Penrith Lakes Importation Protocol

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Penrith Lakes Development Corporation

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1 Introduction

1.1 General

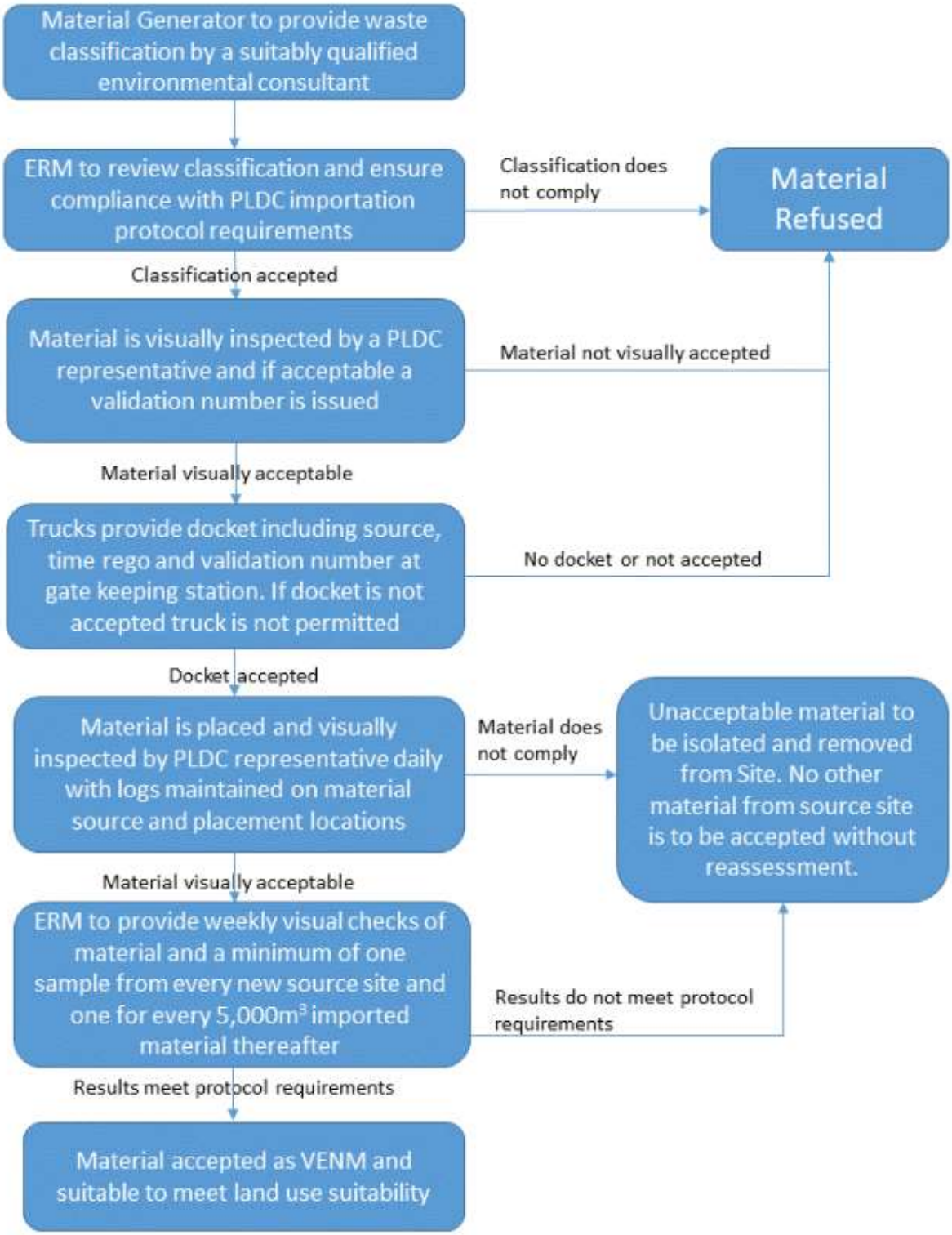
ERM Services Australia (ERM) was commissioned by Penrith Lakes Development Corporation (PLDC) to produce an Importation Protocol for the Penrith Lakes Site.

This Importation Protocol provides details on the acceptance requirements for material providers, material inspection procedures, and quality control procedures required for material importation.

At all times the acceptance of materials at the Site is at the discretion of PLDC. In exercising this discretion, PLDC will rely fully on the certification of each delivery of material to the Site and is not bound to exercise any independent judgement about or undertake any independent testing or analysis of that material in any exercise of that discretion.

1.2 Overview of Material Importation Process

A flow chart has been provided below summarising the importation process.



