REMEDIATION IMPLEMENTATION PLAN

AT

CHANCTONBURY NURSERY

RECTORY LANE

ASHINGTON

RH20 3AS

FOR

ELIVIA HOMES

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Executive Summary

Cognition Land and Water Limited (COGNITION) has been contracted by Elivia Homes (the client) to undertake contamination remediation, demolition, materials management and earthworks to support the proposed residential development at Chanctonbury Nursery, Rectory Lane, Ashington, RH20 3AS. The proposed development includes 74 plots comprising residential homes and gardens, communal open space and associated access roads.

This Remediation Implementation Plan (RIP) outlines COGNITION's approach to the enabling and remediation works based on received information from Elivia Homes along with several site visits and project team meetings. Reference is made to the contamination recommendations and remediation strategy outlined in the Ground and Water Phase 2 Site Investigation Report (V1.07, updated March 2025) for the site. In addition, the enabling and remediation works carried out by COGNITION will be fully compliant with the Elivia Homes scope of works and the Ground and Water Remediation Method Statement (RMS) Report (V1.04, updated March 2025).

This RIP outlines in detail the various elements of the proposed works and how they will be carried out. In summary, the proposed remediation works are as follows:

Set-up, licenses, permits and documentation

- Produce required compliance and H&S documentation for the works
- Obtain required permits and licenses (including Materials Management Plan, Quality Protocol Method of Production and Mobile Plant Permit deployment)
- Establish environmental and geotechnical testing requirements
- Topographical survey at the commencement of works

Enabling Works

- Services survey of the whole site prior to commencement
- Disconnection of live services by others
- Vegetation clearance, including the removal of invasive species
- Litter clearance

Demolition

- Demolition of extensive glasshouses and ancillary buildings on site
- Grubbing up and removal of redundant fuel pipelines on site and associated ground

contamination, if present

- Disposal offsite of deleterious material from demolition and processing and reuse of 6F2/6F5 produced from demolition arisings under the 'Quality protocol: aggregates from inert waste' and the associated, site specific Method of Production

Remediation Works

- Excavation of topsoil across the site which will be stockpiled on site for reuse within the proposed garden areas by others at a later stage of the project, subject to confirmation of suitability for use in accordance with the RMS
- Excavation, processing, remediation, treatment and reuse of all made ground across the site beneath the proposed highways - this is to include excavation and removal (or reuse if suitable for reuse) of the underground reservoir, its contents and associated Made Ground (both horizontally and vertically) in the south-west of the site and part removal of the bund along the eastern boundary, which will remove the parts of the bund Made Ground from within proposed gardens and soft landscaped areas
- Over-excavation of proposed highways to acquire clean, natural subsoil which will be stockpiled on site for reuse within the proposed garden areas by others at a later stage of the project

Earthworks

- Stabilisation of made ground placed beneath the proposed highways to achieve a minimum CBR value of 15%
- Cut, fill, and modifications to development levels to avoid the disposal of surplus soils offsite

Monitoring

- Dust, odour, vibration and noise suppression and monitoring.

The body of this RIP outlines in detail the various elements of the proposed works and how they will be carried out.

Report Amendment Record Sheet

The revision history of this document is summarised below:

Document Revision Number	Date of Revision	Author	Section/Subject	Page
V2	24/01/25	AOD	Various updates following additional ground investigation in Dec 2024 and Jan 2025 and the resultant updated Phase II Site Investigation Report and Remediation Method Statement Report	
V3	20/02/25	AOD	Minor updates following comments from Horsham District Council EHO	
V4	21/03/25	AOD	Minor updates in relation to the eastern bund, the reservoir, additional test for pesticides in natural soils and excavation of Made Ground in Tree Root Protection Zones (TRPZs)	

Disclaimer

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1. INTRODUCTION

1.1. GENERAL

Cognition Land & Water Limited (COGNITION) was instructed by Elivia Homes (The Client) to provide a Remediation Implementation Plan (RIP) for the remediation, earthworks and demolition works to be undertaken at Chanctonbury Nursery, Rectory Lane, Ashington (the site).



Figure 1: Site Boundary Plan

The site comprises an approximately 23,873m^2, roughly rectangular plot of land containing historical developments including a plant nursery greenhouse within the southern portion of the site and derelict barns and building across the central area of the site. A hardstanding driveway runs through the centre of the site, and site surfacing comprises a mix of loose tarmac/gravel and overgrown shrubs/bushes. A raised bund that is heavily vegetated runs along the eastern boundary of the site. More recent, additional ground investigation has uncovered a buried former reservoir (brick and concrete structure containing various deleterious materials in the south-western area of the site.

The proposed works involve the demolition of all buildings, the removal of all hardstanding surfacing across the site, excavation and removal of the former reservoir, its contents and associated Made Ground (both horizontally and vertically) in the area, part removal of the eastern bund, soil remediation, and ground reprofiling to permit the future development of a series of residential low-rise houses across 74 plots with associated gardens, communal open spaces, access roads and a car park.



Figure 2: Proposed Development Plan

This RIP, prepared by COGNITION, is based upon the findings of previous geo-environmental desk

studies, risk assessments and intrusive ground investigations made available to COGNITION including additional ground investigation and updated Phase II Site Investigation Report and Remediation Method Statement prepared in January 2025 and updated in March 2025. In particular, the Remediation Method Statement Report prepared by Ground and Water's and dated March 2025 is complied with in full in this RIP.

Following completion of COGNITION's enabling-phase remediation works, subsequent construction-phase remediation works will be carried out by others including:

- Placement of suitable, clean, clean cover, stockpiled subsoil and topsoil and imported topsoil in private gardens and landscaped areas
- Below ground concrete to meet relevant sulphate/aggressive ground conditions

These follow-on works are not included in COGNITION's scope of works and hence, are not considered in this RIP.

This RIP has been compiled in general accordance with the Environment Agency document: Verification of remediation of land contamination (SC030114/R1, February 2010).

2. BACKGROUND INFORMATION

2.1. SITE LOCATION AND DESCRIPTION

The site is located at Chanctonbury Nursery, Rectory Lane, Ashington. The site is located to the south of Rectory Lane. The centre of the site has the following National Grid reference: TQ 12652 16280. The site is bounded by Rectory Lane to the north, residential premises to the east, scrub and agricultural land to the south and scrub land to the west. The site comprises a mix of bare soil, tarmac/gravel and hardstanding.

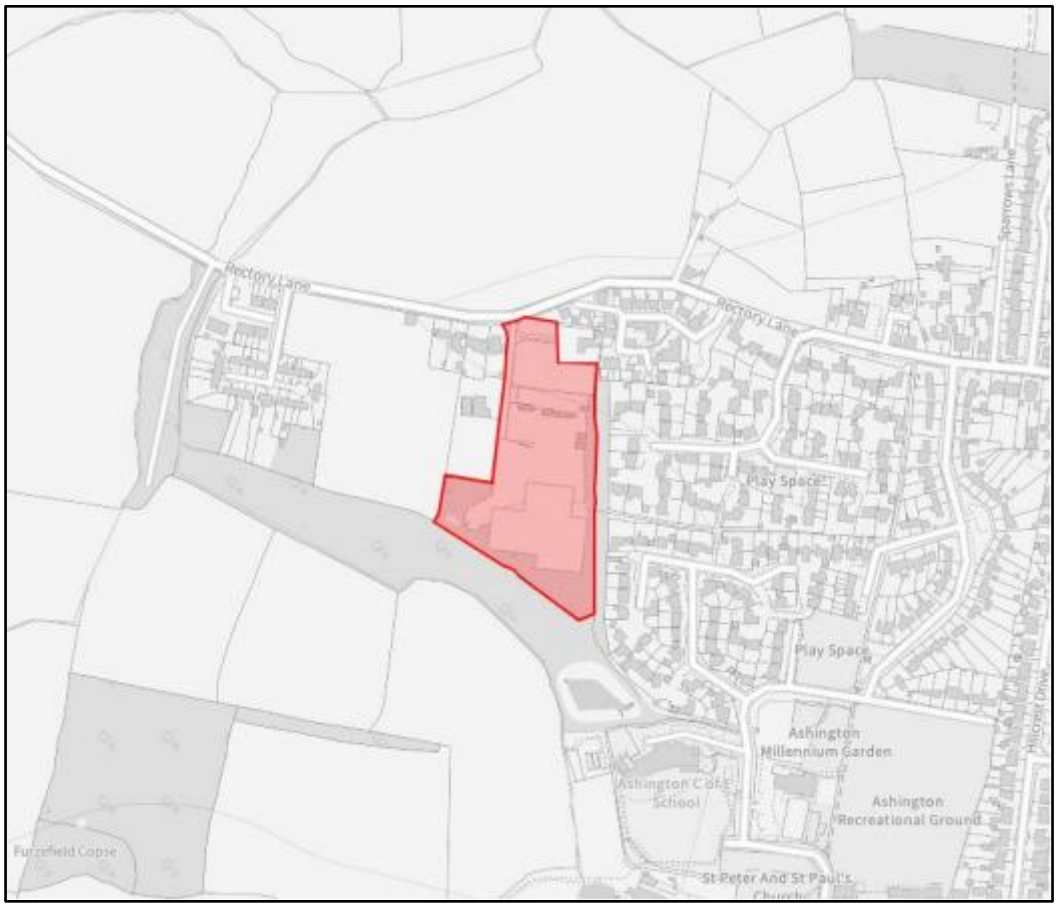

Figure 3: Site Location Plan

2.1.1. SITE ACCESS

The site is accessed via an entrance road located to the south of Rectory Lane. COGNITION will establish a separate entrance way for site plant and vehicles such that access remains unimpeded to the residential properties located immediately to the east of the site.

2.2. SITE HISTORY

The site was used as a plant nursery since 1937-1939. A buried historical reservoir was also recorded in the south-west corner of the site. Prior to this, the site comprised an undeveloped field.

A previous Groundsure report for the site identified no areas of historical or authorised landfills within the site.

2.3. SITE CONSTRAINTS

A number of key constraints are present on the site.

- Rectory lane forming the northern site boundary.
- Residential premises to the east of the site.
- Shrub land and agricultural land to the south of the site.
- Residential premises to the west of the site.
- Known and unknown ground contamination.

