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MATERIALS MANAGEMENT PLAN (MMP)

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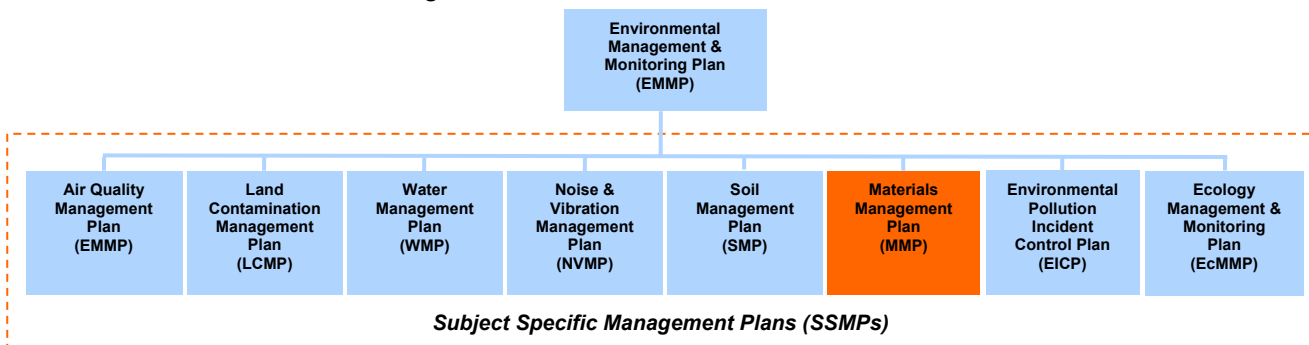
EXECUTIVE SUMMARY

NNB Generation Company Limited (Company Number 06937084), part of EDF Energy, is the Company that will lead the new nuclear programme in the United Kingdom. For the purpose of this document, NNB Generation Company Limited is referred to as EDF Energy.

This document details the Materials Management Plan (MMP) for the activities associated with the construction of the proposed off-site associated developments. This MMP relates only to site-derived material that is intended for potential re-use during the construction of the proposed off-site associated developments. Its purpose is to ensure that where any material is potentially suitable for reuse, this is done so appropriately, without causing unnecessary risk to human health and the environment. It does not address the quality control aspects of virgin materials used in the construction phase.

As illustrated in **Plate 1.1** below (*orange box*) the MMP is a subject specific management plan that is directly associated with the Off-site associated development **Environmental Management and Monitoring Plan (EMMP)**.

Plate 1.1: Structure of the Management Plans



This document has been produced to provide a clear framework for the appropriate management and potential reuse of site-derived materials; and to demonstrate that the following principles for the use of materials as ‘non-waste’ are met:

- the material is suitable for its intended use in all respects (*suitability for use*);
- there is a requirement for the material (*certainty of use*);
- the quantity of the material required is defined (*quantity of material*); and
- the potential risks to human health and the environment from the material have been considered and assessed.

These principles are based upon ‘*The Definition of Waste: Development Industry Code of Practice*’. (Ref. 1.1)

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1. INTRODUCTION

1.1 Background

- 1.1.1 NNB Generation Company Limited (Company Number 06937084), part of EDF Energy, is the Company that will lead the new nuclear programme in the United Kingdom. For the purpose of this document, NNB Generation Company Limited is referred to as EDF Energy.
- 1.1.2 EDF Energy has developed this MMP as part of its commitment to minimise waste generated during construction of the proposed off-site associated developments. It seeks to identify ways to reuse site won materials within the construction phase where technical specifications are met and health and safety and environmental considerations have been addressed.
- 1.1.3 The approach is consistent with the conclusions of the Environmental Statement and the **Waste Management Implementation Strategy** (WMIS), the principal aim of which is to identify ways:
- “To safely and consistently manage the production, treatment and disposal of waste in compliance with all relevant legislation; taking into account external and internal policy drivers, environmental and waste management principles, best practice and using innovative technologies where practicable and applicable to actively minimise impact on the environment and protect workers and the public”*
- 1.1.4 The ES and WMIS state that where waste is generated, it will be dealt with in a way that follows the waste hierarchy. The waste hierarchy requires prevention of waste generation in the first instance and reducing, as far as is possible, the volume of material requiring disposal once it has been produced.
- 1.1.5 The MMP will provide EDF Energy’s site teams, contractors, their subcontractors and external stakeholders with guidance and information in respect to how EDF Energy will proactively manage materials on each site. This will ensure activities are managed effectively and any impacts managed.
- 1.1.6 The MMP will be supported by the implementation of a **Waste Management Implementation Strategy** (WMIS) which outlines management requirements for waste streams generated during construction. Contractors will prepare a more detailed Site Waste Management Plan (SWMP) for each site to outline specific requirements for individual waste streams. Where materials are considered to be a waste material under this MMP and relevant legislation, then the detailed contractor’s SWMP will apply and further controls are necessary as regards its classification, handling and reuse, recycling and/or disposal.

