



PLANT & STRUCTURES PROGRAMME – DUNGENESS ‘A’ SITE

Dungeness A Boiler and Ancillary Plant Removal: Contaminated Land and Groundwater Risk Assessment

DNA/PS/23305/RPT/7503

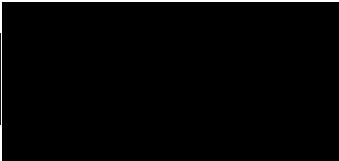
Issue: 01

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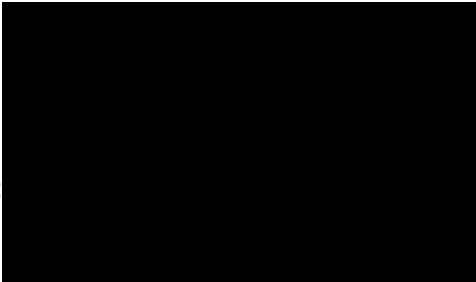
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Date: 12/06/2025

This report has been the subject of verification at QA Grade 3.
The scope of the verification for this report includes the confirmation that:

- The document is logical and internally consistent.
- The spelling and syntax are correct and the language is precise, clear and concise.
- T [Redacted] up, exist and are both approved and appropriate.
- I [Redacted] eferences is correct.

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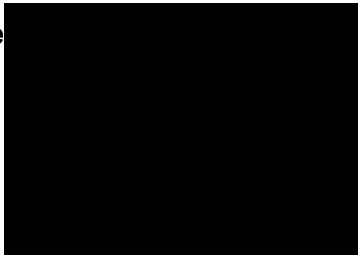


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REVISION HISTORY

Issue	Summary of Changes	Date
01	First Issue to support planning application	June 2025

DISTRIBUTION

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1. BACKGROUND

NRS manages land quality across its sites in accordance with Standard Procedure S-154: Arrangements for Management of Land Quality. Land quality refers to the magnitude and extent of any known or potential radioactive and non-radioactive contamination of ground and groundwater. It applies to natural ground, made ground (including deposited wastes), redundant sub-surface structures and sub-surface water not contained within engineered structures. Dungeness A site, in line with other NRS sites, manages land quality in accordance with S-154 to ensure compliance with Nuclear Site Licence Conditions, the Radioactive Substances Regulations, and applicable environmental legislation. This includes:

- *Part IIA of the Environmental Protection Act 1990*
- *Groundwater (Water Framework Directive) (England) Direction 2016*
- *Environmental Damage (Prevention and Remediation) (England) Regulations 2015.*

Under S-154, each site is required to maintain a Land Quality File (LQF)—the definitive record of all land quality issues associated with the site. The LQF for Dungeness A includes a Land Quality Map and a Land Quality Register, the latter detailing identified Areas of Potential Concern (APCs), including their nature and location. APCs are areas of land subject to a past or current use that may have given rise to contamination of the ground or groundwater, or where contamination is known to be present.

1.1 Geology and Hydrogeology

Dungeness A site is underlain by superficial deposits composed of the Denge Gravels ranging from 4m - 10m in thickness. The Denge Gravels are further underlain by Marine and Estuarine Sands between 22m - 31m thick [1]. It is important to consider the geology of the site as any contamination that may arise with the proposed works has the potential to leach and migrate both horizontally and vertically through the strata and into sensitive receptors.

Groundwater flow is to the south of the site. There are 27 groundwater monitoring boreholes on site with several in close proximity to the proposed development area (see Appendix 1 for borehole locations). Groundwater levels are fairly consistent across the site and are generally several metres below ground level (m bGL), ranging between 3.43m bGL to 4.22 m bGL during the July 2024 groundwater monitoring round (at boreholes DNA18 and DNA23 respectively) [2]. Groundwater levels tend to be slightly higher in winter months but are rarely shallower than 3 m bGL in any site borehole throughout the year – a summary of site-wide groundwater level data recorded from the last five years (November 2020 to March 2025 inclusive) is presented in Table 1.

As demonstrated in the Flood Risk Assessment (FRA) [1], there is a low flood risk to the whole site from fluvial, surface water, groundwater, sewer, reservoirs and artificial sources of flooding.

Table 1: Site-wide groundwater level data summary, 2020-2025 (metres below ground level)

No. Data Points	10 th %ile	25 th %ile	50 th %ile	75 th %ile	90 th %ile
1004	3.03	3.27	3.59	3.90	4.16

NRS commissions an independent contractor to carry out groundwater monitoring and sampling on a 6-monthly basis [2]. These assessments include analysis of chemical parameters (e.g., potassium,

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major ions, PCBs) and radiological indicators (e.g., gross alpha, gross beta, tritium). An additional groundwater monitoring programme, outside of the scope of the site’s routine 6-monthly sampling schedule, was agreed with the EA for the duration of the Turbine Hall Basement (THB) infill project (see planning application 24/1106/FH) [3]. The THB groundwater monitoring programme will continue on a minimum of a monthly basis for the first 6 months after the cessation of pumping. The site ceased pumping in late February 2025. Conditions for ceasing the THB groundwater monitoring programme include consistent evidence of pH downgradient of the THB stabilising and/or reducing [3]. Since the pumping stopped in February 2025 pH has consistently remained between 7 and 8 pH at hydraulically downgradient boreholes DNA7 and DNA8.

2. SCOPE AND PURPOSE

This document supports the planning application for the Boiler and Ancillary Plant Removal Project at Dungeness A site. It presents a Contaminated Land and Groundwater Risk Assessment aimed at identifying, evaluating, and managing potential environmental risks associated with the proposed works. The assessment addresses land quality concerns related to excavation and slab laydown, as well as groundwater risks linked to void infilling, the storage and handling of demolition waste with leachate potential, and possible spillages from heavy plant and machinery operations.