2.4. EXISTING REPORTS AND INFORMATION

The Client has provided numerous existing reports, specifications, survey information and drawings that have been reviewed and consulted in the development of this RIP. These include information on previous site investigations. The key documents that have been used to inform this RIP are detailed below:

- *Phase II Site Investigation Report, Ground and Water, Ref: GWPR5374/SIR/March 2025, v1.07*
- *Remediation Method Statement Report, Ground and Water, Ref: GWPR6247/RMS/March 2025, v1.04*

2.5. GROUND CONDITIONS

The ground conditions across the site, as determined from the findings of previous site investigations are outlined in **Table 1**.

Summary of Strata Encountered (October 2024)			
Strata	**Top Depth (m bgl)**	**Base Depth (m bgl)**	**Thickness (m)**
MADE GROUND: A dark brown, gravelly sandy CLAY. Sand was fine to medium. Gravel was sub-angular to sub-rounded, fine to coarse flint, brick and Type 1 Gravel and road plannings.	GL	0.10-0.40	0.10-0.40
TOPSOIL (HP301 - HP304): A dark brown sandy CLAY with roots. Sand was fine.	GL	0.15	0.15
WEALD CLAY FORMATION: A light brown, orangish brown and grey slightly gravelly sandy CLAY to clayey gravelly SAND. Sand was fine. Gravel was sub-angular, fine to coarse flint and sandstone.	GL – 0.40	>1.00- >1.50	>0.85- >1.50

Summary of Strata Encountered (January 2025)			
Strata	**Top Depth (m bgl)**	**Base Depth (m bgl)**	**Thickness (m)**
MADE GROUND: A dark brown, gravelly sandy CLAY. Sand was fine to medium. Gravel was sub-angular to sub-rounded, fine to coarse flint, brick and Type 1 Gravel and road plannings.	GL	0.15-0.40	0.15-0.40
MADE GROUND (TP405 and TP406): A dark brown sandy gravel comprising medium to cobble bricks, concrete, glass and car parts.	1.30-1.50	2.30	0.80-1.00
REWORKED GROUND: A light brown, orangish brown and grey slightly gravelly sandy CLAY	GL-0.40	1.30-2.00	0.90-2.00
WEALD CLAY FORMATION: A light brown, orangish brown and grey slightly gravelly sandy CLAY to clayey gravelly SAND. Sand was fine. Gravel was sub-angular, fine to coarse flint and sandstone.	GL – 2.50	>0.50- >2.60	>0.30- >2.60

Table 1: Summary of Ground Conditions

2.6. GROUNDWATER AND SURFACE WATER CONDITIONS

Shallow groundwater has been recorded sporadically across the site at depths as shallow as 0.3m bgl but the majority of exploratory holes were dry during excavation and during subsequent monitoring indicating the presence of perched groundwater in limited areas of the site. The site is situated on a Secondary (undifferentiated) Aquifer associated with the superficial head deposits. This is underlain by the Weald Clay Formation which is designated as unproductive strata.

The Lancing Brook and pond exist approximately 45m and 70m south of the site, respectively.

2.7. CONTAMINATION RISK

The Ground and Water reports identified potential contamination risks across the site that require remediation. These are outlined in summary below:

- Unacceptable concentrations of asbestos, heavy metals, TPH and PAHs have been found in isolated locations in made ground across the site
- Remedial measures will be required in site specific areas rather than site wide

- The bund material on the eastern portion of the site recorded a number of elevated determinands including Asbestos and Lead. Initially, it was proposed that this material be removed from site but it has since been confirmed by Ground and Water that this material can be processed and reused onsite as part of the works if suitable for reuse
- Minor contamination in the soils on site does not represent an unacceptable risk to controlled water receptor and no groundwater remediation is required
- The ground gas and vapour risk assessments confirmed the absence of a significant gas or vapour risk and no gas protection measures are required as part of the proposed development
- The need or not for protective potable water supply pipes is beyond the scope of this Remediation Implementation Plan, which only addresses the demolition, ground remediation and enabling works
- In domestic gardens, the following is required:
    - Reduced level dig of 600mm
    - Placement of 600mm clean capping of subsoil and topsoil (including min 150mm topsoil)
    - Validation of the clean capping system
- In communal soft landscaping areas, the following is required:
    - Reduced level dig of 450mm
    - Placement of 450mm clean capping of subsoil and topsoil (including min 150mm topsoil)
    - Validation of the clean capping system

2.8. ASBESTOS

Previous site investigations have indicated the presence of rare asbestos within the bund located on the site boundary. Asbestos was not encountered in any other location on the site during the previous investigations.

3. SCOPE OF WORKS AND METHODOLOGY

3.1. SCOPE OF WORKS

The elements of the scope of works that are relevant to this RIP are outlined below.

Set-up, licenses, permits and documentation

- Produce required compliance and H&S documentation for the works
  - Risk Assessments and Method Statements (RAMS)
  - Traffic Management Plan (TMP)
  - Induction Documentation
  - First Aid / Emergency Provisions
  - Permits to work
  - Temporary works requirements - In accordance with BS5975
  - Lifting Plans
  - Emergency Plan
  - Fire Plan
  - Materials Management Plan
  - Mobile Plant Permit deployment
  - Quality Protocol: aggregates from insert waste - Method of Production
  - Validation and Verification Reporting
- Obtain required permits and licenses
- Establish environmental and geotechnical testing requirements
- Topographical and dilapidation survey at the commencement of works

Enabling Works

- Services survey of the whole site prior to commencement
- Disconnection of live services by others
- Vegetation clearance, removal of disposal of invasive species, liaison with a specialist invasive species sub-contractor as required.
- Segregation and removal of litter across the site

Demolition

- Demolition of extensive glasshouses and ancillary buildings on site.

- Demolition and processing of hardstanding across the site.
- Removal of above ground tanks and grubbing up of fuel pipelines on site.

Remediation and Earthworks

- Excavation and validation of topsoil across the site which will be stockpiled on site for reuse within the proposed garden areas by others at a later stage of the project.
- Excavation, removal, processing and reuse of hardstanding, foundations and ground obstructions to a maximum depth of 1.5m bgl
- Excavate made ground in garden areas to a depth of 600mm below finished levels and stockpile for reuse
- Excavate made ground in soft landscaping areas to a depth of 450mm below finished levels and stockpile for reuse
- Excavated made ground in road areas and stockpile for processing and reuse
- **Early activity** - Where minor concentrations of pesticides have been recorded in Made Ground in the locations of HP417 and HP420, validation of the absence of pesticides in natural soils in the immediate locations of HP417 and HP420 and surrounding areas following removal of Made Ground.
- Excavation and removal of the infilled reservoir in the south-western corner of the site along with potential surrounding Made Ground or reworked material (both horizontally and vertically) to the east of the reservoir (covering plots 50-55). If materials exhibit evidence of gross contamination (visual or olfactory) they will be exported directly from site for disposal or off-site processing. If materials do not exhibit evidence of gross contamination, they will be stockpiled in the quarantine area for processing and reuse onsite below the capping layer subject to the reuse procedure and acceptability criteria set out in Section 3.3 to 3.6 below.
- Part excavation of the eastern bund where it encroaches into gardens or development plots with further validation of residual soils within the bund in exposed locations.
- Part excavation of Made Ground within Tree Root Protection Zones (TRPZs) by hand digging with manual tools in accordance with the methodology stated within the agreed Arboriculture Method Statement ref RC0339 / Chanctonbury Nurseries / Rev 02 / Planning / 07-03-25, if required, with validation of residual soils.
- Over-excavate of road areas to acquire clean, natural subsoil which will be stockpiled on site for reuse within the proposed gardens and soft landscaping areas by others at a later stage of the project by others
- Backfill road area with processed made ground to 900mm below finished levels

- Backfill road area with processed made ground and stabilise to minimum CBR 15% to 450mm below finished levels
- Cut, fill and modifications to development levels to avoid the disposal of surplus soils offsite
- Excavate and dispose offsite fuel pipeline from AST diesel tank to greenhouses. Watching brief for hydrocarbon contamination in fuel line excavation. Remove grossly contaminated soils and remediate onsite using bioremediation or remove from site for further treatment or disposal. Validate sides and base of fuel line excavation and below AST tank slab to confirm absence of hydrocarbon contamination.

Monitoring Requirements

- Suppression/mitigation and monitoring of dust, odour, vibration and noise

Following the completion of the remediation works by COGNITION, the below further works will be required by others:

- Installation of clean cover system

Post Works

- Production of a Verification Report covering all of the above works to facilitate the discharge of appropriate planning condition.

3.2. REGULATORY APPROVALS

COGNITION will carry out the remediation works in accordance with the deployment of COGNITION's Mobile Plant Permit deployment, which will be in place prior to commencement of the works.

COGNITION will carry out the movement and placement of site-won soils under a Materials Management Plan under the CLAIRE Definition of Waste Code of Practice system, which will be independently reviewed and approved and declared by a Qualified Person.

The site works will be carried out under controlled asbestos working conditions, with asbestos awareness trained staff, as non-notifiable unlicensed asbestos works. All works will be carried out in accordance with a separate Asbestos Management Plan that will be produced for the works.

3.3. CONTAMINATION DISCOVERY STRATEGY

A contamination discovery strategy will be carried out throughout the works. The discovery strategy will comprise visual and olfactory observations for potential contamination by the Site Supervisor in the

following locations:

- Areas where visual / olfactory evidence of contamination is noted during the soil turnover.
- Areas where visual / olfactory evidence of contamination is noted during cut and fill activities.
- The locations of redundant buried tanks identified across the site.
- The location of the infilled reservoir in the south-wester corner of the site.
- Excavations within the eastern bund.
- Within areas of proposed soft landscaping (including gardens) to prove the absence of significant contamination
- Within Tree Root Protection Zones (TRPZs) to confirm the removal of contaminated Made Ground to the extent that is possible without adversely affecting tree health of retained trees

Where potential contamination is identified during this discovery strategy, the potentially contaminated material will be removed, sampling and verification testing shall be undertaken at a minimum frequency of one sample from the base of the excavation, one sample from each excavation face, and one sample per 25m^2.

