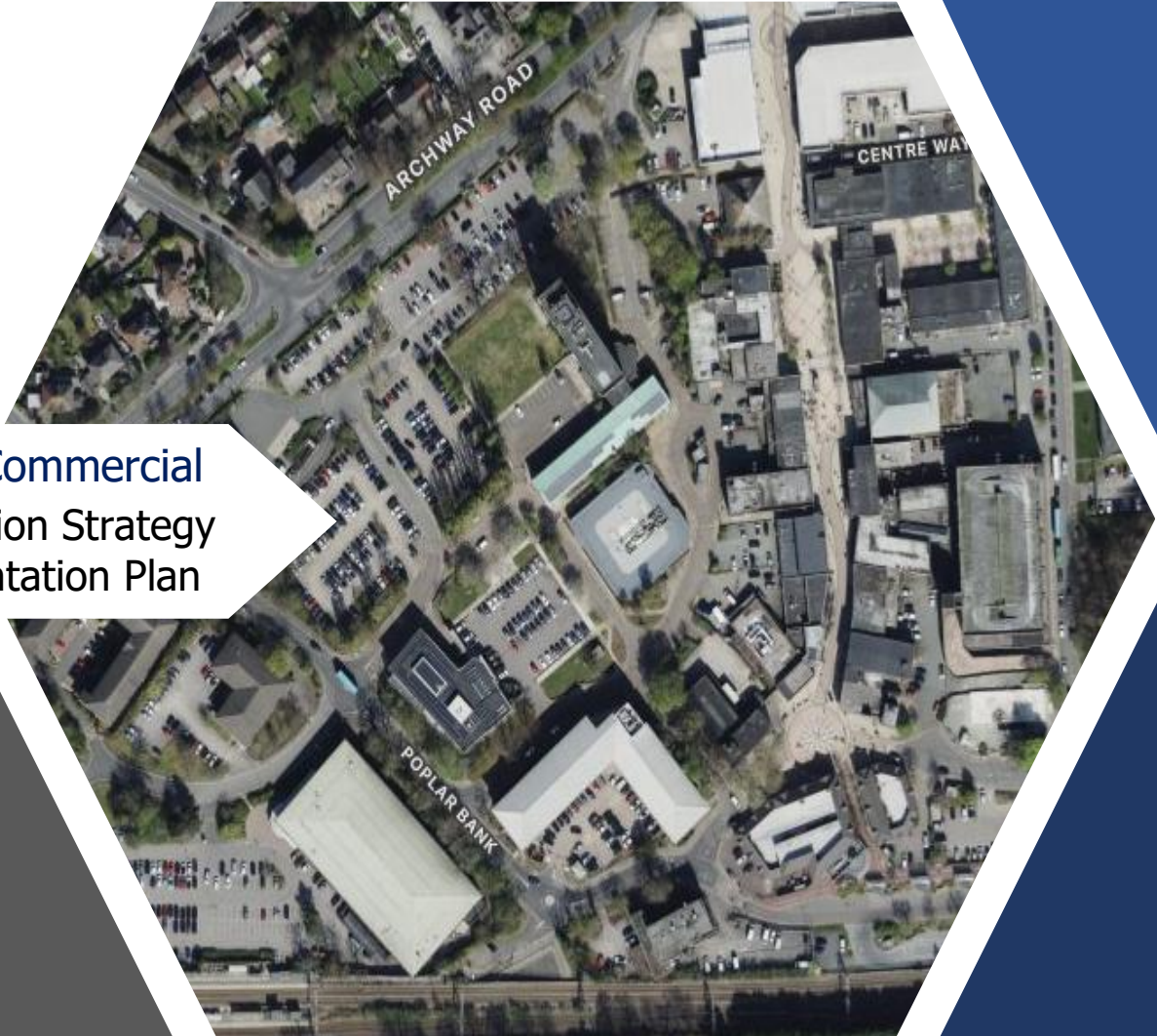




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Huyton Commercial
Remediation Strategy
Implementation Plan



Civil and Remediation Ltd.
C335-CR-GE-RSIP-01-XX-XX-R1
June 2026
Tom Magee BSc (Hons) FGS MCIWM

Document Revision Status

Issue	Date	Comments
01	22/06/26	First issue for Client and LPA review.

Important note about the report:

The sole purpose of this report and the associated services performed by C&R is to present the Remediation Strategy Implementation Plan in relation to the remedial works in accordance with the scope of services set out in the contract between C&R and the Client. That scope of services, as described in this report, has been developed with the Client.

This document has been prepared specifically to define environmental remediation measures and enabling works implementation methodology. It does not constitute detailed geotechnical or structural design.

All geotechnical design, including formation performance, stabilisation design, bearing capacity, settlement assessment and long-term structural adequacy, remains the responsibility of the appointed earthworks designer and Civil and Remediation Ltd. under their construction and design obligations.

The geotechnical methodology described herein reflects the Contractor's stated design intent and is recorded for coordination purposes only.

In preparing this report, C&R has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client. Except as otherwise stated in the report, C&R has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

C&R have derived the data in this report from information sourced from the Client and/or available in the public domain at the time or times outlined within this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re- evaluation of the data, findings, observations and conclusions expressed in this report. C&R has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by C&R for use of any part of this report in any other context.

The report is based on the available information provided to date and subject to agreement with the regulators. This report has been prepared on behalf of, and for the exclusive use of the Client, and is subject to, and issued in accordance with, the provisions of the contract between C&R and the Client.

C&R accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

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1.0 Introduction

1.1 Background Information

Civil and Remediation have been appointed by Genr8 to conduct the remediation and enabling works for Land at Civic Way, Huyton, Knowsley (hereafter referred to as "the Site").

This document has been prepared to define the remedial approach, implementation methodology and verification procedures to be undertaken during the enabling works at the Site.

This RSIP has been prepared in accordance with the Environment Agency's Land Contamination Risk Management (LCRM) guidance and demonstrates how risks to human health, controlled waters and the wider environment will be managed and verified during the works.

The measures contained within this document will be implemented by C&R for the duration of the remediation and enabling works, with verification evidence collated to support final sign-off by the Client and Local Planning Authority, where required.

Please read this report in accordance with the following supplementary documents specific to the site:

- Sutcliffe Investigations, "Phase I Preliminary Risk Assessment, Huyton Town Centre", Reference 30104LG – R01, dated November 2018;
- Brimstone Site Investigation Limited, "Stage 1 Preliminary UXO Risk Assessment", Reference 23-2180, dated 13 July 2023;
- Brimstone Site Investigation Limited, "Stage 2 Detailed UXO Risk Assessment", Reference DRA-23-1581, dated 9 August 2023;
- Buro Happold Limited, "Phase I Desk Study Report – Due Diligence Review", Reference 051610-BHE-XX-XX-RP-GE-0001, dated 20 November 2023;
- CC Geotechnical Ltd, "Ground Investigation at Huyton Town Centre, Factual Report", Reference CCG-C-23-14178, dated January 2024;
- Buro Happold Limited, "Ground Investigation Report, Huyton Town Centre Regeneration", Reference 051610-BHE-XX-XX-RP-CG-0001, dated 3 April 2024;
- Buro Happold Limited, "Generic Quantitative Risk Assessment and Remedial Strategy", Reference 0054419-BHE-XX-XX-RP-YG-0004 (Revision P01), dated June 2025; and,
- Knowsley Council (Environmental Health & Consumer Protection / Merseyside Environmental Advisory Service), "Planning Consultation Response – Condition 5 (Contaminated Land), Planning Application 23/02803/COND1", dated 17 June 2026.

The purpose and aims of the Remediation Strategy Implementation Plan are to:

- Present C&Rs proposals for remediation and earthworks to render the site suitable for the proposed mixed-use end use, in accordance with the Employer's Requirements (ER) and LCRM guidelines;

- Outline C&Rs sustainable reuse of material on site to minimise material disposed off site and material imported to site in accordance with the Contractors Proposals (CPs); and,
- Outline the validation process and contingency measures to be applied to confirm the remediation objectives established within Remediation Strategy have been met.

1.2 Scope of Works

This document sets out the approach and methodologies that will be used by C&R within the overall Enabling Works to provide a development platform on site.

The works have been designed to sustainably meet the requirements set out in the ER's document and have taken into account the existing, recorded ground conditions and required actions under LCRM.

The remediation works include:

- Site set up, including boundary fencing and establishment of welfare, storage and office area;
- Establishment of environmental monitoring, including noise, dust and vibration;
- Demolition of the existing buildings on site;
- Site clearance works including the removal of trees/ shrubs under ecological/ environmental supervision where required;
- Collection of any waste on site for disposal off site via suitably licenced waste hauliers to suitably licenced waste facilities following appropriate assessment and classification of the waste to WM3 standards;
- Identification of utilities in accordance with PAS128 and protection/ diversion/ termination measures as required;
- Decommissioning of redundant borehole wells using a 2:1 bentonite cement mix;
- Targeted investigation, delineation and validation of any localised hydrocarbon-impacted soils, particularly in the vicinity of the western site boundary adjacent to the offsite petrol filling station;
- Control and management of any shallow or perched groundwater encountered within excavations, with disposal off site via suitable discharge consent or tanker where required;
- Removal of relict foundation slabs, below ground foundations and other 'hard' inert materials to stockpile;
- Processing of hardcore inert materials to a recycled aggregate on site;
- A cut to fill remediation exercise to remove relict structures, hard and soft spots, and install the site to the correct, balanced levels with a uniform build-up profile for future development; and,
- Placement of 150mm 6F2 layer across the site to protect the earthworks building.

This Remediation Strategy Implementation Plan has been prepared in accordance with the Environment Agency's *Land Contamination Risk Management (LCRM)* guidance. The document

incorporates the requirements for remediation implementation and verification and sets out how the identified risks at the Site will be managed, controlled and validated during the enabling works.

The enabling and remediation works shall be undertaken in compliance with current applicable legislation, standards and industry guidance, including but not limited to:

- BS 6031:2009 – Code of Practice for Earthworks;
- CIRIA C532 – Control of Water Pollution from Construction Sites;
- CIRIA C741 – Environmental Good Practice on Site Guide;
- CL:AIRE Definition of Waste: Development Industry Code of Practice (DoW:CoP);
- Construction (Design and Management) Regulations 2015;
- Control of Asbestos Regulations 2012;
- Control of Substances Hazardous to Health Regulations 2002 (as amended);
- Design Manual for Roads and Bridges (DMRB);
- Environmental Permitting (England and Wales) Regulations 2016 (as amended);
- Environmental Protection Act 1990;
- Hazardous Waste Regulations 2005 (as amended);
- Health and Safety at Work etc. Act 1974;
- Land Contamination Risk Management (LCRM), Environment Agency (2020);
- Specification for Highway Works (SHW), Series 100–600, 800, 900 and 1100;
- The Waste (England and Wales) Regulations 2011; and,
- WM3 – Waste Classification: Guidance on the Classification and Assessment of Waste.

The works and phasing have been designed to ensure that demolition arisings can be incorporated into the remediation and enabling works, with agreements in place regarding the phasing with the Council to minimise disruption by the enhanced reuse strategy, reducing reliance on disposal off site the subsequent demolition and remediation overlap to facilitate reduced disruption via loss of car parking. Demolition and remediation works have been overlapped to this effect and must proceed at the same time to achieve the aims of the Council.

1.3 Limitations

The assessments and interpretation have been made in accordance with legislation and guidelines in use at the time of writing, representing best practice at that time. All the comments and opinions contained in this report, including any conclusions, are based on the information provided by the Client. There may be other conditions prevailing on the site which have not been disclosed in the information provided and which have not been considered by this report.

Responsibility cannot be accepted for any conditions not revealed. Any diagram or opinion of the possible configuration of the findings is conjectural and given for guidance only and confirmation of intermediate ground conditions should be considered if deemed necessary.

Except as otherwise requested by the Client, C&R is not obliged and disclaims any obligation to update the report for events taking place after:

- the date on which this assessment was undertaken; and,
- the date on which the Remediation Strategy Implementation Plan is delivered.

C&R makes no representation whatsoever concerning the legal significance of its findings or to other legal matters referred to in the following report.

This report has been prepared for the sole use of the Client and the Regulators. No other third parties may rely upon or reproduce the contents of this report without the written permission from C&R. If any unauthorised third party comes into possession of this report they rely on it at their own risk and the authors do not owe them any Duty of Care or Skill.

2.0 Site Setting

2.1 Geographical Setting

The Site is approximately polygonal in shape, centred on national grid reference SJ 44162 90855, encompasses an area of approximately 29,000m².

Figure 2.1 below shows the existing site in context.



Figure 2.1 – approximate site location (red area).

The Site is characterised as an established town-centre location occupied by municipal buildings, council offices, public and staff car parks, internal roads and areas of amenity landscaping with scattered trees and incidental grassed verges.

Following completion of demolition works, the Site is understood to comprise predominantly hardstanding, former development platforms and areas of Made Ground, with localised areas of exposed soils and limited vegetation. The former municipal buildings, council offices and associated structures shall have been removed, leaving a largely open, cleared town-centre site.

The Site is generally of shallow gradient, relatively flat, with a slight fall from the south-east to the north-west across the car parking areas.

Ground conditions are characterised by variable thicknesses of Made Ground associated with the Site's historical development, overlying glacial Till (Devensian – Diamicton) and sandstone bedrock of the Chester Formation (to the north of an east–west trending fault) and the Wilmslow Sandstone Formation (to the south), the bedrock being classified as a Principal Aquifer.

Historically, the Site has been occupied by mid-20th century municipal and civic development, including council offices, a library and a municipal building with associated car parking, constructed on land that was largely undeveloped or residential prior to the post-war redevelopment of the town centre.

The Site is located within an established town-centre and mixed-use urban area. The immediate surroundings are characterised as follows:

- North - Archway Road (B5199), beyond which lies Huyton Village Shopping Centre together with a range of commercial and retail units forming the primary town-centre frontage. These uses are consistent with the town-centre character of the area.
- East - Westmorland Road, which provides vehicular and service access into the town centre. Beyond this are further retail units, a taxi rank and town-centre commercial uses along Derby Road. These uses are not considered sensitive receptors.
- South - Civic Way and land associated with the Royal Mail Delivery Office and the NHS Public Health Department building. Huyton Railway Station lies approximately 70 metres further south, beyond the railway line.
- West - Poplar Bank, with neighbouring uses including an Asda petrol filling station, Priory Court Retirement Village and Club 3000 Bingo Hall, with the character transitioning into residential neighbourhoods further west. The retirement village and residential receptors shall be considered in the implementation of construction-phase environmental controls, including dust, noise and vibration management in accordance with best practice guidance. The offsite petrol filling station is noted as a potential source of localised hydrocarbon contamination and shall be considered in the management of the works.

Relevant drawings are presented in Appendix A.

2.2 Proposed Development

It is understood that the Site shall be redeveloped as part of the Huyton Town Centre Regeneration Masterplan, delivering a new mixed-use district comprising a new Knowsley Council headquarters building, a multi-storey car park, residential apartments (Build to Rent), a hotel, and supporting commercial, retail and leisure space, together with associated infrastructure and public realm.

3.0 Summary of Encountered Geoenvironmental Site Condition

3.1 Geotechnical Conditions

The Site is underlain by variable Made Ground associated with the historical development and redevelopment of the town centre, overlying glacial Till and weathered sandstone of the Chester Formation and the Wilmslow Sandstone Formation.

Groundwater has been encountered within the superficial deposits and the underlying sandstone aquifer, with sub-artesian conditions and running sand conditions recorded locally (for example at BH12) during the ground investigation.

The key geotechnical risks in relation to the enabling works are:

- Variable Made Ground thickness and composition, which may lead to inconsistent bearing conditions; and,
- Potential presence of deeper Made Ground in localised areas requiring deep excavation and reengineering for foundation verification, or alternate detailed foundation design.

3.2 Chemical Conditions

Soil Contamination

The 2023 ground investigation recorded only negligible photo-ionisation detector (PID) responses and no widespread soil contamination. Sixteen samples of Made Ground were analysed against the relevant Generic Assessment Criteria (GAC). None exceeded the GAC with the exception of sample WS06 at 0.5m below ground level, which recorded elevated concentrations of dibenzo[a,h]anthracene, benzo(a)pyrene and benzo(b)fluoranthene. Two soil samples recorded asbestos at trace concentrations (<0.001%).

The Made Ground is typically thin, generally less than 1m and to a maximum of approximately 1.3m below ground level.

The principal potential source of localised soil and groundwater contamination is considered to be hydrocarbons associated with the offsite petrol filling station adjacent to the western site boundary, together with possible localised impacts associated with the historical development and use of the Made Ground. The lateral extent and significance of any localised impacts shall be confirmed by validation and further investigation during the enabling works.

Asbestos

The Site comprises areas of Made Ground associated with the historical development and redevelopment of the town centre.

The composition and quality of the Made Ground is variable and, in places, of uncertain origin.

Asbestos has been identified as a potential contaminant of concern within Made Ground and historical fill materials.

This risk is typical of former industrial sites where demolition arisings and imported fill may contain asbestos-containing materials (ACMs).

Asbestos in soils is considered to be manageable on site using standard control procedures and is anticipated to remain on site, with the exception of any encountered ACMs, which will require capture and disposal off site.

Groundwater

The groundwater beneath the Site is hosted within glacial Till (a Secondary (undifferentiated) Aquifer) and the underlying sandstone bedrock of the Chester Formation and the Wilmslow Sandstone Formation, classified as a Principal Aquifer of Medium Vulnerability.

No significant or widespread groundwater contamination has been identified during the ground investigation. The principal potential risk to groundwater is considered to be localised hydrocarbon migration from the offsite petrol filling station adjacent to the western boundary, which shall be considered during the works.

There is no evidence of Light or Dense Non-Aqueous Phase Liquid (LNAPL or DNAPL) within the available investigation records.

On the basis of the available desk study and ground investigation information, wholesale groundwater remediation is not considered to be required. The groundwater regime and any localised hydrocarbon impacts shall be kept under review during the enabling works, with the approach to be agreed with the Local Planning Authority and the Environment Agency as required.

4.0 Identified Pollutant Linkages

Potential pollutant linkages, derived from the preliminary conceptual site model presented in the Phase I desk study and informed by the findings of the ground investigation, are summarised in Table 4.1 below. These represent potential linkages to be confirmed and managed during the enabling works.

Table 4.1 – Summarised Preliminary Conceptual Site Model and Potential Pollutant Linkages.

Source	Pathways	Receptors	Pollutant Linkage?	Mitigation
Asbestos in shallow Made Ground	Dermal contact, ingestion and inhalation	Human health – future site users	Potential	Trace asbestos (<0.001%) recorded in two Made Ground samples. Provide a suitable thickness clean cover system in soft landscaped areas, with hardstanding and building footprints elsewhere, to break the contaminant linkage where Made Ground is present.
		Human health – construction workers	Potential	Mitigated by use of PPE and provision of suitable welfare facilities – C&R RAMS to assess risk mitigation in detail.
Localised hydrocarbon contamination (Made Ground / offsite petrol filling station)	Direct contact / permeation of water supply pipes	Construction & site workers; potable water supply pipes	Potential	UKWIR water supply pipe risk assessment to be undertaken on confirmed pipeline routes following enabling works; watching brief and targeted validation of any impacted soils during the works.
Localised hydrocarbon contamination in soils and groundwater	Leaching / migration to controlled waters	Principal Aquifer (Chester Formation / Wilmslow Sandstone Formation)	Potential	Validation of any impacted soils during excavation and management of any localised hydrocarbon impacts adjacent to the western boundary; approach to be agreed with the Environment Agency where required.
Ground gases	Indoor exposure/explosive hazard via enclosed space accumulation of ground gas	Human health – future site users	Potential	The ground gas regime has been assessed as Characteristic Situation 1 (CS1) and accepted by MEAS; no gas protection measures are currently required. A post-enabling drill-back-through round of ground gas and groundwater monitoring shall confirm the classification at depth and inform any gas protection measures required for individual buildings. The assessment shall be revisited if biodegradable material is encountered.

5.0 Remediation Requirements

5.1 Identified Remediation and Betterment Works

Remediation works shall comprise a watching brief and targeted delineation and validation of any localised hydrocarbon-impacted soils encountered, particularly in the vicinity of the western site boundary adjacent to the offsite petrol filling station, to confirm the lateral and vertical extent of any contamination. Identified hotspot materials shall be subject to validation during excavation, with soils placed within a designated bunded and lined quarantine area pending classification and retesting.

Subject to the outcome of validation testing, materials shall be either reused on Site within appropriate areas such as public open space and landscaped zones, or disposed of off Site in accordance with relevant waste classification and Duty of Care requirements.

No Light Non-Aqueous Phase Liquid (LNAPL) or significant dissolved-phase hydrocarbon contamination has been recorded within the groundwater monitoring undertaken to date. The principal potential groundwater risk relates to localised hydrocarbon migration from the offsite petrol filling station adjacent to the western boundary.

There is no evidence of DNAPL within the available investigation records.

The available desk study and ground investigation information does not indicate a requirement for groundwater remediation.

Any localised hydrocarbon impacts identified during the works shall be managed by targeted excavation and validation where practicable, with materials handled in accordance with this document.

Should free product or significant hydrocarbon impacts be encountered unexpectedly within any groundwater monitoring well or excavation, the Engineer shall be notified and appropriate recovery and management measures shall be agreed and implemented, with the Environment Agency consulted as required.

Where any free product is encountered, it shall be removed using hydrocarbon-specific bailers and stored in appropriate Intermediate Bulk Containers (IBCs) prior to off-site disposal via a suitably licensed waste facility.

Records of any recovered volumes, monitoring data and disposal documentation shall be maintained for inclusion within the Verification Report and to support ongoing dialogue with the Environment Agency regarding the management of controlled waters risks at the Site, where required.

5.2 Environmental Requirements

Construction Worker Risk Management

For construction workers, mitigation shall comprise construction-phase management controls including contamination awareness procedures, appropriate PPE, dust suppression, asbestos-in-soils protocols, and gas monitoring and ventilation measures during excavation works. These measures are intended to break direct contact and inhalation pathways during enabling activities. This shall be the responsibility of C&R to assess and incorporate into the relevant RAMS prior to works commencement.

Future Site Users Risk Management Requirements

For future site users, mitigation shall comprise permanent pathway interruption measures incorporated within the development design, including hardstanding and building slab cover systems, provision of a suitable thickness clean cover within landscaped areas, and installation of ground gas and vapour protection measures proportionate to the confirmed risk profile.

Verification procedures shall be implemented to demonstrate that all mitigation measures have been installed in accordance with the approved strategy and are effective in breaking identified pollutant linkages.

It is noted that verification works for these elements are outside of C&Rs scope of works.

Water Supply Pipes

For potable water supply infrastructure, mitigation shall comprise a risk-based assessment of potential contaminant permeation in accordance with UK Water Industry Research (UKWIR) guidance.

Targeted sampling and testing shall be undertaken along proposed pipeline routes at appropriate depths, once final alignments are confirmed, to inform the assessment.

Where required, specification of suitable barrier or upgraded pipe materials shall be implemented in consultation with the statutory undertaker to prevent contaminant ingress.

The UKWIR risk assessment and any associated testing fall outside of C&Rs scope of these works.

5.3 Geotechnical Requirements

Geotechnical works shall comprise site-wide turnover to approximately 1m bOGL, to facilitate reworking and improvement of near-surface materials. This shall facilitate the turnover of all made ground materials. Earthworks shall be undertaken in accordance with the Specification for Highway Works (SHW) Series 600.

The turnover will incorporate the removal of ground slabs, relict sub-surface foundations, hard and soft spots with associated materials screening to achieve compliant fill materials and placement of

earthworks material in suitably thick layers relative to the compaction plant. This shall be assessed by the Engineer on site.

A minimum 150mm thickness of site won, recycled aggregate shall be placed across the Site to protect the formation and provide a working platform where required. The earthworks and capping arrangement shall be constructed to achieve a minimum 10% CBR at the top of the stone layer, in accordance with the Employer's Requirements.

6.0 Implementation Plan

6.1 General Approach to Sequence of Works

This Remediation Strategy Implementation Plan presents the approach by which the remediation criteria will be met by C&R.

The main elements of the Enabling Works will entail the following:

- Site clearance works including vegetation and waste at the surface;
- On site stats investigation, delineation and termination;
- Demolition works in tandem with phased remediation works to prevent disruption to parking and office buildings;
- Removal of concrete hardstanding, macadam and surface hardcore material;
- Removal of relict foundations;
- Removal of redundant stats ducting and infrastructure;
- Investigation/ watching brief of any localised hydrocarbon impacted areas or uninvestigated areas (particularly adjacent to the western boundary and below the building footprints) and appropriate hotspot/ quarantine measures;
- Control of perched & shallow groundwaters in sumps where appropriate and with disposal off site via discharge consent to foul sewer or tanker where required;
- Turnover and screening of existing made ground and bund materials to remove geotechnical constraints, oversize fractions and other obstructions to depths shown on the isopachyte drawing in Appendix A;
- Processing of hard materials by crushing and screening to produce a recycled aggregate to be reused on site;
- Site wide earthworks of site won fill materials to create a uniformly reengineered and compacted development platform, for the proposed end use to specified geotechnical performance requirement; and,
- Placement of 150mm of recycled aggregate across the earthworks area where required.