A complete scope of the proposed works can be found in the Non-Technical Project Summary [4]. Phases of the proposed works include:

- Site establishment – installation of site cabins; preparation of concrete slab for boiler and plant laydown; importation of plant machinery
- Demolition of structures and void infilling
- Removal of boilers and ancillary plant
- Storage of boilers and ancillary plant
- Site demobilisation – removal of site cabins; removal of machinery and plant; exportation of remaining demolition waste.

The planning application area is delineated by the dashed red boundary line shown in **Figure 1**. The proposed development site is subdivided into several work zones:

- **Pink Zone:** Demolition zone
- **Yellow Zone:** Processing areas
- **Red Zone:** Lay down area
- **Green Zone:** Reactor building demolition
- **Blue Zone:** Central Change Building demolition

The planned activities that could impact land quality and groundwater within these zones are:

Pink Zone

- Excavation to a maximum depth of 2 metres
- Existing hardstanding will be broken out and a new concrete base laid down
- Exclusion zone to process demolition arisings in parallel with demolition and ensure efficient management of wastes

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Red Zone

- Existing hardstanding will be broken out and a new concrete base laid down
- Excavation to a maximum depth of 2 metres
- Stool/cradle structures will be installed upon which the boilers will be laid down
- Boilers and gas ducts shall be stored inside a fabric style building structure, or shall have paint system applied and stored outside

Yellow Zone

- Establishment of dedicated waste processing and storage areas designed to prevent contamination of soil and/or groundwater

Green and Blue Zone

- Infilling of existing voids (including Reactor Steam Pits and Bays, remaining lengths of Reactor Steam Tunnels, and Cable Tunnels beneath the Central Change Building) using inert material
- Exclusion zone to process demolition arisings in parallel with demolition and ensure efficient management of wastes

The proposed demolition methodology is yet to be fully determined as the procurement process for the design and demolition contract is ongoing. The proposed work is likely to include the use of 360 excavators, high reach and/or ultra-high reach demolition specification 360 excavators. It is also reasonably foreseeable that other plant and equipment may be utilised during the project such as dumper trucks, brokks, telehandlers, power tools and handheld equipment.

Excavations are required to construct bases for heavy plant and machinery. These bases are likely to be located directly south of the main reactor buildings. However, the exact location and number of excavations remains to be determined at this stage of project development. A precautionary approach has been adopted in this Contaminated Land and Groundwater Risk Assessment in that all APCs within the proposed development area are considered. In reality, excavations are only expected to occur adjacent to a limited subset of APCs.

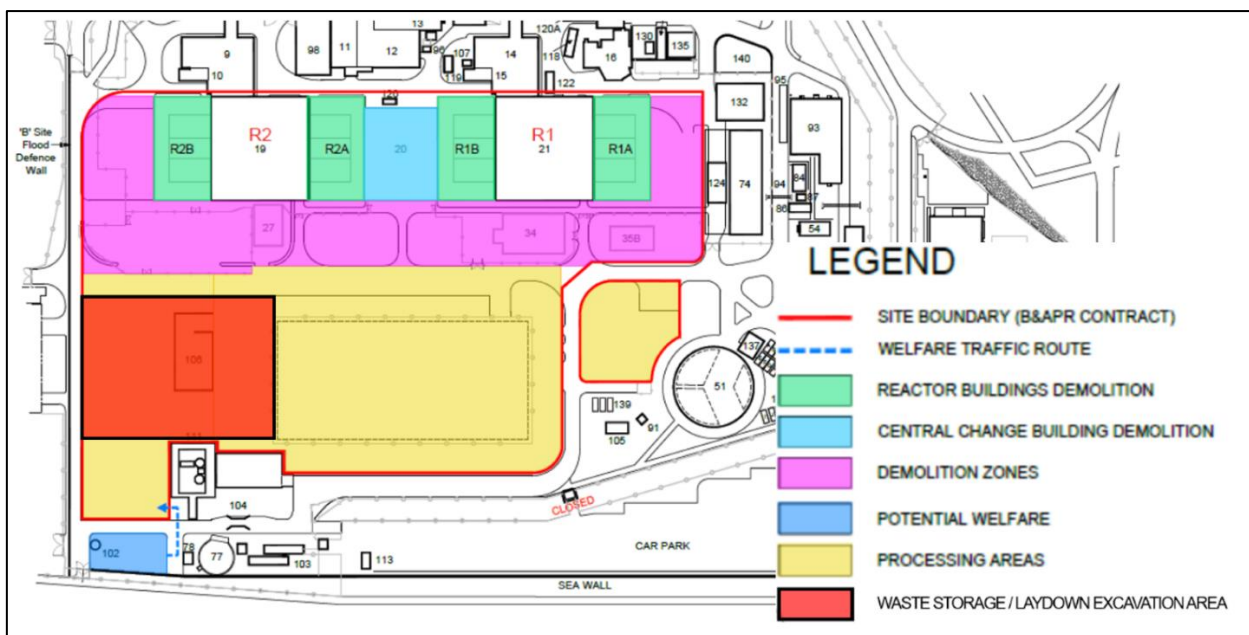


Figure 1 – Proposed Demolition Site Layout.

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3. LAND QUALITY RISKS

A review of the Dungeness A LQF indicates that the proposed development area contains 17 APCs (see **Appendix 2** for full list of APCs). The APCs consist of both radiological and non-radiological sources of potential contamination stemming from the site's historical operations. While excavations are not anticipated to be adjacent to every APC, this risk assessment has adopted a precautionous approach and reviewed all 17 APCs.