Validation testing results of excavated soils stockpiled on site for reuse within cover layer within the gardens (topsoil and subsoil) will be compared to the Ground and Water assessment criteria for Residential (with home grown produce) from the Ground and Water Remediation Method Statement Report and reproduced in Appendix 3 of this report. Samples for validation will only be tested for a suite of analysis of contaminants of concern identified in the ground investigations, i.e., metals, TPH, PAH, BTEX, MTBE, phenols and asbestos. All other determinands are assumed to have complied with the reuse criteria. Soils (whether placed within or below the capping layer, or placed immediately or stockpiled onsite for later use) will be sampled and tested at the frequencies outlined in Table 3.

3.4. PROCESSING OF MATERIALS AND REUSE

Excavated material will be segregated (quarantined), sampled, stockpiled and classified as either suitable or unsuitable for reuse. All unsuitable arisings will undergo treatment on site to remove gross contamination and will be validated in accordance with the criteria outlined in Section 3.3 above. All suitable arisings will be processed, screened, crushed, etc. prior to reuse within the works. Soils may be treated (e.g., cement stabilisation, moisture conditioning) to improve their geotechnical properties, if required. Any soils destined for removal from site may be pre-treated onsite (e.g., bioremediation, soil stabilisation) prior to removal from site.

The generation of stockpiles of excavated material shall be minimised as far as is reasonably practicable

to reduce the environmental risks of stockpile runoff and dust generation.

3.5. AGGREGATE PROCESSING

Concrete arising from the removal of hardstanding and obstructions will be homogenised, graded and tested before potential reuse either on site as a general fill or offsite as aggregate, in accordance with the Environment Agency Quality Protocol: Aggregates from Inert Waste and Standard for Highways Series 600 Specification, see separate Method Statement of Production.

3.6. SOIL REUSE

COGNITION will, wherever possible, reuse excavated soils providing they are chemically and geotechnically suitable for their intended location. The process by which soils will be processed for reuse will be under the deployment of COGNITION's Mobile Plant Permit. The process by which soils are reused will be through a Materials Management Plan under the CL:AIRE 'Definition of Waste Code of Practice' (DoWCoP).

Site won material may be reused onsite where chemically and geotechnically suitable for use under the DoWCoP 'reuse on the site of origin' methodology. This includes the reuse of material following treatment where required to make it geotechnically suitable for use onsite.

Soil reused/ imported onto site will fall into one of two categories:

1. Below the cover layer/ hardstanding
2. Within the capping layer

All soils will be placed in accordance with the requirements of the Earthwork Specification - the Specification for Highway Works, Series 600.

3.6.1. BELOW CAPPING LAYER/HARDSTANDING AND WITHIN CAPPING LAYER

Only soils that comply with the reuse criteria will be reused as general fill within COGNITION's works or stockpiled on site for reuse within the cover layer by others at a later stage of the development.

The Reuse Criteria for soils destined to be reused within and below the capping layer are outlined in **Table 2** and the full assessment criteria are included as Appendix 4 for completeness. The frequency of sampling and testing is set out in Table 3.

Determinand	Adopted Screening Value (mg/kg) for Capping Layer - Based on SOM of 1%		Determinand	Adopted Screening Value (mg/kg) for Capping Layer - Based on SOM of 1%
Asbestos	ND		Aliphatic - EC 5-6	42
			Aliphatic - EC >6-8	100
Phenols	280		Aliphatic - EC >8-10	27
			Aliphatic - EC >10-12	130
Cyanide	24		Aliphatic - EC >12-16	1,100
Lead	200		Aliphatic - EC >16-35	65,000
Arsenic	37		Aliphatic - EC >35-44	65,000
Beryllium	1.7			
Boron	290		Aromatic - EC 5-7	70
Cadmium	11		Aromatic - EC >7-8	130
Chromium (III)	910		Aromatic - EC >8-10	34
Chromium (VI)	6.6		Aromatic - EC >10-12	74
Copper	2400		Aromatic - EC >12-16	140
Elemental Mercury	1.2		Aromatic - EC >16-21	260
Inorganic Mercury	40		Aromatic - EC >21-35	1,100
Methylmercury	11		Aromatic - EC >35-44	1,100
Nickel	130		Aromatic - EC >44-70	1,600
Selenium	250			
Vanadium	410		Acenapthene	210
Zinc	3700		Acenapthylene	170
			Anthracene	2,400
Benzene	0.087		Benzo(a)anthracene	7.2
Toluene	130		Benzo(a)pyrene	2.2
Ethylbenzene	47		Benzo(b)flouranthene	2.6
o-Xylene	60		Benzo(ghi)perylene	320
m-Xylene	59		Benzo(k)flouranthene	77
p-Xylene	56		Chrysene	15
			Dibenzo(ah)anthracene	0.24
Methyl tert-butyl ether (MTBE)	49		Flouranthene	280
			Flourene	170
			Indeno(123-cd)pyrene	27
			Napthalene	15
			Phenanthrene	95
			Pyrene	620

Table 2: Reuse Criteria for Soils within Capping Layer

Sampling and testing of backfill materials will be in accordance with the frequencies outlined in **Table 3**.

Site won Made Ground to be placed <u>below</u> capping layer	• 1 sample per 500m^3
Site won Subsoil to be placed <u>below</u> capping layer	• 1 sample per 500m^3
Site won Subsoil to be placed <u>within</u> capping layer	• 1 sample per 250m^3
Site won Topsoil to be placed <u>within</u> capping layer	• 1 sample per 250m^3
Imported Topsoil to be placed <u>within</u> capping layer	• 1 validation trial hole per plot or landscape area with 1 sample per plot or landscape area • 1 sample per 50m^3
Imported Subsoil to be placed <u>within</u> capping layer	• 1 validation trial hole per plot or landscape area with 1 sample per plot or landscape area • 1 sample per 50m^3

Note: Cognition will not be importing topsoil or subsoil during our works.

Table 3: Verification Sampling Frequencies

Concrete generated during the remediation works and reused will be cleaned of visual contamination prior to reuse. Testing of cleaned concrete will not be required except for any testing required under the EA Quality Protocol: aggregates from inert waste.

The reuse criterium for asbestos is 'below the analytical limit of detection' following quantification. If above the limit of detection but below 0.1%vv, a risk-based approach shall be adopted for the reuse of the material, if not notifiable.

3.6.2. ADDITIONAL PESTICIDE TESTING IN SPECIFIC LOCATIONS

The phases of site investigation included laboratory analysis for pesticides. The results identified concentrations of pesticides as generally below the laboratories limit of detection with the exception of P,p'-DDT within HP417/0.10m bgl and HP420/0.10m bgl.

As an early activity, following removal of Made Ground in these areas, to confirm the absence of pesticide impact on the underlying natural soils, additional sampling and analysis shall be undertaken at formation level. Additional testing of the natural soils within the locations of HP417 and HP420 will be carried out for the full suite of pesticides outlined in Appendix 4. Validation samples will be taken at the natural soil formation level, exposed following remediation, immediately below the locations of HP417

and HP420 with further samples taken 3m to 5m north, south, east and west from each of these locations.

3.6.3. VALIDATION OF TREE ROOT PROTECTION ZONES (TRPZS)

Root Protection Zones are recorded along the eastern and southern boundaries of the site in close proximity to remediation areas. The remedial methodology for these areas has been agreed with the Tree Officer. The remedial excavations will be undertaken up to the line of root protection areas then works shall pause to allow for sampling and analysis of the edge of the excavation. If contamination is still present, then excavation will continue by hand with manual tools in accordance with the methodology stated within the agreed Arboriculture Method Statement ref RC0339 / Chanctonbury Nurseries / Rev 02 / Planning / 07-03-25 to remove contaminated material within the Root Protection Zone and backfilled with clean capping. Validation testing will be carried out to direct this process. The process must be supervised by an appointed arboriculture consultant.

A plan showing the Root Protection Zones in relation to the proposed development can be seen within Appendix 1.

3.7. IMPORTED SOILS

It is not anticipated that soils will be imported to the site during Cognition's works. If soils are imported to site, these will be subject to the testing requirements and frequency as set out in the RMS.

4. PROJECT ARRANGEMENTS

4.1. RESPONSIBILITIES

COGNITION will be the principal contractor during the works. The COGNITION project team and their contact information is included in **Table 4**.

Name	Role	Mobile	Email
Rob Fox	Managing Director	07786 968 278	robert.fox@cognitionltd.com
Andy O'Dea	Technical Director	07833 873 065	andy.odea@cognitionlod.com
Jack Gallagher	Project Manager	07580 115 291	Jack.gallagher@cognitionltd.com
Mick Russell	Site Manager	07468 422 998	mick.russell@cognitionltd.com
Paul Silverwood	Commercial Manager	07973 284 078	paul.silverwood@cognitionltd.com
Jake Johnston	Health, Safety & Environmental Manager	07775 446 915	jake.johnston@cognitionltd.com
Mike Honeyman	Safety Manager	07718 900 464	mike.honeyman@cognitionltd.com
Environmental Engineer	Charlie Bartlett	07949 329 509	charlie.bartlett@cognitionltd.com
Engineering Manager / Temp Works	Jack Goddard	07402 808 687	jack.goddard@cognitionltd.com

Table 4: COGNITION Site Team Contact Information

COGNITION's main office telephone number is 03333 494 400.

4.2. SUPERVISION

The COGNITION Project / Site Manager will be in overall control of site activities and will hold as a minimum Site Management Safety Training Scheme (SMSTS) accreditation, first aid at work and fire marshal training.

4.3. WORKER REQUIREMENTS

COGNITION will ensure that all operatives have suitable and sufficient training to carry out duties on site. All site operatives are required to hold a CSCS Operative or equivalent card, and drivers will hold the appropriate cards for their plant.

4.4. PROGRAMME

COGNITION has already completed the demolition and above-ground site clearance. We understand that the remediation and below-ground enabling works in late-March 2025 and we estimate that the programme for works will be approximately 8 weeks.

5. SITE SET-UP

5.1. FENCING

Boundary fencing will be supplied by COGNITION as Principal Contractor for the works. Existing fencing to be left in-situ where possible. Internal temporary safety and segregation fencing will be provided and setup by COGNITION.