2 Material Definitions

2.1 VENM

The Protection of the Environment Operations Act 1997 defines VENM as:

> *'natural material (such as clay, gravel, sand, soil or rock fines) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities, and that does not contain any sulfidic ores or soils or any other waste*'.

No other criteria for VENM have been approved. By definition, VENM cannot be 'made' from processed soils. Excavated material that has been stored or processed in any way cannot be classified as VENM.

2.2 ENM

The Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 defines ENM as:

> *'naturally occurring rock and soil (including but not limited to materials (such as sandstone, shale, clay and soil) that has:*
>
> *a) Been excavated from the ground, and*
> *b) Contains at least 98% (by weight) natural material, and*
> *c) Does not meet the definition of Virgin Excavated Natural Material in the Act.*
>
> *Excavated material does not include material located in a hotspot; that has been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.'*

2.3 Tunnel Boring Material

The tunnel spoil material generated from civil projects in the Sydney basin are not considered VENM, however the NSW Environment Protection Authority (EPA) has issued orders and exemptions to allow these materials to be applied to land or used as engineered fill.

The EPA spoil orders and exemptions pertaining to the M4-M5 Link Tunnel and Sydney Metro Tunnel spoil are outlined below:

- *The M4-M5 Link Tunnel Spoil Order 2019*;

- *The M4-M5 Link Tunnel Spoil Exemption 2019*;
- *The Sydney Metro Tunnel Spoil Order 2018*; and,
- *The Sydney Metro Tunnel Spoil Exemption 2018.*

Refer to **Appendix B** for copies of these Exemptions and Orders.

These material exemptions for tunnel spoil have been issued by the EPA that applies to naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) with the following conditions:

a. has been generated from the WestConnex M4-M5 Link Tunnel Project extending from Haberfield to St Peters or Sydney Metro and Southwest Project extending from Chatswood to Sydenham (excluding estuarine sediments and slurry material from the Baranagaroo Site and Beneath Sydney harbour respectively);

b. has been excavated by the use of machinery;

c. contains no more than 0.2% (M4/M5) or 0.5% (Sydney Metro) w/w shotcrete;

d. has not been contaminated with manufactured chemicals or process residues (except for shotcrete);

e. does not meet the definition of virgin excavated natural material in the POEO Act; and

f. may have been processed by intermediate waste facilities licensed by the EPA.

Material that has been classified as M4-M5 Link Tunnel spoil or Sydney Metro Tunnel spoil has been approved for importation into the Penrith Lakes Site by the Department of Planning Industry and Environment.

3 Information Requirements for Application to PLDC

3.1 Material Generator Requirements

Site details of where the material is sourced:

- Site Address (Street, Suburb),
- Description of previous land uses and current land use (e.g. residential, service station, supermarket etc) and details of any demolition work at every site where the material is sourced,
- Brief description of proposed works (e.g. excavation of basement car park, footings tunnel etc) which has provided or will provide the material; and
- Previous site investigations where available.

Material details:

- Material type (e.g. clay, shale, sandstone etc) and approximate quantity,
- Certification to PLDC that the material is VENM or ENM as defined by the POEO Act 1997 and the POEO Waste Regulation 2014 respectively,
- Source of material on the supply site and approximate depth(s) (e.g. all material below 300mm depth) and area the material will be extracted from if the material is in-situ; and
- If the material is to be stockpiled prior to classification or export the handling of this material must be supervised and signed off by a suitably qualified contaminated lands consultant. If the material is to be classified as stockpiled VENM, the material must be certified to have been sourced from the site the material is stockpiled on and sampled based on the total volume of stockpiled material.

Environmental assessment report and supporting information:

- Statement in report certifying material to be received is Tunnel Boring Material, VENM or ENM,
- Map of sample locations and boundary of the extent of the material classified,
- Full description of material(s) to be delivered – either described in the report or with bore logs/test pit logs attached,
- Laboratory reports and certificates for the material to be delivered should be attached as part of the certification report (including laboratory quality control),

- Review of the location of the Site within the Acid Sulfate Soil Risk Map indicating the potential presence of acid sulfate soils. Further analysis for acid sulfate soils is required if the site is identified as potential acid sulfate soils and/or pH values are reported <5, and
- Certification that the Site is outside of Naturally Occurring Asbestos Map area (no known naturally occurring asbestos has been identified in the Sydney Basin).

Field Screening, Sampling and Analysis of materials:

- Description of any Field Screening undertaken (if any) of the source site,
- Certification that no foreign materials were identified in the materials,
- Samples tested for the material to be delivered must be discrete (not composite samples) in accordance with Australian Standards Guide to the investigation and sampling of sites with potentially contaminated soils AS 4482.1 – 2005 (Non-volatile and semi volatile) and AS 4482.2 – 1999 (Volatile samples); and
- Samples of the material to be delivered must be appropriately preserved and forwarded to a NATA registered laboratory, previously approved by PLDC.