Radiological contaminants potentially present include Tritium (H-3), Caesium-137, Strontium-90, Cobalt-60, Iron-55, and Nickel-63. Non-radiological contaminants may include hydrocarbons, chlorinated solvents, asbestos, and other industrial chemicals. An APC location map is provided in **Figure 2**, showing historical contaminant records. **Figures 1 and 2** indicate that several APCs intersect multiple work zones.

While all 17 Areas of Potential Concern (APCs) have been reviewed (see **Appendix 2**), this document focuses in greater detail on APCs considered to pose the highest potential risk to land and groundwater quality. These include active drains, surface water drains, and legacy infrastructure that may act as potential migration pathways for contaminants. The selected APCs are most relevant to the nature and location of the proposed works—particularly void infilling, demolition, and temporary waste storage—which have a greater likelihood of interacting with or mobilising existing contamination.

Given the age of the site and the limitations of historical record-keeping, there remains a residual risk of encountering undocumented subsurface structures. To mitigate potential risks to land and groundwater quality, a series of precautionary measures will be implemented. These include the use of ground-penetrating radar (GPR) surveys to identify anomalies, restricting excavation to hand tools, and consulting the site Systems Engineer whenever unexpected features or uncertainties are encountered.

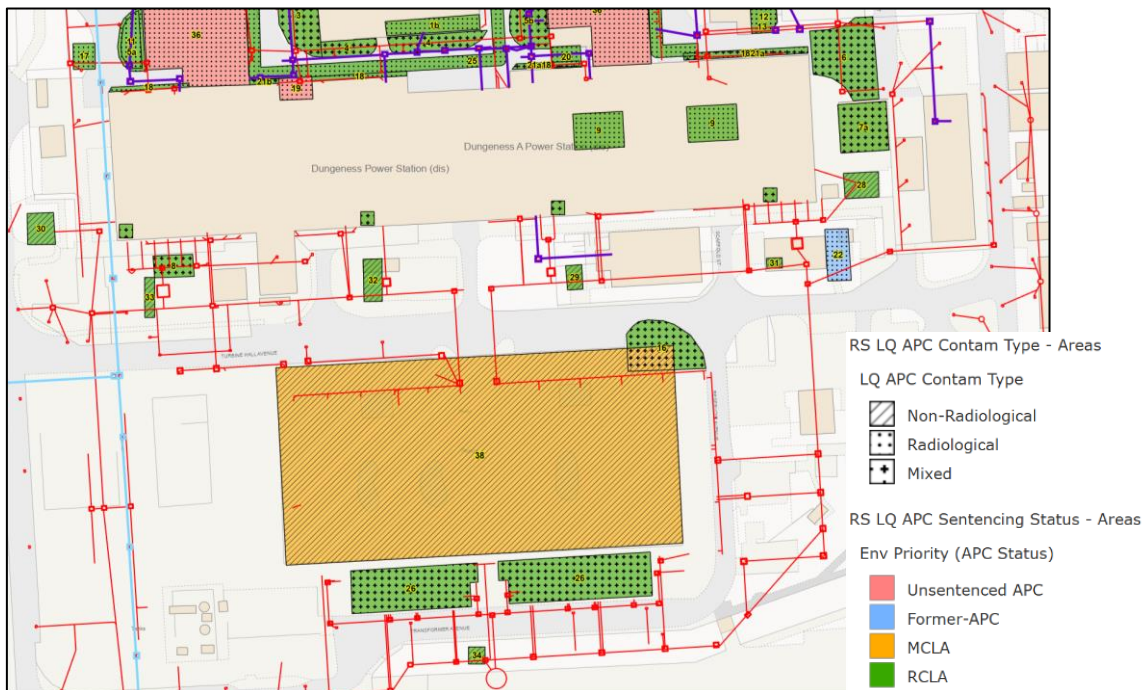


Figure 2 – APC map of Dungeness A.

***Note: APC-9 (Ingress of Groundwater into Foundations of Reactor 1) is present on the LQ map but is not located within the pink excavation zone. APC-9, located within the foundations of Reactor 1, will remain entirely undisturbed as demolition is confined to slab level.**

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Maintained Contaminated Land Area
Recorded Contaminated Land Area

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3.1 Excavation Works

Pink Zone

The Pink Zone contains a total of 12 APCs and 1 former-APC, including:

- APC-2a – Active Drain (historic leak area) (purple lines in **Figure 2**)
- APC-6 – Legacy oil/sludge storage
- APC-7a and APC-8 – Former solvent washing areas
- APC-22- Scaffold store shingle area (*former-APC)
- APC-26 - Transformer Area where transformers have been de-planted and backfilled to ground level
- APC-28 - Former diesel storage tank area
- APC-29, 31, 32, 33 – Oil traps
- APC-30 - Potential leaks from fuel storage tank
- APC-37 – Surface water drains (red lines on **Figure 2**)

Among these APCs, APC-2a (Active Drains, excluding Active Effluent Discharge Line, AEDL) and APC-37 (Surface Water Drains) (see **Section 3.2 Surface Water Drains**) are considered the most significant due to their potential to act as potential pollution pathways for contaminants. APC-2a is associated with a historical leak adjacent to the Reactor 1 pond. Groundwater monitoring after the leak shows that concentrations of contaminants fall below their respective Water Quality Thresholds (WQTs) or even below laboratory Limits of Detection (LoD). Groundwater flow is generally to the south of the site, so the majority of the works are located downgradient of APC-2a. Groundwater levels are typically at least 3 m bGL [2]. With a bounding depth of 2m for excavation, the proposed works should not encounter groundwater (see **Section 1.1**). The potential risk to land and groundwater associated with APC-2a is therefore considered low.