5.2. SITE COMPOUND

A temporary site welfare and office compound area will be set up on site and will comprise an office, canteen, drying room and toilets, first aid, spill response and fire fighting equipment. The site welfare will be provided by COGNITION as the Principal Contractor for the works.

Fire extinguishers and an emergency spill response kit will be maintained within remediation and earthworks area by COGNITION. The spill response kit will include the absorbent pads, booms and granules. A storage container for materials will be located within the main working area together with a dedicated bunded diesel re-fueller with associated fire extinguishers and an emergency spill response kit.

A first aid kit and accident book will be located within the main welfare block, with appropriate signage in place.

Information boards will be erected by COGNITION within the site compound containing all relevant information including health and safety information, progress of works and instructions for reporting complaints of public interest.

Smoking will only be allowed within designated areas of the site.

5.3. WORKING HOURS

Permitted working hours (to comply with the Condition 31 of the planning consent) are as follows:

- 08:00 to 18:00 Monday to Friday
- 08:00 to 13:00 on Saturday
- No working is permitted on Sundays, Bank Holidays or Public Holidays

5.4. PLANT AND EQUIPMENT

The following plant and equipment will be employed to site:

- CAT and Genny
- Generator
- 360º Excavators
- Concrete breaker attachment
- Dumpers/ Bulk earth moving equipment
- Vibratory roller
- Screener
- Crusher
- Water treatment plant
- Dust/odour suppression equipment and water bowsers
- Fuel bowser
- Odour and dust control equipment
- Silt barriers where required
- Acoustic barriers where required
- Low permeability liner (such as 2,000-gauge polythene or similar) and bunding for stockpiles
- Sampling equipment
- Monitoring equipment (dust, noise, dB meter, PID)
- Temporary fencing and edge protection
- Signage
- Spill kits and fire extinguishers

All plant will have the appropriate certificates and only trained and competent personnel will operate plant, with copies of each personnel's card/cert to be checked, scanned or photographed on site as a record. A copy of any plant manuals must be kept on site.

Where required plant will be fitted with flashing beacons and white noise reversing signals to be used, (to help reduce impact on surrounding residents). Dumper trucks and excavators will be fitted with a green beacon seat belt system, which will be in use during mobilisation. Where possible, machinery will be fitted with fire extinguishers or have a fire extinguisher available within the cabins of the machinery. All excavator buckets shall be situated and kept in one suitable designated area of the site.

Regular maintenance checks shall be carried out on all plant used on the site and operators shall notify the site manager of any oil/fuel spillages immediately. Operator maintenance includes the hourly, daily, and weekly maintenance requirements recommended in the manufacturer's literature. All operator maintenance shall be logged and kept up to date in the operations logbook when it is completed.

The supervisor is responsible for establishing a maintenance schedule to ensure that preventive maintenance is performed. A maintenance logbook shall be established for each piece of plant and all maintenance checks recorded.

A COGNITION banksman/ competent person will be in attendance during all reversing operations where a full exclusion zone cannot be established. Where several machines are operating in close proximity, operations will be banked/managed with a banksman located in a safe enclosure. All site traffic will be limited to the main site speed limit set by COGNITION.

5.5. PERSONAL PROTECTIVE EQUIPMENT

The following Personal Protective Equipment (PPE) is required during the works, and is required to be worn by all, including visitors, at all times. PPE shall be checked regularly to ensure that there is no damage, not too worn and is still in date (hard hats). PPE will be described in further detail within the site risk assessment and Construction Phase Plan.

Mandatory PPE:

- Hard hat (BS EN 397) with name sticker identifying wearer.
- COGNITION branded high visibility vest or jacket (conforming to BS EN 471)
- High visibility trousers (conforming to BS EN 471)
- Steel toe and midsole safety boots (BS EN 345)
- Gloves (BS EN 388)
- Glasses to be worn to suit the task/activity (EN166F)

Supplementary task specific PPE, to be worn in addition to mandatory PPE noted above:

Environmental Sampling

- Nitrile disposal gloves for chemical sampling (to be changed between each sample)

Asbestos related tasks (ACM picking):

- Face respirator mask to be worn (EN149:2001/FFP3)
- Disposable overalls (Type 5, BS EN ISO 13982-1)
- Disposable over boot covers with ties
- Nitrile disposable gloves

5.6. SITE HAZARDS

Potential hazards that may be associated with the works are as below. These hazards will be described in further detail within the site risk assessment and Construction Phase Plan.

- Vehicle movements (vehicles are to be escorted onto site and a banksman is to assist with reversing operations)
- Asbestos (ACM and free fibres)
- Potentially live/active utilities on the site
- Loading/manoeuvring plant
- Plant and pedestrians
- Slip and trip hazards
- Exposure to materials including contaminated soils, liquids, vapours and dust
- Existing/unidentified utilities which have not been disconnected or diverted
- Excavations
- Demolition of structures
- Fires and flammable materials

All areas must be scanned with a cable avoidance tool (CAT) prior to excavation works. Keep areas clean and tidy. Always cover or block off any fall or trip hazards with fencing and cover any open holes/entrances with secured boards.

5.7. EMERGENCY CONTACTS AND PROCEDURES

Emergency contacts and set of procedures will be available within the site file/risk assessment document containing emergency phone numbers and the method of notifying Local Authority services for action by COGNITION. The Emergency contacts and procedures will be described in further detail within the site risk assessment.

5.8. HEALTH AND SAFETY AT WORK ACT

All site work will be carried out under the provision of this Act, to the satisfaction of the local HSE officer. A COGNITION Safety Manager will visit the site in order to inspect the works at least monthly.

5.9. UTILITIES

All utilities serving the site will be disconnected by others prior to commencement, but care must be taken to check that all services have been successfully terminated prior to commencement of the work.

A survey of existing utilities on and adjacent to the site will be included within the site file.

5.10. TRAFFIC MANAGEMENT

All traffic and pedestrian movements will be segregated for the purposes of health and safety of employees, site visitors and the general public. A designated pedestrian pathway will be put in place with the appropriate signage to segregate foot traffic from vehicle movements. Traffic management arrangements will be further detailed in COGNITION's traffic management plan.

5.10.1. DELIVERIES

All deliveries will be planned outside of peak transit times to and from the site where possible. All onsite construction plant will be fitted with flashing beacons and reversing signals will be used. A trained banksman will be on site to aid delivery vehicle movements onto site and in attendance during all reversing operations. All site traffic will be limited to a 5mph speed limit.

All site deliveries will be appropriately staggered and co-ordinated to avoid any unnecessary queuing of site vehicles on public roads. This will be controlled in an efficient manner, wherever possible deliveries would be allocated a time slot to enter the site.

All vehicles for deliveries and removals from site will comply with the Fleet Operator Recognition Scheme (FORS) Silver. Silver accreditation confirms that we employ good practice and comply with the requirements laid out by the FORS Standard. By achieving FORS Silver accreditation our fleet will be compliant with the CLOCS Standard for Construction Logistics and with TfL's WRRR (Work Related Road Risk).

5.10.2. ROAD SWEEPING AND WHEEL WASH

It is the intention of COGNITION to prevent road-going vehicles tracking over exposed soils. Appropriate hardstanding will be provided where possible in form of crush concrete covered surface/haul road.

In addition, a jet wash will be put in place at the site entrance to remove debris from lorry wheels and undercarriage to prevent debris from moving offsite and being deposited on roads.

To maintain cleanliness of public roads at and around the site entrance, a road sweeper will be employed, as required, and subject to continual assessment of road cleanliness by the Site Manager. The road sweeper will be kept operational for as long as is required to maintain roads to an acceptable standard of cleanliness.

6. REMEDIATION AND EARTHWORKS METHODOLOGY

6.1. REMEDIATION OBJECTIVES

The remediation techniques chosen by COGNITION will address the contaminants outlined in the Ground and Water Remediation Method Statement Report (January 2025) and will ensure that no short or long-term risks are posed to the identified receptors. Made ground soils will be processed to produce suitable materials to underlie the proposed highways. Techniques used will be reliable and have a proven history of success in the UK.

Prepared surfaces will not present significant environmental risks or liabilities to the site owner and operator.

All remediation works implemented on site will carried out as approval by the regulator.

All remediation works will be carried out within the budget, programme and space constraints.

COGNITION will limit the environmental impact of the works by minimising vehicle movements to and from site and reusing the maximum possible quantity of material on site.

COGNITION will carry out works so that unacceptable nuisance (odour, noise, dust) to site users and neighbours are avoided.

The exposure of site workers to contaminated soils will be kept as low as reasonably practicable.

Following the completion of the works, the site shall not be capable of being classed as contaminated land under Part IIA of the Environmental Protection Act.

The risks of damage to services on site will be avoided throughout the works.

Following the completion of the works, COGNITION will produce a Verification Report to which will demonstrate the correct implementation of the remediation methods described in this RIP to allow for the discharge of Planning Condition 32.

Each sub-section below provides additional detail of the key elements of the works to be conducted during the remediation works. This RIP must be read in conjunction with any supporting information appended, and the relevant referenced reports.

6.2. SITE CLEARANCE

Prior to the commencement of the main works, COGNITION will remove all vegetation and litter from the surface of the site.

6.2.1. VEGETATION CLEARANCE

COGNITION will carry out the clearance of all vegetation across the site. Vegetation will be removed using a 360˚ excavator.

Prior to the removal of vegetation, an ecological survey will be carried out. An ecologist will inspect all vegetation areas for evidence of nesting birds and protected species. Vegetation clearance will commence once each area of vegetation is confirmed to be ready for clearance by the ecologist. Any vegetation found to contain nesting birds or protected species will be protected and alternative methods will be sought to deal with the findings prior to clearance.

Any invasive species encountered during the vegetation clearance works will be recorded and segregated and transferred to a fenced off segregation area to prevent further interaction with or spread of the plant species. The invasive plant species will remain on site for disposal during a later stage of the project.

6.2.2. LITTER CLEARANCE

COGNITION will carry out the clearance of all litter and rubbish found across the surface of the site. Collected litter will be segregated and stored within skips on site. COGNITION will organise for the correct disposal of all litter to a licensed waste disposal facility. Waste items will be recycled where possible.