6.2 Phasing of Works

The phasing of the Works is designed to produce maximum efficiency and to minimise any risks associated with migration of contaminants.

A detailed programme of work will be maintained by C&R's Project Manager. Note that programmes are subject to change depending on ground conditions, site conditions, options appraisal for unforeseen issues and/ or further efficiency opportunities and outputs.

There may be variations as the work progresses in accordance with rates of progress for the different elements of the work and external factors such as weather conditions.

The enabling works are subject to Condition 5 (Contaminated Land) of planning permission 23/02803/FUL. Following consultation, the Merseyside Environmental Advisory Service (MEAS), acting for Knowsley Council, advised on 17 June 2026 that it had no objection to demolition commencing but was unable to recommend discharge of any part of Condition 5, on the basis that further intrusive investigation is required following demolition, including beneath the footprints of the existing buildings, the western car park and the Lathom Road multi-storey car park area, which were not accessible during the 2023 ground investigation.

It is proposed that Condition 5 be partially discharged for the enabling and earthworks phase, on a watching-brief-plus-validation basis governed by an agreed remediation strategy, Materials Management Plan (MMP) and verification plan, with the results of the further post-demolition investigation submitted to and approved by the Local Planning Authority before works are undertaken within the relevant building footprints. This approach shall be agreed with MEAS and the Local Planning Authority as the first action, prior to mobilisation.

The Site is balanced on a cut-to-fill basis and the demolition and remediation earthworks are, in practical terms, a single integrated operation. The phasing and material balance rely upon the reuse of demolition arisings and site-won materials within the works; the demolition cannot therefore be treated as a wholly standalone activity separate from the remediation.

All materials intended for reuse on Site, including cut-and-fill materials, recovered topsoil, Made Ground and demolition arisings, remain classified as waste until the MMP is declared. Such materials shall not be stockpiled or banked for later use without an immediate, demonstrated use under the MMP; in the absence of a declared MMP, arisings shall be limited to off-site disposal, off-site sale or use within permitted temporary works (such as haul roads and temporary car park reinstatement). The sequencing of the works shall therefore be coordinated with the discharge of Condition 5 and the declaration of the MMP to avoid the generation of material that cannot lawfully be reused.

The intrusive investigation of deep ground conditions and the ground gas regime shall be deferred to a defined drill-back-through round following the remediation earthworks, as described in the post-enabling works section of this document, as these are build-phase matters that do not need to delay the enabling and earthworks phase.

6.3 Supervision and Validation of the Works

An independent geoenvironmental engineer will attend site throughout the site works and will advise all matters relating to contamination and potential contamination. This work will include, but not be limited to:

- Supervision of sampling and scheduling of analysis of soils and water and compiling an electronic dataset of results;
- Categorising materials as they are excavated using available analytical results, visual and olfactory inspection;
- Assessing the need for testing and subsequent assessment of results and action on soils in quarantine;
- Noting any unexpected contamination and taking appropriate action;
- Deciding whether the local authority should be alerted to any unforeseen contamination;
- Making use of photographs and surveying to record site conditions and work completed;
- Assessing all test results and producing tables, graphs and drawings as appropriate; and,
- Ensuring daily environmental monitoring sheets are completed.

Geotechnical testing and verification of earthworks performance shall be undertaken in accordance with the Inspection and Test Plan and overseen by C&R's on site engineer.

The independent geoenvironmental engineer's role is limited to contamination and materials suitability.

Appendix B presents the proposed Inspection and Test Plan for the validation and verification of the Works in accordance with the approved Remediation Strategy.

6.4 Site Clearance

The site shall be cleared of all residual debris and any vegetation/ organics to the Specification of Highway Works Series 200.

Prior to the commencement of the Works the whole of the site shall be inspected and a photographic record kept of the condition of the site.

Waste Materials shall be cleared and stockpiled separately and disposed to appropriately licensed waste acceptance facility.

On-site burning of materials shall not be permitted.

Site clearance works will entail erecting of temporary fencing and a limited vegetation/ organic strip.

Redundant investigative boreholes shall be decommissioned in accordance with the relevant EA guidance in Appendix C using a 2:1 bentonite cement mix.

6.5 Setting Out and Surveying

C&R shall be responsible for the true and proper setting-out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labour in connection therewith.

C&R shall carefully protect and preserve all benchmarks, sight rails, pegs and other items used in setting out the Works.

Should C&R find any discrepancies on the drawings it will refer the matter to the Client for verification before proceeding with the works.

C&R shall undertake the following survey work, as a minimum, or as otherwise directed by the Engineer in accordance with the project requirements:

- Establishment of profile boards;
- Depth and extent of localised areas of over-dig (such as those required to remove relict structures);
- Depth and extent of excavations associated with removal of soil/fill;
- Finished level of cement stabilised capping replacement layer; and,
- The finished surface.

The Contractor shall supply the results of this survey work to the Engineer for inclusion in the final Verification Report.

6.6 Selective Stripping of Topsoil and 'Reworked' Topsoil

Where present and suitable, topsoil shall be carefully stripped, stored separately, tested and reused where suitable within landscaped areas in accordance with good earthworks practice.

6.7 Removal of Hardstanding and Slabs

All pre-existing areas of hardstanding shall be excavated in a phased manner and relocated to separate (material specific) temporary stockpiles within the site for subsequent crushing and screening to suitable gradings (see Section 4.12).

The site is covered in existing hardstanding, predominantly of relict concrete slabs.

Any unsuitable Class U1 materials shall be screened/ processed until they are compliant with the relevant specification or removed to a suitably licensed waste facility.

6.8 Delineation and Excavation of Contamination 'Hotspots'

Localised Hydrocarbon Impacts

Where localised hydrocarbon-impacted soils are identified during the works (for example adjacent to the western site boundary in the vicinity of the offsite petrol filling station), a targeted excavation

shall be undertaken to delineate and remove the impacted soils. Initial excavation shall comprise a nominal 5 m by 5 m plan area centred on the identified impact, extending to the depth of identified contamination or until natural or demonstrably clean strata are encountered.

Excavated materials shall be subject to chemical testing in accordance with the Inspection and Testing Plan to confirm suitability for reuse or to inform further excavation requirements. Where laboratory results indicate concentrations exceeding the agreed assessment criteria, excavation shall continue laterally and/or vertically in the direction of exceedance, with iterative sampling and testing undertaken to define the extent of contamination.

This process shall continue until validation results demonstrate that remaining soils are compliant with the agreed criteria for the proposed end use. All excavations shall be logged and recorded, with sampling locations and results documented for inclusion within the Verification Report.

Excavated materials shall be temporarily stored within a designated bunded and lined quarantine area pending classification. Following testing, materials shall either be reused on Site in accordance with the Materials Management Plan, or disposed of off Site at an appropriately licensed facility in accordance with Duty of Care requirements.

6.9 Asbestos Management Plan

Two samples of Made Ground recorded asbestos at trace concentrations (<0.001%) during the 2023 ground investigation. Asbestos-containing materials (ACMs) are a recognised potential contaminant within Made Ground and within the fabric of the buildings to be demolished. A pre-demolition asbestos survey shall be undertaken and asbestos in soils shall be managed on a precautionary basis during the enabling works.

Visible ACMs on site will be tested and assessed in accordance with the Joint Industry Working Group Asbestos risk assessment spreadsheet to advise if removal works are licenced or non-licenced.

If works are licenced, a suitably qualified asbestos removal contractor will be sought to remove the asbestos from site and provide full certification of removal and an associated, signed waste transfer note.

If the works are non-licenced, the asbestos will be hand picked by suitably qualified and trained site operatives with suitable PPE, including but not limited to a white suit, suitable mask, goggles and gloves. Asbestos will be double bagged, sealed and placed in a lidded asbestos skip from a licenced waste carrier for disposal off site.

A watching brief will be conducted across the rest of the site to identify any further ACMs for area segregation, hand picking and disposal off site in accordance with the above measures.

C&R will develop specific RAMS for asbestos hand picking works and incorporate these as part of a wider asbestos management plan.

Air monitoring will be undertaken where necessary to confirm no significant fibre release during groundworks.

6.10 Removal of Underground Storage Tanks

No underground storage tanks (USTs) have been identified during the ground investigation. Given the historical and current land use, the presence of USTs within the Site is considered unlikely, however, the potential for previously unidentified tanks or fuel infrastructure cannot be fully discounted.

If/ where encountered, each tank shall be carefully emptied of any residual product, purged of potentially explosive/ flammable/ contaminative vapour, and safely disposed from the site by an appropriately qualified and licensed contractor.

Any underground distribution pipe work should be purged of any residual product and explosive vapours and then carefully removed.

The Engineer will inspect the resultant excavations, and supervise the removal of any contaminated soil/fill encountered in accordance with the procedures for hotspot removal.

Tanks shall be treated as hotspots following removal, with validation testing of the base and sides of the excavation to ensure no contamination is present, or to remove contaminated materials to quarantine.

The Client and technical team will be notified if any underground storage tanks are discovered, and the technical team will be invited to site to inspect the removal if required.

6.11 Bulk Excavation of Soils and Removal of Below Ground Obstructions

All relict foundations associated with former buildings and other relict structures, such as below ground concrete 'bundings' to potential USTs, basement walls and floors, utility ducts etc, will be generally removed to depths shown in the isopachyte drawing in Appendix A, as required. Deeper excavations will be discussed with the Client prior to commencement, where required.

Any oversize fractions encountered during the turnover exercise shall be screened out and stockpiled separately prior to crushing and be replaced in engineered layers with compaction.

Where relict structures are found to retain fluid contaminants, they shall be drained first. The drained fluids shall be stored in appropriate sealed tanks/ containers and analysed for a range of determinands to be agreed with the Engineer. Fluids may then be tankered off-site, or be discharged to sewer, subject to analytical results and local water treatment company consent and licences.

Deep excavations for the removal of structures will be expected to be unstable in the short term and continuous side support may be needed or excavations battered back as necessary.

Where significantly deep foundations or relict structures cannot be removed by conventional means, they are to be cut at a depth to be agreed with the Engineer and the position of the remaining lower section is to be accurately recorded by survey.

Suitable materials derived from the removal operation shall be stored in a location on site, to be agreed with the Engineer, prior to crushing. Any unsuitable materials, such as materials coated with and possibly infiltrated by fuel/ oil contaminants, shall be removed to a suitably licensed waste facility.

6.12 Processing of Oversized Hardstanding

Production of significant quantities of selected granular fill should be possible if suitable materials (generated from the demolition and removal of hardstanding works) are crushed.

The availability of space on site will mean that it will be possible to carry out crushing and screening operations within a designated area(s) on site that shall be agreed with the Engineer.

The crushed product should be screened to reduce any unsuitable elements (such as reinforcing bar) and stockpiled for re-use during the subsequent filling works. Generation of a Class 6 material as defined in the Specification for Highway Works (Series 600), should be possible.

Recycled MOT Type 1 graded material may be produced from recovered concrete fractions and can contain up to 50% recycled bituminous macadam/asphalt in accordance with Clause 803 & Table 8/3 of the *MCHW* Series 800.

Recycled bituminous macadam/asphalt can be crushed to yield a 6F3 selected granular material, provided the recovered bitumen content is less than 10% (determined in accordance with BS598-102:2003).

Any oversized relict brick structures can produce a 6F2 material.

The Engineer shall check the suitability of crushed product for re-use, instruct the removal of any unsuitable material and schedule appropriate confirmatory geotechnical or chemical testing.

Site won fill materials derived from crushing activity should be located to separate (material specific) temporary stockpiles and shall be subjected to the validation tests as set out in Appendix B.

6.13 Excavation, Surface Water and Groundwater Management

Excavations will be undertaken in a controlled manner, working from a line agreed with the Engineer in linear panels, wherever possible.

Any excavated and screened material that needs to be stockpiled temporarily shall be placed in areas designated by the Engineer. Any stockpile of made ground should be assumed to contain elevated concentrations of contaminants, and it should be ensured that such materials are not allowed to cross-contaminate any clean soils or controlled waters.

The heterogeneous nature of the Made Ground suggests groundwater may occur in discontinuous perched horizons within the working profile, rather than as a uniform water table (uniformity recorded at depth within the sandstone aquifer, outside of the working profile). Localised seepage, softening of formation levels and variable saturation should therefore be expected during enabling works.

Groundwater shall be controlled in accordance with CIRIA C515 and C750.

Arrangements shall be made to prevent ponding in any excavation "hollows"; C&R shall ensure that ground levels are of sufficient gradient to enable the collection of surface water run-off in sumps or grips.

Any potentially contaminated water shall not be allowed to escape to other areas until the results of the analysis are available and, if required, a suitable means of water treatment has been agreed.

Pumping from over-excavated sumps may be required to maintain satisfactory working conditions.

All water discharged from the site via sewer shall be subject to audit testing before discharge. It will be accurately recorded in terms of date, time, quantity and quality of discharge and such records will be maintained at all times and copies made available upon request.

6.14 Backfill of Excavations

Excavations (to remove potential USTs, relict structures, contamination where encountered etc) shall be backfilled as necessary to achieve the desired levels, with suitable materials being placed in horizontal layers of no more than 250mm vertical thickness and subjected to nominal compaction, comprising at least 8 passes with a self-propelled vibratory roller of at least 5,300 kg per meter width.

Backfilling of such excavations using site won screened made ground should ideally be carried out with the screened fractions placed first with granular (6F2 type) materials placed above the earthworks formation level to provide a trafficable surface.

Prior to backfilling works, all excavations shall be prepared in the following way:

- All soft or loose materials shall be removed from the base of the excavation.
- The base of the excavation shall be prepared to form a firm and horizontal surface.
- The side walls of the excavation shall be benched with the maximum vertical height of each bench not exceeding 500mm.

To prevent deterioration to the surface, a granular running layer using recycled 6F2 produced on site shall be placed with a minimum thickness of 150mm.

All soils used within the backfill works shall be sampled by C&R at the frequencies set out in the Remediation Strategy & in accordance with the Inspection and Test Plan in Appendix B. This will be overseen by the technical team.

The project laboratory will be accredited by UKAS for ISO17025 and MCERTS standards for most analytical tests. Chain of custody forms will be used and kept on file or alternatively automatic electronic chain of custody will be in place. Analytical results will be available in pdf and Excel formats and other formats if required. Results will be made available on site for inspection.

Site Won Backfill Materials

Site won materials used in the backfilling works shall be tested at the frequencies and for the suites of determinands set out in Appendix B.

Imported Backfill Materials

Should C&R be required to provide imported backfill materials for the excavations formed (not anticipated as there is currently a material surplus), the materials are to be suitable for use from a chemical perspective when compared to the S4ULs.

C&R shall keep a record of the source of the imported backfill materials. The supplier will be required to provide certification demonstrating that the backfill material is free from any potentially contaminative substances. C&R shall obtain samples for confirmatory analysis to demonstrate the material's suitability for use at the frequencies and for the suites of determinands set out in Appendix B.

Testing frequencies for imported materials, including any imported topsoil, shall accord with the requirements of the Local Authority and shall distinguish between greenfield and brownfield sources. The sampling rates shall be confirmed with the Local Authority and reflected within the Inspection and Test Plan in Appendix B.

6.15 Disposal to Landfill

Excavation arisings that are unsuitable for retention and re-use on site shall be placed in temporary stockpiles on hardstanding or polythene sheeting and be suitably covered to minimise the potential for dust/ odour nuisance, and prevent surface water run-off.

In order to avoid any potential odour nuisance, stockpiles of material should be exported from site as soon as practically possible.

Any material exported from site to landfill shall be hauled by a registered waste carrier in accordance with the requirements of the Waste (England and Wales) Regulations 2011 (and DEFRA's "Waste Duty of Care Code of Practice", March 2016) and the Landfill (England & Wales) Regulations 2002.

A transfer note shall be completed, signed and retained by the parties involved. The transfer note shall include the volume of waste, the nature of the material and a statement of its chemical composition, details of the source and destination sites, and details of the haulier.

In order to protect the general public from dust and vapour emissions, wagons that are to be used for the haulage of the contaminated material from the site shall be sheeted. In addition, C&R will ensure that no fluids seep from the wagons.

In order to provide the landfill facility with information regarding chemical composition of the waste, analysis of any material that requires removal from site will be undertaken.

A minimum of 3 samples per material/ waste type will be scheduled for a minimum of: pH, total metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc), PAH, BTEX, TPH, TOC and an asbestos screen. Ultimate testing rates will depend on the material consistency, volume and waste acceptor requirements.

6.16 Contingency for Unknowns

Even after an appropriate preliminary investigation and ground investigation, with closely spaced exploratory holes, a geoenvironmental appraisal is typically based on inspection of the ground underlying less than 0.5% of the site. Consequently, there is always a possibility that unanticipated ground conditions will be encountered during the remedial works.

During the site Enabling Works, operatives shall remain vigilant to the possibility of encountering isolated areas of potentially contaminated or geotechnically unsuitable material not previously identified.

If unanticipated ground is encountered during the Enabling Works, C&R should immediately seek further advice from the Consultant Engineer. The Environmental Health Officer shall be contacted and made aware of the findings in writing where required.

Any unanticipated contaminated soil/ fill should be placed in temporary stockpiles on hardstanding or visqueen, suitably covered and banded.

Analysis of at least 6 samples, for an appropriate range of determinands should be undertaken. On receipt of the results, the Consultant Engineer will liaise with C&R regarding the most appropriate remedial option. Recommendations for further action, if required, shall be agreed with the Local Planning Authority which may include revision of this Remediation Strategy and subsequent requirements for verification.

Given the limited and thin Made Ground encountered and the staged nature of the works, a full-time watching brief shall be maintained by the independent geo-environmental engineer throughout the demolition and earthworks. The watching brief shall characterise and validate the shallow Made

Ground as it is excavated, against the agreed remediation and reuse criteria, to confirm which materials are suitable for reuse on Site and to segregate and remove any materials that are not.

Stop-and-notify triggers shall be incorporated within the watching brief. Works in the affected area shall be paused and the Engineer notified upon encountering any evidence of a potential deeper or unforeseen problem, including visual or olfactory staining, hydrocarbon or other odours, underground tanks or fuel infrastructure, soft spots, or any biodegradable or organic material. Affected areas shall be subject to targeted additional sampling and testing to characterise the material before works resume, and the relevant risk assessments, including the ground gas risk assessment, shall be revisited where required.

Targeted additional investigation and testing shall be undertaken within the areas not covered by the 2023 ground investigation, namely the western car park, the Lathom Road multi-storey car park area and the footprints of the buildings to be demolished, once these become accessible following demolition. The scope of this additional investigation shall be agreed with the Local Planning Authority and shall be incorporated within the remediation and validation works.

6.17 Materials Management

Re-use of all suitable materials on site is part of the planned works.

The Enabling Works shall be undertaken in accordance with a Materials Management Plan (MMP) prepared in accordance with the CL:AIRE Definition of Waste: Code of Practice (2011).

A soil tracking method will be used so that the source area and the final destination of soils will be recorded and available for future reference. C&R shall track soils and will prepare sheets showing daily movements from source to temporary or permanent destination in accordance with the MMP.

A weekly survey will be made and a progress drawing prepared showing soil movement and sampling points.

7.0 Post Enabling Works Remediation Requirements (Outside of C&R Scope)

7.1 Clean Cover System

A minimum 450 mm clean cover system shall be provided within all soft landscaped areas, comprising 300 mm subsoil and 150 mm topsoil, underlain by a suitable marker or membrane layer where Made Ground is present.

The clean cover system shall provide a permanent pathway break between underlying Made Ground and future site users. Provision and final specification of the clean cover system fall outside the scope of C&R's enabling works and shall form part of the subsequent development and landscaping package.

Installation shall be validated by a suitably qualified and experienced independent geo-environmental engineer to confirm material suitability, thickness compliance and appropriate placement in accordance with the remediation objectives.

7.2 Gas and Vapour Assessment and Protection

The 2023 ground investigation included six rounds of ground gas and groundwater monitoring. On the basis of the limited and thin Made Ground encountered and the monitoring results, the ground gas regime has been assessed as Characteristic Situation 1 (CS1) in accordance with BS 8485 and CIRIA C735, indicating that no gas protection measures are currently required. This conclusion has been accepted by the Merseyside Environmental Advisory Service (MEAS), however, the ground gas strategy shall be agreed with the Local Authority as part of the planning process for individual building developments, and the ground gas risk assessment shall be revisited should biodegradable material be encountered during the earthworks or any further investigation.

The results shall be subject to a revised, site-specific ground gas risk assessment and, where required, a formal gas remediation options appraisal and gas protection design in accordance with BS 8485 and CIRIA C735. This subsequent gas risk assessment and protection design will be undertaken as a separate exercise and falls outside the scope of this document and C&Rs enabling works.

The post enabling gas risk assessment and design (if required) shall be issued to the Local Authority and other relevant Regulators and agreed separately from this document prior to gas protection works in relation to end users/ structures.

To address the deep ground conditions and ground gas regime that cannot be characterised by the watching brief during the earthworks, a defined programme of additional intrusive investigation shall be undertaken on completion of the filling works (a 'drill-back-through' round). This shall comprise the drilling of additional boreholes through the reinstated profile to log and sample the deeper strata, to prove the deep ground conditions, and to enable the installation of replacement ground gas and groundwater monitoring wells within the areas of the existing buildings and near the western petrol filling station.

Additional soil and groundwater samples shall be recovered to confirm conditions at depth, and a further period of ground gas and groundwater monitoring shall be undertaken to confirm the Characteristic Situation classification and to inform the specification of any gas protection measures required for the proposed buildings. This investigation may be undertaken in a single round or progressively as the development phases are released, and shall include the areas not investigated during the 2023 ground investigation (the western car park, the Lathom Road multi-storey car park area and the footprints of the demolished buildings).

The results shall be fed into the build-phase design and the final verification. Where the further monitoring and assessment indicate that gas protection measures are required, these shall be

designed in accordance with BS 8485 and CIRIA C735 and agreed with the Local Authority prior to the construction of the affected buildings.

7.3 Water Supply Pipe Risk Assessment

The results of the ground investigation have been reviewed with reference to the UKWIR Report "*Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites*" (UKWIR, 2010), including the Generic Assessment Criteria (GAC) for permeation risk.

The assessment indicates that the potential presence of localised hydrocarbons within Made Ground may present a potential permeation risk to polyethylene and polyvinyl chloride potable water supply pipes where a relevant pollutant linkage exists. On this basis, standard plastic water supply pipes may not be suitable for installation within areas of impacted Made Ground without appropriate protective measures.

At the time of preparation of this Remediation Strategy, the final routing and depth of potable water supply infrastructure has not been confirmed. Consequently, the existing investigation may not fully satisfy the targeted sampling and analytical requirements set out within UKWIR guidance for pipe-specific assessment.

Accordingly, the following measures are proposed:

- Once the proposed route(s) of potable water supply pipes are confirmed, a targeted review of available contamination data will be undertaken to assess permeation risk in accordance with UKWIR methodology;
- Where necessary, additional targeted sampling and analysis will be completed along confirmed service corridors;
- Pipe material selection will be undertaken in consultation with the relevant statutory water undertaker; and,
- Where required, appropriate mitigation measures (such as barrier pipe systems or alternative pipe materials with enhanced permeation resistance) will be specified.

The relevant water supply company will be engaged at an early stage to confirm its specific assessment and material selection requirements, which may differ from or supplement the generic UKWIR recommendations.

Note that these works fall outside of C&Rs scope of works.

8.0 Enabling Works Project Management

8.1 Roles and Responsibilities

Responsibilities throughout the course of the Project will be as shown in Table 8.1 in respect of potentially contaminated materials remediation and constraints removal.

Table 8.1 -Roles and Responsibilities

Activity	Responsibility
Obtain Environmental Permit/ MMP/ Discharge Consents (where required)	C&R
Agreement of Remediation Strategy and Implementation Plan with Regulatory Authorities	Genr8
Watching brief for identification of visual and olfactory contaminated ground during excavation works	C&R
Sampling and geochemical analysis of site won materials for compliance.	C&R
Validation of hotspots	C&R
Management and validation of earthworks	C&R
Liaison with the Local Authority, Environment Agency	C&R/ Genr8
Construction Environmental Management Plan	C&R
Review of Remediation Validation Report on completion of the works	Client team/ Knowsley Council

The works will be supervised by a Site Manager with demonstrable experience in earthworks and remediation. All activities relating to known contamination identified during previous ground investigation works, as well as any unforeseen contamination encountered during excavation, will be subject to a full-time watching brief by an independent Geoenvironmental Consultant. The engineer will notify relevant parties to attend and assess the material, ensuring that appropriate action is taken in accordance with the remediation strategy.