1.2 Scope

- 1.2.1 The scope of this MMP applies to all of the proposed off-site associated developments and materials management over which EDF Energy has influence and/or control. Any related sites covered by this plan include:

- Bridgwater A and C.
- Cannington bypass and Cannington Park and Ride.
- Comwich.
- Junctions 23 and 24 of the M5 motorway.
- Williton.

1.3 Conclusions from the Environmental Impact Assessments

- 1.3.1 Where waste is generated, it will be dealt with in a way that follows the waste hierarchy. The waste hierarchy requires prevention of waste generation in the first instance and reducing, as far as is possible, the volume of material requiring disposal once it has been produced.

2. THE USE OF SITE-DERIVED MATERIALS

2.1.1 In determining the suitability of site derived materials for reuse, a number of parameters will be assessed to enable the project to make informed and considered decisions as to the reuse of these materials. The MMP sets out the means of assessing the potential to re-use site derived materials in terms of its risks to human health and the environment. The testing and analysis of site derived materials needs to provide sufficient information to enable relevant risk assessments to be undertaken on the potential impacts of its reuse.

2.2 Principle 1: Protection of Human Health and Environment

2.2.1 Assessment of the material's chemical properties should be relevant to the likely contaminants present, typically determined by the site's current and historical uses. For sites where no previous industrial activities have been undertaken, this may involve a more simplistic desk-based review of the potential for contaminants to exist, followed by a minimal number of samples obtained to qualify the absence of potential contaminants. For the purposes of human health risk assessment, the Environment Agency's Soil Guideline Values and any available and derived Soil Screening Values (SSVs) would be used. Where SGVs and SSVs are not available, site specific derived criteria would be used where practicable.

a) Soil Ecotoxicity

2.2.2 Criteria for assessing the risk from contaminated soils to ecological systems are currently less well developed in the UK. In October 2008, the Environment Agency published an ecological risk assessment (ERA) framework (Ref. 2) for contaminated soils in collaboration with Defra, Natural England, Welsh Assembly Government, the Countryside Council for Wales, local authorities and industry. This document contains guidance on the use of ecological/ecotoxicological Soil Screening Values (SSVs) that would be used.

b) Controlled Waters

2.2.3 Impacts on controlled waters (i.e. on-site groundwater/secondary aquifers and surface waters) could occur through physical mobilisation (such as soil erosion, run-off and sediment deposition) and disturbance of existing contaminated soils during earthworks or increased infiltration and leaching once the topsoil is removed and areas of open excavations are exposed. Impacts on controlled waters could potentially be direct and adverse. Assessment of risks to controlled waters would utilise relevant Environmental Quality Standards (EQSs) stipulated in the Water Framework Directive (WFD) (Ref. 3), transposed into the UK law by the River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England And Wales) Directions 2010 (Ref. 4), and drinking water standards, where appropriate.

c) Buildings

- 2.2.4 Contamination may pose risks to the built environment (e.g. buried water pipes and concrete) and would be evaluated as appropriate as part of any geotechnical 'suitable for use' assessment.

2.3 Principle 2: Suitability for Use

- 2.3.1 Suitability for use means that a material must be suitable for its intended purpose in all respects. In particular, both its chemical and geotechnical properties have to be demonstrated to be suitable, and the relevant specification for its use must be met.
- 2.3.2 Certain excavated materials would be suitable for their intended use without any treatment at all. If used in this way, these materials are unlikely to be waste. For example some materials may be assessed as being suitable for direct use, e.g. engineered backfill beneath cover layers, capping layers, buildings and hard standing or for site re-grading. Use for the purposes of reclamation, restoration or landscaping may also fall within this category.
- 2.3.3 Other materials may not have the required characteristics for use without first being treated. If treatment is needed in order to make the material ready for use the materials would be waste, but may cease to be waste once treated so as to be suitable for use. Where any treatment of waste is necessary (i.e. whether biological, chemical, physical or any combination of these), it would be carried out under an appropriate authorisation/licence or exemption if required.
- 2.3.4 Some materials, although they do not require treatment to make them suitable for use, may nonetheless be re-graded or compacted before or during their use as part of the development. This re-grading or compacting does not prevent the material being regarded as a non-waste.