Other APCs in the Pink Zone—such as legacy oil storage areas (APC-6), solvent use zones (APC-7a, APC-8), and oil traps (APC-29, 31–33)—have shown limited contamination potential, with minimal (if any) pollution migration pathways to groundwater. Ongoing groundwater monitoring and sampling show no significant issues with groundwater contamination. Moreover, APC-22 is a former-APC, previously assessed as posing no current risk to land quality or groundwater. It presents no concern to the proposed works.

Red Zone

2 APCs are located within the Red Zone:

- APC-2b – Active Effluent Discharge Line (light blue lines in **Figure 2**)
- APC-37 – Surface water drains (red lines on **Figure 2**)

The most notable of these is APC-2b, an AEDL with a history of contamination identified around an adjacent Active Drain Manhole. While radioactive contaminants have previously been recorded above Water Quality Thresholds (WQTs), recent groundwater monitoring and sampling indicate no current evidence of groundwater contamination. The proposed works are not expected to directly interact with this APC, as excavation depths are limited to a maximum of 2m—significantly above the typical groundwater level of at least 3 m bGL [2]. Additionally, the construction of concrete slabs in the Red

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Zone for heavy plant and machinery (see **Section 2.0**) is expected to further mitigate land quality risks by reducing or eliminating potential pollutant migration pathways. As such, the overall risk to land and groundwater quality in this zone is considered minimal.

Yellow Zone

5 APCs are located within the Yellow and Orange Zones including:

- APC-2b - Active Effluent Discharge Line (light blue lines in **Figure 2**)
- APC-16 - Overflow of contaminated water onto shingle
- APC-26 - Transformer Area
- APC-37 – Surface water drains (red lines on **Figure 2**)
- APC-38 - Infilled Turbine Hall Basement with demolition material

Although no excavations are planned for the Yellow and Orange Zones this work area does include APC-26 which is of interest. APC-26 consists of the site’s former transformer area which contains backfilled transformer bays. This backfill contains hydrocarbons, although the gravel itself is not considered contaminated land. Groundwater monitoring of nearby boreholes confirms that there is a limited (if any) migration pathway between the contaminated backfill and groundwater. Sampling of the boreholes adjacent to APC-26 confirms that concentrations of contaminants are all below LoD. This means that the land quality risks associated with this APC are considered to be low.

APC-38 is a non-radiological area associated with the use of concrete crush for infilling, which initially raised concerns about elevated groundwater pH. A Hydrogeological Risk Assessment (HRA), completed in line with EA guidance, confirmed that pH and PCB levels are well below compliance limits [5]. Weekly monitoring at boreholes DNA7 and DNA8 continues to show stabilised neutral pH levels (7.5–8.2), indicating negligible impact on groundwater. No excavation or intrusive works are planned in the Yellow Zone, and APC-38 is likely to be reclassified as a former-APC prior to project commencement. Adjacent to this is APC-16, a historical overflow of contaminated water onto shingle. Concentrations of contaminants in in borehole DNA6 adjacent to APC-16 are below WQTs. Moreover, as with APC-38, no ground disturbance is planned in this zone, meaning APC-16 will not be directly encountered. As such, both APCs present a low risk to land and groundwater quality.

3.2 Surface Water Drains

Surface water drains (APC-37) run beneath several sections of the proposed work zones. These drains are recognised across NRS sites as potential receptors of contaminated runoff. Where drain integrity is compromised the surface water drains are potential sources of contamination. However, the proposed works are not expected to directly interact with these drains. To minimise risk, all activities will adhere to NRS’s company standards for working near buried services [6], which prohibit mechanical excavation within 500mm (minimum) of known or suspected services [7]. Within this buffer, only hand-digging is permitted [7].

However, this 500mm threshold is a general safety guideline; any decision to transition from mechanical to hand tools must be assessed on an ad hoc basis, taking into account the scope of work, the presence of underground services, and local ground conditions.

The Principal Contractor will implement a safe system of work, supported by detailed service drawings and ground-penetrating radar (GPR) surveys to identify buried infrastructure. Where necessary, shallow trial pits will be used to assess ground conditions and groundwater levels. Drain covers will be available

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in all work areas, and surface water drains will be regularly inspected throughout the project to ensure no contamination has entered the system (see **Section 4.0** for mitigation measures). With these controls in place, the proposed excavations are not expected to pose a significant risk to surface water drains.

3.3 Laydown Works

Laydown, material and waste processing will occur predominantly in the Red and Yellow Zones. Exclusion zones to process demolition arisings in parallel with demolition will be established to ensure efficient management of wastes. Demolition materials and arisings will be segregated and stored appropriately. The storage of demolition arisings and other waste material generated by the project presents the potential risk of localised contamination of soils and/or groundwater.

The areas of the proposed development most at risk of flooding are located in the south of the Yellow Zone (see **Figure 3**). As highlighted in the project's FRA [1], there is a low flood risk to the whole site from fluvial, surface water, groundwater, sewer, reservoirs and artificial sources of flooding. To mitigate the risk of flood water interactions with waste, leachable materials will be placed to the north of the storage/laydown area (i.e. in areas at lower risk of flooding) and will be appropriately stored to prevent the generation and potential migration of leachate. This reduces the overall land quality and groundwater risks associated with the laydown works.

Demolition materials and waste will be properly segregated; there will be no bulk storage of chemicals and stockpiles are to be reduced to an absolute minimum and avoided wherever possible. Waste materials will be stored for a maximum of 12 months from the date of generation, as per EPR 2016 Waste Storage Regulations. Waste will be disposed of using an appropriate waste route.