6.2.3. TOPSOIL STRIPPING

COGNITION will strip topsoil across the site. All topsoil will be tested to confirm suitability for reuse and stockpiled for reuse on site by others during future stages of the development.

6.3. WATCHING BRIEF/ DISCOVERY STRATEGY

All break-out, excavation, soil turnover and remediation work on site will be conducted under a watching brief by COGNITION to achieve the following:

- Ensure previously unidentified contamination is found and all known contamination is dealt with appropriately (i.e., completely removed and validated). Any contamination found which was not previously identified will be reported to the site manager in the first instance for

assessment.

- Address the potential for live or existing utilities on site.
- Mitigate the risk of impact from asbestos in soils. All staff will be inducted regarding the risk of ACM and free-fibre asbestos on site and all areas/excavations shall be surveyed under a watching brief to ensure asbestos is identified where not previously known.

If unexpected contamination is encountered, excavation works will be stopped immediately to assess the immediate risks to the environment and human health.

6.4. REMEDIATION

6.4.1. MADE GROUND REMEDIATION

COGNITION will excavate the made ground from the proposed garden, soft landscaping and road areas. Made Ground will be excavated until natural strata is encountered to a maximum depth of 1.5m bgl using a 360˚ excavator. Excavated made ground will be processed through the use of riddle buckets to remove any large deleterious inclusions, a three way screener to remove smaller inclusions, and hand picking.

Due to the nature of the screening process, it is likely that smaller sized inclusions may be left within the material. The materials shall be stockpiled accordingly and may be reused onsite subject to the material meeting the reuse criteria. Processed Made Ground soils will be stockpiled on site for reuse onsite and if intended for reuse within the cover layer, will be subject to the material meeting the reuse criteria.

6.4.2. INFILLED RESERVOIR IN THE SOUTH-WESTERN CORNER

Further to the recommendations in the RMS, the following remedial works will be undertaken with relation to the reservoir structure:

- Removal of the structure and its contents
- Removal of potential surrounding Made Ground or reworked material (both horizontally and vertically) to the east of the reservoir (covering plots 50-55)
- Validation of resultant void
- Placement of non-organic general fill to backfill void (placed in accordance with the Earthwork Specification)
- Validation of the clean capping system

Full liaison must be made with the statutory authority, prior to the implementation of this remediation

strategy and/or removal of soils from the site. All works must be undertaken to meet their approval.

6.4.3. EASTERN BUND

The eastern bund extends into areas proposed for soft-landscaped gardens and some communal soft-landscaped areas. The bund will be removed from gardens and the footprint of properties to facilitate construction. Unaffected areas of the bund will remain in place as these will be beyond the extent of residential properties and gardens and will not be accessible to site users/residents. The identified lead and asbestos are located within sections of the bund which will be removed to enable the formation of the gardens and properties. Following the partial removal of the bund, further validation sampling and analysis be undertaken to confirm removal of the identified contamination.

6.4.4. TREE ROOT PROTECTION ZONES (TRPZS)

Root Protection Zones are recorded along the southern and eastern boundaries of the site in close proximity to the remediation areas. The remedial methodology for these areas has been agreed with the Tree Officer. The remedial excavations will be undertaken up to the line of root protection areas then works shall pause to allow for sampling and analysis of the edge of the excavation. If contamination is still present, then excavation will continue by hand with manual tools in accordance with the methodology stated within the agreed Arboriculture Method Statement ref RC0339 / Chanctonbury Nurseries / Rev 02 / Planning / 07-03-25 to remove contaminated material within the Root Protection Zone and backfilled with clean capping. The process must be supervised by an appointed arboriculture consultant.

A plan showing the Root Protection Zones in relation to the proposed development can be seen within Appendix 1.

6.4.5. ACM PICKING

ACM present on the surface of the soils shall be handpicked and cleared first using appropriately labelled, clear asbestos bags. Once the surface has been cleared then ACM picking will continue during the made ground excavation and processing works in 250mm layers.

As per the guidance, COGNITION will notify the Health and Safety Executive for Notifiable Non-Licensable Work (NNLW) if any asbestos removal meets the notification criteria. Any licensable asbestos encountered on site would require a separate notification and removal by a licensed asbestos controlled under controlled conditions.

The ACM shall be removed by trained and certified operatives and sent off site for disposal. The bags

used for the collection of ACMs shall be sealed and stored within a locked store for licensed removal off site by a licensed haulier. Used PPE will be placed within sealed asbestos bags for disposal along with the asbestos materials. Waste transfer documents for asbestos waste will be collected under the duty of care and recorded in the verification report.

Areas will be subject to damping down prior to and during excavation where required during dry spells, to prevent particulates from becoming airborne. Stockpiles will then be subject to controlled handpicking and double bagging of ACM fragments using standard safety procedures.

Asbestos reassurance monitoring will be carried out by an independent analyst throughout the duration of the excavation and ACM hand picking works. The independent analyst will assess pre-placed asbestos filters on site to identify any fibres picked up by the pumps and then calculate an airborne concentration. If airborne fibres are detected above or at the control limit of 0.01f/cm^3 then all works will cease until improvements are assessed and made. Personnel working on site may be fitted with asbestos monitoring equipment if deemed necessary. Asbestos fibres shall be assessed at the site boundary, using dust gauges set up at the designated monitoring points.

6.4.6. PROCESSING OF HARDSTANDING AND OBSTRUCTIONS

Where large oversized or extraneous buried structures and hardstanding arisings are encountered and excavated; a mechanical crusher will be used to process, homogenise, and regrade the materials in accordance with the EA Quality Protocol for the production of aggregates from waste.

Where infrequent or localised waste items are present, a 360° excavator mounted with a screening bucket will be used to process the material.

The concrete materials shall be processed in accordance with *WRAP* and *Standards for Highways Series 600 Specification*.

The resulting segregated materials will be managed on a stockpile register and placed into temporary stockpiles. These materials, if found to be geotechnically and chemically suitable and compliant with the limiting values outlined in the Remediation Specification, will be reused on site.

6.4.7. STOCKPILES

Excavated and processed materials will be segregated accordingly (e.g., soils which are granular will be separated from cohesive and natural from made ground, etc.), and stockpiled on site, for reuse on site.

All stockpiles will be formed with good housekeeping in mind, with heights kept below 4m and adequate signage was put in place to identify each stockpile. The stockpiles shall be located away from potential

human and environmental receptors and all pathways restricted. Stockpiles will be dampened down where required to prevent the generation of dust.

Contaminated soil will be placed within the treatment area within a bund upon an impermeable sheet leachate run-off or infiltration into surrounding soils. A 0.1m thick layer of sacrificial soil will be placed upon the membrane to protect the membrane from tears. The leachate collected within the bunds shall be appropriately treated and/or disposed of. Contaminated soils stockpiles will be covered where necessary to reduce the generation of odour and the potential for cross contamination of clean soils.

Stockpile records will be maintained throughout the works, using a Soil Audit System, which will show the source of the material, volume, processing location, placement location of materials and any analytical testing undertaken on each stockpile.

Soils will then be sampled for geotechnical and chemical analysis for appropriate reuse, under the clean cover system.

6.4.8. SURFACE WATER TREATMENT

There is a potential for excavations on site to hold rain water which could interfere with the works. COGNITION will remove water from excavations using a pump. All pumped water will pass through an on-site water treatment plant before being discharged into the ground. Validation testing will be carried out on all water prior to discharge into the ground.

6.5. EARTHWORKS

6.5.1. EXCAVATION OF PROPOSED HIGHWAYS

COGNITION will excavate the proposed highways to a depth required to obtain sufficient subsoil (based on cut and fill calculations) for reuse in the cover layer in soft landscaping areas using a 360˚ excavator. Highway excavations will be battered where required to ensure that the excavations remain stable. All excavated natural soils will be stockpiled on site to be used within the garden and soft landscaping capping layer during a later stage of the development by others.

6.5.2. PROPOSED HIGHWAY BACKFILL AND STABILISATION

The proposed highway excavations will be initially backfilled using clean, processed made ground material to a depth of 900mm below the finished level. Materials will be backfilled and compacted in 300mm thick layers until the desired depth is reached. The proposed highway excavations will then be backfilled with additional clean, processed and cement stabilised made ground material to a depth of

450mm below the finished level.

The stabilisation works will use a mix-in-place method of construction meeting the requirements of MCHW Clauses 813 and 816. A tractor-mounted, dust-free stabilisation unit will be deployed. The stabilisation unit is a combined spreader and grinder which allows for a uniform application if the binder mixture throughout the soil, and any potential dust release can be efficiently controlled. Binders will be directly applied to soils in-situ to the required layer thickness (250mm will be achieved in a single lift) and with the dosage stated, with direct application of water as required. This machine is designed to operate as a mobile batching plant and will pulverise and mix the soil and binders in its first pass. Parallel strips of soil will be mixed, with approximately 150mm overlap between adjacent passes. These overlaps will ensure that no material between the strips remains untreated.

Compaction of stabilised and overturned will be carried out using an ASC130 13t vibratory roller with a drum mass per metre of 3670 kg to achieve at least 95% of maximum dry density as established by Proctor compaction test. After treatment and compaction, the subgrade will be proof-rolled under watching brief of the site engineer. If soft spots are noted, the area will be excavated as required and additional stabilisation carried out to improve the soil performance. Performance testing consisting of CBR testing will be carried out on the treated areas as described in section below to achieve the required minimum target of 15% in sub grade areas.

6.5.3. GENERAL CUT AND FILL

COGNITION will carry out general cut and fill activities to reach the designed site levels. To avoid the disposal of surplus soils off site, COGNITION may propose modifications to the designed levels so that all surplus soils may be reused on site. All design modifications will be discussed with The Client prior to implementation.

6.6. DEMOLITION

6.6.1. ASBESTOS

Prior to the demolition of the redundant above ground structures, a demolition and refurbishment asbestos survey will be carried out. The demolition and refurbishment will be carried out by a licensed sub-contractor who will inspect each structure for the presence of asbestos containing materials. The findings of the survey will be recorded and used to inform the demolition phase and implement the correct methods of demolition to mitigate the risk of asbestos fibres becoming airborne. Prior to the commencement of the demolition and refurbishment asbestos survey, all structures will undergo a

confined space assessment to identify any risks and hazards within the structure.