All personnel will receive a site-specific induction covering relevant contamination risks and the nature of the planned earthworks. Excavator operators will be specifically briefed on known hotspots and instructed on procedures to follow should suspect material be encountered during the works.

8.2 Regulatory Approval

C&R shall be responsible for declaring the Materials Management Plan (MMP) via an independent Qualified Person (QP) prior to the commencement of works.

The declaration of the MMP and the discharge (or partial discharge) of the contaminated land planning condition are interdependent, as set out in the phasing and sequencing of this document. Reuse of site-won materials on Site shall not commence until the MMP has been declared.

A dedicated, site specific Environmental Permit is not considered required at this time.

8.3 Environmental Monitoring

C&R shall ensure that appropriate measures are undertaken to protect construction workers and the local environment. This will include carrying out regular “Tool Box Talks” and enforcement of hygiene procedures, use of personnel protective equipment and the implementation of dust control measures. Mitigation measures that will be used to counter the identified potential impacts of construction will be incorporated into C&R’s Risk Assessments and Method Statements (RAMS), Health and Safety Plan and the Construction Environmental Management Plan (CEMP). These will include:

- Procedures and protocols to prevent construction workers, visitors and neighbours from being exposed to contaminated materials (including exposure to asbestos);
- Monitoring of excavation works to identify unforeseen areas of contamination;
- Systems to record and monitor the movement of waste materials leaving site;
- Preventing dust generation during excavation and handling of materials;
- Preventing contaminated water and general runoff beyond the site boundary;
- Preventing damage to existing adjacent structures; and,
- Maintaining traffic safety and management system offsite.

Environmental Monitoring will be conducted in accordance with the Construction Environmental Management Plan, which shall be approved by the local authority prior to the commencement of the Works.

8.4 Health and Safety Requirements

During the construction works, C&R will be responsible for health and safety on the site and comply with the Construction (Design and Management) Regulations 2015. The relevant technical teams will be provided with all relevant documentation relating to health and safety on site prior to the works commencing for approval.

A comprehensive site induction course shall be given to all part time/full time site operatives and will cover the scope of works for the project with emphasis on health and safety, contamination issues, site rules and site responsibilities. C&R shall produce RAMS for all elements of the site works and these documents shall be kept at the site office and are available for viewing on request.

All subcontractors will be provided with a copy of this document to provide information on the risks associated with ground contamination at the site and will be required to carry out a COSHH assessment to identify the appropriate PPE and hygiene facilities for staff working with excavated contaminated materials.

Prior to commencing the site works, all existing underground services shall be marked out and permits to dig issued once the area has been cleared for excavation.

8.5 Liaison with Regulatory Authorities

The C&R Project Manager will maintain contact with local representatives in the immediate area so that any concerns on environmental impacts may be addressed at an early stage. A proactive approach will be taken to keeping site neighbours informed about the works. Site contact details will be issued and displayed on notice boards.

A close working relationship will be promoted with the Regulatory Authorities i.e. Knowsley Council and the Environment Agency.

Site visits by the Regulators will be encouraged and any concerns raised will be immediately investigated and addressed.

Knowsley Council Environmental Health Officer will be notified of any nuisance issues or unforeseen contamination and the measures taken to either mitigate the nuisance or manage this contamination.

8.6 Working Hours

The working hours have been established within the planning conditions, which are 0800 – 1800 Monday to Friday. Should weekend works be required, these will be 0800 – 1300 on Saturdays and no working on Sundays or bank holidays.

9.0 Validation

9.1 Validation Plan

C&R will complete an Earthworks Validation Report to close the MMP and combine this with the relevant contaminated land remediation report assessed against the Remediation Strategy. This report will be required by the Client and regulators to close the works.

9.2 Further Verification Outside of C&R Scope

Further verification will be required for the clean cover layer and gas/ vapour protection measures (where required). These are outside of C&Rs scope of works and should be assessed and validated by a suitably qualified, experienced and independent geoenvironmental engineer.

Further verifications will also be required relating to the water supply pipe route testing and risk assessment. This also falls outside C&Rs scope of works.

A separate verification report confirming all remedial measures, including post enabling measures, have been completed to a satisfactory standard should be submitted to the LPA to close the relevant condition for the development. This is outside of the scope of C&R.

9.3 Evidence of Validation

On completion of the Enabling Works a Verification Report will be drafted and distributed to the relevant regulatory bodies and the local authority Planning Department. In the report the evidence

that was collected over the course of the Works will be assembled in a format suitable to satisfy the Client and Regulatory Authorities that the work was undertaken in the correct manner, the targets were achieved and the objectives met. Information to be presented in the report will be assembled by C&R as the work progresses (weekly reports shall be issued with all current test data and as built records to the Regulator weekly, including photographic records of the works and the following week predicted scope to be completed) and will be available on site for inspection by the Client and the Regulatory Authorities.

The lines of evidence that will be presented in the verification report will be those developed during the course of the Enabling Works. All documentation generated from site such as chemical analyses, the soil tracking register and waste consignment notes will be kept on site until completion of the works then held in C&R's head office for 2 years from completion of the works.

9.4 Contents of Verification Report

The verification report will include the following to meet regulatory requirements:

- **Site Details:** This section of the report will include an introduction to the site with a summary of the original site conditions and the reasons for carrying out the remediation and enabling works. It will list the details of the parties involved including the Client, Principal Contractor and any sub-contractors. It will make reference to previous geo- environmental assessments of the site and this Remediation Strategy requirements.
- **Works Undertaken:** The report will address how the works were completed, the approach used, whether the programme was adhered to and will detail any delays or variations. It will describe the volumes of soils excavated including hotspots, processed as secondary aggregates and materials placed in final destinations. It will include information on volumes and types of material taken off site and imported to site (if applicable).
- **Validation:** This section of the report will summarise the validation tests undertaken during the Enabling Works. Drawings will be included indicating where soil and groundwater samples were taken and where geotechnical tests were completed. The results of sampling will be presented in electronic format and summarised in tables and on graphs and drawings. Records will be provided as evidence that the soil remediation criteria set out in the approved "Remediation Strategy & Options Appraisal" have been met. The soil tracking register will be presented to show an audit trail of the origin of the sample, the type of validation it represents and the destination of the soil. An 'as built' survey of the final site levels will be presented and a drawing showing the surveyed areas where soils have been excavated and placed.

- **Environmental Monitoring:** The report will include the daily environmental logs which record all the information required to meet the Construction Environmental Monitoring Plan including the compliance monitoring of vibration, noise, dust and odour.
- **Regulatory Correspondence:** It is intended that the report will be approved by the regulators and as such any correspondence from the regulatory bodies during the works will be documented in the report.
- **Conclusions:** The report will conclude with a review of the conceptual model and a summary of the evidence presented to show that the objectives of the remediation works were achieved.

Evidence of compliance will be provided for aspects of the remediation that were dependent on results obtained during the works. This includes the soil sampling frequency. In respect of analytical results if there are any exceedances of the soil quality criteria not already addressed in risk assessments, further assessment will be presented to show that the remediation objectives are met.

Waste transfer notes will be presented in respect of any soils, liquids or materials for recycling which are taken off-site.

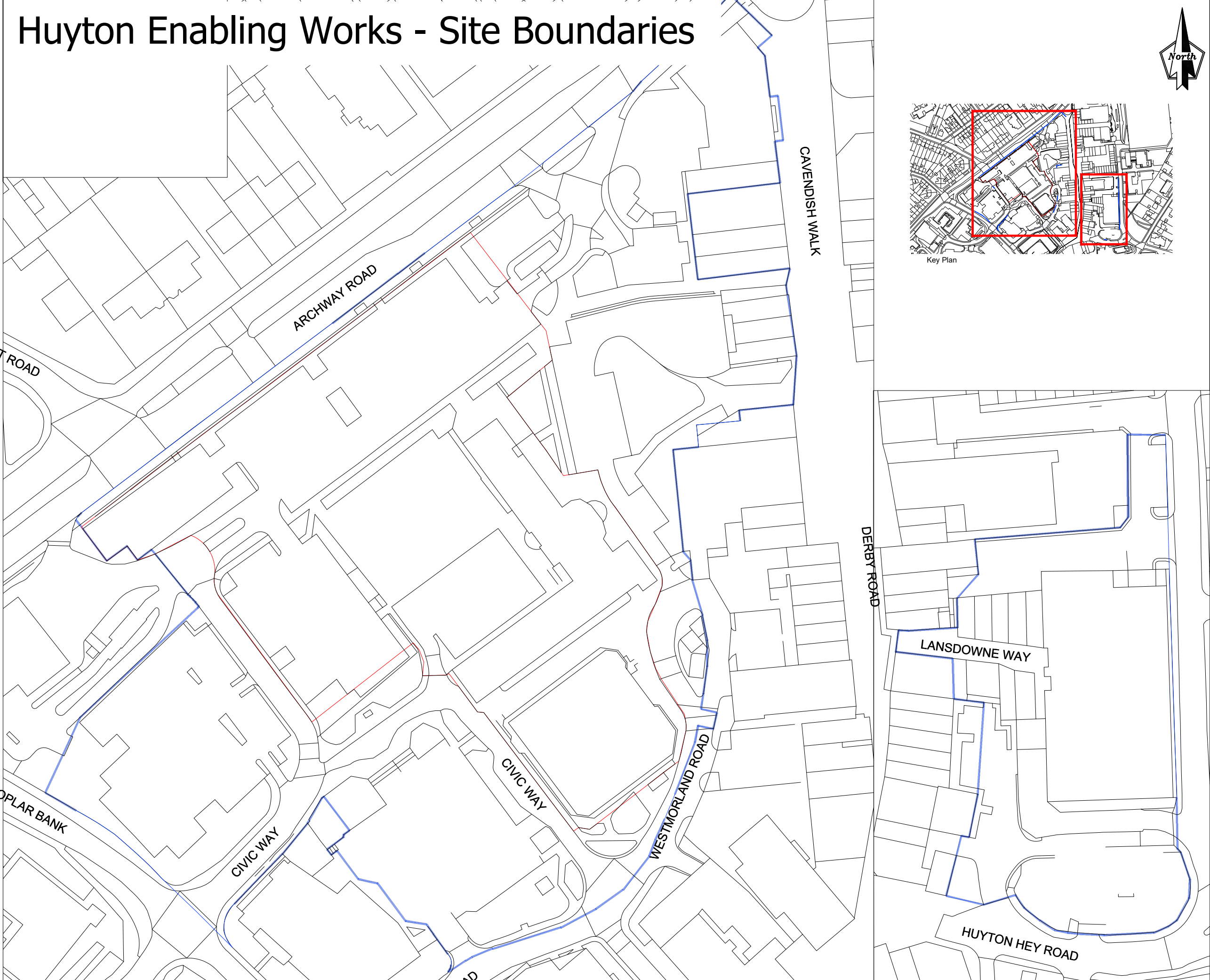
The Validation Report will be submitted to the Client and the Regulatory Authorities within one month of completion.

Note that the separate, all encompassing verification report for gas/ vapour protection requirements and clean cover verification are outside of C&Rs scope of works.

End of Report

APPENDIX A – DRAWINGS

Huyton Enabling Works - Site Boundaries



C&R

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Job Title
Municipal Buildings

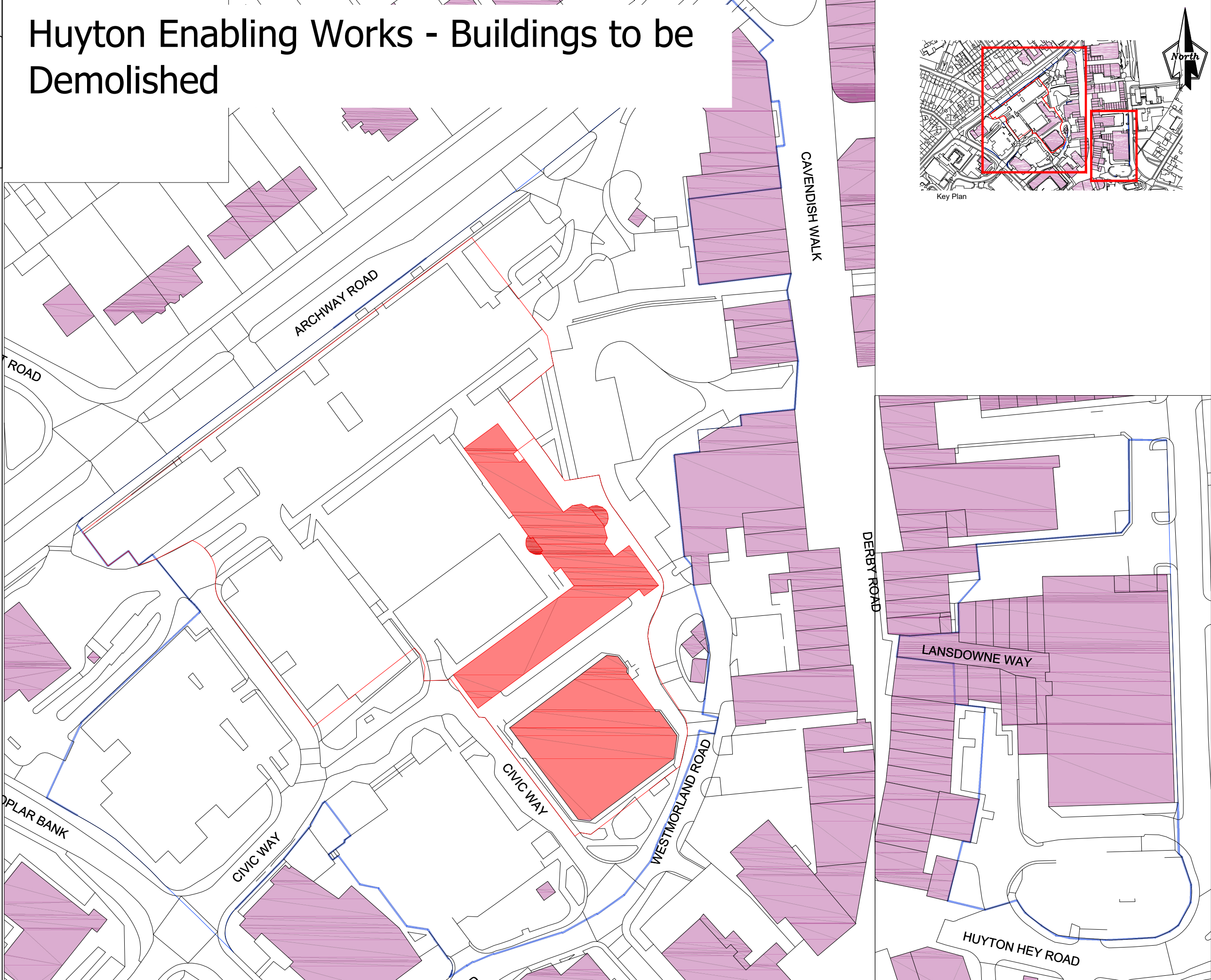
Location
Huyton

Client
Genr8

- Key
- Enabling works application boundary
 - Surrounding land within applicants control

Rev	Date	Description
A	08/04/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works Site Boundaries		
Project Code	T2140	Scale
		1: 1000
		Date Drawn
		08/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-001		A

Huyton Enabling Works - Buildings to be Demolished



Key Plan

C&R

civil-remediation.com

Job Title

Municipal Buildings

Location

Huyton

Client

Genr8

Key

-  Enabling works application boundary
-  Surrounding land within applicants control
-  Existing Buildings
-  Buildings to be demolished

Rev	Date	Description
A	08/04/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works Buildings to be Demolished		
Project Code	T2140	Scale Date Drawn Drawn By Reviewed By Original Size
		1: 1000 08/04/26 TM AR A3
Drawing Number		Rev
T2140-DR-PH-002		A

Huyton Enabling Works - Client Programme and Phasing Delivery Requirements



Job Title	Municipal Buildings
Location	Huyton
Client	Genr8

Key

Proposed EW & I Phasing July 2026 Start (July 27 Muni-Tower VP)

- 1. July 26 – Oct. 26 - Computer Centre & Annex (part), along with green space
- 2. Oct. 26 – Dec. 26 – Plot 5 Archway Road – returned as temporary car park to KMBC
- 3. Oct. 26 – Dec. 26 – Archway Road
- 4. Dec. 26 – March. 27 – Hotel plot – returned as temporary car park to KMBC
- 5. Jan. 27 – April 27 – Lathom Rd Demolition
- 6. July 27 – Oct. 27 – Demo Muni Tower, & remaining Annex – following VP of Muni Tower end of June 26
- 7. Apr. 27 – Nov. 27 – Rear of Cavendish – commences following Library move and de-cant of 50% staff into 1st floor
- 8. April 28 – August 28 - Plots 3 and 6 car parks – not enabled until completion of new Lathom Road MSCP

Programme, sequencing and phasing will also be informed by Contractor tender process.

HQ to commence in May 2027 for 24 month build period, with 6 month overlap with Muni-Tower demolition.



Rev	Date	Description
A	08/04/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works Client Programme & Phasing Delivery Requirements		
Project Code	T2140	Scale 1: 1000
Date Drawn	08/04/26	TM
Drawn By		AR
Reviewed By		A3
Original Size		
Drawing Number		Rev
T2140-DR-PH-003		A

Huyton Enabling Works - Existing Buildings Overlay on New Design



Job Title	Municipal Buildings
Location	Huyton
Client	Genr8

KMBC Office Demolition / Remediation & Infrastructure



Plot	Use
1	HQ
2A	Residential
2B	Residential
3	Residential
4	Hotel
5	Residential / Commercial
6	Residential
7	Latham Rd. Car Park
-	Village Green
-	Other Parking
Total	

Key

Rev	Date	Description
A	08/04/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works Existing Building Design Overlay		
Project Code	T2140	Scale
		1: 1000
		Date Drawn
		08/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-004		A

Huyton Enabling Works - Demolition Buildings and Phasing



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Job Title
Municipal Buildings
Location
Huyton
Client
Genr8

Key
Enabling works application boundary
Alternative cut line
Preferred cut line (Structural Engineer)
Phase 1 Demolition
Phase 2 Demolition

Rev	Date	Description
A	08/04/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works Buildings to be Demolished Phasing		
Project Code	T2140	Scale
		1: 1000
		Date Drawn
		08/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-005		A



DEMOLITION PHASING

REFERENCE SHOULD BE MADE TO BURO HAPPOLD DEMOLITION SPECIFICATION REF. 0051610-BHE-XX-XX-S-0001.

THREE BUILDINGS WILL BE DEMOLISHED. THESE ARE THE SEVEN-STOREY MUNICIPAL BUILDING, THE TWO STOREY ANNEXE BUILDING AND THE SEPARATE SINGLE STOREY COMPUTER CENTRE.

TWO OPTIONS ARE BEING CONSIDERED FOR DEMOLITION.

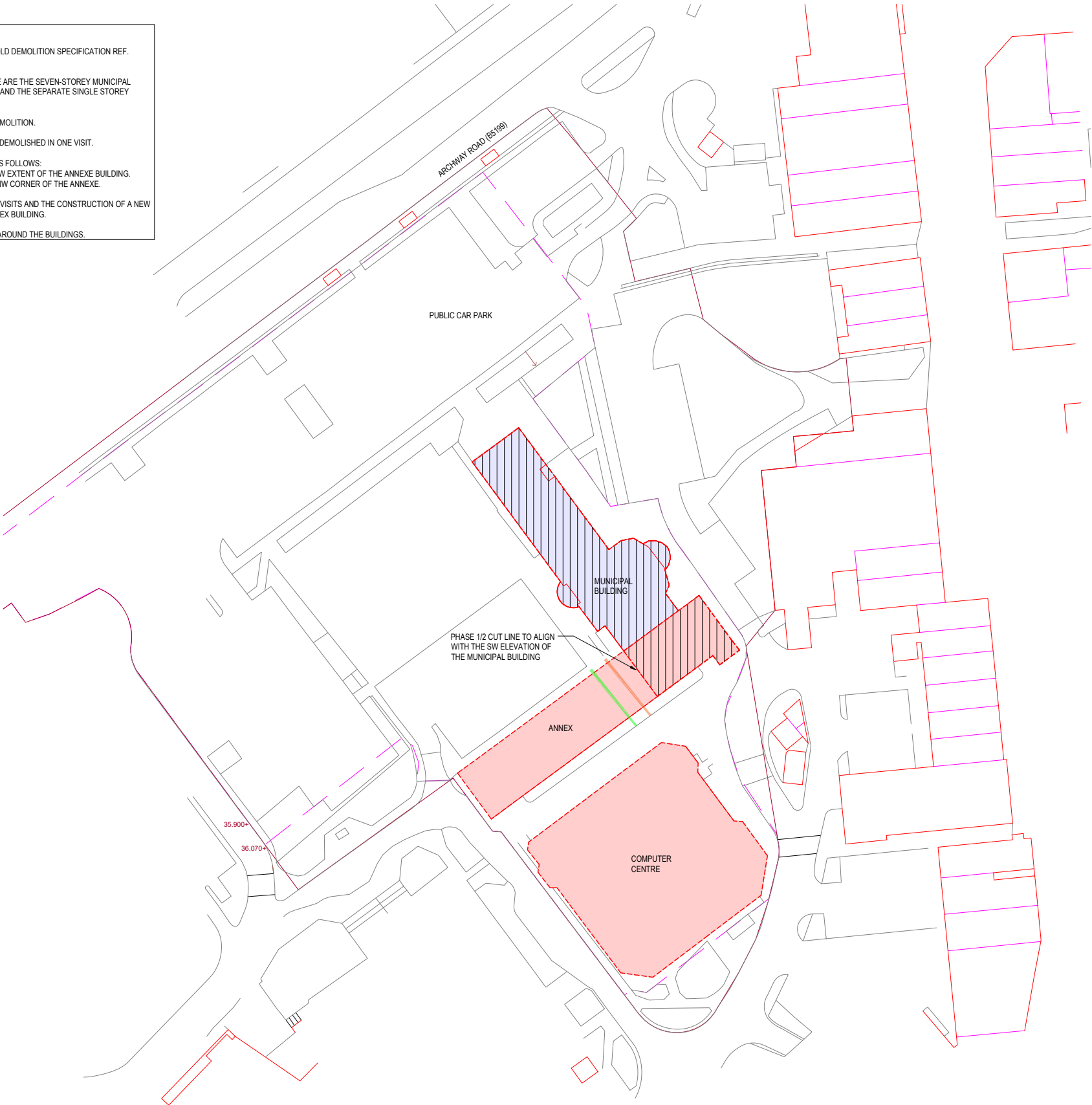
WITH OPTION 1, ALL OF THE BUILDINGS MAY BE DEMOLISHED IN ONE VISIT.

OPTION 2 COMPRISES A PHASED DEMOLITION AS FOLLOWS:

 PHASE 1 - COMPUTER CENTRE AND SW EXTENT OF THE ANNEXE BUILDING.
 PHASE 2 - MUNICIPAL BUILDING AND NW CORNER OF THE ANNEXE.

PHASED DEMOLITION WILL REQUIRE SEPARATE VISITS AND THE CONSTRUCTION OF A NEW WEATHERPROOF WALL TO THE REMAINING ANNEX BUILDING.