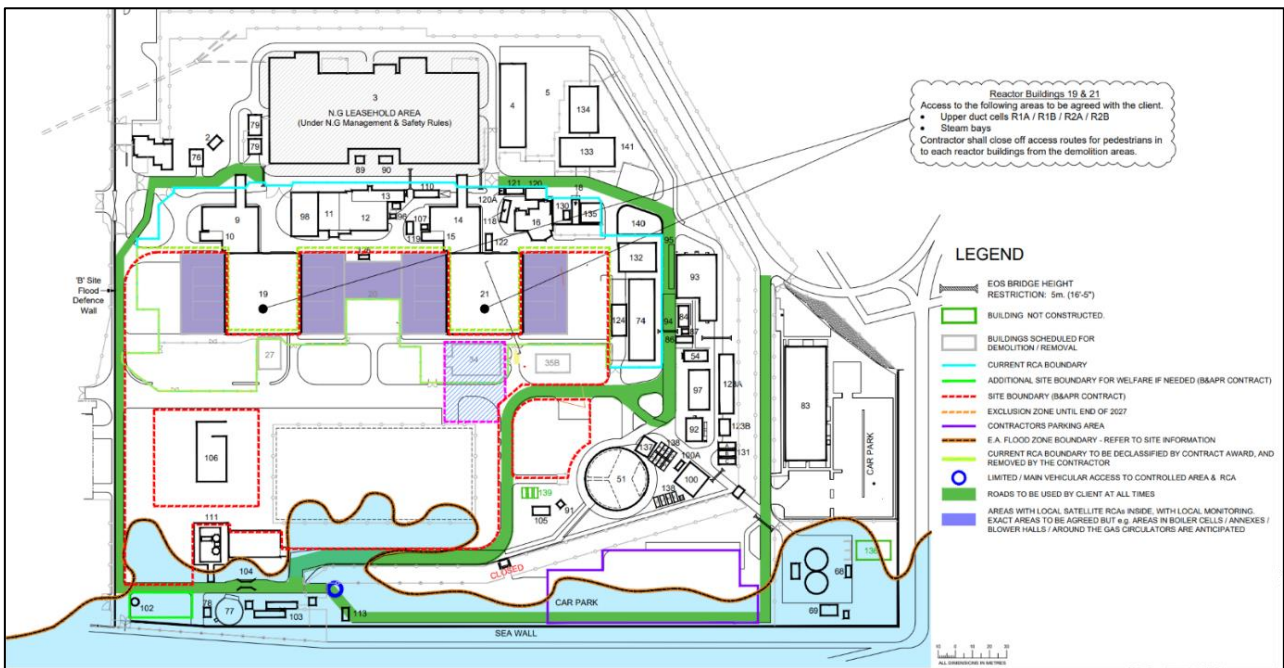


Figure 3 - Flood Zone Map.

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3.4 Infilling Works

Several voids will be infilled with inert material to ground level. The infill material will be a cementitious material that will dry to an inert monolith. It will be either bentonite material, foam or grout. The areas to be infilled include the Reactor Steam Pits and Bays, Steam Tunnels and the Cable Tunnels under the CCB.

Voids will be dewatered and cleared of hazardous material and de-planted of all services before infilling. The infill material is quick to set and as it is inert it has a negligible potential impact on land and groundwater. Drain covers will be used to prevent contamination of the surface water drains from infilling. No cementitious material will be washed down the surface water drains. To further minimise land quality risks associated with the infilling works spill kits will be readily available in each work zone (see **Section 4.0** for full list of mitigations). The overall land quality risk associated with the infilling works is therefore considered low.

4. MITIGATIONS

Land Quality Risk	Mitigation
Excavation Works (Pink Zone and Red Zone)	<ul style="list-style-type: none"> • GPR Surveys will be conducted to locate buried structures. • Mechanical excavators will not be used within 500mm of any known or suspected service [7]; the 500mm threshold is a general safety guideline and decision to transition from mechanical to hand tools will be assessed on an ad hoc basis. • The site Systems Engineer will be consulted when anomalies or uncertainties arise. • Reassurance monitoring and sampling of the excavated material will be conducted at the discretion of radiological and asbestos competent-persons advice. • A watching brief will be kept for any visible/olfactory signs of contamination. If contamination is encountered, all work shall cease, and advice will be sought from the site’s Land Quality Interface before any further works take place. • Excavations will not occur in close proximity to the site’s groundwater monitoring boreholes. In the unlikely event that a borehole is damaged it will be replaced with a new groundwater monitoring point. • Trial pits will be used to assess ground conditions and/or groundwater levels as required. • Bunding of heavy plant and equipment will be according to Statutory Regulations. • Spill kits and drain covers will be available in the work areas. Workers will be made aware of the location of the nearest spill kit and trained in how to use them. • Wetting down (e.g., excavation or construction/demolition areas) to prevent windblown spread of dust into locations where subsequent washing into surface water drains would be likely, and appropriate management of wastewater arising. • On-site roads to be kept free from mud/dust deposits, including the use of re-circulating water wheel washers and road cleaners as appropriate. • Road washing must not discharge to drains • Sheeting of any stockpiles of potentially contaminating materials