2.4 Principle 3: Certainty of Use

- 2.4.1 The contractor, together with the EDF Energy Site Environmental Engineer and an EDF Energy Soil and Materials Specialist, must demonstrate that the material would actually be used and that the use is not just a probability, but a certainty. For example, if materials are stockpiled with no pre-defined destination and use, they could be waste.
- 2.4.2 In the process of site development, surplus material may be generated that cannot be used either directly or after treatment. For example, the material may not conform to the required specification following treatment and in such a case the material could remain a waste. Similarly, there may be unexpected arisings on a site that were not identified within the site investigation works. Any out of specification materials which are not suitable for use could be waste and would need to be disposed off appropriately and in accordance with the contractor's SWMP.

2.5 Principle 4: Quantity for Use

- 2.5.1 Contractors should ensure that materials are only used in the quantities necessary for the intended use, and no more. The use of an excessive amount of material would indicate that it is being disposed of and is therefore waste, thus requiring controlled disposal in accordance with the contractor's SWMP.

3. MATERIALS RE-USE ARRANGEMENTS

3.1 General

3.1.1 The precise details of the materials to be re-used across the AD sites will be determined during advanced stages of the post-planning design process and in conjunction with contractors. This section therefore provides details of the arrangements that will be adopted to control the re-use of materials, once the precise details (type, volumes etc) of the materials to be re-used are confirmed.

3.2 Excavation and Stockpiling at associated development sites

3.2.1 Excavation of material and contaminant hotspots would be undertaken ensuring material is appropriately segregated and stockpiled according to type and origin.

3.2.2 Site-derived materials would be segregated and stockpiled according to differences in material type and intended use. Any changes in the physical and/or chemical properties will require separate material stockpiles to be produced.

3.2.3 Samples to delineate the exact extent of the contaminant hotspot excavations would be taken at an appropriate frequency to be determined on a case by case basis and according to best practice.

3.2.4 Samples will be analysed for the suite of constituents listed in and screened against the Materials Acceptance Criteria (MAC). These MAC will be developed based upon the quantitative risk assessments carried out by EDF Energy and its contractors.

3.2.5 During and following excavation, site-derived material would be appropriately segregated and given a preliminary unique identification code according to the following criteria:

- type and location of origin;
- the perceived requirement for treatment (if necessary);
- material source; and
- date of deposition.

3.3 Classification

3.3.1 A preliminary material stockpile classification system is as follows:

- *Category A: Potential Reuse without Treatment:* Site-derived top soil material Stockpiles to be given prefix A and numbered sequentially (i.e. A1, A2, A3, etc.). These are considered primarily associated with site-derived top soil soils.
- *Category B: Potential Reuse without Treatment:* Site-derived sub-soil material stockpiles to be given prefix B and numbered sequentially (i.e. B1, B2, B3, etc.). These are considered primarily associated with site-derived sub-soils.

- **Category C:** Potential Reuse without Treatment: Site-derived overburden material stockpiles to be given prefix C and numbered sequentially (i.e. C1, C2, C3, etc.). These are considered primarily associated with site-derived overburden.
- **Category D:** Potential Reuse without Treatment: Site-derived rock material stockpiles to be given prefix D and numbered sequentially (i.e. D1, D2, D3, etc.). These are considered primarily associated with site-derived rock and weathered rock.
- **Category E:** Potential Reuse with Treatment: Site-derived top soil material stockpiles to be given prefix E and numbered sequentially (i.e. E1, E2, E3, etc.). These are considered primarily associated with site-derived soils that are to be treated prior to re-use.
- **Category F:** Potential Reuse with Treatment: Site-derived sub-soil material stockpiles to be given prefix F and numbered sequentially (i.e. F1, F2, F3, etc.). These are considered primarily associated with site-derived sub-soils that are to be treated prior to re-use.
- **Category G:** Potential Reuse with Treatment: Site-derived overburden material stockpiles to be given prefix G and numbered sequentially (i.e. G1, G2, G3, etc.). These are considered primarily associated with site-derived overburden.
- **Category H:** Potential Reuse with Treatment: Site-derived rock material stockpiles to be given prefix H and numbered sequentially (i.e. H1, H2, H3, etc.). These are considered primarily associated with site-derived rock and weathered rock.
- **Category I:** Potential Off-site Disposal: Site-derived material stockpiles to be given prefix I and numbered sequentially (i.e. I1, I2, I3, etc.). These are considered primarily associated with site-derived material excavated from identified contaminant hotspots and which do not meet the Material Acceptance Criteria (MAC).
- **Category SM:** Surplus Site-derived Materials: Site-derived material stockpiles associated with the excavation of surplus site-derived materials to be given prefix SM.