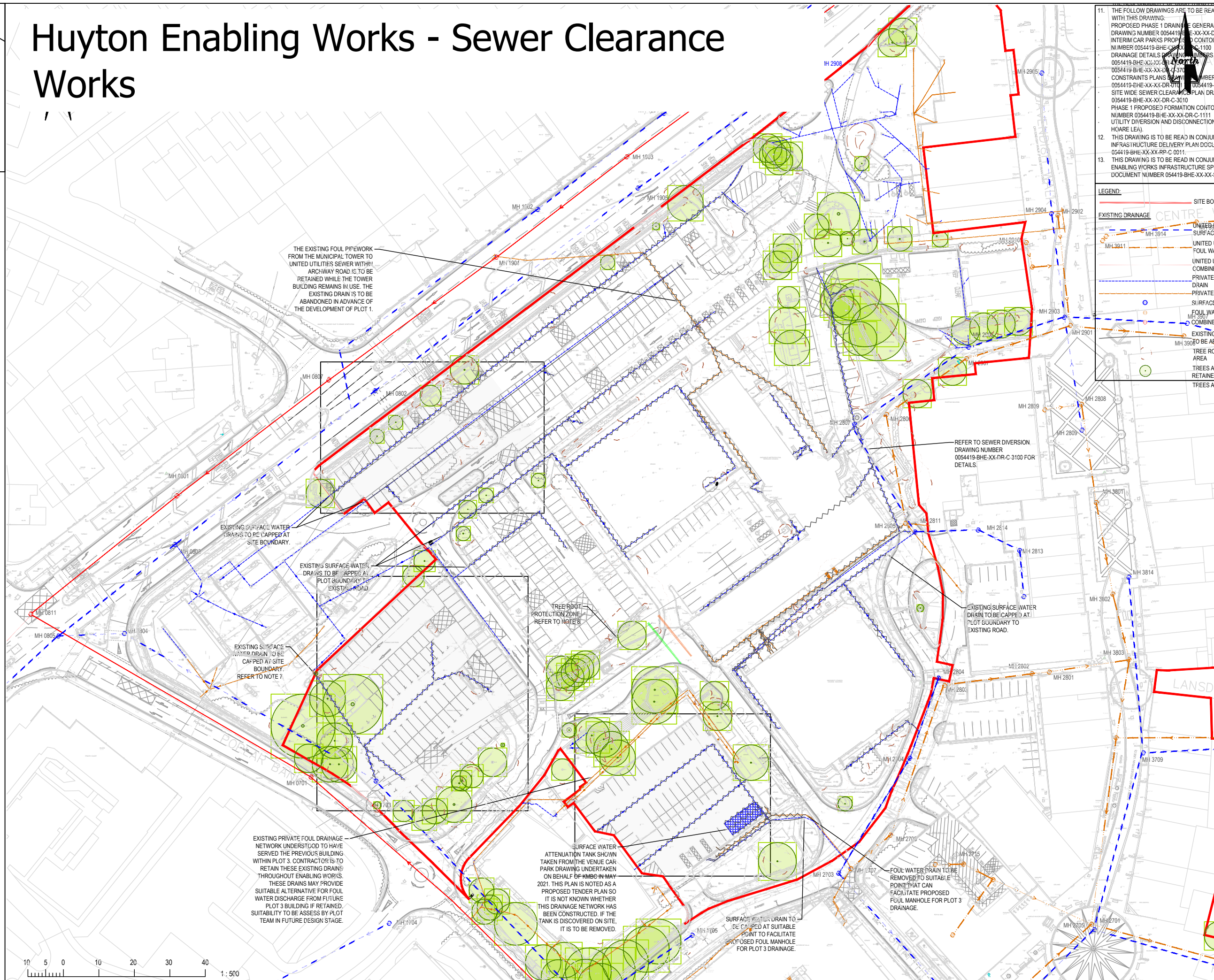
ATTENTION IS DRAWN TO THE PUBLIC ACCESS AROUND THE BUILDINGS.



GA00 GA DEMOLITION PLAN

REF. SCALE 1 : 500

Huyton Enabling Works - Sewer Clearance Works



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Job Title

Municipal Buildings

	Location
--	----------

Huyton

NO	Client
----	--------

Genr8

Key

11. THE FOLLOWING DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THIS DRAWING:
PROPOSED PHASE 1 DRAINAGE GENERATOR
DRAWING NUMBER 005449-BHE-XX-DR-0-1111
INTERIM CAR PARK PROPOSAL FOR CONTOUR
NUMBER 005449-BHE-XX-DR-0-1100
DRAINAGE DETAILS FOR THE PROPOSED
005449-BHE-XX-DR-0-1111
005449-BHE-XX-DR-0-1100-370
CONSTRAINTS PLANS FOR THE PROPOSED
005449-BHE-XX-DR-0-1111 005449-BHE-XX-DR-0-1111
SITE WIDE SEWER CLEARANCE PLAN FOR
005449-BHE-XX-DR-0-1100-370
PHASE 1 PROPOSED FORMATION CONTOUR
NUMBER 005449-BHE-XX-DR-0-1111
UTILITY DIVERSION AND DISCONNECTION
HOARE LEA.

12. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS:
INFRASTRUCTURE DELIVERY PLAN
005449-BHE-XX-RRP-0-0111
THE DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS:
ENABLING WORKS INFRASTRUCTURE STUDY
DOCUMENT NUMBER 005449-BHE-XX-DR-0-1111

LEGEND:

- SITE BOUNDARY
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- UNIFIED SURFACE
- FOUL WATER
- COMBINED
- PRIVATE DRAIN
- PRIVATE SURFACE
- FOUL WATER
- COMBINED
- EXISTING
- TO BE ABANDONED
- THREE ROW AREA
- TREES TO BE RETAINED
- TREES TO BE REMOVED

The site plan shows a residential development with several lots. Key features include:

- Centre Way:** The main road running horizontally across the top of the plan.
- Proposed Drainage:** Indicated by dashed blue lines, showing a network of drains connecting various lots.
- Existing Drainage:** Indicated by dashed orange lines, showing the current drainage system.
- Manholes:** Labeled as MH 3914, MH 3911, and MH 3907.
- Site Boundary:** A solid red line defining the project area.
- Other Features:** A green circle representing a tree to be retained, and a green square representing a tree to be removed.

Rev	Date	Description
A	08/04/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works Sewer Clearance Works		
Project Code	T2140	Scale
		1: 1000
		Date Drawn
		08/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-006		A

Utilities - Gas, Water and Unidentified Services



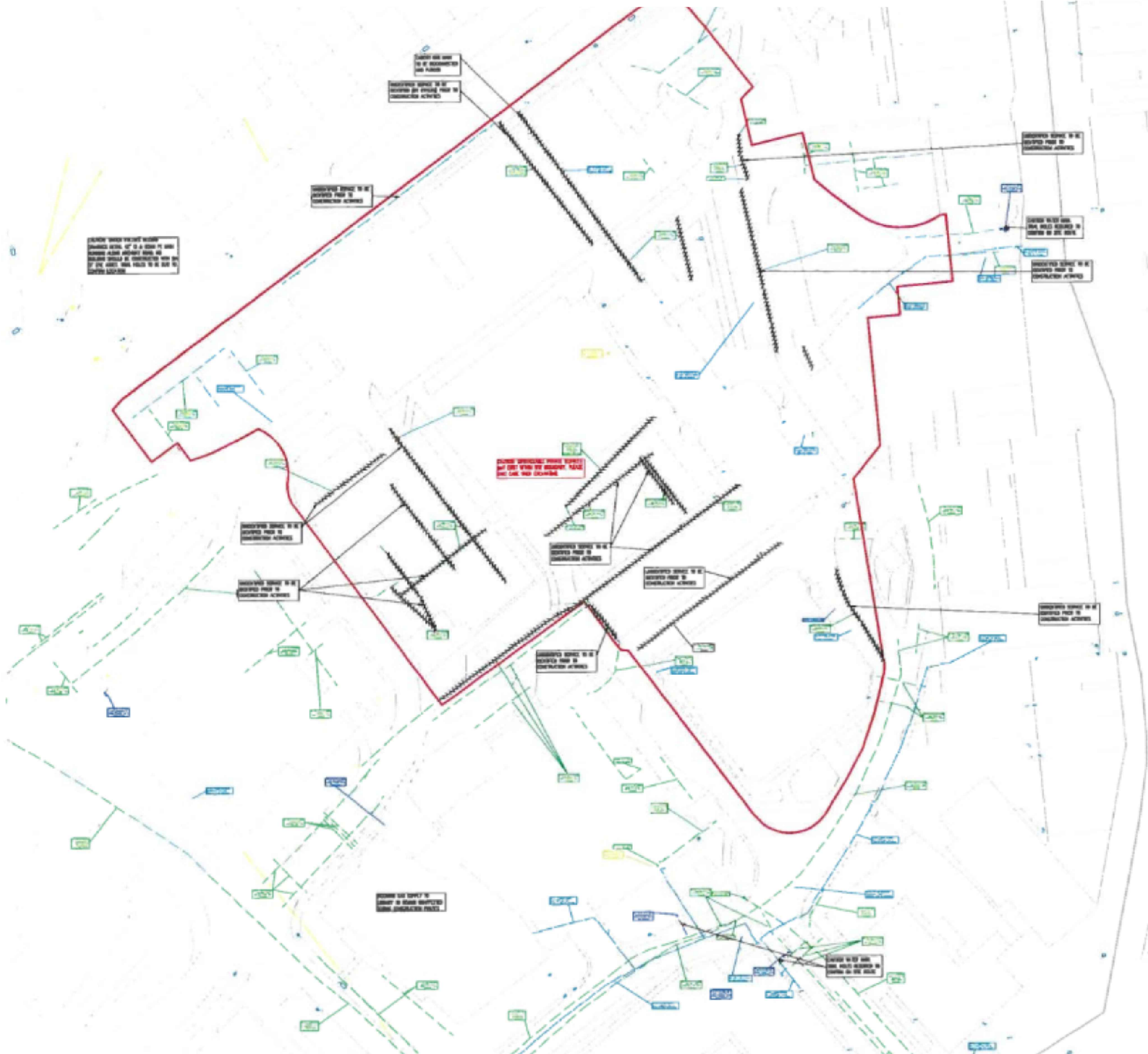
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Job Title
Municipal Buildings

Location
Huyton

Client
Genr8

Key



Rev	Date	Description
A	09/04/26	Information
Drawing Status		
Information		
Drawing Title		
Utilities - Gas, Water and Unidentified Services		
Project Code T2140		
Scale NTS		
Date Drawn 09/04/26		
Drawn By TM		
Reviewed By AR		
Original Size A3		
Drawing Number		Rev
T2140-DR-PH-007		A

Utilities - Electricity



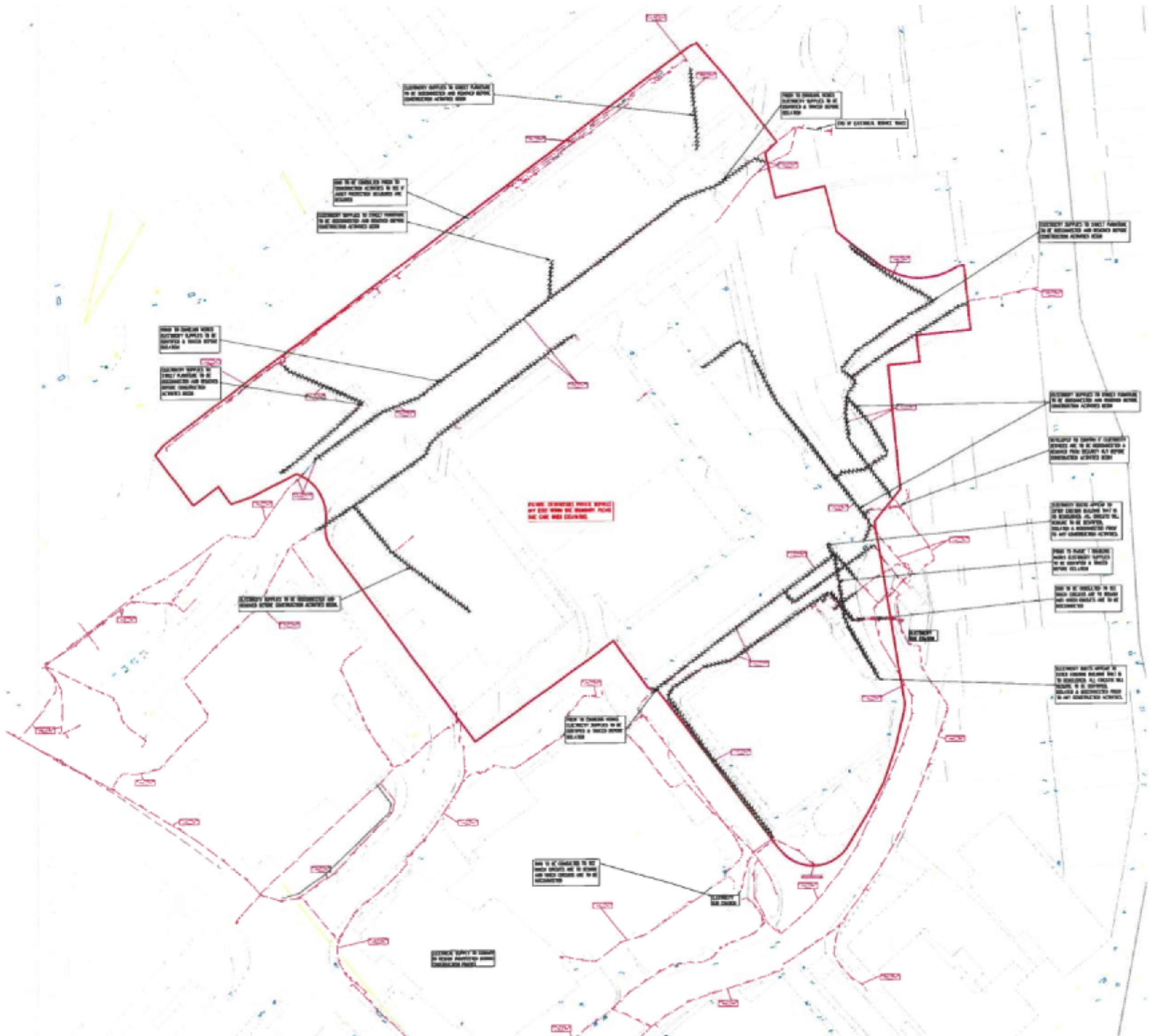
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Job Title
Municipal Buildings

Location
Huyton

Client
Genr8

Key



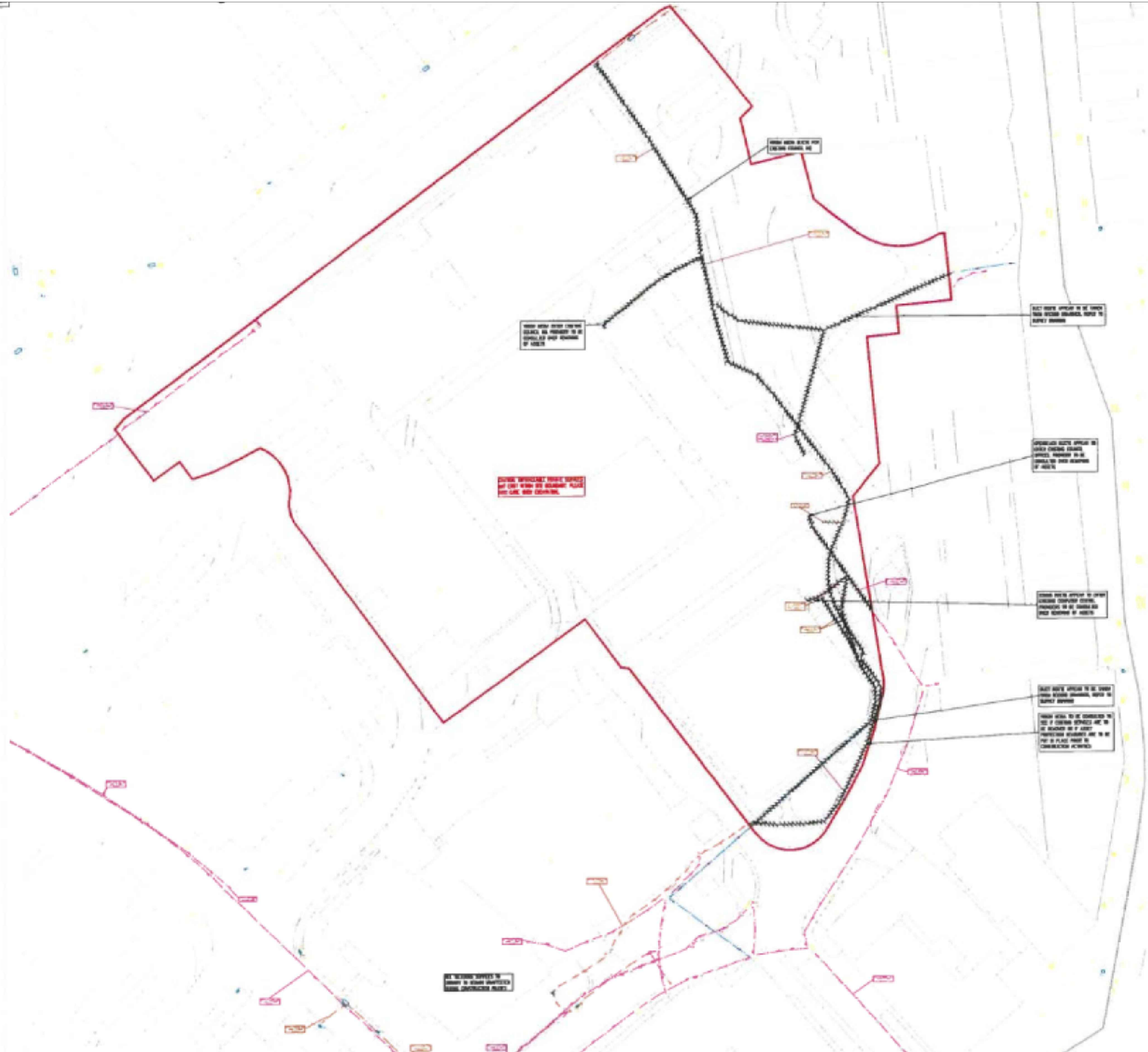
Rev	Date	Description
A	09/04/26	Information
Drawing Status Information		
Drawing Title Utilities - Electricity		
Project Code	T2140	Scale Date Drawn Drawn By Reviewed By Original Size
Drawing Number T2140-DR-PH-008		NTS 09/04/26 TM AR A3
Drawing Number T2140-DR-PH-008		Rev A

Utilities - Comms.



Job Title	Municipal Buildings
Location	Huyton
Client	Genr8

Key



Rev	Date	Description
A	09/04/26	Information
Drawing Status		
Information		
Drawing Title		
Utilities - Comms.		
Project Code	T2140	Scale
		NTS
		Date Drawn
		09/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-009		A

Finished Project Design



LEGEND

GENERAL

Application boundary

Detailed public realm boundary

Outline development plots / meanwhile space

HARDWORKS

Paving type 1: Natural stone
Material: Granite Setts
Size: 100 x 100mm
Colour/finish: Pink-grey mix / Flamed
Notes: Permeable jointing, maintenance vehicle access

Paving type 2: Natural stone
Material: PCC paving with buff coating
Size: 200-400 x 200mm
Colour/finish: Buff/gray mix / flamed top with sawn sides & base
Notes: Permeable jointing, pedestrian areas with vehicle overrun

Paving type 3: Natural stone
Material: Buff/gray granite mix
Size: 150-300 x 100mm
Colour/finish: Flamed top / sawn sides & base
Notes: Vehicular traffic

Paving type 4: Stone aggregate paving
Material: PCC paving with buff coating
Size: 210 x 100mm
Colour/finish: Natural stone aggregate top layer
Notes: Permeable drain joint

Paving type 5: Block paving
Material: PCC unit block paving
Size: 300 x 200mm
Colour: Natural
Notes: Permeable unit / jointing

Paving type 6: Self-binding gravel
Material: Self-binding gravel
Size: 0-6mm particles / 75mm depth
Colour: Gold

Paving type 8: Play bark
Material: PCC Pine bark-based loose impact absorbing surface
Size: 10-40mm particles / 100mm depth
Colour: Natural
Notes: Compliant with BS EN 1176 and BS 4790:1987

Paving type 9: Asphalt
Material: Asphalt
Notes: To Engineer's specification

Paving type 10: PCC block paving
Material: PCC unit block paving to match existing on Civic Way
Size: 100 x 200mm
Colour/finish: To match existing
Notes: To KMBIC adopted specification

Paving type 11: Gravel
Material: Loose granite gravel
Size: 10mm
Colour: Grey-pink mix
Notes: Inert

Paving type 12: In situ Concrete
Material: In situ concrete to match existing
Colour / finish: Grey / brushed - to match existing

Paving type 13: Reinforced grass
Material: Recycled plastic cellular paving grid seeded with Planting Type 3

PLANTING

Existing trees retained
Retained in accordance with BS 5837:2012
Refer Arboricultural Impact Assessment for details

Existing trees to be removed

Proposed tree planting
Size: 25-30 / 20-25cmg, H 4.5-6.0m, semi-mature
Spec: Min. 2m clear stem, rootballled
Notes: Below ground geying system, irrigation/aeration pipe and cap

Existing hedgerow retained
Retained in accordance with BS 5837:2012
Refer Arboricultural Impact Assessment for details

Existing hedgerow to be removed

Proposed hedge planting
Size: H 1.0-1.5m
Spec: Rootballled
Spacing: Double staggered rows

Planting type 1: shrub-herbaceous mix
Type: Mix of shrubs, herbaceous perennials and bulbs
Size: Specimen shrubs 10-12L, shrubs 5L, herbaceous 2-5L pots
Spec: Container grown

Planting type 2: SuDS rain garden mix
Type: Mix of shrubs, herbaceous perennials and bulbs suitable for regular periods of rainwater inundation
Size: Specimen shrubs 10-12L, shrubs 5L, herbaceous 2-5L pots
Spec: Container grown

Planting type 3: Species-rich lawn
Type: Biodiverse lawn suitable for regular cutting and use by people and dogs

EXTERNAL STRUCTURES

Planter wall
Material: Granite cladding & coping
Size: H 450mm x L varies (cladding/coping to match existing)
Colour/finish: Grey / flamed
Notes: Anti-slope grooves to coping. Cladding/coping to match existing

Steps & Handrails
Material: Steps - solid granite unit / handrails - PFC Steel
Size: Steps - 150 riser x 300mm tread / handrails - H 900 x 100mm, 50mm dia.
Colour/finish: TBC / polyester powder coated
Notes: Contrasting nosing to steps

EXTERNAL FURNITURE

Furniture Type 1: Seating wall
Material: FSC Hardwood seating slats with s/s fixings
Size: D 500mm x L varies
Colour/finish: Natural/smooth planed
Notes: Back and armrests at regular intervals

Furniture Type 2: Bench
Material: FSC Hardwood bench
Size: H 450mm x length varies
Colour/finish: Natural/smooth planed
Notes: Back and armrests

Furniture Type 3: Seating boulders
Material: FSC Hardwood seating slats with s/s fixings
Size: H 400-600 x W 400-600 x L 800-1200mm
Finish: Free from sharp edges
Notes:

Furniture Type 5: Natural play elements
Material: FSC Hardwood & natural stone
Size: Varies
Finish: Smooth finish, free from sharp edges
Notes: e.g. Balance beams, stepping logs, stepping planks, play boulders

Furniture Type 6: Litter & recycling bins
Material: FSC Steel with s/s fixings
Size: 1100 H x 650 L x 400mm D
Colour/finish: TBC / polyester powder coated
Notes: Place branding added to exterior

Furniture Type 7: Cycle stands
Material: Stainless steel
Size: TBC
Finish: Satin
Notes: TBC

Furniture Type 8: Cycle repair station
Material: FSC Steel with s/s fixings
Size: 1504 H x 250 D x 500mm W
Colour/finish: TBC / polyester powder coated
Notes: Integral cycle repair tools and wheel pump

Furniture Type 9: Bollards
Material: FSC Steel with s/s fixings
Size: 670 H x 90mm dia.
Colour/finish: TBC / polyester powder coated
Notes: FT9 - Static / FT9A - Manual telescopic / FT9B - Automated

Furniture Type 10: Wayfinding finger post
Material: FSC Steel with s/s fixings
Size: 3000 H x 100mm dia. post
Colour/finish: TBC / polyester powder coated
Notes: To be coordinated with town centre strategy

Furniture Type 11: Hotel totem sign
Details and specification to be confirmed by hotel operator

Furniture Type 12: Bee posts
Material: FSC Timber
Size: 1800 H x 120 D x 120mm W
Colour/finish: Natural / planed
Notes: Pre-drilled habitat holes & routed branding

Furniture Type 13: Log planters
Material: Size won timber logs
Size: 300-500mm H x L x W varies
Colour/finish: Natural
Notes: Raised planting beds formed from felled site trees

Furniture Type 14: Interpretation Boards
Material: PFC Steel
Size: 1200 H x 250 W x 5mm D
Colour/finish: TBC / polyester powder coated
Notes: Lectern sign with bespoke display

Electric Vehicle Charger
Electric vehicle charging pedestal - specification by others

Vehicle Barrier
Vehicle barrier and intercom - specification by others

Bin Store
Material: FSC Timber cladding / PFC Steel Frame
Size: Varies
Colour/finish: Natural / sawn
Notes: Lockable gates - specification to be confirmed

EXTERNAL LIGHTING

Lighting type 1: Column light
Type: Down light mounted on lighting column
Material:
Size:
Colour/finish:

Lighting type 2: Recessed wall light
Type: Recessed brick light
Material:
Size:
Colour/finish:

Lighting type 3: Recessed strip light
Type: LED Strip light
Material:
Size:
Colour/finish:

Lighting type 4: Bollard light
Type: Low level bollard light
Material:
Size:
Colour/finish:

Lighting type 5: Tree uplighter
Type: Uplighter located in soft landscape
Material:
Size:
Colour/finish:

Existing Highways Lighting
Existing lighting on boundary of public realm works, to be retained subject to agreement with KMBIC Highways