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	<ul style="list-style-type: none"> Careful design and siting of stockpiles as necessary to manage run-off, including use of low walls around if appropriate
<p>Surface Water Drains (All Work Zones)</p>	<ul style="list-style-type: none"> Drawings of the site's drains (surface water, active drains and foul drainage) and underground structures will be provided to the Principal Contractor. GPR Surveys will be conducted to locate buried structures including drains. Bunding of heavy plant and equipment will be according to Statutory Regulations. Spill kits and drain covers will be available in the work areas. Workers will be made aware of the location of the nearest spill kit and trained in how to use them. Drains will be regularly inspected and checked for signs of potential contamination. Surface waters with no contaminants will be discharged via the site's surface water drains as a permitted discharge activity. If surface water becomes contaminated, it will either be treated on-site under a permitted discharge route (if discharge conditions are met), or collected and tankered off-site to a licensed facility for treatment and safe disposal. Leachable materials will be stored to the north of the storage/laydown area outside Flood Zone 3. Wetting down (e.g., excavation or construction/demolition areas) to prevent windblown spread of dust into locations where subsequent washing into surface water drains would be likely, and appropriate management of wastewater arising. On-site roads to be kept free from mud/dust deposits, including the use of re-circulating water wheel washers and road cleaners as appropriate. Road washing must not discharge to drains Sheeting of any stockpiles of potentially contaminating materials Careful design and siting of stockpiles as necessary to manage run-off, including use of low walls around if appropriate
<p>Laydown Works (Red and Yellow Zone)</p>	<ul style="list-style-type: none"> Demolition arisings will be properly segregated; there will be no bulk storage of chemicals and stockpiles are to be reduced to an absolute minimum and avoided wherever possible. Sheeting of any stockpiles of potentially contaminating materials. Leachable materials will be stored to the north of the storage/laydown area. Waste will be stored for no longer than 12 months from the date of generation to adhere to EPR Waste Storage Regulations. Boilers and gas ducts will be weather-proofed for appropriate storage. See mitigations for surface water drains.
<p>Infilling Works (Green and Blue Zone)</p>	<ul style="list-style-type: none"> Voids will be dewatered, cleared of hazardous material and de-planted of all services before infilling. Infilling material will be an inert cementitious material. It will be either bentonite material, foam or grout. The site's routine 6-monthly groundwater monitoring and sampling schedule will continue throughout the project. In the event of unusual borehole sampling results contingency arrangements will be put in place including increased monitoring and sampling.

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	<ul style="list-style-type: none"> Spill kits will be available near work areas. Workers will be informed of the locations of spill kits and trained in how to use them.
Release of Radionuclides	<ul style="list-style-type: none"> Reassurance monitoring will be conducted during excavations to determine if any radioactive material is in spoil. Care will be taken in works around the active drains to prevent any potential breaches. Access to active drain manholes will be maintained for testing and maintenance purposes throughout the works.

5. CONCLUSIONS

A land quality and groundwater risk assessment was undertaken for the Boiler and Ancillary Plant Removal Project at the Dungeness A site. A total of 17 Areas of Potential Concern (APCs) were identified within the proposed development area. Although the exact locations and number of excavations are yet to be fully determined, all APCs were reviewed as a precautionary measure.

Excavations will be limited to the Pink and Red Zones, with a maximum depth of 2m—shallower than the site’s groundwater levels (typically 3 m bGL or lower) [2]. This depth restriction, combined with the installation of concrete slabs for heavy plant, significantly reduces the potential for pollutant migration into work areas and for the these works to mobilise existing contamination. Most APCs show contaminant concentrations below Water Quality Thresholds (WQTs) or even below detection limits, and ongoing groundwater monitoring confirms no current contamination issues.

Where contaminants have historically been recorded at elevated levels, no viable migration pathways exist, and the proposed works are not expected to exacerbate conditions. Several APCs such as APC-16 (overflow of contaminated water onto shingle), will not be disturbed due to the nature and location of the works. Others, like APC-38 (the infilled Turbine Hall Basement), are subject to ongoing monitoring and are likely to be reclassified as former APCs prior to project commencement (see **Section 1.1**).

The creation of concrete slabs for heavy plant and machinery (see **Section 2**) may act as mitigation measures for ongoing land quality issues by reducing and/or eliminating the pathways for pollutant migration (i.e. by reducing or effectively eliminating infiltration) to some areas). APCs should have no viable pathway for contamination migration to the works areas, providing mitigations are adhered to.

It is considered that the proposed development poses little or no risk of mobilisation of contaminants in the ground and no significant risk to groundwater. Should the scope or location of excavations change, a reassessment may be required to consider additional risks.

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6. DEFINITIONS

Term Used	Definition
Area of Potential Concern (APC)	An area of land subject to a past or current use that may have given rise to contamination of the ground or groundwater, or where contamination is known to be present. As set out in Industry Guidance for the Qualitative Risk Assessment for Land Contamination, including Radioactive Contamination.
Contamination	The presence of a substance or agent, as a result of human activity, in, on or under land, which has the potential to cause harm or to cause pollution. [NOTE: There is no assumption in this definition that harm results from the presence of the contamination].
Former-APC	An APC that either: 1. has been demonstrated through characterisation not to be contaminated; or has been remediated in such a manner that there is no remaining contamination .
Land Quality	The term Land Quality refers to the magnitude and extent of any known or potential radioactive and non-radioactive contamination of ground and groundwater. The term applies whether or not contamination is present. It applies to natural ground, made ground (including deposited wastes), any redundant sub-surface structures (contaminated or otherwise) that are no longer covered by any other arrangements, and to sub-surface water not contained within engineered structures.
Land Quality File	The definitive record of all land quality issues associated with the site. The LQF for Dungeness A includes a Land Quality Map and a Land Quality Register, the latter detailing all initially identified Areas of Potential Concern (APCs), including their nature and location.
Land Quality Interface	Authorised site person to interface with the Site Restoration Programme to assist delivery of land quality management activities at the site (other than routine monitoring of groundwater).
Maintained Contaminated Land Area (MCLA)	Areas of known contamination which, during a deferral period, will require maintenance of: <ul style="list-style-type: none"> • Specific physical features (purpose-built or incidental); and/or • specific monitoring (e.g. groundwater monitoring regime =).
Recorded Contaminated Land Area (RCLA)	Areas of known or potential contamination which cannot be sentenced as Former-APCs and which do not meet the criteria for sentencing as MCLAs .