3.3.2 All material stockpiles classification codes would include the date of deposition and formatted as follows DD.MM.YYYY.

EXAMPLE:

Code: G5/21.08.11

Fifth stockpile requiring potential off-site disposal comprising Site-derived material from hotspot No. 4 and deposited on the 21 August 2011.

Code: F1/24.08.11

First stockpile for potential reuse following treatment (crushing and grading) comprising site-derived hard rock material and deposited on 24 August 2011

3.4 Restoration

3.4.1 Information on land restoration proposals are described in the proposed Landscape Restoration Strategy for the associated development sites. (Information on land

restoration proposals are described in the proposed Landscape Restoration Strategy for the associated development sites).

3.5 Materials Acceptance Criteria (MAC)

- 3.5.1 In advance of the commencement of the site works, appropriate Materials Acceptance Criteria (MAC) would be determined with respect to both chemical quality (including soil contaminants) and geotechnical properties. These criteria would be applied to facilitate the appropriate selection of materials for specific uses.
- 3.5.2 The identification, segregation and management of materials on-site would be the responsibility of the appointed contractors under the supervision of EDF Energy.
- 3.5.3 EDF Energy would require contractors to demonstrate compliance with the acceptance criteria through appropriate materials retained documentation relating to sampling, testing, inspections and audits for example.

3.6 Site-Derived Materials – Validation Testing

- 3.6.1 Following the segregation of site-derived materials, and prior to reuse, composite samples would be taken from the defined material stockpiles detailed above, to confirm the preliminary classifications.
- 3.6.2 Samples would be collected at an agreed frequency for site-derived materials anticipated to be suitable for reuse without prior treatment and for site-derived materials anticipated to require pre-treatment and or off-site disposal.
- 3.6.3 Soil samples would be taken in accordance with the following guidance:
- British Standard (BS) 5930: 1999 – Code of Practice for Site Investigation (Ref. 5); and
 - BS 10175:2001 – Investigation of Potentially Contaminated Sites. Code of Practice (Ref. 6).
- 3.6.4 All site-derived material stockpiles would be analysed for a suite of constituents and statistical assessment techniques would be utilised to generate representative concentrations for comparison with the MAC.
- 3.6.5 In addition, geotechnical analysis of site-derived materials would be undertaken in accordance with the earthworks method statements and compared to the defined geotechnical reuse criteria, also included in the earthworks method statements
- 3.6.6 The testing criteria outlined above would ensure that site-derived materials are both suitable for reuse geotechnically and through comparison with the appropriate site soil target action values (STAVs) as applicable and appropriate for each material stream. These will be developed to ensure that the site-derived material reused would not present a risk to on or off site human and/or environmental receptors.

3.7 Material Treatment/Validation and Waste Classification

- 3.7.1 Site-derived materials which do not meet the reuse criteria would be taken forward for further treatment prior to disposal or subsequent reuse by third parties as appropriate.
- 3.7.2 Soil and rock will be treated by segregation and soil screening, including crushing where required, under a suitable mobile treatment licence which would be applied for on a case by case basis.
- 3.7.3 Following treatment, validation testing would be undertaken at an agreed frequency to assess whether the site-derived material is suitable for reuse and if not, to identify further processing/treatment options or to inform the waste classification with validation samples to enable disposal (this being the least preferred option). Based on this assessment, material will be assigned the suffix 'pass', 'passed for further treatment' or 'fail' and segregated into material stockpiles designated for reuse, retreatment or off-site disposal.

3.8 Imported Material

- 3.8.1 There is no envisaged need to import material for reuse from other sites at present.