6.6.2. GLASS HOUSES AND ANCILLARY BUILDINGS

COGNITION will demolish all redundant above ground structures on site, this includes the glass houses located in the south of the site, and the derelict barns located in the centre of the site. Protection in the form of a geotextile or geomembrane will be placed on the ground to collect broken glass and avoid contamination of surface soils with broken glass. Prior to the demolition of the glass houses, glass panes will be removed whole wherever possible and practicable and safe to do so. The remaining frame and derelict barns will be demolished using a 360˚ excavator.

6.6.3. HARDSTANDING BREAKOUT

COGNITION will demolish hardstanding surfacing on site, including the driveway running through the centre of the site, and any hardstanding foundations. Hardstanding surfacing will be broken out using a 360˚ excavator with a breaker attachment. Fragments of hardstanding will be removed and stockpiled for processing.

6.6.4. FUEL PIPELINE AND LOCATION OF ASTS

COGNITION will grub up and remove the diesel fuel pipeline which was noted during a previous site walkover to run southward from the centre of the site towards the greenhouses for a length of approximately 50 metres. Overburden material will be excavated, and the pipeline will be removed in sections using a 360˚ excavator and stockpiled for correct disposal off-site. Residue found within the pipeline will undergo sampling to identify any chemical contaminants associated with the residue. Any gross contamination will be chased out. Completion of the remediation of the excavation will be on the basis of the absence of visual or olfactory evidence of gross contamination.

Soils beneath the former ASTs will be inspected for the presence of visible or olfactory evidence of TPH contamination. Appropriate soil testing will be carried out to confirm the absence of contamination above the reuse criteria if the ground level in these locations is within the level of the site capping layer.

6.6.5. UNANTICIPATED CONTAMINATION

Any unexpected, and previously unidentified contamination that is not of a similar nature to that previously identified within the remediation strategy will be addressed through special procedures.

Upon the discovery of unanticipated contamination, works will be halted, and the COGNITION site manager will inspect the area of contamination. The unanticipated contamination will be recorded,

photographed, and method statements for dealing with the contamination will be drafted and presented to the client. If necessary, COGNITION will prepare and present a Remediation Method Statement detailing the proposed method for dealing with the contamination.

Verification sampling of the base and excavation faces of all excavations to remove unanticipated contamination will be carried out to demonstrate effective remediation of the area.

6.7. VALIDATION SAMPLING

COGNITION will carry out validation sampling of site-won materials intended for reuse within the cover layer in soft landscaping areas. Site-won materials will be sampled at frequencies outlined in **Table 3**. All samples will be taken in accordance with British Standard BS ISO 18400-104:208 - Soil quality – Sampling. All chemical analysis will be carried out in accordance with BS EN ISO/IEC 17025 and testing will conform to the Environment Agency MCERTS (Monitoring Certification Scheme). Any imported material will preferably be tested prior to import to site. The testing suites that will be used for various materials on site are included in **Table 5**.

Material Types	Testing Suite
Made Ground Soils Topsoil Subsoil	Asbestos ID and Quantification Heavy Metals and Semi Metals Phenols PAH TPH BTEX MTBE

Table 5: Validation Testing Criteria

No stockpiled material will be reused on site prior to the receipt of validation testing and confirmation that the material conforms with the validation criteria. In specific cases, material that slightly exceeds the validation criteria may still be reused on site. This decision will be judged on a case-by-case basis and highlighted within the Verification Report.

6.8. CLEAN COVER SYSTEM

A clean cover system will be installed by others in areas of proposed landscaping following the completion of COGNITION's works using stockpiled topsoil and subsoil.

7. MATERIAL MANAGEMENT

7.1. SUMMARY

All materials excavated and reused onsite will be managed in accordance with the Materials Management Plan (MMP). Waste will be, wherever practicable, minimised and materials will be reused on site or offsite where possible.

All materials will be screened and processed (if required) prior to stockpiling and subsequent reuse or disposal to ensure materials are segregated and dealt with appropriately.

The COGNITION Waste Audit will summarise the details of all waste either recycled or disposed offsite during the remediation works.

7.2. MATERIAL AND WASTE CHARACTERISATION

COGNITION will classify soils based on the interpretation and guidance notes, (including the following documents):

- 'The Landfill (England and Wales) Regulations 2002 with 2004 & 2005 amendments'
- 'Hazardous Waste (England and Wales) Regulations'
- 'Framework for the Classification of Hazardous Waste'
- 'EA Technical Guidance Note WM3. Hazardous Waste: Interpretation of the definition and classification of Hazardous Waste' (1st Edition, 2015)
- 'The list of Waste Regulations 2005'
- 'European Classification, labelling and packaging of Chemicals Regulations 2009' and 'Adaptations to Technical Progress (ATPs)'
- 'Revised European Waste Catalogue'

Waste soils will be assigned as Non-Hazardous or Hazardous waste classification. Representative sampling of stockpile material will be undertaken prior to reuse, recycling, or disposal. Potentially hazardous materials shall undergo WAC testing (Waste Acceptance Criteria testing) for disposal purposes. Any non-hazardous material required to be disposed offsite will be further classified as either Inert or Non-Hazardous for removal to an appropriate landfill.

COGNITION will be the waste producer and will be responsible for the classification and disposal of waste items. Waste tickets and consignment notes shall be kept on site for retention and appended to the works completion report.

7.3. MATERIAL MOVEMENTS

COGNITION will maintain a record of all material movements throughout the project. This will include source locations and deposition locations using grid references, and stockpile IDs.

7.4. MATERIAL REUSE

Site-won materials will be reused on site throughout the works. Materials likely to be reused, shall comprise the following:

Soils

All excavated soils are to be reused on site, where possible under the MMP and MPP.

Hardstanding Arisings

Hardstanding arisings shall be homogenised, graded and tested before potential reuse either on site as a general fill or offsite as aggregate, in accordance with the *Environment Agency Quality Protocol: Aggregates from Inert Waste* and *Standard for Highways Series 600 Specification, see separate Method Statement of Production.*

7.5. WASTE

Full duty of care and audit trail will be in place for all disposals. *The Duty of Care Regulations (The Environmental Protection (Duty of Care) Regulations 1991*) are set out in section 34 of *the Environmental Protection Act 1990* and associated regulations. Waste transfer notes will be completed to include the name of the waste producer, a description of the waste material, an EWC (European Waste Catalogue) code, the volume of waste and details of the disposal facility. The disposal facilities will be licensed with the local authority and Environment Agency to accept these waste materials. All waste will be transported by licensed waste carriers using self-sheeting lorries. COGNITION will check the licenses of hauliers. Hazardous waste consignment notes will accompany transfers of hazardous waste. Waste transfer/ consignment notes will be kept in paper and electronic format for at least two years.

Likely waste materials are anticipated to comprise:

Green/clean wood waste

All green and wood waste generated during the site clearance will be disposed of or potentially recycled where possible.

Glass and plastic waste

Glass and plastic segregated from made ground soils shall be either disposed or recycled where possible

off site.

Asbestos waste

The segregated asbestos and used PPE, was transported in sealed bags, and clearly labelled. The asbestos waste was collected by a licenced and registered waste carrier to a licenced facility.

Hazardous waste

Hazardous waste will include any flexible surfacing containing tar-based materials, including ash.

7.6. TRANSPORTATION OF WASTE

All waste will be transported by licensed waste carriers using self-sheeting lorries. COGNITION will check the licenses of hauliers. All waste movements will be recorded on the soil audit.

7.7. WASTE RECEIVERS

COGNITION will use only suitably licensed or permitted facilities to dispose or recover waste soil and materials from the site. This includes landfills, exempt sites and/or receiver sites operating a Material Management Plan under the CL:AIRE definition of waste: development Industry code of practice.

8. ENVIRONMENTAL MANAGEMENT AND MONITORING

8.1. GENERAL

Environmental management and monitoring will be carried out by COGNITION in accordance with our Mobile Plant Permit deployment for the site.

Environmental controls will be designed in accordance with relevant industry guidance contained within the CIRIA762 document entitled "Environmental Good Practice on Site" (4th edition) and incorporated the below. Emphasis will be placed on prevention and control at source rather than mitigation following release.

An environmental monitoring plan will be implemented in and around the site with regular daily routine monitoring carried out at four fixed environmental monitoring points (EMP) around the site. The locations of the EMPs have been selected on the basis of site activities and proximity to key receptors. EMP locations are included in **Appendix 1**. Daily monitoring will be undertaken for noise, VOCs and visual dust levels. Dust deposition gauges will be located at each EMP to measure two-weekly dust deposition.

The control of mud, noise, vibration, odour and dust will be a priority at this site, due to the proximity of residential and commercial properties in the immediate and surrounding area. Three different monitoring strategies will be employed as follows:

- baseline monitoring (at site boundaries)
- work area boundary monitoring
- personal exposure monitoring (where asbestos handling activities are required)

Environmentally sensitive receptors offsite include:

- Residential premises.
- Retail, entertainment and industrial premises.
- Surface Waters including Lances Brook and a pond.
- Highways.

COGNITION will be responsible for the undertaking of noise, vibration, odour and dust monitoring at the work face. All environmental monitoring data will be made available to Elivia Homes and Environmental Health Officers at all times. Before works commence on site, COGNITION will carry out background monitoring (baseline monitoring). Once the works begin, daily monitoring of noise,

vibration, odour, and vapour will be recorded, with dust monitoring carried out fortnightly.

8.2. CONTROL OF SURFACE WATER RUN-OFF

Surface water shall be controlled during the works to prevent potentially contaminated water from flowing offsite into water courses.