3.2 VENM Classification Sampling Requirements

Sample numbers for importation as VENM should be collected at the rate outlined in Table 3a. Samples should be collected based on the volume of material to be classified for importation to PLDC. Stockpiled materials must be demonstrated to have originated from the source site. Insitu samples are required to be collected from the surface of the material to be classified. Any identified areas of environmental concern must be removed from the Site and validation samples meeting the importation protocol presented.

Note, additional sample collection rates from the source site for classification may be requested if sufficient data cannot be obtained from the site history and inspection, or if there is a potential (evident in the site history or site inspection) that the material may require further investigation.

Table 3a – VENM Sample Rate

Volume of material to be imported to PLDC	Sample numbers
up to 1,000 m^3	4 samples
up to 2,000 m^3	5 samples
up to 4,000 m^3	6 samples
up to 8,000 m^3	7 samples
up to 15,000 m^3	8 samples
up to 30,000 m^3	9 samples
up to 50,000 m^3	10 samples
1 additional sample required per additional 20,000 m^3. The above sample numbers must be provided in addition to the background site details required in Section 3.1. Further samples may be requested by PLDC representative following review of the information and/or evidence of potential contamination from neighbouring sites or identified areas of environmental concern. *Note: Material received from the Sydney Metro/M4-M5 tunnel spoil will be generated as part of a continual process and as such the pre-classification sampling density requirements in table 3.1 do not apply. The material is required to demonstrate material compliance with the PLDC criteria initially with a minimum of ten representative samples to provide a statistically valid assessment, and is to be subject to continual assessment by the source site to confirm only approved materials are distributed to Penrith Lakes. In addition to this, continual sampling at a rate of 1:10,000m^3 will be conducted at the receiving site to confirm material compliance.*	

Sampling rates adopted for the material importation of VENM materials are less than those provided in:

- EPA ENM Order 2014;
- NEPM 2013 guidelines for stockpiled soil; and
- Vic EPA 2010 sampling protocols.

A reduced sampling rate from the aforementioned sampling standards is considered appropriate for the certification of VENM soils for importation onto the Site because:

- Detailed investigation into the site history is included as part of the assessment of the source site to determine any potential risks of contamination from past land uses;
- An assessment of potential contamination risks to site soils from surrounding land uses are assessed as part of the initial VENM certification process;
- A desktop study of the site is undertaken to review the relatively recent land use activities, as well as enabling a review of the contaminated land register for issues with the site, or around the site area;
- A detailed inspection of the site is undertaken by a PLDC representative confirming that no fill materials are present on the site prior to exportation;
- Sampling is undertaken on the surface of the exposed VENM to ensure that if any overlying fill material has not impacted the underlying VENM;
- The site inspection and VENM soils are observed to be naturally in-situ – meaning that potential for contamination in reduced, as only natural soils can be present below VENM in-situ exposed surfaces;
- A review of the quality of the data is undertaken as part of the site assessment, resulting in consistency in soil properties to demonstrate homogeneous natural background concentrations;
- The volume of material form each site source is greater than 1,000 m^3, thereby reducing variability in soil types and profiles that have a potential to be impacted or blended with non VENM materials during transport; and,
- Detailed inspection of the soils arriving at the fill site is undertaken confirming the constancy of material quality on a visual basis. Any variation in material quality can therefore be immediately noted and acted on in more detail.

Due to the precautions and processes being implemented for the importation and characterisation of VENM soils to the fill site, it is justifiable that a reduced sampling regime can be adopted, as multiple overlapping systems and checks are in place to identify any discrepancies in potential soils contamination. If any of the above processes and strategies cannot be satisfactorily completed or resolved, the material will then be deemed not suitable and will either be rejected, or will be subject to a more detailed sampling regime.

As each site to be considered for the supply of VENM for the filling works must generate a minimum of 1,000 m^3 of VENM, the minimum sampling requirements for any site would be the collection of 4 samples as per **Table 3a** above. In line with this, minimum sampling rates for

VENM import soils will be samples in accordance with **Table 3a** above, with any part over the specified numbers, broken down and repeated.

In the event that a larger volume of VENM is imported from a source site than originally estimated, additional sampling will be required. Sampling may be conducted at the Site after the material has been unloaded and is stockpiled in a holding area. Material should remain stockpiled until such a time that analysis can confirm that the material is of a similar chemical composition to the material previously imported. Sample rates of additional material should be in accordance with **Table 3a**.