3.9 Laboratory Testing

- 3.9.1 All materials testing would be undertaken in accredited laboratories to MCERT standards, with the analytical limits of detection preferably at least an order of magnitude beneath the individual reuse criteria. The EDF Energy Site Environmental Engineer in conjunction with the EDF Energy appointed soil and materials specialist will be responsible for the appointment and management of the laboratory for testing of site-derived materials; and the receipt, interpretation and dissemination of testing results.
- 3.9.2 Laboratories must be appointed on terms that ensure that testing is complete and available within a timely manner that suits project timescales. Associated actions and controls would be devised upon receipt of the results of laboratory analysis.

3.10 Soil and Materials Specialist

- 3.10.1 EDF Energy would appoint a Soil and Materials Specialist to provide oversight as appropriate to the nature and scale of the works. The Soil and Materials Specialist would oversee issues in respect to the chemical/contamination nature of materials and carry out the necessary checks to ensure that the Contractor is complying with the chemical sampling of site-derived materials and the certification of their suitability for reuse, treatment or otherwise as set out in this MMP.
- 3.10.2 Where necessary, the Soil and Materials Specialist would take spot samples over and above those already specified herein for compliance testing at their discretion and with the assistance of the Contractor where required.
- 3.10.3 The Contractor would be required to provide the EDF Energy Site Environmental Engineer with all necessary documentation concerning the management, handling, transport, placement and disposal of material.

- 3.10.4 On completion, the appointed Soil and Materials Specialist would be responsible for provision of the Verification Report and Declaration to the Environment Agency.

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4. SITE RECORDS

4.1 Material Tracking Database

- 4.1.1 At each site, an on-site material tracking database, providing details of each of the stockpiled materials, will be maintained by EDF Energy and briefed to contractors as necessary to ensure compliance.
- 4.1.2 Contractors would be expected to work in strict accordance with this MMP and adopt any material tracking systems requested by EDF Energy.
- 4.1.3 As a minimum, the material tracking database would provide the following information for each material stockpile:
- material stockpile reference which will provide details of material type, origin and date of deposition;
 - volume;
 - analytical test results (if applicable);
 - handling/treatment history (if applicable);
 - intended actions for treatment; and
 - approximate location where the material is deposited.
- 4.1.4 This material tracking database will be maintained for a minimum of 12 years following completion of the works.

4.2 Material Treatment Records

- 4.2.1 Should a site-derived material stockpile require treatment prior to reuse or disposal, the contractor will produce a record of the exact nature of the treatment undertaken for each material stockpile, together with analytical results associated with the post treatment validation sampling (if reusing).
- 4.2.2 The material treatment records would be made available by the contractor to EDF Energy on request. The contractor would incorporate this information onto the material tracking database as appropriate.

4.3 Disposal Records

- 4.3.1 Detailed records of off-site disposal would be maintained by the contractor and made available to EDF Energy. This should include any waste classification information, including analytical results, the destination of the material, the confirmation of receipt from the designated landfill operator and any consignment notes, as per the requirements of the **WMIS** and contractor's SWMP.
- 4.3.2 As above, this information would be incorporated into the material tracking database and be kept for a period of no less than 12 years.

4.4 Import Material Delivery Notes

- 4.4.1 Where necessary, a detailed record of bulk material imported (excluding virgin materials) on to site would be maintained by the contractor and made available to EDF Energy or its appointed Soil and Materials Specialist as necessary. This would comprise any information provided by the material supplier and haulage contractor, which as a minimum should include details of the source, type, chemical and geotechnical properties and volume of any material.
- 4.4.2 Where applicable, this information would be incorporated into the material-tracking database by the contractor and made available to the EDF Energy or its appointed soil and materials specialist as necessary.

4.5 Materials Management Report

- 4.5.1 Following completion of any material movements works, the contractor would produce a material management report that should include, but not necessarily be limited to:
- project description, appropriate site plans, reference to relevant risk assessments, intrusive site investigation data, etc;
 - description of how the use of materials links with the remediation strategy or design statement;
 - reference to the MMP and associated tracking system, including any alterations made;
 - suitability for use criteria;
 - material tracking database;
 - treatment, import and disposal records/volumes and related information; and
 - records of any contingency arrangements that had to be implemented.

References

- 1 Contaminated Land: Applications in Real Environments (CL:AIRE) (2011): The Definition of Waste: Development Industry Code of Practice' Version 2.0. London, UK.
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