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Job Title		
Municipal Buildings		
Location		
Huyton		
Client		
Genr8		
Key		
Rev	Date	Description
A	09/04/26	Information
Drawing Status		
Information		
Drawing Title		
Finished Project Design		
Project Code	T2140	Scale Date Drawn Drawn By Reviewed By Original Size
		NTS 09/04/26 TM AR A3
Drawing Number		Rev
T2140-DR-PH-010		A

Finished Design



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Job Title

Municipal Buildings

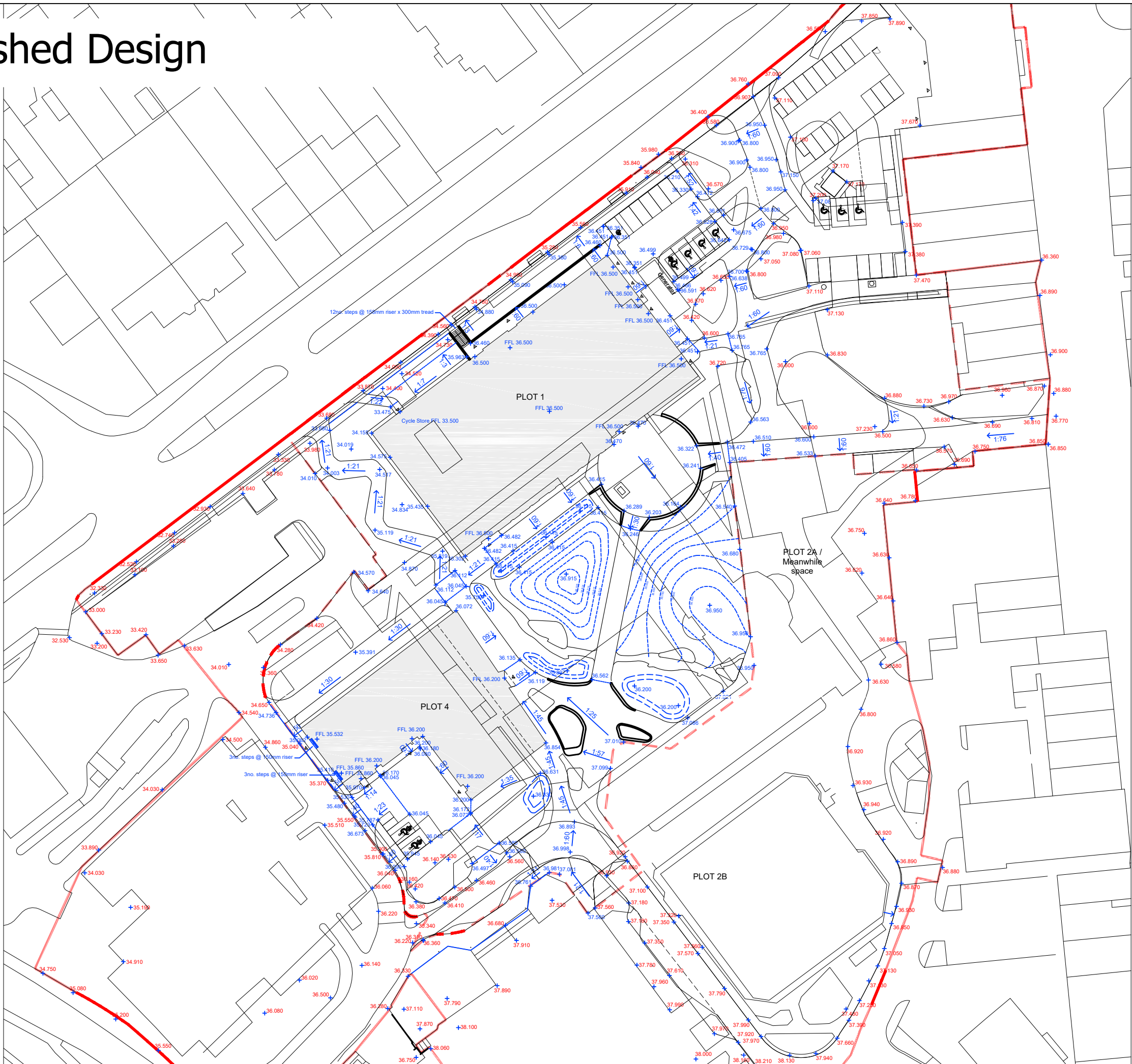
Location

Huyton

Client

Genr8

Key



Rev	Date	Description
A	09/04/26	Information
Drawing Status		
Information		
Drawing Title		
Finished Design (exc. P2 & 3)		
Project Code	T2140	Scale
		NTS
		Date Drawn
		09/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-011		A

Tranche 1 - Phase 1 - 4

Overview: 07/26 - 03/27

Council worker car park maintained until P2 new remediated and temp. surfaced car park installed.

P2 area remediated and surfaced as critical path for council parking.

Monument to be removed and stored for relocation. Photos of monument (lifesize) to be on hoarding.

Marble monuments/ plaque to be recovered and stored.

Trees to be protected.

Critical highway access maintained at all times. Note Sun. 9am-11am computer center dismantle under traffic control.

Emergency exit retained at all times to municipal building.

Phase 3 completed to building pile matt spec. from sustainable reuse of site recovered, processed materials.

Cut off frame installed and building dismantled. Council access ladder to roof space in remaining section.

Utilities capped pre-works. Comms diversion to be completed. Soft strip followed by superstructure demolition followed by substructure demolition.

Building corner removed Sunday 9am - 11am under S61 notice and temporary traffic management.



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Job Title

Municipal Buildings

Location

Huyton

Client

Genr8

Key

-  Phase 1A
 -  Phase 1B
 -  Council car parking and emergency exit retained
 -  Critical highway access maintained
 -  Hoarding (see T2140-DR-PH-013)
 -  Phase 3 new council car park
 -  Phase 3 completed including pile matt
 -  Surface water drainage ditch/ silt fences as required.
- Note knee rail to be recovered.

Rev	Date	Description
B	29/06/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works		
Tranche 1 - Phase 1-4		
Overview		
Project Code	T2140	Scale 1: 800
Date Drawn	08/04/26	TM
Drawn By		AR
Reviewed By		A3
Original Size		
Drawing Number		Rev
T2140-DR-PH-012		B

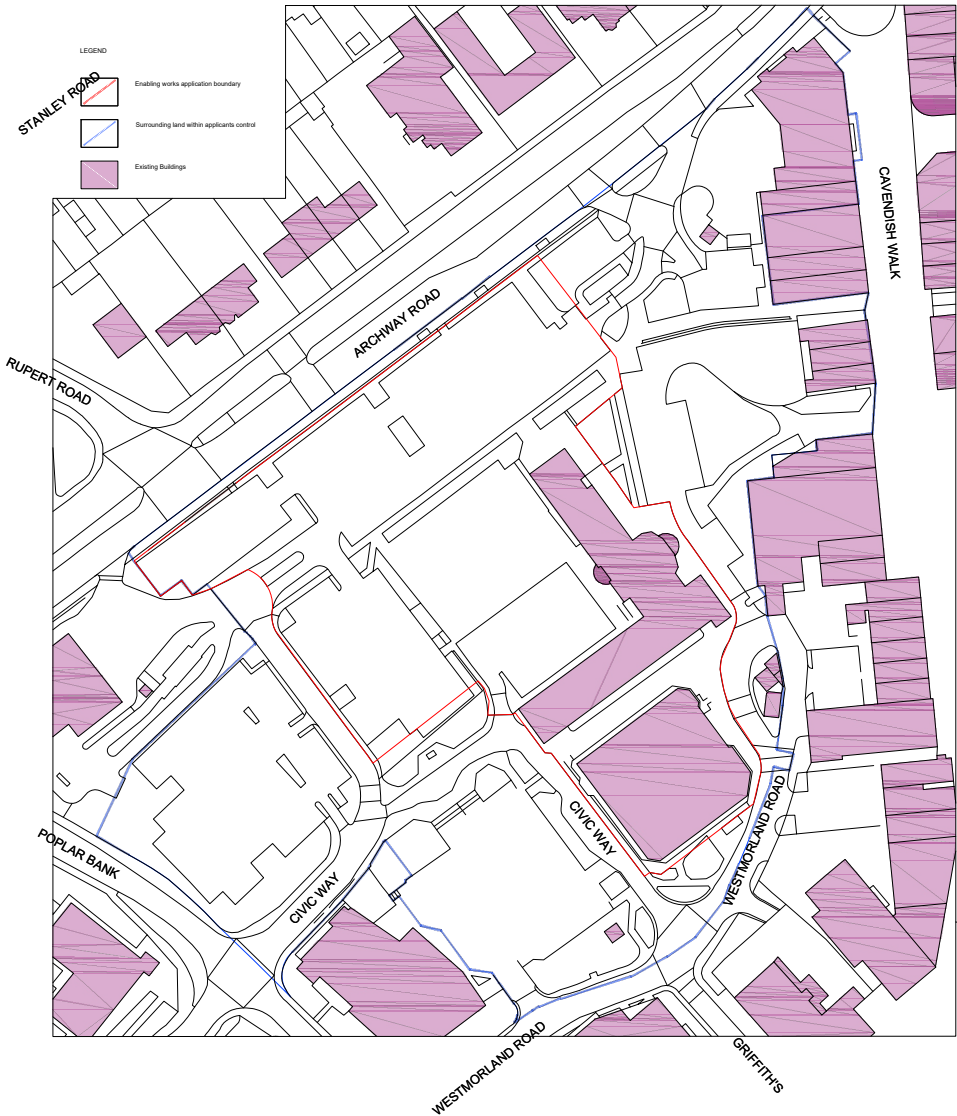
Hoarding Panel Fencing Proposal Huyton



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Job Title
Municipal Buildings
Location
Huyton
Client
Genr8

Key
See proposed fencing detail for hoarding around the site. Please note each hoarding panel will have clips, feet and tie wire to ensure the site is fully secure. Please also note C&R will have 24/7 CCTV in operation at multiple locations on site.



Rev	Date	Description
A	09/04/26	Information
Drawing Status		
Information		
Drawing Title		
C&R Proposed Hoarding Taken from T2140/SD/001		
Project Code	T2140	Scale
		NTS
		Date Drawn
		09/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-013		A

Tranche 1 - Phase 1

Overview: 07/26 - 10/26

Contractor compound, office and welfare. Accessed via live car parks. Soil removed and stockpiled on site for reuse. Maintains emergency exit from municipal tower. Maintains car parking for council workers.

Note: no disruption to council officer parking, all car parks and footpaths.

Critical highway and pedestrian access maintained at all times.

Agree demolition cut off to work for next phase & maintain current access to second floor for comms/ access.

Note: noise, dust and vibration monitoring to be installed as per the CEMP document.

Note: on completion of demolition and remediation all concrete to be processed to MOT Type 1 & stockpiled for reuse on site.

Contractor Compound

Full time manned gate access for plant and ops to secure site.

Trees to be protected with minimal removal.

Computer center demolition. See design drawing for hoarding. Noise, dust and vibration monitoring to be installed.



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Job Title

Municipal Buildings

Location

Huyton

Client

Genr8

Key

-  Phase 1A
-  Phase 1B
-  Council car parking and emergency exit retained
-  Critical highway and footpath access maintained (all car parks and footpaths open).
-  Hoarding (see T2140-DR-PH-013)
-  Fencing secured site. Disconnect and protect services. Recover plaques and store. Create building discontinuity and board end of building to remain. Maintain council second floor access by moving demolition line. Soft strip, demolition and remediation.
-  Comms protection
-  Surface water drainage ditch/ silt fences as required.

Rev	Date	Description
B	29/06/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works Tranche 1 Phase 1 Overview		
Project Code	T2140	Scale 1: 800
Date Drawn	08/04/26	TM
Drawn By		AR
Reviewed By		A3
Original Size		
Drawing Number		Rev
T2140-DR-PH-014		B

Tranche 1 - Phase 2 & 3

Overview: 10/26 - 12/26



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Job Title

Municipal Buildings

Location

Huyton

Client

Genr8

Key

- Phase 1A
- Phase 1B
- Council car parking and emergency exit retained
- Critical highway and footpath access maintained (all car parks and footpaths open).
- Hoarding (see T2140-DR-PH-013)
- Phase 2 Plot 5 area complete carpark for use from Dec 2026 for council workers.
- Phase 3 Plot 5 building area complete to pile matt standard for follow on works.
- Comms protection
- Surface water drainage ditch/ silt fences as required.

Critical highway and pedestrian access maintained at all times.

Note: disconnection and recovery and store all lighting columns & heads for reuse.

Note: Phase 2 to be completed to final car park standard and exit secured to ensure use for council officers by Dec 2026.

Note: Phase 3 (Plot 5) building to FL for pile matt (to relevant standard). C&R will make area available for building contractor to test kPa load.

Phase 3 area remediated to finished level and to pile matt level.

Phase 2 car park to be accelerated to provide car parks for council officers to surfaced standard including highway drainage outfall and plot.

Stockpile area - soils and site produced sustainable aggregates.

Trees to be protected with minimal removal.

Contractor Compound

ARCHWAY ROAD

CAVENDISH WALK

DERBY ROAD

ROAD

PLAR BANK

CIVIC WAY

CIVIC WAY

HUYTON HEY ROAD

Rev	Date	Description
B	29/06/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works Tranche 1 Phase 2 & 3 Overview		
Project Code	T2140	Scale 1: 800
Date Drawn	08/04/26	Drawn By TM
Reviewed By	AR	Original Size A3
Drawing Number		Rev
T2140-DR-PH-015		B

Finished Design



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	Job Title
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Municipal Buildings

	Location
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Huyton

Client	
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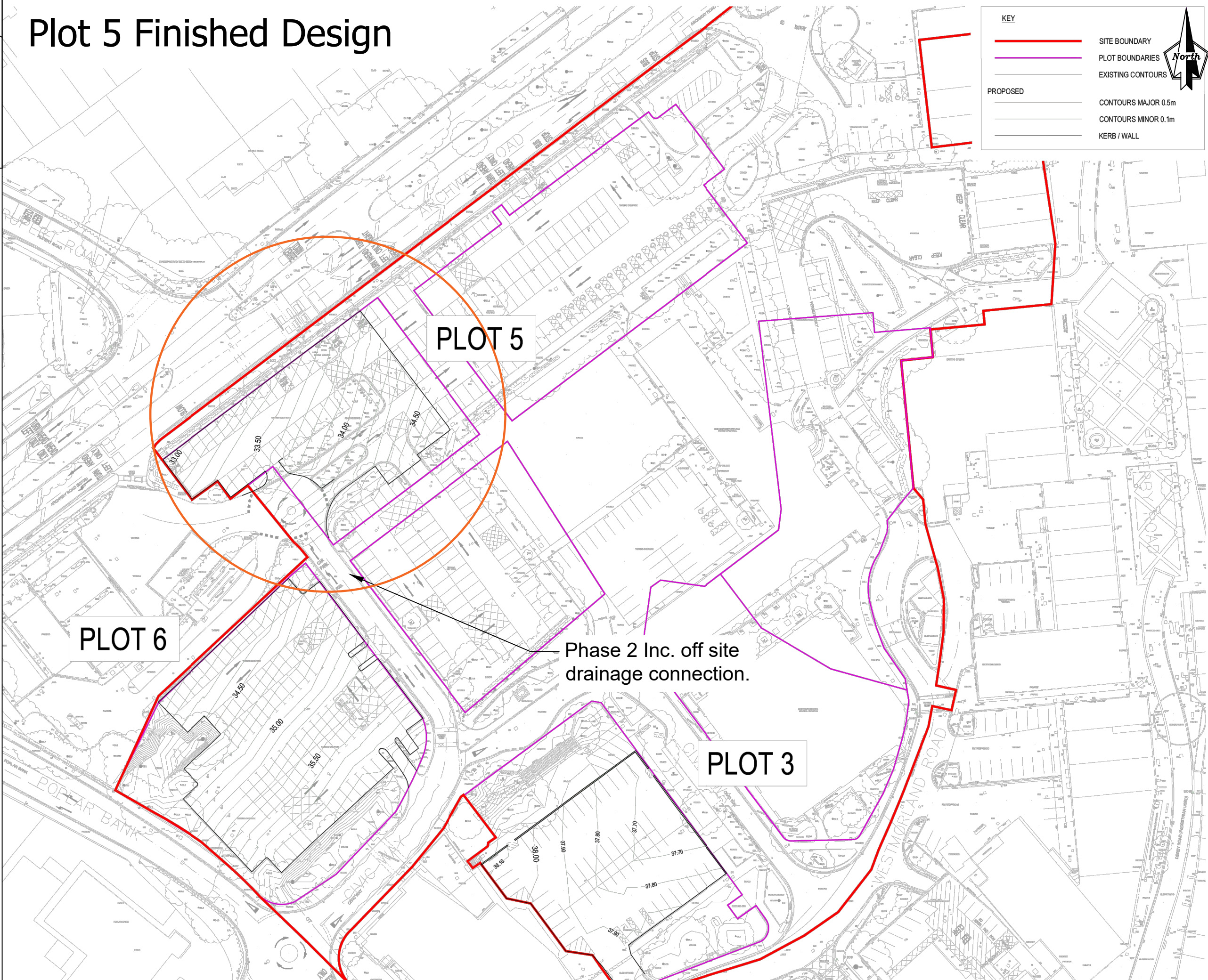
Genr8

Key



Rev	Date	Description
A	08/04/26	Information
Drawing Status		Information
Drawing Title		
Finished Design		
Project Code	T2140	Scale
		Date Drawn
		Drawn By
		Reviewed By
		Original Size
Drawing Number		Rev
T2140-DR-PH-016		A

Plot 5 Finished Design



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Job Title
Municipal Buildings

Location
Huyton

Client
Genr8

Key

Rev	Date	Description
A	09/04/26	Information

Drawing Status
Information

Drawing Title
Plot 5 Finished Design

Project Code	T2140	Scale	1: 800
Date Drawn	09/04/26	Drawn By	TM
Reviewed By	AR	Original Size	A3

Drawing Number T2140-DR-PH-017	Rev A
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Cut and Fill Site Wide

STANLEY ROAD

RUPERT ROAD

POPLAR BANK

ARCHWAY ROAD

CIVIC WAY

CIVIC WAY

WESTMORLAND ROAD

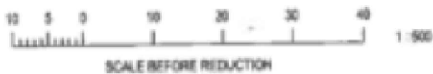
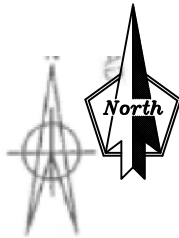
CAVENDISH WALK

CAVENDISH WALK

CENTRE WAY

DERBY ROAD

LANS



VOLUMETRIC TOPSOIL DATA	
DESCRIPTION	TOTAL
NEEDLE PENETRATION (NPS)	0.000
TOPSOIL DEPTH (m)	0.000
TOPSOIL VOLUME (m³)	0.000
VOLUMETRIC BULK EARTHWORK DATA	
CUT VOLUME (m³)	0.000
FILL VOLUME (m³)	0.000
TOTAL NET VOLUME (m³)	0.000

NOTES:
THE VOLUME DATA FOR BULK EARTHWORK IS PROVIDED BY THE CIVIL ENGINEER.
THE VOLUME DATA FOR TOPSOIL IS PROVIDED BY THE CIVIL ENGINEER.
THE VOLUME DATA FOR BULK EARTHWORK IS PROVIDED BY THE CIVIL ENGINEER.
THE VOLUME DATA FOR TOPSOIL IS PROVIDED BY THE CIVIL ENGINEER.
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THE VOLUME DATA FOR TOPSOIL IS PROVIDED BY THE CIVIL ENGINEER.

Cut/Fill Table			
Number	Range From (m)	Range To (m)	Colour
1	-3.000	-2.500	Dark Red
2	-2.500	-2.000	Red
3	-2.000	-1.500	Light Red
4	-1.500	-1.000	Very Light Red
5	-1.000	-0.500	Light Pink
6	-0.500	0.000	Light Green
7	0.000	0.500	Green
8	0.500	1.000	Dark Green
9	1.000	1.500	Very Dark Green

Job Title
Municipal Buildings

Location
Huyton

Client
Genr8

Key

Rev	Date	Description
A	09/04/26	Information
Drawing Status Information		
Drawing Title Cut and Fill Site Wide		
Project Code	T2140	Scale Date Drawn Drawn By Reviewed By Original Size
As shown	09/04/26	TM AR A3
Drawing Number T2140-DR-PH-018		Rev A

Drainage - Plots 3, 5 & 6



KEY

	SITE BOUNDARY
	PLOT BOUNDARIES
	FUTURE PLOT BUILDING
	TREE TO BE RETAINED
	TREE NOT PROTECTED AREA

EXISTING DRAINAGE (TOWER BURNING CATCH)

	COMBINED WATER
	FOUL WATER
	SURFACE WATER

EXISTING DRAINAGE (SURVEY OPERATIONS GPS)

	TO BE RETAINED
--	----------------

PROPOSED INTERIM CAP PANS

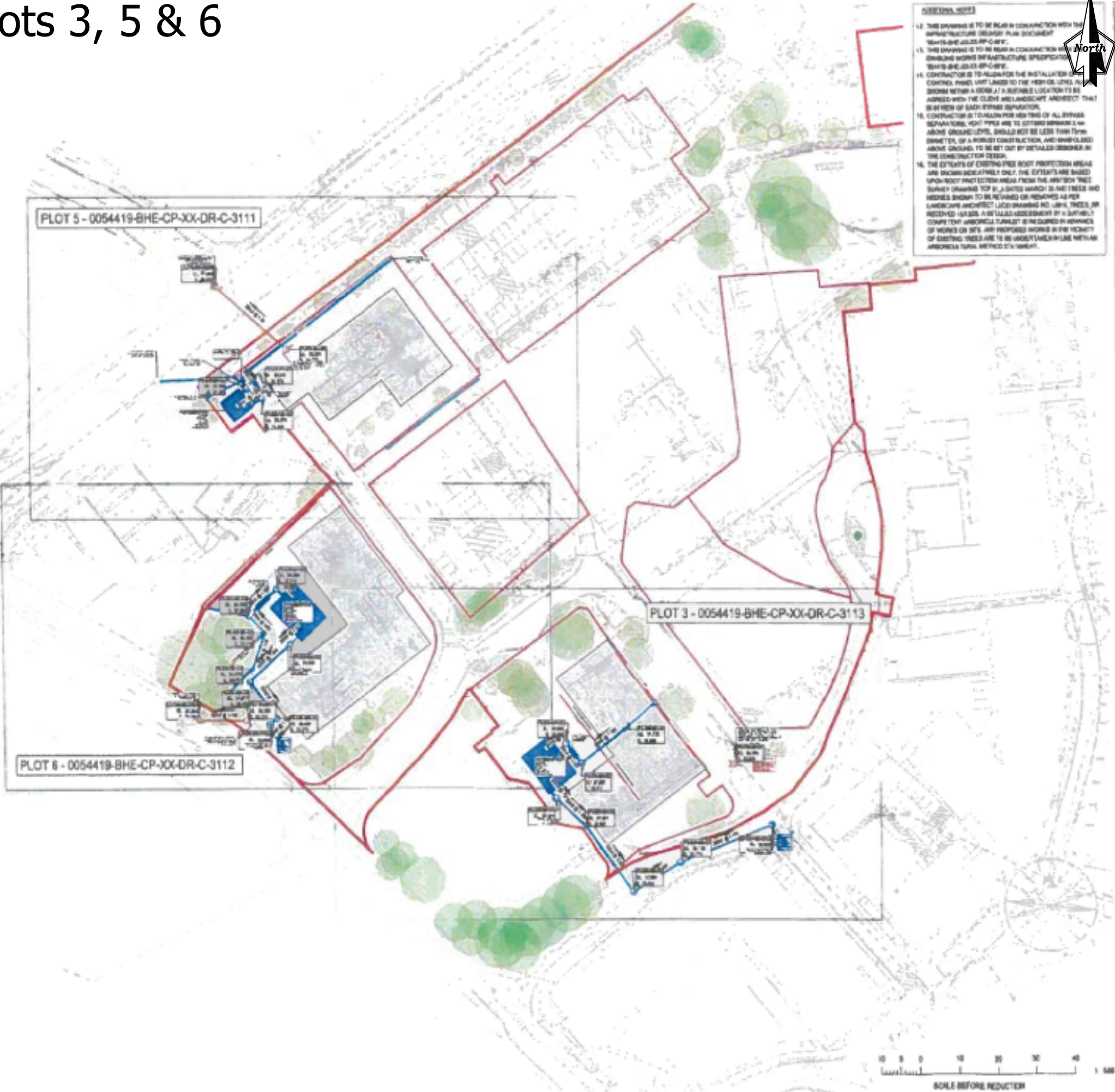
	FOUL WATER DRAINAGE
	SURFACE WATER DRAINAGE

RAIL

	ATTENUATION TANK
	PETROL INTERCEPTION
	DRAINAGE DRAIN

PROPOSED WATER FLOW

	SURFACE WATER DRAINAGE
--	------------------------



ADDITIONAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE INFRASTRUCTURE DESIGN PLAN DOCUMENT.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE INFRASTRUCTURE DESIGN PLAN DOCUMENT.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE INFRASTRUCTURE DESIGN PLAN DOCUMENT.
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19. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE INFRASTRUCTURE DESIGN PLAN DOCUMENT.
20. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE INFRASTRUCTURE DESIGN PLAN DOCUMENT.

