:

22-30192-1

Initial Date of Issue:

23-Aug-2022

Client

Causeway Geotech Ltd

Client Address:

8 Drumahiskey Road

Balnamore Ballymoney County Antrim **BT53 7QL**

Contact(s):

Colm Hurley Darren O'Mahony

Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert Neil Haggan Paul Dunlop Sean Ross Stephen Franey Stephen Watson Stuart Abraham

Thomas McAllister

Project

21-0403S DAA South Apron

Quotation No.:

Q21-23509

Date Received:

09-Aug-2022

Order No.:

Date Instructed:

16-Aug-2022

No. of Samples:

3

Turnaround (Wkdays):

Results Due:

24-Aug-2022

Date Approved:

23-Aug-2022

Approved By:

Details:

Stuart Henderson, Technical

Manager

Results - Leachate



Client: Causeway Geotech Ltd					ob No.:	22-30192	22-30192	22-30192
Quotation No.: Q21-23509		3	Chemte	st Sam	ple ID.:	1484008	1484009	1484010
			S	ample L		TP56	TP56	TP56
				Sampl	e Type:	SOIL	SOIL	SOIL
				Top De	pth (m):	0.3	0.5	1.5
				Date S	ampled:	08-Aug-2022	08-Aug-2022	08-Aug-2022
Determinand	Accred.	SOP	Type	Units	LOD	TO THE REAL PROPERTY.		
pH	U	1010	2:1	-	N/A	7.6	7.6	7.6
Ammonia (Free)	N	1220	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.078	0.086	0.066
Nitrite	U	1220	2:1	mg/l	0.020	0.41	0.30	< 0.020
Nitrate	U	1220	2:1	mg/l	0.50	5.8	7.8	2.3
Sulphate	U	1220	2:1	mg/l	1.0	32	38	25
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050
Hardness	U	1415	2:1	mg/l	15	120	120	89
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	0.74	0.42	< 0.20
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	12	12	15
Copper (Dissolved)	Ü	1455	2:1	µg/l	0.50	2.9	3.2	< 0.50
Mercury (Dissolved)	Ü	1455	2:1	µg/l	0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	0.68	< 0.50
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	4.0	5.1	2.5
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5	32	< 2.5
Cadmium (Total)	N	1455	2:1	µg/l	0.11	< 0.11	< 0.11	< 0.11
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	59	62	110
Chromium (Trivalent)	N	1490	2:1	µg/l	20	< 20	< 20	< 20
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20	< 20	< 20
Total Organic Carbon	U	1610	2:1	mg/l	2.0	5.9	5.9	4.1
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20	< 0.20	< 0.20

Client: Causeway Geotech Ltd		Che	mtest Jo	b No.:	22-30192	22-30192	22-30192
Quotation No.: Q21-23509		Chemte	st Sam	ole ID.:	1484008	1484009	1484010
		Sa	ample Lo	cation:	TP56	TP56	TP56
			Sample	e Type:	SOIL	SOIL	SOIL
			Top Dep	oth (m):	0.3	0.5	1.5
			Date Sa	mpled:	08-Aug-2022	08-Aug-2022	08-Aug-2022
		V1-7-11V	Asbest	os Lab:	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		The same of the sa	- 17 5
ACM Type	U	2192		N/A			
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	5.8	6.0	17
pH	U	2010		4.0	8.3	9.7	8.4
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.56	1.9	0.49
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.017	< 0.010	0.020
Total Sulphur	U	2175	%	0.010	0.12	0.14	0.084
Sulphur (Elemental)	U	2180	mg/kg	1.0	33	3.8	< 1.0
Nitrate (Water Soluble)	N	2220	g/l	0.010	0.010	< 0.010	< 0.010
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Sulphate (Total)	U	2430	%	0.010	0.17	0.14	0.054
Arsenic	U	2455	mg/kg	0.5	9.8	8.7	8.1
Cadmium	U	2455	mg/kg	0.10	1.2	1.1	0.77
Chromium	U	2455		0.5	12	11	16
Copper	U	2455	mg/kg	0.50	25	23	14
Mercury	U	2455		0.05	0.13	0.14	0.05
Nickel	U	2455	mg/kg	0.50	31	27	28
Lead	U		mg/kg	0.50	42	40	16
Selenium	U		mg/kg	0.25	1.0	0.94	0.60
Zinc	U	2455	mg/kg	0.50	70	62	49
Chromium (Trivalent)	N	2490	mg/kg	1.0	12	11	16
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	7.5	3.5	1.8
Total TPH >C6-C40	U	2670	mg/kg	10	260	86	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic T C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0