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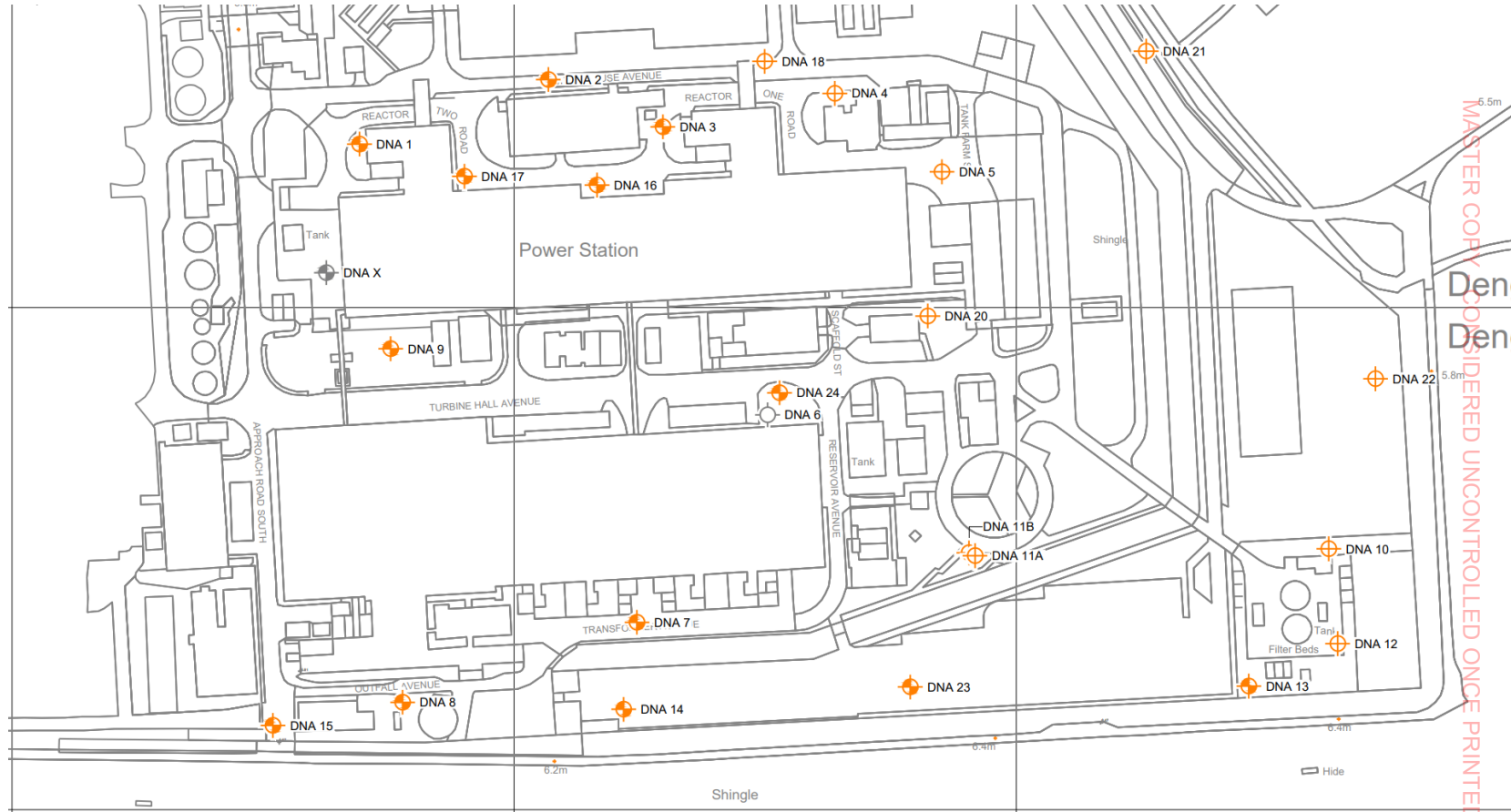
7. REFERENCES

- 1 Avison Young, Flood Risk Assessment: Demolition of boiler house complexes and external alterations to reactor buildings, DNA/PS/23305/RPT/7485 Issue 1. June 2025
- 2 WSP, Dungeness Site: Groundwater Monitoring and Sampling - July 2024, 70106973.653/A.0, October 2024
- 3 Golder, Specification for Groundwater Monitoring of the Turbine Hall Infill, DNA/PS/23305/RPT/6748 Issue 1, July 2021
- 4 Nuclear Restoration Services, Dungeness A Boilers and Ancillary Plant Removal: Non-Technical Project Summary, DNA/PS/23305/PN/6993 Issue 3, May 2025
- 5 NRS, Hydrogeological Risk Assessment: Dungeness A Site Turbine Hall, DNA/P&S/23305/RPT/6685 Issue 1, January 2021
- 6 NRS Company Standard S-255 Safety from buried or concealed services, October 2022, Issue 5
- 7 NRS, Company Standard S-482 Construction and Demolition Work Requirements (May 2023, Issue 6)

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APPENDIX 1 – BOREHOLE LOCATION PLAN.



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DNA BOREHOLE - SAMPLING REQUIRED



DNA BOREHOLE - WATER LEVEL MONITORING ONLY REQUIRED



DNA BOREHOLE NOT PART OF MONITORING SCHEDULE

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APPENDIX 2 - LIST OF APCS REVIEWED WITHIN THE PROPOSED DEVELOPMENT AREA.