- Where possible, TPH impacted excavations shall be limited in size to an extent to allow effective execution of the works.
- Impacted soils will be stored within the treatment area to restrict contamination mobilisation whilst awaiting confirmatory testing prior to reuse within the works or disposal offsite.
- All onsite drainage runs shall be protected, blocked or capped off at the boundary and removed to reduce contaminant pathways.
- Spills shall be cleaned up as soon as possible; spill kits and floating booms will be available on site and will be positioned strategically to best assist with the clean-up of spills.
- Plant and oil drums will be placed upon absorbent pads.
- Where cement is to used within 10m of any watercourses, additional controls will be put in place to prevent materials from entering the watercourse.

8.3. CONTROL OF MUD AND DEBRIS

A regular visual inspection of the main roads surrounding the site will be undertaken by COGNITION to assess deposition of mud/detritus from vehicles exiting the site.

Site traffic will move about site on haul roads that will be kept in good, clean order. Methods to clean vehicles, wheels and undercarriage include run-off areas, jet wash, wheel wash and a road sweeper as required.

In dry conditions, haul roads, excavation areas and stockpiles will be dampened down to suppress dust.

Silt fences shall be used where required to reduce silt transportation.

Areas will be worked on systematically to reduce exposed areas for lengthy periods.

8.4. FUEL STORAGE AND ACCIDENTAL SPILLAGES

COGNITION fuel bowsers will be bunded with a bund which is impermeable to oil and water, have no direct outlet and have a capacity of at least 110% of the maximum capacity of the fuel tank. All associated ancillary equipment with the tank shall be stored within the bund.

If the fill pipe for the tank is outside the tank bund, then a drip tray shall be used on delivery of fuel to

collect accidental drips of fuel. A competent person shall supervise deliveries of fuel to collect accidental drips of fuel. A competent person shall supervise deliveries of fuel to help avoid spillages, prevent damage to the environment and save loss of fuel.

The fuel bowser shall be securely locked when not in use. A competent person shall inspect the bowser and bunding regularly to detect leaks or damage that may lead to a spill. In areas where fuel or other polluting substances are stored, validation samples will be taken from the surface directly below where the materials have been stored, if the tank has been stored on soil. The appropriate action will be taken on the findings. Drip trays or absorbent pads will be placed under all static equipment storing fuel (compressors/generators).

Spill kits comprising hydrophobic, and oil absorbent floating booms, pads and granules will be kept permanently on site in close proximity to areas of fuel storage.

All drainage, if present, will be bunded where necessary.

All mechanical equipment to be used at the site will be regularly maintained and in good working order with daily checks.

8.5. PESTS

Good housekeeping shall be a priority on the site. All litter will be placed within the relevant bin and transferred to a skip for disposal off site. Food will be consumed only within the designated food/ canteen areas.

8.6. STORAGE OF SOIL

All excavated material will be stockpiled or placed within quarantine (where applicable) on site with volumes no greater than 500m^3 and below 4m in height on either hardstanding or on a bunded, impermeable membrane over firm ground. Adequate signage will be put in place to identify stockpiles. Stockpiles will be dampened and (where applicable) covered to minimise dust generation.

Contaminated soils will be placed within a designated quarantine area on a bunded hardstanding, or areas specifically prepared by the laying of heavy-duty impermeable plastic sheeting/membrane. The bunds surrounding the stockpiles will be of sufficient height and the sufficient space allowed to facilitate room for contaminated run-off (leachate) within the bunded area (heavy or prolonged rainfall).

8.7. PLANT/ MAINTENANCE

Only trained and competent personnel will be allowed to operate plant, with copies of each personnel's

card/cert checked, scanned, or photographed on site as a record. A copy of any plant manual will be kept on site. Regular maintenance checks will apply for all plant used on the site and operators. The site manager shall be notified immediately in case of any oil/ fuel spillages.

Operator maintenance will include the hourly, daily, and weekly maintenance requirements recommended in the manufacturer's literature. All operator maintenance will be logged and kept up to date in the operations logbook when completed.

The supervisor will be responsible for establishing a maintenance schedule and to ensure that preventive maintenance is performed. A maintenance logbook will be established for each piece of plant and all maintenance checks recorded.

8.8. NOISE AND VIBRATION

Sound levels will be monitored according to the methods set out in Annex E of BS 5228: Part 1, and all measurements will be made on a sound level meter complying with BS 7580: 1997 Part 1 (Type 1), during the works daily.

Noise levels will be managed to prevent as far as practical, an average below 75dB(A) during the stipulated working hours at the boundary of the site. If required, localised acoustic barriers will be installed and moved as work proceeds to ensure that the breaking out machinery is screened from neighbouring sites.

All the machinery and equipment employed will have the appropriate silencers fitted and will be maintained and operated in accordance with the manufacturers' specification. COGNITION will comply with the recommendations set out in BS 5228: 1997, Code of Practice for Noise and Vibration Control on Construction and Open Sites. Crushing plant will be located towards the centre of the site and have acoustic screens erected on three sides.

Vibration levels will be managed so that vibration readings of 2mm or greater are not registered at the site boundaries during the works.

8.9. ODOURS

Contaminated soils and groundwater may emit odours during excavation and processing or treatment. The site chemist will be constantly monitoring for odours. If odorous material is encountered, then a qualitative assessment system using values from 1 to 6 shall be used; 1 will indicate no odour/ not perceptible and 6 will indicate severe odour levels. If levels are detected at Category 4 or above, then control measures will be implemented. The qualitative odour scale is presented in **Table 6**. In addition,

odour assessment ('sniff' tests) will be carried out at each EMP location. If levels are detected at Category 4 or above during a 'sniff' test, then control measures will be implemented.

Odour scale	Qualitative assessment criteria
1	No odour, not perceptible
2	Faint odour
3	Distinct odour
4	Strong odour
5	Very Strong odour
6	Severe odour

Table 6: Qualitative Odour Scale

There is a risk that site staff may become desensitised to odours throughout the works and hence, not accurately qualitatively assess odours on the scale above. To mitigate against this issue, odour assessments will be carried out by visiting staff on a weekly basis by personnel not continuously involved in the project such as the Environmental Manager, WAMITAB inspector and other visiting staff. Records will be made in the site diary comparing the odour assessments of site-based and visiting staff and if significant deviation in odour assessment is recorded, frequency of odour assessments by visiting staff will be increased.

Control measures will vary depending on the situation and odour assessment. These include portable odour control misting systems, jet wash damping for suppression of odours, and a boundary odour control system with the addition of perfumed scent. These control measures may be improved, and the use of a portable suppression kit and Respiratory Protective Equipment (RPE) device added to the existing PPE/RPE list if extensive contamination is found.

A flow chart depicting these actions is provided in **Figure 4**.

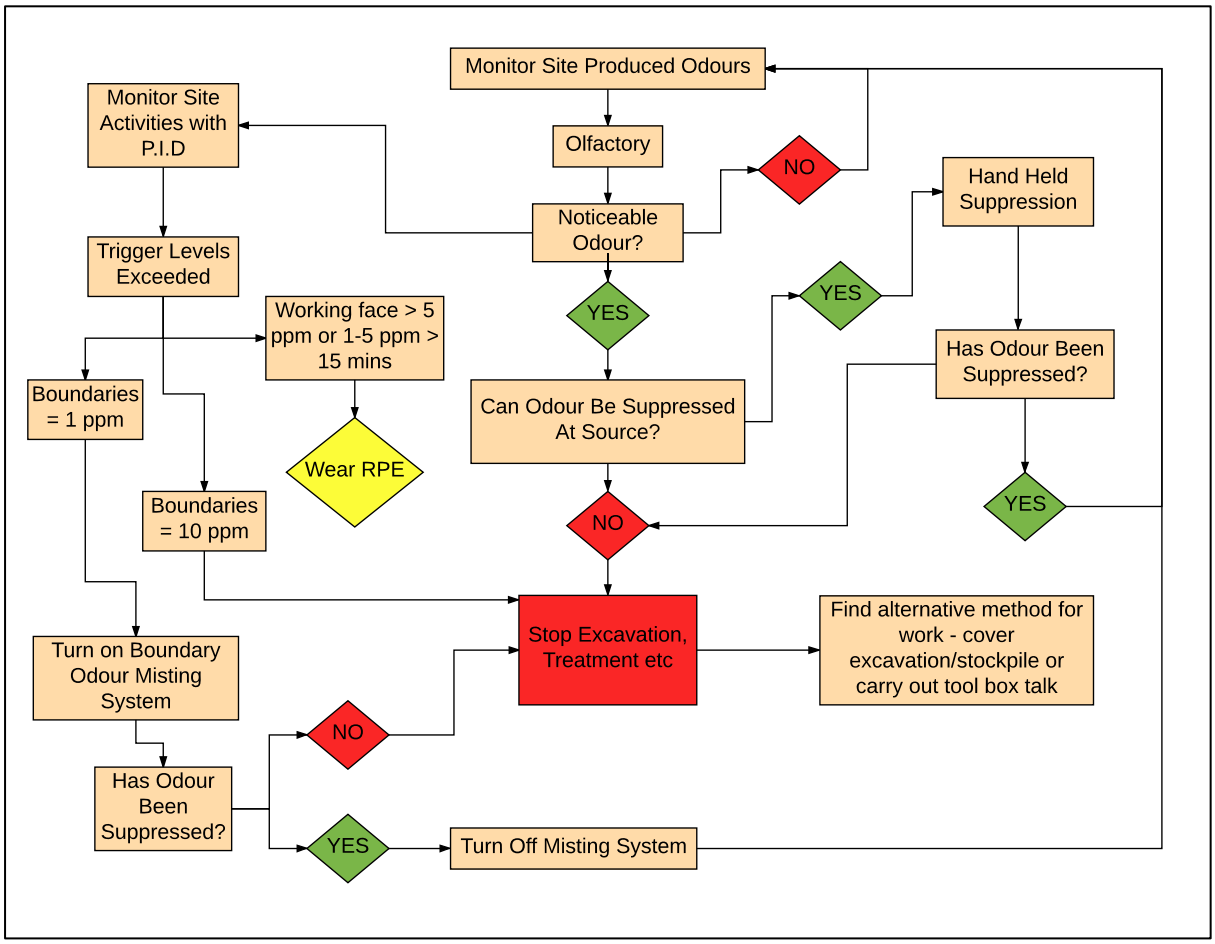

Figure 4: Flow chart outlining response to exceedance in odour/ VOC trigger levels.