Client: Causeway Geotech Ltd		Che	mtest J	ob No.:	22-30192	22-30192	22-30192	
Quotation No.: Q21-23509		Chemte	est Sam	ple ID.:	1484008	1484009	1484010	
		S	ample Lo		TP56	TP56	TP56	
			Sampl	e Type:	SOIL	SOIL	SOIL	
			Top Dep	oth (m):	0.3	0.5	1.5	
			Date Sa	ampled:	08-Aug-2022	08-Aug-2022	08-Aug-2022	
			Asbest	os Lab:	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD				
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	5.2	< 1.0	< 1.0	
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	130	< 1.0	< 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	140	< 5.0	< 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	140	< 10	< 10	
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	U	2800	mg/kg	0.10	0.78	< 0.10	< 0.10	
Anthracene	U	2800	mg/kg	0.10	0.27	< 0.10	< 0.10	
Fluoranthene	U	2800	mg/kg	0.10	2.7	0.79	< 0.10	
Pyrene	U	2800	mg/kg	0.10	2.2	0.73	< 0.10	
Benzo[a]anthracene	U	2800	mg/kg	0.10	1.3	0.50	< 0.10	
Chrysene	U	2800	mg/kg	0.10	1.0	0.35	< 0.10	
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	1.8	< 0.10	< 0.10	
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	0.63	< 0.10	< 0.10	
Benzo[a]pyrene	U	2800	mg/kg	0.10	1.5	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Total Of 16 PAH's	N	2800	mg/kg	2.0	12	2.4	< 2.0	
Total Phenois	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	

Report Information

Key **UKAS** accredited U M MCERTS and UKAS accredited Unaccredited N This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for S this analysis This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited SN for this analysis T This analysis has been subcontracted to an unaccredited laboratory I/S Insufficient Sample U/S Unsuitable Sample N/E not evaluated "less than" < "greater than" > SOP Standard operating procedure LOD Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: customerservices@chemtest.com

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL

Chemtest

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.: 22-30641-1

Initial Date of Issue: 24-Aug-2022

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road

Balnamore Ballymoney County Antrim BT53 7QL

Contact(s): Colm Hurley

Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner

Martin Gardiner Matthew Gilbert Neil Haggan Paul Dunlop Sean Ross Stephen Franey

Stephen Watson Stuart Abraham Thomas McAllister

Project 21-0403S DAA South Apron

Quotation No.: Q21-23509 Date Received: 11-Aug-2022

Order No.: Date Instructed: 16-Aug-2022

No. of Samples: 6

Turnaround (Wkdays): 7 Results Due: 24-Aug-2022

Date Approved: 24-Aug-2022

Approved By:

Details: Stuart Henderson, Technical

Manager

Results - Leachate

Client: Causeway Geotech Ltd			Che	mtest J	:.oN do	22-30641	22-30641	22-30641	22-30641	22-30641	22-30641
Quotation No.: Q21-23509		(Chemte	st Sam	ple ID.:	1485987	1485988	1485991	1485992	1485994	1485995
			Sa	ample Lo	ocation:	TP47	TP47	TP50	TP50	TP48	TP48
				Sampl	e Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top De	pth (m):	0.5	1.0	0.5	1.0	0.5	1.2
				Date Sa	ampled:	05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022
Determinand	Accred.	SOP	Type	Units	LOD				Service .		
pH	U	1010	2:1		N/A	7.7	7.8	7.7	7.8	7.7	7.8
Ammonia (Free)	N	1220	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.093	0.078	0.067	0.086	0.060	0.071
Nitrite	U	1220	2:1	mg/l	0.020	< 0.020	< 0.020	0.022	< 0.020	< 0.020	< 0.020
Nitrate	U	1220	2:1	mg/l	0.50	0.55	0.81	1.2	0.83	9.6	0.87
Sulphate	U	1220	2:1	mg/l	1.0	22	32	< 1.0	1.3	1.5	2.2
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hardness	U	1415	2:1	mg/l	15	75	80	63	56	73	58
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	12	13	< 10	< 10	15	11
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	0.58	< 0.50	< 0.50	< 0.50	0.81
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5	< 2.5	2.8	5.1	< 2.5	< 2.5
Cadmium (Total)	N	1455	2:1	µg/l	0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	55	11	35	21	100	14
Chromium (Trivalent)	N	1490	2:1	µg/l	20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20	< 20	< 20	< 20	< 20	< 20
Total Organic Carbon	U	1610	2:1	mg/l	2.0	3.3	3.0	4.2	3.3	4.8	3.1
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Client: Causeway Geotech Ltd	THE PERSON NAMED IN	Cher	ntest Jo	b No.:	22-30641	22-30641	22-30641	22-30641	22-30641	22-30641
Quotation No.: Q21-23509		hemte	st Samp	ole ID.:	1485987	1485988	1485991	1485992	1485994	1485995
2dolation No.: QE : 20000		Sa	mple Lo	cation:	TP47	TP47	TP50	TP50	TP48	TP48
			Sample	Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Dep		0.5	1.0	0.5	1.0	0.5	1.2
			Date Sa		05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022
	_		Asbest		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units			BANG ELL			3 (1)	
	U	2192	Omics	N/A		-	-	-		-
ACM Type	<u> </u>	EIGE			No Asbestos	No Asbesto				
Asbestos Identification	U	2192		N/A	Detected	Detected	Detected	Detected	Detected	Detected
Moisture	N	2030	%	0.020	7.0	6.8	6.7	6.5	6.4	4.5
pH	U	2010		4.0	9.1	8.6	9.2	8.8	9.2	9.0
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	1.4	< 0.40	1.3	< 0.40	2.0	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	0.011	< 0.010	< 0.010	< 0.010	< 0.010
Total Sulphur	U	2175	%	0.010	0.11	0.11	0.095	0.074	0.070	0.094
Sulphur (Elemental)	U	2180	mg/kg	1.0	2.7	< 1.0	< 1.0	< 1.0	3.3	< 1.0
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cyanide (Free)	Ü	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg		< 0.50	< 0.50	3.0	< 0.50	< 0.50	< 0.50
Sulphate (Total)	U	2430	%	0.010	0.095	0.069	0.062	0.062	0.052	0.068
Arsenic	U	2455	mg/kg	0.5	11	9.8	7.2	7.9	8.6	8.0
Cadmium	U	2455	mg/kg		1.8	1.7	1.7	1.8	1.2	1.5
Chromium	U	2455	mg/kg		12	11	10	10	12	9.5
Copper	Ü	2455	mg/kg	_	27	24	20	20	18	20
Mercury	Ü	2455	mg/kg	_	< 0.05	< 0.05	0.05	< 0.05	0.08	< 0.05
Nickel	U	2455	mg/kg		42	39	31	36	26	35
Lead	U	2455	mg/kg		22	18	17	15	23	14
Selenium	Ü	2455	mg/kg	_	1.5	0.78	0.78	0.78	0.53	1.1
Zinc	U		mg/kg	_	77	56	65	59	59	56
Chromium (Trivalent)	N	2490	mg/kg		12	11	10	10	12	9.5
Chromium (Hexavalent)	N	2490	-		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	Ü	2625		0.40	0.98	< 0.40	1.2	0.41	1.2	1.5
Total TPH >C6-C40	U	2670	mg/kg	_	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	Ü	2680		_	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16 Aliphatic TPH >C16-C21	U		mg/kg		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	Ü	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	N		mg/kg		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	N		mg/kg		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Aliphatic Hydrocarbons	N		mg/kg		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	_	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8 Aromatic TPH >C8-C10	U		mg/kg		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Project: 21-0403S DAA South Apron

Client: Causeway Geotech Ltd	Clark Contract		mtest J		22-30641	22-30641	22-30641	22-30641	22-30641	22-30641
Quotation No.: Q21-23509			est Sam		1485987	1485988	1485991	1485992	1485994	1485995
		S	ample L		TP47	TP47	TP50	TP50	TP48	TP48
				le Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top De		0.5	1.0	0.5	1.0	0.5	1.2
	3 / -		Date Sa		05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022
			Asbest	os Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD	(10000000000000000000000000000000000000					DOI WOUN
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	μg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U		mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	_	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Chrysene	U		mg/kg	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[b]fluoranthene	U	_	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	_	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	Ü	_	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10
ndeno(1,2,3-c,d)Pyrene	Ü	_	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	_	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	Ü	_	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	_	mg/kg	2.0	< 2.0	< 2.0	< 0.10	< 0.10	< 0.10	< 0.10
Total Phenois		_						< 2.0	< 2.0	< 2.0
Total Phenois	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>

Eurofins Chemtest Ltd
Depot F

Email: info@chemtest.com

CB8 0AL Tel: 01638 606070

Final Report

Report No.:

22-30645-1

Initial Date of Issue:

24-Aug-2022

Client

Causeway Geotech Ltd

Client Address:

8 Drumahiskey Road

Balnamore Ballymoney County Antrim BT53 7QL

Contact(s):

Colm Hurley Darren O'Mahony

Gabriella Horan
Joe Gervin
John Cameron
Lucy Newland
Martin Gardiner
Matthew Gilbert
Neil Haggan
Paul Dunlop
Sean Ross
Stephen Franey
Stephen Watson
Stuart Abraham
Thomas McAllister

Project

21-0403S DAA South Apron

Quotation No.:

Q21-23509

Date Received:

Date Instructed:

11-Aug-2022

16-Aug-2022

Order No.:

1

Turnaround (Wkdays):

Results Due:

24-Aug-2022

Date Approved:

No. of Samples:

24-Aug-2022

Approved By:

Details:

Stuart Henderson, Technical

Manager





Client: Causeway Geotech Ltd	400000			mtest J	Contract the Contract of the C	22-30645	22-30645	22-30645	22-30645
Quotation No.: Q21-23509				est Sam		1486009	1486010	1486011	1486012
	4		S	ample L	ocation:	TP07	TP07	TP07	TP07
				Samp	le Type:	SOIL	SOIL	SOIL	SOIL
				Top De	pth (m):	0.5	0.7	1.5	2.5
				Date S	ampled:	05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022
Determinand	Accred.	SOP	Type	Units	LOD			-Vall agelet	
pH	U	1010	2:1		N/A	7.6	7.7	7.6	7.5
Ammonia (Free)	N	1220	2:1	mg/l	0.050	< 0.050	0.089	< 0.050	< 0.050
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.41	3.7	0.11	0.078
Nitrite	U	1220	2:1	mg/l	0.020	0.53	1.0	< 0.020	< 0.020
Nitrate	U	1220	2:1	mg/l	0.50	4.9	2.2	< 0.50	< 0.50
Sulphate	U	1220	2:1	mg/l	1.0	21	25	26	120
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hardness	U	1415	2:1	mg/l	15	140	160	78	190
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	0.58	1.2	< 0.20	< 0.20
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	26	52	< 10	< 10
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	0.75	4.2	< 0.50	< 0.50
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	6.0	7.6	< 0.50	< 0.50
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	0.69	1.1	11	77
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5	< 2.5	< 2.5	< 2.5
Cadmium (Total)	N	1455	2:1	µg/l	0.11	< 0.11	0.12	< 0.11	< 0.11
Iron (Dissolved)	N	1455	2:1	µg/l	5.0	13	42	7.4	< 5.0
Chromium (Trivalent)	N	1490	2:1	ид/1	20	< 20	< 20	< 20	< 20
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20	< 20	< 20	< 20
Total Organic Carbon	U	1610	2:1	mg/l	2.0	7.1	13	3.3	3.6
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/I	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
ndeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20

Client: Causeway Geotech Ltd	8 - 1		ntest Jo		22-30645	22-30645	22-30645	22-30645
Quotation No.: Q21-23509			st Samp		1486009	1486010	1486011	1486012
		Sa	imple Lo		TP07	TP07	TP07	TP07
			Sample	_	SOIL	SOIL	SOIL	SOIL
			Top Dep		0.5	0.7	1.5	2.5
			Date Sa		05-Aug-2022	05-Aug-2022	05-Aug-2022	05-Aug-2022
			Asbest	os Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD				1 20 20 1
ACM Type	U	2192		N/A			-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbesto Detected
Moisture	N	2030	%	0.020	11	16	10	9.7
pH	U	2010		4.0	9.1	8.6	9.2	8.4
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	2.1	0.68	1.4	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	0.11
Total Sulphur	U	2175	%	0.010	0.11	0.13	0.14	0.87
Sulphur (Elemental)	U	2180	mg/kg	1.0	3.6	12	2.4	3.8
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (Total)	U	2430	%	0.010	0.065	0.086	0.17	1.6
Arsenic	U	2455	mg/kg	0.5	9.3	7.8	8.9	5.9
Cadmium	U	2455	mg/kg	0.10	1.8	1.3	2.0	1.2
Chromium	U	2455	mg/kg	0.5	12	8.9	13	9.0
Copper	U	2455	mg/kg	0.50	24	18	22	18
Mercury	U	2455	mg/kg	0.05	0.06	< 0.05	0.10	< 0.05
Nickel	U	2455	mg/kg	0.50	38	31	35	29
Lead	U	2455	mg/kg	0.50	21	12	27	13
Selenium	U	2455	mg/kg	0.25	0.65	2.1	0.89	2.7
Zinc	U	2455	mg/kg	0.50	64	53	71	44
Chromium (Trivalent)	N	2490	mg/kg	1.0	12	8.9	13	9.0
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	1.2	1.4	1.4	1.3
Total TPH >C6-C40	U	2670	mg/kg	10	71	200	59	67
Aliphatic TPH >C5-C6	N	2680	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	Ü	2680	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	Ü	2680	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	Ü	2680	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg		< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7 Aromatic TPH >C7-C8	N	2680	mg/kg		< 1.0	< 1.0	< 1.0	< 1.0
Aromatic T C8-C10	U	2680			< 1.0	< 1.0	< 1.0	< 1.0