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Job Title

Municipal Buildings

Location

Huyton

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Key

Rev	Date	Description
A	09/04/26	Information

Drawing Status

Information

Drawing Title

Drainage - Plots 3, 5 & 6

Project Code	T2140	Scale	As shown
		Date Drawn	09/04/26
		Drawn By	TM
		Reviewed By	AR
		Original Size	A3

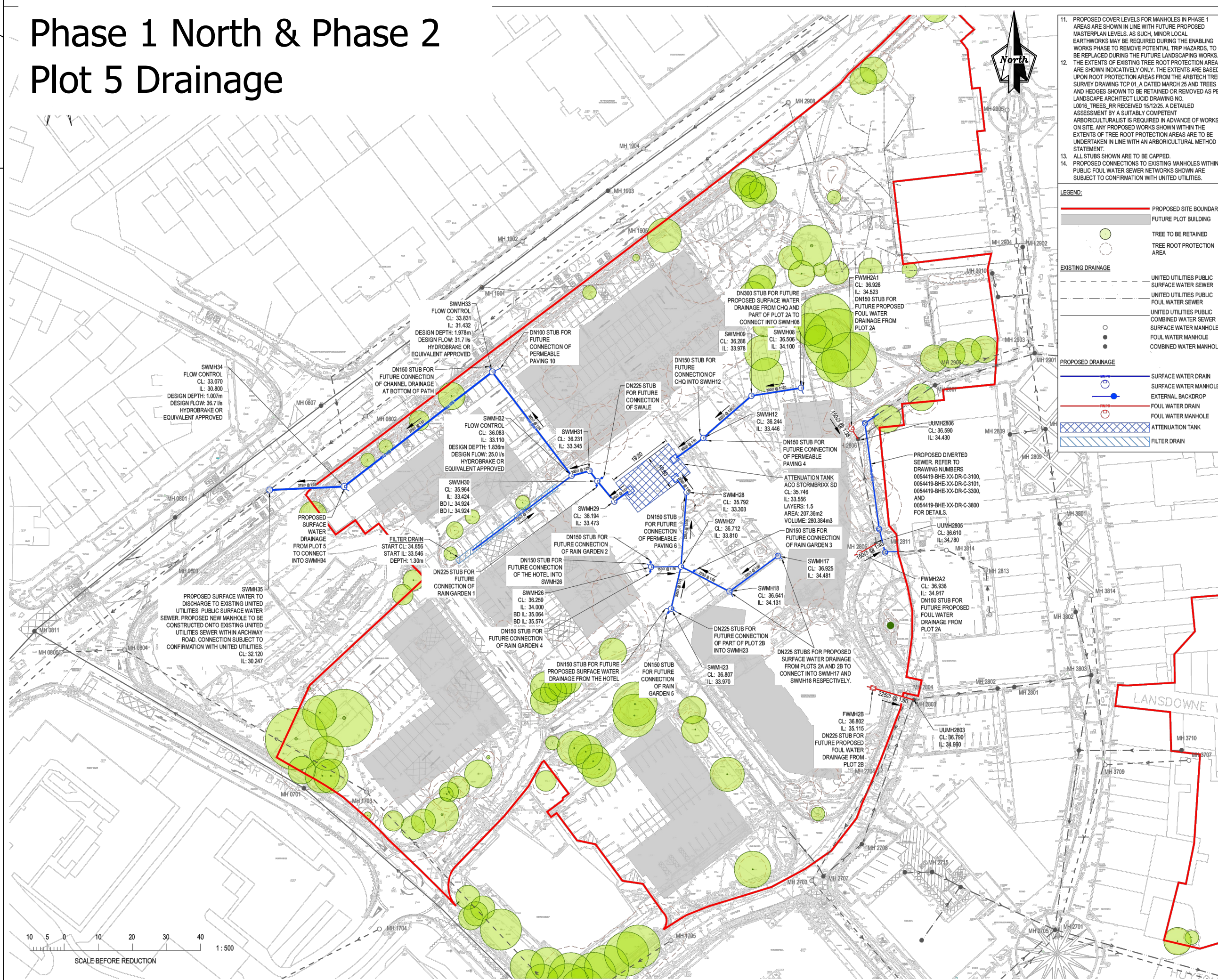
Drawing Number

T2140-DR-PH-019

Rev

A

Phase 1 North & Phase 2 Plot 5 Drainage



11. PROPOSED COVER LEVELS FOR MANHOLES IN PHASE 1 AREAS ARE SHOWN IN LINE WITH FUTURE PROPOSED MASTERPLAN LEVELS. AS SUCH, MINOR LOCAL EARTHWORKS MAY BE REQUIRED DURING THE ENABLING WORKS PHASE TO REMOVE POTENTIAL TRIP HAZARDS, TO BE REPLACED DURING THE FUTURE LANDSCAPING WORKS.
12. THE EXTENTS OF EXISTING TREE ROOT PROTECTION AREAS ARE SHOWN INDICATIVELY ONLY. THE EXTENTS ARE BASED UPON ROOT PROTECTION AREAS FROM THE ARBTECH TREE SURVEY DRAWING TCP 01, A DATED MARCH 25 AND TREES AND HEDGES SHOWN TO BE RETAINED OR REMOVED AS PER LANDSCAPE ARCHITECT LUCID DRAWING NO. L0016, TREES, RR RECEIVED 15/12/25. A DETAILED ASSESSMENT BY A SUITABLY COMPETENT ARBORICULTURALIST IS REQUIRED IN ADVANCE OF WORKS ON SITE. ANY PROPOSED WORKS SHOWN WITHIN THE EXTENTS OF TREE ROOT PROTECTION AREAS ARE TO BE UNDERTAKEN IN LINE WITH AN ARBORICULTURAL METHOD STATEMENT.
13. ALL STUBS SHOWN ARE TO BE CAPPED.
14. PROPOSED CONNECTIONS TO EXISTING MANHOLES WITHIN PUBLIC FOUL WATER SEWER NETWORKS SHOWN ARE SUBJECT TO CONFIRMATION WITH UNITED UTILITIES.

LEGEND:

PROPOSED SITE BOUNDARY
FUTURE PLOT BUILDING
TREE TO BE RETAINED
TREE ROOT PROTECTION AREA

EXISTING DRAINAGE

UNITED UTILITIES PUBLIC SURFACE WATER SEWER
UNITED UTILITIES PUBLIC FOUL WATER SEWER
UNITED UTILITIES PUBLIC COMBINED WATER SEWER
SURFACE WATER MANHOLE
FOUL WATER MANHOLE
COMBINED WATER MANHOLE

PROPOSED DRAINAGE

SURFACE WATER DRAIN
SURFACE WATER MANHOLE
EXTERNAL BACKDROP
FOUL WATER DRAIN
FOUL WATER MANHOLE
ATTENUATION TANK
FILTER DRAIN

Job Title
Municipal Buildings

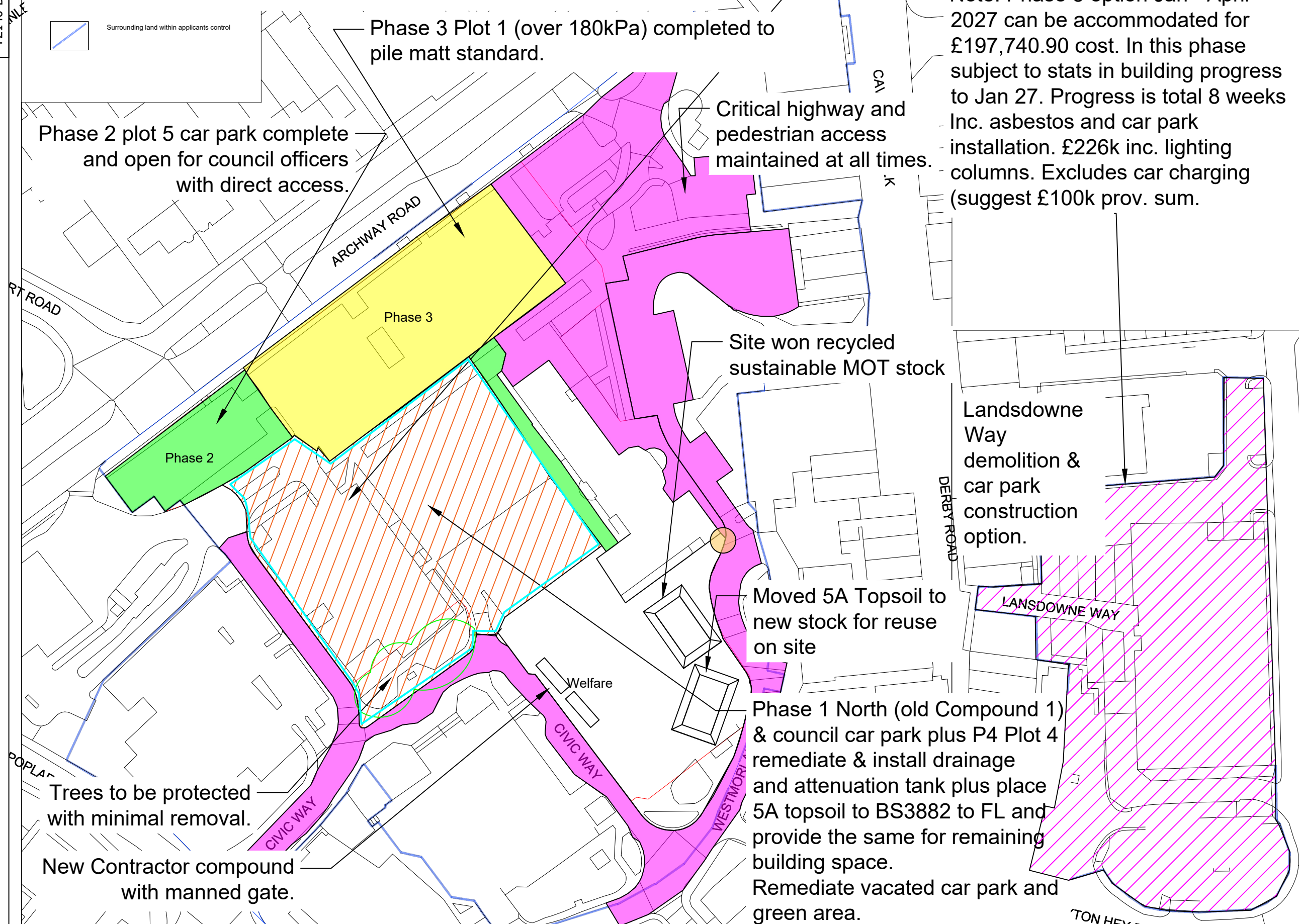
Location
Huyton

Client
Genr8

Key

Rev	Date	Description
A	09/04/26	Information
Drawing Status Information		
Drawing Title Phase 1 North & Phase 2 Plot 5 Drainage		
Project Code	T2140	Scale Date Drawn Drawn By Reviewed By Original Size
As shown	09/04/26	TM AR A3
Drawing Number T2140-DR-PH-020	Rev A	

Tranche 1 Phase 4 Overview (Inc. P1 Remaining Works): 12/26 - 03/27



Job Title
Municipal Buildings

Location
Huyton

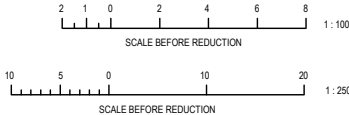
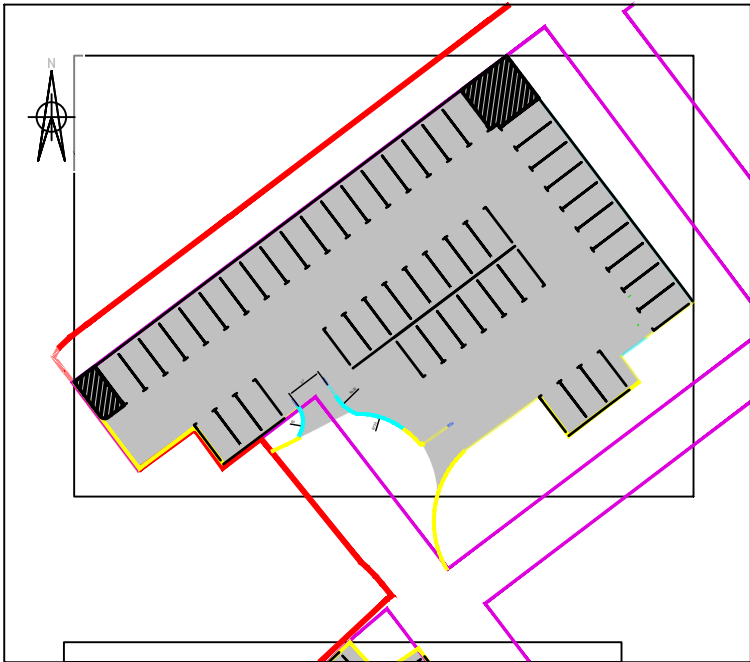
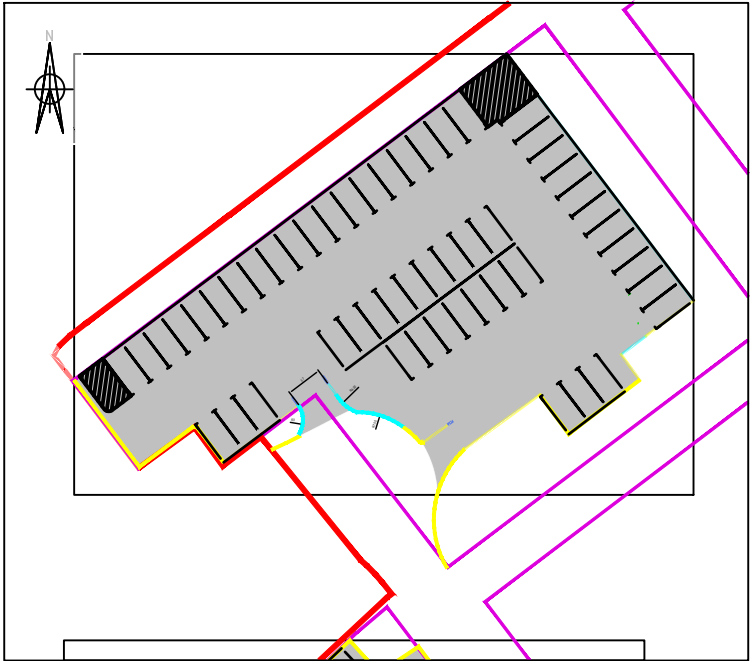
Client
Genr8

Key

- Plot 5 completed to pile matt standard.
- Phase 4 Plot 2 & remaining Phase 1 (used as car park and compound previously)
- Emergency exit retained and council officer parking
- Critical highway and footpath access maintained (all car parks and footpaths open).
- Hoarding (see T2140-DR-PH-013)
- Phase 2 Plot 5 area complete carpark for use from Dec 2026 for council workers.
- Phase 3 Plot 5 building area complete to pile matt standard for follow on works.
- Comms protection
- Surface water drainage ditch/ silt fences as required.

Rev	Date	Description
B	29/06/26	Information
Drawing Status		
Information		
Drawing Title		
Huyton Enabling Works Tranche 1 Phase 4 (inc. Phase 1 remaining works)		
Project Code	T2140	Scale
		1: 1000
		Date Drawn
		09/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-021		B

Plot 5 Car Park Design



Job Title
Municipal Buildings

Location
Huyton

Client
Genr8

- Key**
- SITE BOUNDARY
 - PLOT BOUNDARY
 - TREE ROOT PROTECTION AREAS
 - TREES TO BE PROTECTED
 - PROPOSED PRECAST CONCRETE HALF BATTERED KERB
 - PROPOSED TRANSITION KERB
 - EXISTING KERB TO BE REMOVED
 - EXISTING KERB TO BE RETAINED
 - PROPOSED VEHICULAR ASPHALT
 - EXISTING WALL TO BE RETAINED

Rev	Date	Description
A	09/04/26	Information
Drawing Status		
Information		
Drawing Title		
Plot 5 Car Park Design		
Project Code		
T2140	Scale	As shown
	Date Drawn	09/04/26
	Drawn By	TM
	Reviewed By	AR
	Original Size	A3
Drawing Number		Rev
T2140-DR-PH-022		A

Tranche 2 Phase 6 Demo Municipal Tower & Remaining Annex

Road reduced to 1 lane manned traffic management for 5 days during demolition.

Plot 1 completed ready
for piling (phase 3)

Phase 2 car park
completed.

Plot 4 completed.

Plot 2B completed.

- ✓ Note noise, dust and vibration environmental monitoring in place including dust boss dust suppression system.

Phase 6 July-Oct. 2027

- Install hoarding to east side of muni. tower (orange line).
- Demolition working area within orange line.
- Decant comms and prove utilities disconnections.
- Soft strip internals and shatter, pre demolition, all glass;
- Demolition.
 1. Annex, 2. Muni tower from south to north and finally north to south floor to floor
 3. demolition of remaining floors and remediate remaining site area.
- Crushing and processing arisings creating MOT Type 1 for reuse in construction works **free of charge** (further reducing HGV movements).
- Drainage and attenuation tanks installed post demolition.



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Client	
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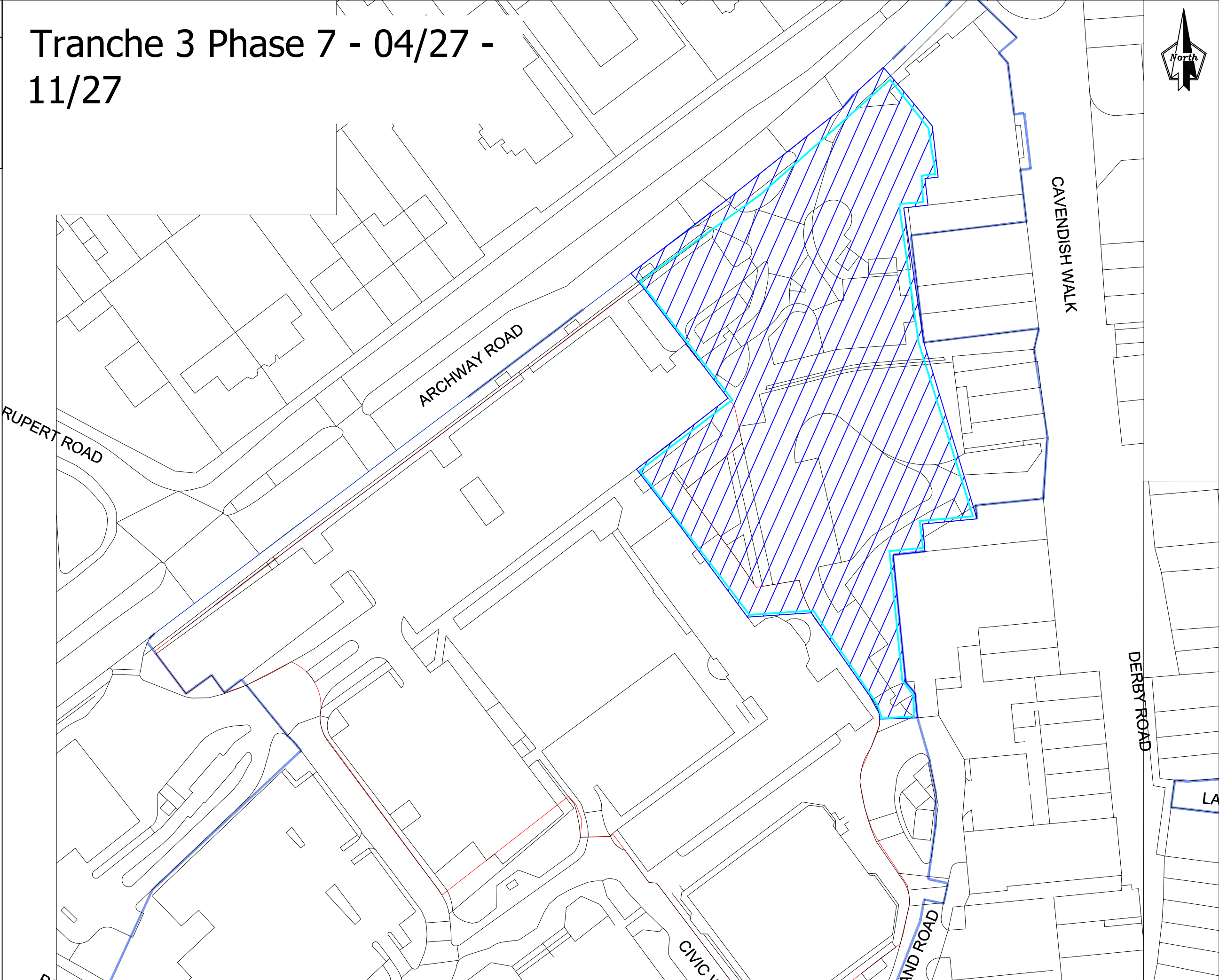
Genr8

Key

- | | |
|---|---|
|  | Plot 5 completed to pile matt standard. |
|  | Phase 4 Plot 2 & remaining Phase 1 (used as car park and compound previously) |
|  | Emergency exit retained until building closed |
|  | Critical highway and footpath access maintained (all car parks and footpaths open). |
|  | Completed plots from previous tranche of works |
|  | Completed car park |
|  | Comms protection |
|  | Demolition working area and drop zone (1-2-3 direction of demolition). |
|  | Phase 1 Muni. demo. |
|  | Phase 2 Muni. demo. |
|  | Surface water drainage ditch/ silt fences as required. |

Rev	Date	Description
B	09/04/26	Information
Drawing Status		
Information		
Drawing Title		
Tranche 2 Phase 6 Muni Tower & Remaining Annex		
Project Code	T2140	Scale
		Date Drawn
		09/04/26
		TM
		Drawn By
		Reviewed By
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-023		B

Tranche 3 Phase 7 - 04/27 - 11/27



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Municipal Buildings

Location
Huyton

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Key

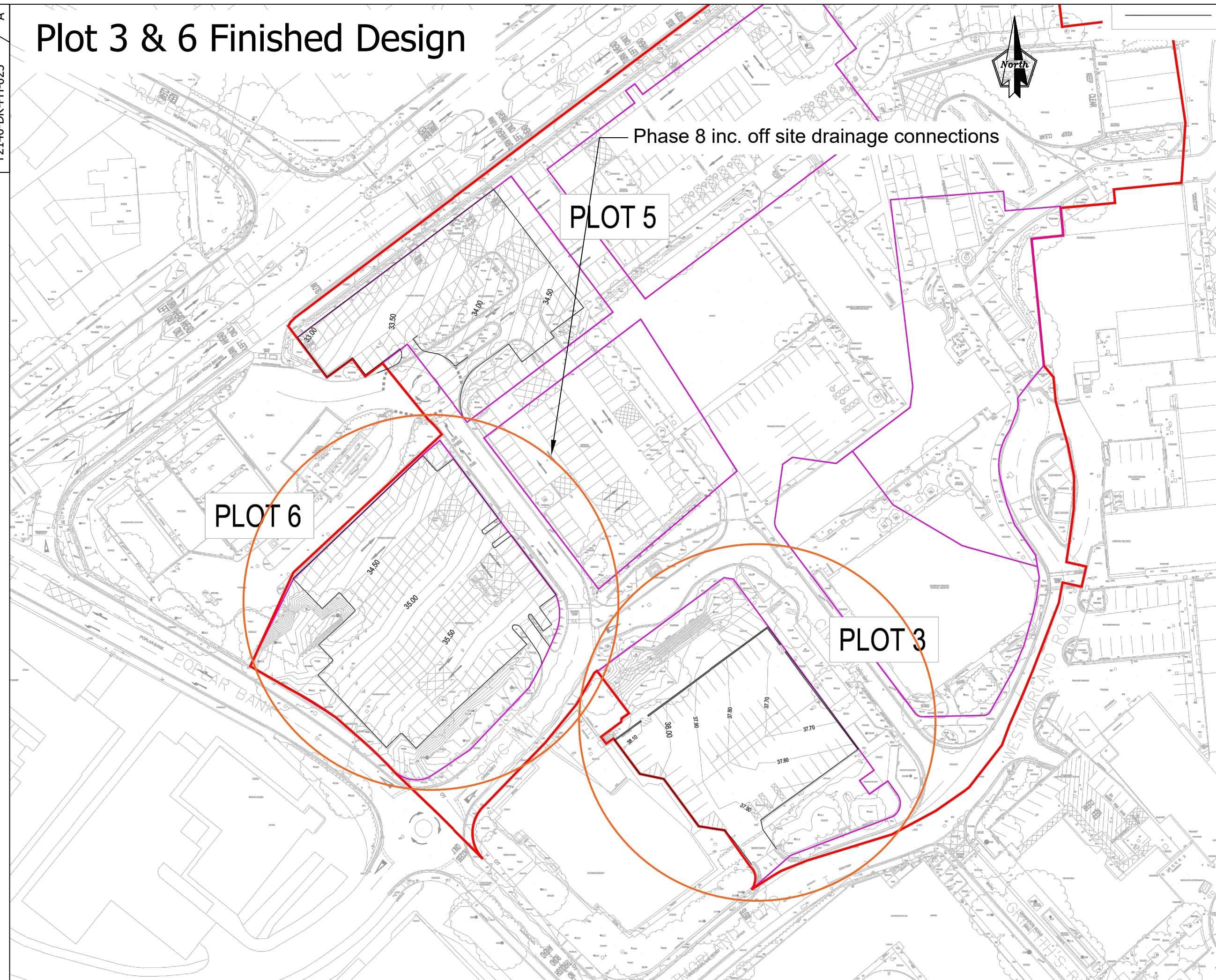
Phase 7 Area

- Protection of trees;
- Hoarding to site perimeter;
- Remediation of internal area
- Local cut to fill;
- Reconfiguration of road, footways and car parks;
- Stone and kerbing;
- Drainage reconfig. (existing only);
- Resurfacing and white lining.