APC	Description	Potential Contaminants	Assessment
APC- 2a	An Active Drain with a historical occurrence of a drain pit leak.	Radionuclides	Concentrations of contaminants fall below WQTs or even LoD. Groundwater resides at depths >3m BGL. Excavations are shallower than anticipated groundwater levels. Groundwater flow/hydraulic gradient is to the south. Contaminant concentrations are low and limited (if any) pollution migration pathway exist.
APC-2b	An Active Effluent Discharge Line (AEDL) with historical occurrences of contamination found around Active Drain Manholes.	Radionuclides	Radioactive contaminants have been recorded as above WQTs on several historical occasions. However, ongoing groundwater monitoring and sampling show no issues of groundwater contamination with this APC. Limited (if any) pollution migration pathway exists and proposed excavations should not exacerbate land quality concerns with this APC due to the shallow bounding excavation depth of 2m.
APC-6	Legacy storage of oil/sludge barrels.	Hydrocarbons	Some contaminants have historically been recorded at elevated concentrations. However, ongoing groundwater monitoring and sampling show no issues of groundwater contamination with this APC. Limited (if any) pollution migration pathway exists and proposed excavations should not exacerbate land quality concerns with this APC due to the shallow bounding excavation depth of 2m.
APC-7	Former oil barrel washing area.	Chlorinated Solvents	Concentrations of contaminants fall below WQTs. Groundwater resides at depths >3m BGL. Excavations are shallower than anticipated groundwater levels. Groundwater flow/hydraulic gradient is to the south. Contaminant concentrations are low and limited (if any) pollution migration pathway exist.

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APC-8	Former area where contaminated plant was cleaned using solvents.	Hydrocarbons Chlorinated Solvents	Some contaminants have historically been recorded at elevated concentrations. However, ongoing groundwater monitoring and sampling show no issues of groundwater contamination with this APC. Limited (if any) pollution migration pathway exists and proposed excavations should not exacerbate land quality concerns with this APC due to the shallow bounding excavation depth of 2m.
APC-9	Ingress of Groundwater into Foundations of Reactor 1.	Radioactive sodium, chloride and tritium	APC-9 is present on the LQ map but is not located within the pink excavation zone. APC-9, located within the foundations of Reactor 1, will remain entirely undisturbed as demolition is confined to slab level. This APC will not be encountered during the proposed works.
APC-16	Overflow of contaminated water onto shingle	Hydrocarbons, Chlorinated Solvents	This APC is located in the Yellow Zone, the waste processing area, where no excavations are planned. This APC should not be encountered during the proposed works. Limited (if any) pollution migration pathway exists and ongoing groundwater monitoring and sampling show no issues of groundwater contamination with this APC. Concentrations of contaminants in in borehole DNA6 adjacent to APC-16 are below WQTs.
APC-22	Former APC located in scaffold store area.	Radionuclides	This area was classified as a former-APC during the 2017 APC sentencing. No further information is available to warrant a reassessment of this APC.
APC- 26	Transformer Area where transformers have been de-planted and backfilled to ground level.	Hydrocarbons	The gravel infill in the transformer bays contains hydrocarbons but no known pollution migration pathway exists between the gravel, land and groundwater. Some contaminants have historically been recorded at elevated concentrations. However, ongoing groundwater monitoring and sampling show no issues of groundwater contamination with this APC.
APC- 28	Former diesel storage tank area.	Hydrocarbons	Some contaminants have historically been recorded at elevated concentrations. However, ongoing



			groundwater monitoring and sampling show no issues of groundwater contamination with this APC.
APC-29	Potential leaks from oil trap.	Hydrocarbons	Some contaminants have historically been recorded at elevated concentrations. However, ongoing groundwater monitoring and sampling show no issues of groundwater contamination with this APC.
APC-30	Potential leaks from fuel storage tank.	Hydrocarbons	Some contaminants have historically been recorded at elevated concentrations at this APC. There are no proximal boreholes to this APC; limited (if any) pollution migration pathway exists.
APC-31	Potential leaks from oil trap.	Hydrocarbons	Some contaminants have historically been recorded at elevated concentrations at this APC. There are no proximal boreholes to this APC; limited (if any) pollution migration pathway exists.
APC-32	Potential leaks from oil trap.	Hydrocarbons	No information is currently available regarding this potential APC. However, trends with areas of potential leaks from oil traps (e.g., APC-29, APC-30, APC-31) have limited (if any) pollution migration pathways.
APC- 33	Potential leaks from oil trap.	Hydrocarbons	Some contaminants have historically been recorded at elevated concentrations. However, ongoing groundwater monitoring and sampling show no issues of groundwater contamination with this APC.
APC-37	Surface water drains.	Hydrocarbons Non-radiological Chemicals	Drains are a known receptor for contamination arising from spills and leaks, especially where drain integrity is poor. The proposed works should not encounter surface water drains as the excavations are limited to 2m BGL. Mitigations will be adhered to and this will prevent contamination of the surface water drains.
APC-38	Infilled Turbine Hall Basement with demolition material.	Hydrocarbons Metals Hydroxide Ions	Main historical concern of this APC is groundwater with high ph from interaction with concrete crush used for infilling. Weekly groundwater

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			<p>monitoring at boreholes DNA7 (~pH 7.5) and DNA8 (~pH 8.2) shows no contamination. No are excavations planned in this area; no new pollutant pathways will be created. Monitoring will continue for at least 12 months post-infill. APC-38 is likely to be reclassified as a former APC before project works begin.</p>
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