Appropriate mitigation measures will be implemented if needed at excavation faces to mitigate odours if they occur. Such measures will include limiting the size and scale of excavations to minimise the generation of odours, possible use of a spray odour suppressants, and the availability of a stockpile of 'clean' non-odorous fill material for immediate backfill of excavations to minimise the surface area of malodourous material exposed to the air at any one time.

8.10. VAPOURS

Volatile hydrocarbons will be monitored using a photo-ionisation detector (PID) which provides instantaneous concentration readings for volatile organic carbons (VOCs) and is calibrated for benzene. Concentrations will be recorded at the environmental monitoring points around the site boundary at least daily, or at other locations where required based on olfactory assessment. Additionally, working areas within the site will be monitored to ensure that operatives are not exposed to harmful concentrations of hydrocarbons. The frequency of monitoring will depend on the variability of ground conditions and initial olfactory assessment, particularly during the excavation of TPH impacted

materials.

VOC trigger levels are presented in **Table 7**.

Trigger level (ppm)	Action on site	Action at boundary
<1ppm	None	None
1ppm	None	Odour suppression
1- 5ppm	Handheld suppression kit used at working face. Intensive monitoring for 15 minutes.	Odour suppression
1-5ppm (>15 minutes)	Respiratory Protective Equipment (RPE) to be worn by operatives.	Odour suppression
>5ppm	Respiratory Protective Equipment (RPE) to be worn by operatives.	Odour suppression
>10ppm	Stop excavation/piling	Odour suppression

Table 7: VOC Trigger Levels

If boundary concentrations of VOCs exceed the trigger concentrations, an odour suppressing system will be used on site. An odour control system will be used to target working areas of the site and will be used as the main means of controlling vapours. A large rotary atomiser head will create uniformed size droplets that combine with the odour and dust particles in the atmosphere. Deodorising perfume will be dosed at a pre-set concentration to eliminate odours emanating from the working and treatment areas. When trigger levels are exceeded, respiratory equipment will be used by operatives and a portable odour suppressing unit may be mobilised to the location of the excavation.

If VOC levels are indicated to be present within an area not previously identified as being impacted, then further assessment may be required, which will include sampling the soils/material affected for chemical analysis in order to investigate the source of elevated vapour levels.

8.11. DUST

Dust deposit gauges will be installed around the site boundaries at each EMP. Samples will be sent to UKAS accredited laboratory on a two-weekly basis and analysed for volume of dust and asbestos screening to ensure it does not exceed a limit of 200 mg/m^2/day, in line with M17 Guidance. Any exceedances of this threshold will require further controls to be implemented. Hard copies of the results shall be forwarded to the site supervisor on a 2-weekly basis. The dust deposit gauges shall also be tested for the presence of asbestos fibres if levels were found to be over limits on site during the asbestos reassurance monitoring.

COGNITION will make regular inspections for dust and potential generation of dust and employ suitable controls to mitigate these (controlling potential risk). Controls will include dampening down or

temporarily covering exposed areas of soil/stockpiles, using wheel cleaning facilities and road sweeping equipment where required.

If the dust generated by machinery and excavation activities becomes airborne and can be seen being carried beyond site boundaries, all works will cease, and relevant mitigation strategies put into place to alleviate dust production. Dust will be controlled using a number of suppression techniques including fixed atomisers/ sprayers or smaller atomiser lines deployed to surround a working area. Jet washes will also be used to wet the material prior to excavation. Controls will further include dampening down or temporarily covering of exposed areas of soil/stockpiles.

8.12. AIR REASSURANCE MONITORING

COGNITION will arrange for an independent analytical specialist to carry out intermittent and targeted background monitoring for the presence of airborne asbestos fibres during times of earthworks/ when it is dry, and dust is being produced. Airborne fibre monitoring will be carried out using targeted intensive pump sampling at the most sensitive locations (including site boundaries) and during the activities that are likely to generate the most fibre release such as excavation, screening, loading lorries, treating stockpiles etc. The monitoring will pick up all fibres including vegetation fibres; when fibres exceed a pre-agreed threshold of 0.01f/cm^3, fibre identification will be carried out to determine if asbestos fibres are present. This will be carried out at regular intervals to ensure the correct and adequate safeguarding of operatives against the risks of potential asbestos is in place. Air monitoring will be undertaken in accordance with SoBRA guidance L143. The local authority (LA) will be notified if air fibre limits are breached at the site boundary. The records of the air monitoring will be provided in the works verification report.

8.13. GEOTECHNICAL TESTING

Geotechnical source approval testing will be undertaken as per the Earthworks Specification (Specification for Highway Works - Series 600) to demonstrate compliance and facilitate method compaction.

Table 6/1 of the Specification for Highway Works - Series 600 shows the geotechnical testing requirements of materials to be reused on site. All site-won and imported material will be tested in accordance with this testing criteria.

8.14. CHEMICAL TESTING

Chemical soil sampling and testing will be carried out at the frequencies stated in **Table 3**.

9. QUALITY ASSURANCE AND CONTROL

9.1. ACCREDITATIONS

COGNITION is a member/accredited to CHAS Contractors Health and Safety Assessment and BS EN ISO9001 Quality Management System.

These accreditations confirm that COGNITION procedures and records are carried out in a manner that minimises impact on the environment and generates adequate and accurate records to demonstrate remediation and earthworks are carried out to the required standard and in accordance with all applicable legislation.

9.2. SAMPLING AND ANALYSIS PROTOCOL

All sample collection, handling, storage, and transport is to be carried out in accordance with BS EN ISO 22475-1:2006 'Geotechnical Investigation and testing – sampling methods – Part 1: Technical Principals for execution.

All chemical and geotechnical analysis is to be carried out at an independent MCERTS and UKAS accredited laboratories or relevant testing establishments.

9.3. INDUSTRY GUIDANCE AND BEST PRACTICE

Where possible, COGNITION will implement the works in accordance with contemporary industry guidance or best practice published by government-led regulators and industry-led organisations including, but not limited to; The Environment Agency, CIRIA, CL:AIRE, HSE, BRE, British and International Standards, etc.

The works are always undertaken in accordance with current Health and Safety legislation and CDM Regulations 2015.

10. RECORD OF WORKS

10.1. SITE DIARY

The COGNITION site manager will maintain a daily site diary during the works, including but not limited to inductions, weather conditions, details of works carried out, any constraints encountered, soil audit, monitoring, any health and safety related incidents, any environmental incidents and details and locations of any contaminated material, perched water, structures or redundant services identified, etc. COGNITION will produce a daily exposure record for asbestos air monitoring.

In addition to the site diary, a comprehensive photographic record of the works will be made, which will summarise the works completed and details all necessary supporting information relating to the excavation, movement, stockpiling, testing and destination of materials onsite.

10.2. SOIL AUDIT

Each stockpile will be assigned a unique identification sign placed in the stockpile, with this recorded on a Soil Audit System. The soil audit will record the origin, volume, material description, results of any chemical analysis, and ultimate destination of the soil be it onsite or offsite, including the date and time of movement.

10.3. VERIFICATION/ FACTUAL COMPLETION REPORT

All remediation works completed will be documented within a Factual Completion and Verification Report which will be compiled in general accordance with The Environment Agency document 'Verification of remediation of land contamination' (SC030114/R1, February 2010) and the relevant reporting checklist within the Guiding Principles for Land Contamination 3 (GPLC3) Reporting Checklists.

The verification/ works completion report will include the following, as required by the Remediation Strategy:

- A summary of the information contained in the risk assessment reports along with the agreed redevelopment strategy and objectives
- Details of all parties involved in the works
- Details of all environmental permits, regulatory controls and other permissions related to the works.
- Details of all works completed across the site, confirming implementation of the remediation strategy.

- Updated schedule of monitoring wells confirming the status of all known protected and decommissioned wells, including certificates for all decommissioned wells and any wells encountered that were not previously identified.
- Material management records for all soils and hard materials.
- Chemical and Geotechnical testing results.
- Environmental Monitoring Records.
- Summary of consignment notes relating to the disposal of waste materials, soils, groundwater and asbestos.
- Summary of consignment notes relating to imported materials.
- Details of any outstanding actions and site constraints.
- Any relevant approvals from Enfield Council, the Environment Agency, the Health and Safety Executive, and utility companies for the works carried out.
- Radiological Survey for the area of the former Sparklet Works
- Details of the final site condition, including as-built drawings
    - Site layout drawing.
    - Finished levels on completion of the works.
    - Ground Investigations.
    - Residual Obstructions including cross sections.
    - Backfill drawings confirming correct backfill levels according to chemical backfill criteria.
    - Soil and stockpile placement and movement record drawings and plans.
    - Site wide validation grid and composite sample location drawing.
    - Remediation Cross Sections.
    - Temporary Works record drawings.

10.4. COMPLIANCE MONITORING

Compliance monitoring will be undertaken to confirm that the works have been carried out in accordance with this RIP. Daily site briefings will occur to communicate the tasks to be undertaken that day and to ensure all operatives are aware and up to date with the current working procedures. If work to be carried out that does not comply with the agreed methodology, works shall cease until the methodology is updated and agreed with the Client to reflect the work required and/or all operatives are re-briefed. Compliance monitoring will be recorded and undertaken weekly (minimum) by a COGNITION supervisor. WAMITAB inspections shall also take place as required under the Mobile Plant Permit deployment.

10.5. POST COGNITION WORKS

For clarity, and to satisfy the planning conditions for the site, listed below are the remediation actions that will be undertaken by others after the main remediation works have been completed:

- Placement of suitable, clean, clean cover imported topsoil and subsoil in private gardens and landscaped areas.
- Potable water supply pipes to be specified as appropriate for ground conditions and agreed with the local water supply company or clean trenches to be constructed to house potable water supplies into and through the site.
- Below ground concrete to meet relevant sulphate/ aggressive ground conditions.

APPENDICES

Appendices can be downloaded using the following link:

https://www.dropbox.com/t/d8zXa4G23bc2yoXY

Appendix 1 - Drawings

Appendix 2 - Phase 2 Site Investigation Report

Appendix 3 - Remediation Method Statement Report

Appendix 4 - Reuse criteria