Surface water drainage ditch/ silt fences as required.

Rev	Date	Description
B	29/06/26	Information
Drawing Status Information		
Drawing Title Tranche 3 Phase 7		
Project Code	T2140	Scale Date Drawn Drawn By Reviewed By Original Size
		1: 800 09/04/26 TM AR A3
Drawing Number T2140-DR-PH-024		Rev B

Plot 3 & 6 Finished Design



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Job Title

Municipal Buildings

	Location
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Huyton

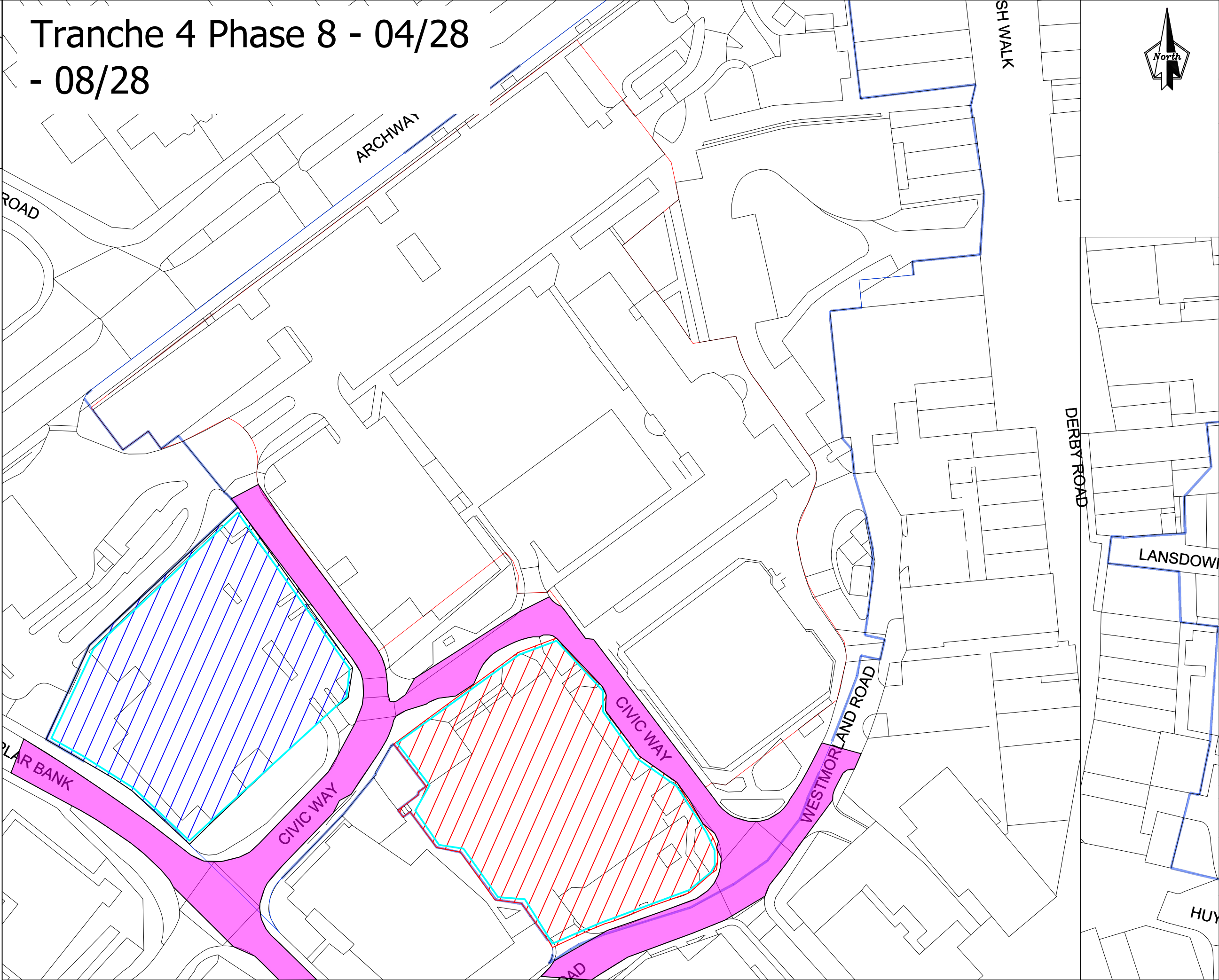
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Genr8

Key

Rev	Date	Description
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Drawing Status		
Information		
Drawing Title		
Plot 3 & 6 Finished Design		
Project Code	T2140	Scale
		1: 800
		Date Drawn
		09/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-025		A

Tranche 4 Phase 8 - 04/28 - 08/28



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Job Title
Municipal Buildings

Location
Huyton

Client
Genr8

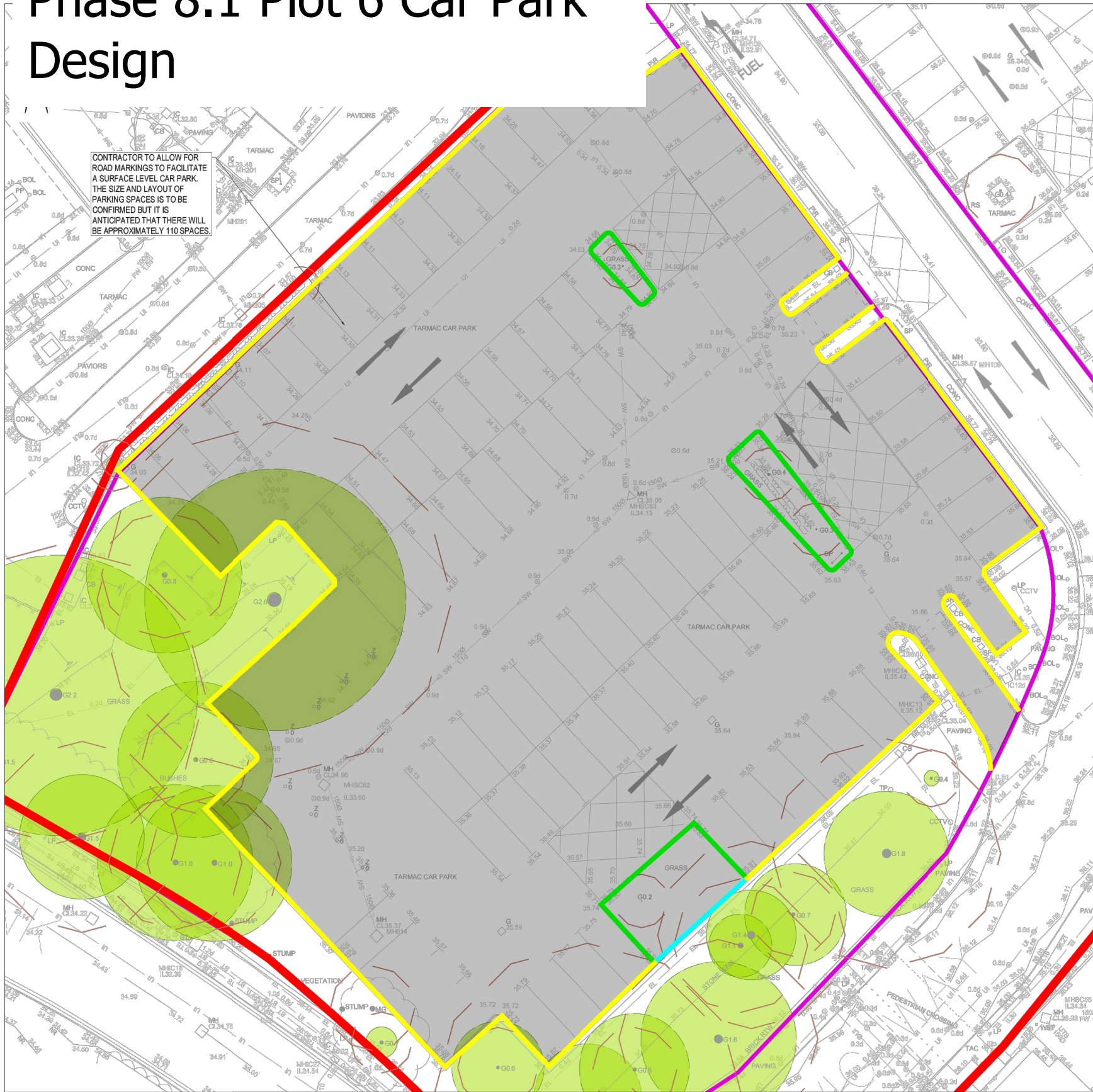
Key

-  Phase 8.1
-  Phase 8.2
-  Critical highway and footpath access maintained (all car parks and footpaths open).
-  Surface water drainage ditch/ silt fences as required.

Rev	Date	Description
B	29/06/26	Information
Drawing Status		
Information		
Drawing Title		
Tranche 4 Phase 8		
Project Code	T2140	Scale
		1: 800
		Date Drawn
		09/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-026		B

Phase 8.1 Plot 6 Car Park Design

CONTRACTOR TO ALLOW FOR ROAD MARKINGS TO FACILITATE A SURFACE LEVEL CAR PARK. THE SIZE AND LAYOUT OF PARKING SPACES IS TO BE CONFIRMED BUT IT IS ANTICIPATED THAT THERE WILL BE APPROXIMATELY 110 SPACES



GENERAL ARRANGEMENT
SCALE 1:100



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Job Title

Municipal Buildings

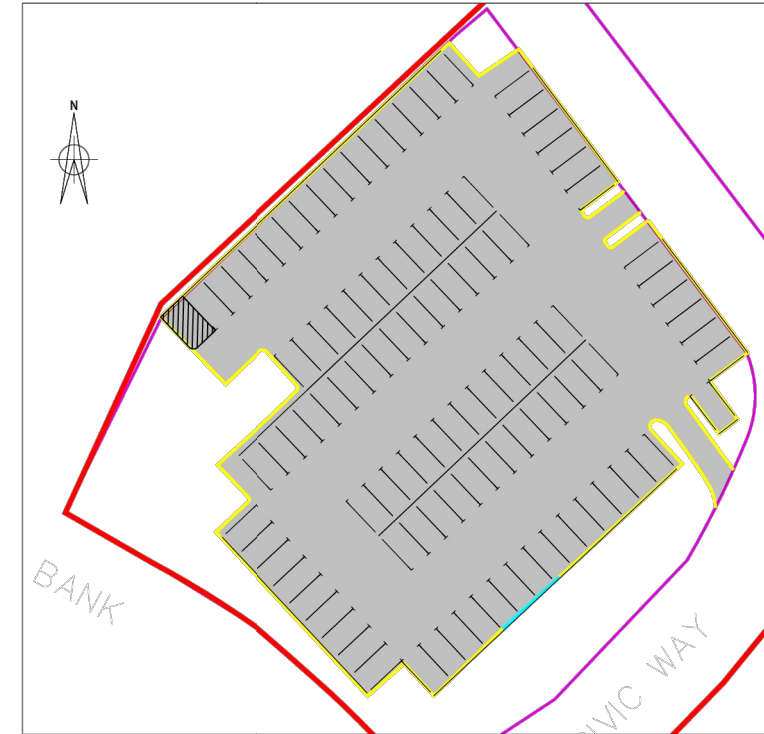
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Huyton

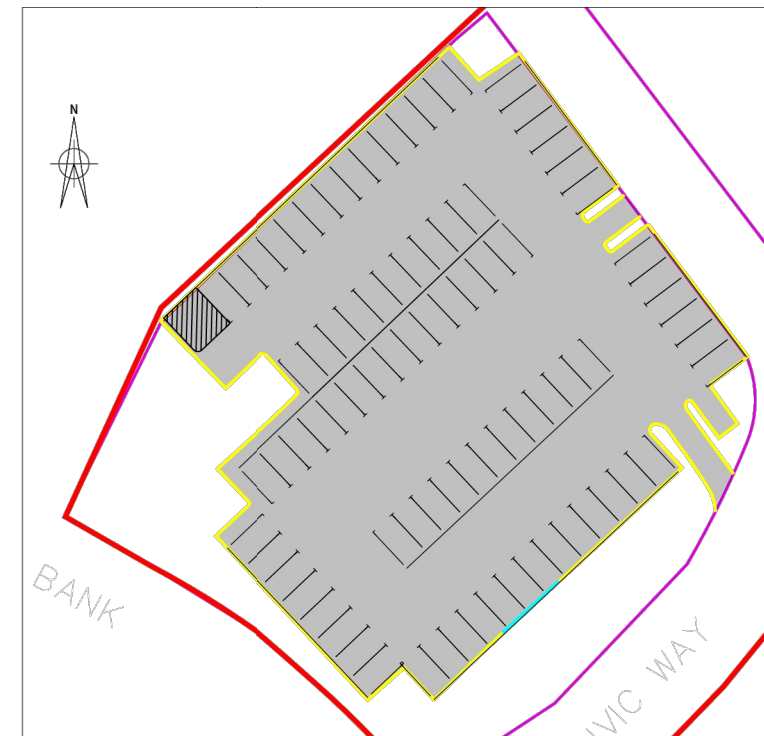
Client	
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Genr8

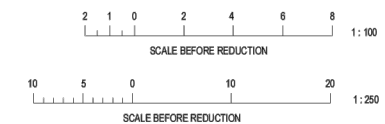
Key



ROAD MARKINGS GENERAL ARRANGEMENT
OPTION 1 - BAY DIMENSION = 4.8m x 2.4m. 101 PARKING BAYS ACHIEVED
SCALE 1:250

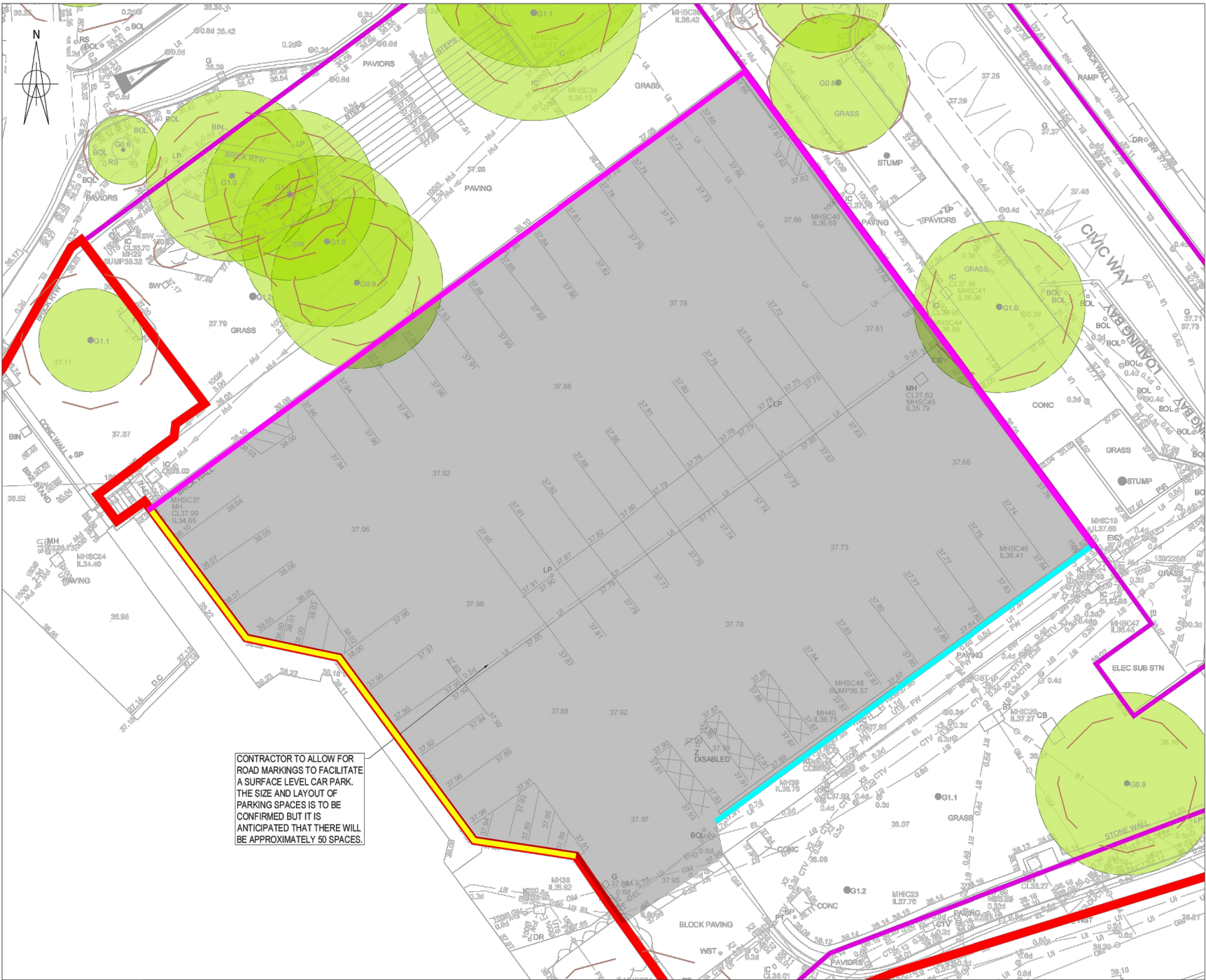


ROAD MARKINGS GENERAL ARRANGEMENT
OPTION 2 - BAY DIMENSION = 5.0m x 2.6m. 81 PARKING BAYS ACHIEVED
SCALE 1:250



Rev	Date	Description
A	09/04/26	Information
Drawing Status		
Information		
Drawing Title		
Phase 8.1 Plot 6 Car Park		
Project Code	T2140	Scale
		Date Drawn
		09/04/26
		Drawn By
		TM
		Reviewed By
		AR
		A3
		Original Size
Drawing Number		Rev
T2140-DR-PH-027		A

Phase 8.2 Plot 3 Car Park Design



GENERAL ARRANGEMENT
SCALE 1:100

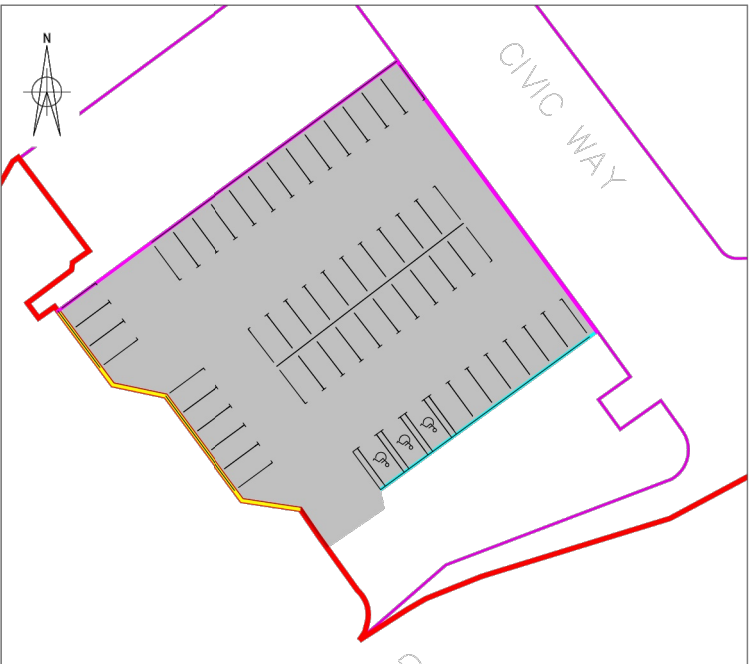


Job Title
Municipal Buildings

Location
Huyton

Client
Genr8

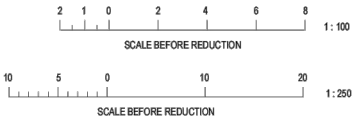
Key



ROAD MARKINGS GENERAL ARRANGEMENT
OPTION 1 - BAY DIMENSION = 4.8m x 2.4m. 47 PARKING BAYS ACHIEVED PLUS 3 DISABLED PARKING BAYS ACHIEVED
SCALE 1:250

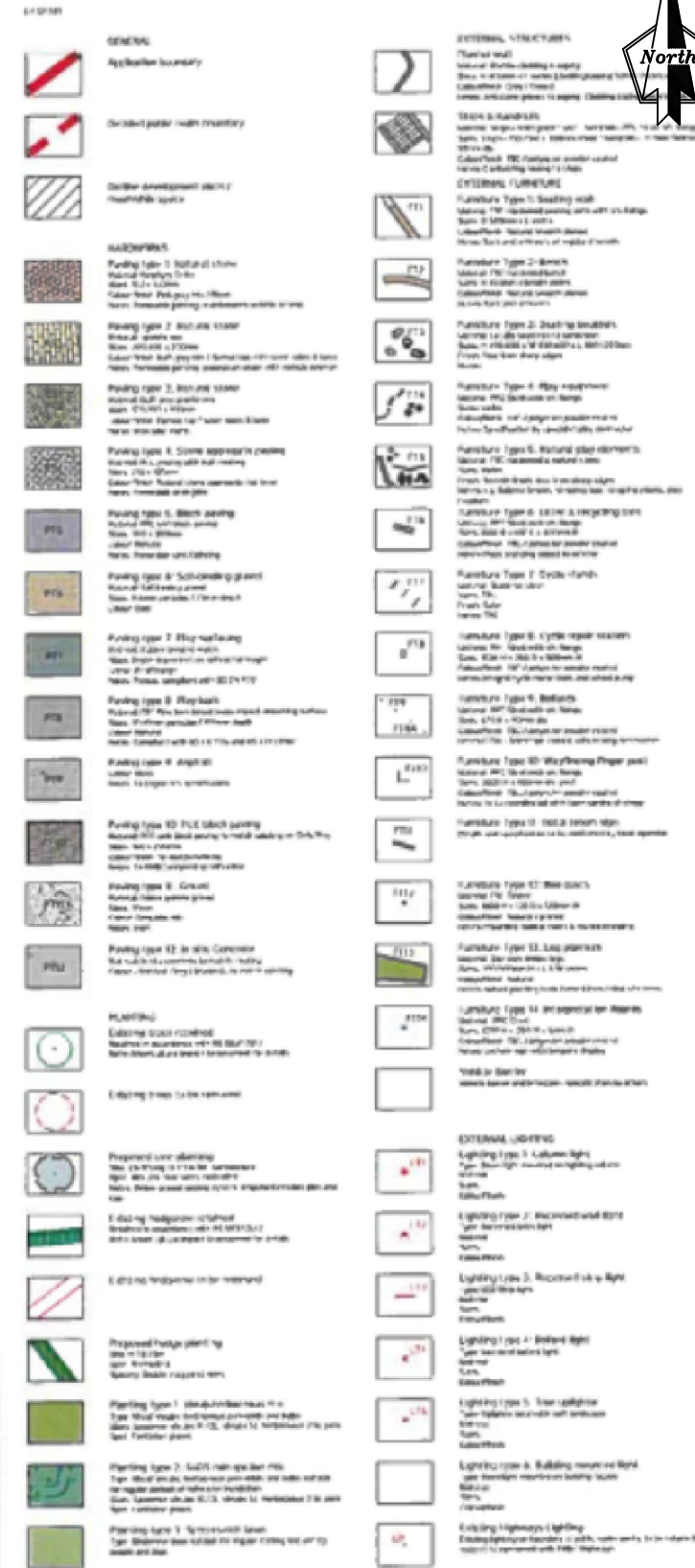


ROAD MARKINGS GENERAL ARRANGEMENT
OPTION 2 - BAY DIMENSION = 5.0m x 2.6m. 43 PARKING BAYS ACHIEVED PLUS 3 DISABLED PARKING BAYS ACHIEVED
SCALE 1:250



Rev	Date	Description
A	09/04/26	Information
Drawing Status		
Information		
Drawing Title		
Phase 8.2 Plot 6 Car Park		
Project Code		
T2140		
Scale		
As Shown		
Date Drawn		
09/04/26		
Drawn By		
TM		
Reviewed By		
AR		
Original Size		
A3		
Drawing Number		
T2140-DR-PH-028		
Rev		
A		

Finished Design Layout



Job Title

Municipal Buildings

Location
Huyton

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Genr8

Key

Rev	Date	Description
A	09/04/26	Information
Drawing Status		Information
Drawing Title		
Finished Design Layout		
Project Code	T2140	Scale
		NTS
		Date Drawn
		09/04/26
		Drawn By
		TM
		Reviewed By
		AR
		Original Size
		A3
Drawing Number		Rev
T2140-DR-PH-029		A

APPENDIX B – INSPECTION AND TEST PLAN

C335 – Huyton – Inspection and Test Plan

Table 1 - Surveying and setting out

Item	Inspection	Test	Rate	Record
Check OGL	Survey prior to start of earthworks	NA	NA	Drawing
Identify/ termination of relevant existing services	CAT + Genny, trial pitting and visual inspection	NA	NA	Photographs Drawing
Stats works	Watching brief Survey	NA	NA	Drawing Photographs
Depth/ volume of concrete	Visual inspection Stockpile survey	NA	NA	Engineers log
Excavation to required level	Visual inspection of base of dig Base of dig survey	Mexeprobe/ Shear Vane (where appropriate)	5 per panel	Base of Dig drawing
Engineered up layers	Visual inspection Watching brief	As Table 3	As Table 3	Photos
Cement stabilised layer/ formation**	Visual inspection Watching brief Survey	As Table 3	As Table 3	Drawing Photographs
Volume of Class 6 recycled material to be reused on site	Stockpile survey, placement survey	NA	NA	Drawing Photographs
Protective 6F2 to C&R Finished Level	Visual inspection Survey	As Table 3	As Table 3	Drawing Photographs

Table 2 - Chemical Testing

Item	Inspection	Test	Rate	Record
General engineering fill (Class 1 & 2)	Visual and olfactory	PID	As appropriate (where suspected volatile contamination)	Engineers record (noted in Environmental Reports)
		PAHs, TPH CWG, Asbestos screen, CLEA metals	1 per 1000m ³	3 rd party certificates Sample location survey
Site won topsoil/ subsoil*	Visual and olfactory	PAHs, TPH CWG, Asbestos screen, CLEA metals	1 per 250m ³	3 rd party certificates Sample location survey
Recycled 6F2	Visual and olfactory	PAHs, TPH CWG, Asbestos screen, CLEA metals	1 per 1000m ³	3 rd party certificates Sample location survey
Imported aggregates**	Visual and olfactory	PAHs, TPH CWG, Asbestos screen, CLEA metals	1 per 1000m ³	3 rd party certificates Sample location survey
Underground storage tanks*	Visual and olfactory	As appropriate	1 per 25m ² excavated walls (minimum 1 per side)	3 rd party certificates Sample location survey
			1 per 30m ² of exposed base	
Unforeseen contamination*	Visual and olfactory	As appropriate	1 per 25m ² excavated walls (minimum 1 per side)	3 rd party certificates Sample location survey
			1 per 35m ² of exposed base	
Failed general material screen	Visual and olfactory	Retested for failed determinand	As appropriate	3 rd party certificates Sample location survey
Surplus material disposal**	Visual and olfactory	As required by waste receiver	As appropriate	3 rd party certificates Waste transfer notes

Table 3 - Civil and Geotechnical Testing

Item	Inspection	Test	Rate	Record
Class 1	Visual inspection by competent persons	Grading	1 per 1000m ³	3 rd party certificates Sample survey record
		Moisture content	1 per 1000m ³	
		Optimum moisture content	1 per 3000m ³	
Class 2	Visual inspection by competent persons	Grading	1 per 1000m ³	3 rd party certificates Sample survey record
		Moisture content	1 per 1000m ³	
		Optimum moisture content	1 per 3000m ³	
		Atterberg limits	1 per 1000m ³	
Compaction of Class 1 & 2 layers	Visual inspection by competent persons	Mexeprobe	5 per panel	Photographs Engineers record
		Shear vane	5 per panel	
		Sand replacement tests	Sporadic checks – 1 day every 2-3 weeks	3 rd party certificates
Recycled 6F2	Visual inspection by competent persons	Grading	1 per 1000m ³	3 rd party certificates Sample survey record
		Moisture content	1 per 1000m ³	
Cement stabilisation trials**	Inspection by competent persons	Pre stabilisation trials to determine required cement percentage	3 per material type (minimum)	3 rd party certificates
		Tray test	Minimum 1 daily	Photos & engineers log
Top of earthworks formation	Visual inspection by competent persons	CBR or plate load testing (as required)	1 per 30m ² (grid around building footprint)	Photos 3 rd party certificates
Top of cement stabilised capping replacement**	Visual inspection by competent persons	CBR or plate load testing (as required)	1 per 30m ² (grid around building footprint)	Photos 3 rd party certificates
Top of 6F2 protective layer (C&R finished level)	Visual inspection by competent persons	CBR or plate load testing (as required)	1 per 30m ² (grid around building footprint)	Photos 3 rd party certificates

Notes

1. This ITP has been produced in accordance with the *MCHW* Specification for Highway Works, Remediation Strategy and current best practices.
2. All watching briefs and surveys by suitably qualified/ experienced persons.
3. Disposal testing criteria in accordance with waste receiver requirements.
4. 3rd party certifications for imported materials (if required) to be provided prior to arrival at site. Material may be refused if deemed unacceptable.
5. * = if encountered.
6. ** = if required.
7. Plate testing utilising 300mm plate unless otherwise stated.
8. All positive asbestos screens will be further scheduled for quantification.
9. All chemical tests to be screened against S4ULs for commercial end use for reuse on site.
10. Mexeprobe and shear vane testing subject to suitable material types for specific test.

APPENDIX C – ENVIRONMENT AGENCY GUIDANCE FOR DECOMMISSIONING REDUNDANT BOREHOLES AND WELLS

Good practice for decommissioning redundant boreholes and wells

October 2012

What's the purpose of this guidance?

Redundant boreholes and wells must be dealt with appropriately to make them safe and secure, and also to ensure they don't cause groundwater pollution or loss of water supplies. This guidance focuses on groundwater protection aspects but there are many other important factors owners and developers need to consider when designing and carrying out decommissioning works. These will be site specific, depending on the situation and intended afteruse. For example, boreholes near landfills or other sources of soil gas may require an opening to the air to prevent the build-up of noxious, explosive or flammable gas. Therefore, you should seek expert site-specific advice.

Legal framework

The Environment Agency (EA) has a duty to promote the sustainable use of water and to ensure it is protected from pollution. The Environmental Permitting (England and Wales) Regulations 2010 require the EA to take all necessary measures to prevent input of so called hazardous substances (for example pesticides) and limit the input of other non-hazardous pollutants (such as nitrate) into groundwater*, including for example contaminated run-off directly entering groundwater via an uncapped borehole.

**Groundwater is defined as water that is below the surface of the ground in the saturated zone and is in direct contact with the ground or subsoil.*

Why is it important to decommission properly?

Boreholes and wells are constructed for a variety of purposes including water supply, de-watering excavations, collecting geological information, investigating or sampling soils and groundwater and, increasingly, for ground source heating and cooling and geothermal (non-carbon) energy production. Many old water wells and boreholes are redundant as most properties are now connected to a mains water supply.

Improperly abandoned boreholes and wells can provide preferential pathways for groundwater or contaminant movement. This may result in the contamination of groundwater, the mixing of groundwaters of variable quality from different aquifers, or contribute to the loss of aquifer yield and water pressure (referred to as the potentiometric or piezometric head) as groundwater flows out of the system. This can threaten the availability and quality of groundwater resources for other users and potentially have an impacts on wetlands. Abandoned boreholes and wells can also present a physical hazard to people and property.

Artesian boreholes (where groundwater at depth in a 'confined aquifer' is at sufficient pressure to cause water to discharge either at the ground surface or into another overlying aquifer without any pumping) can be particularly problematic. They require special attention to prevent uncontrolled discharge of groundwater or cross-contamination of different aquifer units.

Therefore, site owners need to ensure that redundant boreholes and wells are made both safe and structurally stable, and also backfilled or sealed to prevent groundwater pollution and flow of water

between different aquifer units. This is particularly important where other potable groundwater supplies are at risk.

However, in certain circumstances they may be adapted for use as a groundwater monitoring facility.

You must not use wells or boreholes as soakaways for foul or surface water drainage because they provide a direct discharge route into groundwater and, as such, pose a risk of groundwater pollution.

This is prohibited by the Environmental Permitting (England & Wales) Regulations 2010.

Firstly, what are the construction details?

When considering how best to backfill and seal a borehole or well, or whether it could be adapted for monitoring purposes – you should first obtain information on the geological strata encountered by the borehole and how it was constructed (including depth, diameter and casing details). These can usually be obtained from site records or the original driller's log; the British Geological Survey holds the national water well archive and other borehole databases.

Is the site suitable for groundwater monitoring?

There are many good reasons for collecting groundwater samples or measuring groundwater levels; the information can, for example, help to validate the success of any remedial works being undertaken on a contaminated land site. Therefore, before decommissioning a borehole you should consider whether you wish to retain it as a monitoring facility. If it is to fulfil part of a planning condition or other legal monitoring requirement you may wish to discuss the details of how you do this with the Environment Agency.

If not, it is still worth contacting us via our National Customer Contact Centre (NCCC) to check whether we would be interested in incorporating it into our strategic groundwater level or quality monitoring networks.

If the borehole is not going to be converted then it should be abandoned using the guidelines below and the British Geological Survey should be informed.

Decommissioning

Each situation is different in terms of its location, geological setting, borehole construction, dimensions, hazards and, very importantly, intended site afteruse. Therefore the most appropriate abandonment procedure will vary from site to site. It is strongly recommended that you engage the services of a proficient well contractor with a good knowledge of the local geology and well abandonment procedures. For large boreholes and wells you may need to seek engineering advice. **(Note that structural aspects are outside the scope of this guidance.)**

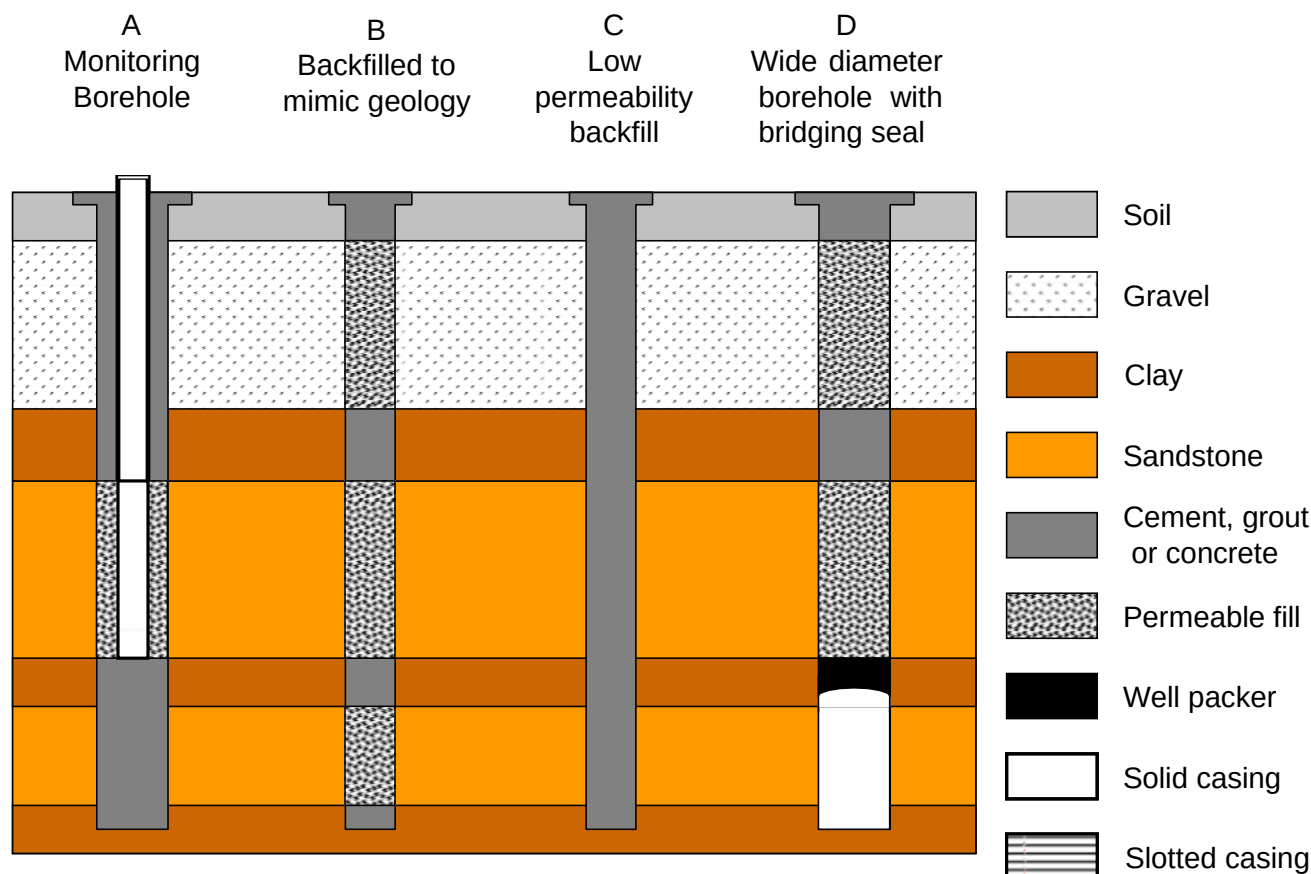


Figure 1: Schematic options (B–D) for decommissioning wells and boreholes

Step 1 - Defining the objectives

When planning the decommissioning works, in addition to any site specific afteruse considerations, the method should address the following objectives:

- ☐ Remove the hazard of an open hole (safety issues).
- ☐ Prevent the borehole acting as a conduit for contamination of groundwater.
- ☐ Prevent the mixing of contaminated and uncontaminated groundwater from different aquifers.
- ☐ Prevent the flow of groundwater from one geological horizon to another.
- ☐ Prevent the wastage of groundwater from the overflow of artesian boreholes.

Step 2 - Removing headworks and casing

It is crucial to ensure that the borehole or well is free from all obstructions that may interfere with the sealing of the hole. In particular, the pump and pipework should be removed, together with any other infrastructure (dip tubes etc).

The condition of any borehole casing and grout must be examined to ascertain whether its retention in the hole would prejudice any of the objectives of the abandonment. For many holes, examination of the casing from the ground surface will be adequate. However, deep boreholes may require the use of closed-circuit television (CCTV) to examine the casing at depth.

Where the casing has corroded or broken, or the grouting has failed, depending on the setting it may be necessary to remove those materials to prevent any flow of groundwater around the outside of the borehole. However, this is not without its own risks since removal of the well casing can result in collapse of the borehole walls (particularly in unconsolidated materials) and possible subsidence at ground level. If the well casing needs to be removed, a specialist well contractor can advise on appropriate techniques and associated risks.

Step 3 - Backfilling

General considerations

For most purposes the ground should be restored as closely as possible to its pre-drilled condition. The borehole or well should be backfilled with clean (washed), uncontaminated materials so that the permeability of the selected materials are similar to the properties of the geological strata against which they are placed. The backfilled borehole will then mimic the surrounding natural strata and groundwater flow and quality will be protected.

Restoration will require a variety of materials to be used so that permeable aggregates (for example pea gravel and sand) are positioned adjacent to aquifer horizons, whilst low permeability materials (usually clay, bentonite cement grout, or concrete) are positioned adjacent to low permeability horizons (see Fig. 1(B)). Alternatively, the entire borehole or well can be backfilled with low permeability

materials that will prevent significant vertical or horizontal movement of groundwater through or along the borehole (see Fig. 1(C)).

The backfill materials must be clean, inert and non-polluting. Suitable materials include pea gravel, sand, shingle, concrete, bentonite, cement grout and uncontaminated rock. There are also a range of recycled products, like crushed glass, on the market that are designed for use in boreholes

IMPORTANT - Never use backfill materials that can cause pollution.

You should also consider the geochemical environment into which these materials will be placed, as the behaviour of materials may change under different environmental conditions (for example, iron-rich sands may contaminate the aquifer; phenol contamination may prevent bentonite grouts curing).

Aggregates (pea gravel, shingle, sand etc) should be selected such that they have a grain size that allows easy delivery into the borehole and should be introduced in a controlled manner to ensure that accidental 'bridging' does not occur within the borehole. Concrete and grouts that are introduced in a liquid form should be introduced through an appropriate delivery pipe (e.g. tremie pipe), to ensure that voids do not form. **Note:** It is good practice to monitor the volume of backfill material that is being emplaced, compared to that calculated at the design stage, to check if bridging within the borehole, or loss to the formation is occurring.

Boreholes that penetrate highly fissured aquifers, such as some limestones and gypsum bearing units, present additional problems. Liquid grouts (particularly those injected under pressure), or fine-grained aggregates (e.g. sand) may be transported out of the borehole into the body of the aquifer through fissures. Careful monitoring of the process is required if these techniques are used, and in these cases it may be more appropriate to use coarser aggregates such as gravel as a backfill.

Deep and large diameter boreholes/wells

When dealing with very deep or large diameter boreholes and wells (note, this does not apply to mine shafts), the volume of the hole may be considerable. In such circumstances it may be appropriate to adopt an alternative approach to completely backfilling the void, as long as this will not prejudice any of the design objectives.

Provided that the long-term structural stability of the borehole can be demonstrated, it may be possible to place a permanent bridging seal within the borehole and then to infill above this level using the approach summarised above (see Fig. 1(D)). The bridging seal should ideally be positioned below the lowest aquifer horizon. However, where this is not possible, it is important that the open borehole beneath the bridging seal penetrates no more than a single aquifer unit, thereby preventing the flow of groundwater between different aquifers.

The material commonly used as a bridging seal is cement, although a combination of a mechanical plug (packer) and cement can be used. Cement seals must be allowed to set (cure) in place before backfilling is continued and completed.

Again, this is a specialist area of work that requires high standards of design and workmanship to ensure an effective permanent seal is achieved.

Artesian boreholes

For artesian boreholes, the decommissioning process should aim to confine the groundwater to the aquifer from which it came – in order to prevent loss of confining pressure and the loss of water resources to the surface or other formations.

The first step is to control the artesian flow. There are a number of ways to accomplish this depending, in part, on the water pressure in the confined aquifer and the depth to which the water level must be lowered. These include:

- ☐ Pumping the borehole to produce the necessary drawdown.
- ☐ Pumping nearby boreholes.
- ☐ Extending the casing above ground level beyond the elevation to which water will rise in the borehole. (the potentiometric or piezometric surface).
- ☐ Introducing dense, non-polluting fluids into the borehole.
- ☐ Introducing a pre-cast plug at an appropriate level within the hole.
- ☐ Using an inflatable packer and pressure grouting the void space below it.

In aquifers that have large seasonal fluctuations in water level, decommissioning artesian boreholes is likely to be easiest in late summer, when groundwater levels and artesian flows are at their lowest.

The importance of the potential pathways in and around the casing should also be considered.

Decommissioning artesian boreholes is a specialist job and requires expert advice.

Step 4 - Sealing the top of the borehole

The backfilled borehole/well should be completed with an impermeable plug and cap to prevent entry of potentially contaminated surface run-off or other liquids. The top two metres should be filled with cement, concrete or bentonite grout. A concrete cap of suitable strength, with a diameter at least one metre greater than the width of the backfilled borehole (see Fig. 2), should then be installed. The exact finished depth of this cap will depend on the setting and planned afteruse of the site. It should be at least 2 metres below plough depth in agricultural areas and at least 1 metre below formation level for sites proposed for redevelopment. Never build structures directly onto well caps or linings.

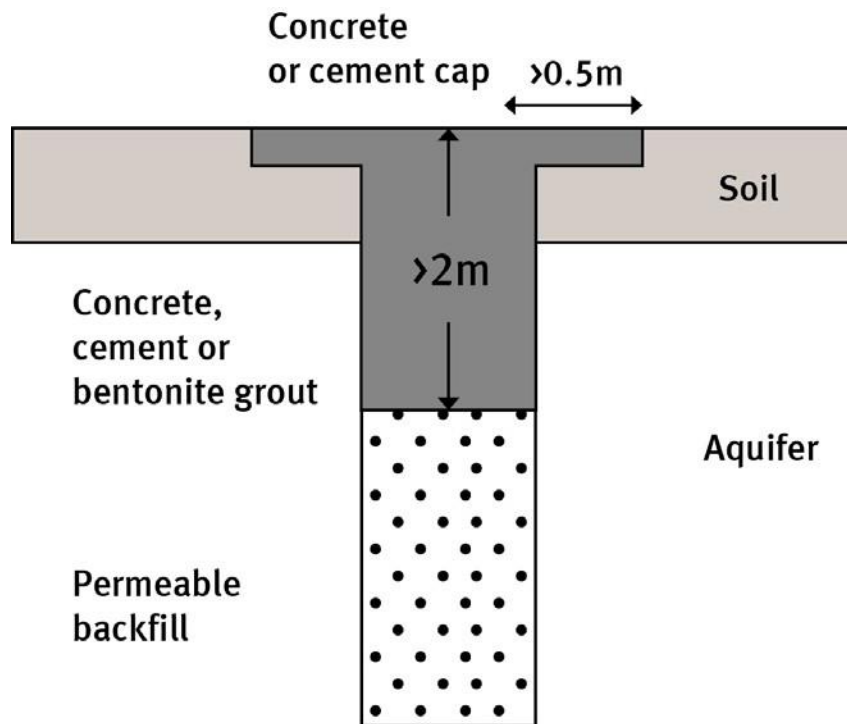


Figure 2: Schematic diagram for borehole seal and cap

Step 5 - Recording details and informing others

You should keep an accurate record of the abandonment details for future reference, including:

- ☐ The reasons for abandonment (for example water quality problems).
- ☐ Measurement of groundwater level prior to backfilling.
- ☐ The depth and position of each layer of backfilling and sealing materials.
- ☐ The type and quantity of backfilling and sealing materials used.
- ☐ Any changes made to the borehole/well during the abandonment (for example casing removal).
- ☐ Any problems encountered during the abandonment procedure.

The location of abandoned borehole and wells should be clearly marked on site records. This is essential where any part of the well has not been filled.

It is also very good practice to mark or deeply inscribe well caps with the word "WELL". Even if done crudely it can avoid considerable risk, delay or uncertainty in the event of the structure being discovered during excavation by others in the future, who may not otherwise know what the feature is.

Always notify the Environment Agency and British Geological Survey of the abandoned well location and structure.

Conversion to soakaways

Wells and boreholes should not be converted to soakaways, as these allow the direct discharge of pollutants into groundwater without any potential for attenuation, and will often result in groundwater pollution. The direct discharge of hazardous substances to groundwater, via a borehole, is effectively prohibited by the Environmental Permitting (England & Wales) Regulations 2010, and the pollution risk from any direct discharge of non-hazardous pollutants, such as sewage effluent, is so great as to make it highly unlikely to be acceptable.

Further advice and guidance

It is recommended that the advice of a specialist well contractor should always be sought, Details can be obtained from:

- **The British Drilling Association.** Wayside, London End, Upper Boddington, Daventry, Northamptonshire, NN11 6DP. Tel: 01327 264 622, email: office@britishdrillingassociation.co.uk

The Environment Agency cannot provide an advisory service on decommissioning individual boreholes and wells but your local Groundwater & Contaminated Land team may have some generic advice to help you; and would appreciate a copy of your abandonment details. They can be contacted via our National Customer Contact Centre (NCCC)

- **Environment Agency NCCC** Tel: 03708 506 506

The British Geological Survey are the national custodian of water well records in addition to other borehole records and geological information. They may have a record of the borehole or well you are dealing with, and will be interested in the abandonment details

- **British Geological Survey. National Geosciences Data Centre (NGDC)**, Keyworth, Nottingham, NG12 5GG. Tel: 0115 936 3143.

Useful references

- Environment Agency GP3 (Groundwater Protection Principles and Practice) <http://www.environment-agency.gov.uk/research/library/publications/40741.aspx>
- American Society for Test and Materials (ASTM) D5299 - 99(2005) Standard Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities
- Driscoll, F.G., 1986. Groundwater and Wells. Second Edition, Johnson Division.

Note: *This guidance supersedes the document ' Good practice for decommissioning redundant boreholes and wells' produced by our former National Groundwater and Contaminated Land Centre*

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