All samples must be delivered to the laboratory in the correct preservation medium and analysed within the relevant holding times. Discrete sampling (not composite) will be undertaken on all samples.

Samples collected for material to be imported onsite will be analysed for the following:

- Priority heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- Organochloride Pesticides (OCPs);
- Petroleum Hydrocarbons (TRH);
- Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene;
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs);
- Soil pH, and
- Asbestos (presence/absence).

3.3 VENM Importation Criteria

For the material to be deemed suitable for importation onsite, the analytes must present concentrations below the limits presented in **Table 5c** below.

Table 3b: VENM Screening Criteria

Compounds	Average Concentration (mg/kg)	Maximum Concentration (mg/kg)	Reference Note
Inorganics			
Arsenic (total)	20	40	1
Cadmium	0.5	3	2
Chromium (total)	75	100	3
Copper	55	200	4
Lead	50	100	5
Mercury (inorganic)	0.5	1	6
Nickel	15	60	7
Zinc	120	300	8
Foreign Materials	None Present	None Present	
Aesthetics	No odour, no staining	No odour, no staining	
pH	5.0-9.0	4.5 to 10	
ASS / PASS	None	--	
Asbestos	None	--	9
Organics			
Benzo(a)pyrene	--	0.5	10
Polycyclic Aromatic Hydrocarbons	1	1	10
Organochloride Pesticides (OCPs)	0.1	0.1	11
Polychlorinated Biphenyls (PCBs)	0.1	0.1	11
Benzene	0.2	0.2	11
Toluene	0.5	0.5	11
Ethylbenzene	1	1	11

Total Xylene	1.5	1.5	11
Naphthalene	1	1	11
Petroleum Hydrocarbons F1 (C_6-C_{10})	25	25	11
Petroleum Hydrocarbons F2 (C_{10}-C_{16})	50	50	11
Petroleum Hydrocarbons F3 (C_{16}-C_{34})	100	100	11
Petroleum Hydrocarbons F4 (C_{34}-C_{40})	100	100	11

1. Arsenic average of 20 mg/kg and maximum of 40 mg/kg based on the POEO Regulation (2014) for ENM.
2. Cadmium average of 0.5mg/kg and maximum of 1 mg/kg based on the POEO Regulation (2014) for ENM.
3. Chromium average of 75 mg/kg based on the POEO Regulation (2014) for Maximum average concentrations for ENM, maximum value of 100 mg/kg based on the NEPM (2013) HIL for Chromium VI for standard residential.
4. Copper average of 55 mg/kg based on the NEPM (2013) EILs for concentrations in typical soils within the Blacktown soil landscape with pH>5.5 and Cation Exchange Capacity >6cmol/kg, maximum value of 200mg/kg based on the POEO Regulation (2014) for absolute maximum concentrations for Copper in ENM.
5. Lead average concentration of 50mg/kg based on the POEO Regulation (2014) for Maximum average concentrations for ENM, maximum value of 100mg/kg based on absolute maximum Lead concentrations for ENM in the POEO Regulation (2014).
6. Mercury average of 0.5mg/kg based on the POEO Regulation (2014) for Maximum average concentrations for ENM, maximum concentration based on the NEPM (1999) EILs of 1 mg/kg for Mercury.
7. Nickel average of 15 mg/kg based on the NEPM (2013) EILs for typical soils within the Blacktown soil landscape with a Cation Exchange Capacity >6cmol/kg, maximum value of 60mg/kg based on the POEO Regulation (2014) for absolute maximum concentrations for Nickel in ENM.
8. Zinc average based on the NEPM (2013) EILs of 120 mg/kg for typical soils within the Blacktown soil landscape with Cation Exchange Capacity >6cmol/kg, maximum value of 300mg/kg based on the POEO Regulation (2014) for absolute maximum concentrations for Zinc in ENM.
9. Asbestos must not be present in the classified VENM materials. Any overlying fill suspected of containing asbestos must be removed and validated with soil sampling and visual clearance prior to being accepted.
10. PAH concentrations outside these criteria must be demonstrated to be naturally occurring prior to acceptance. As B(a)P is produced during heat treatment the limit is the Practical Quantitation Limit (PQL)
11. Criteria based on the VENM source material having a concentration below the PQL for the specified compound. Any exceedances of these criteria will require further investigation and evidence that the compound is naturally occurring.

3.4 ENM Classification Sampling Requirements

Requirements for ENM classifications are detailed specifically in the Excavated Natural Material Order 2014 – provided in **Appendix A**. All materials that are assessed as ENM for

inclusion into the PLDC Site must at a minimum address all sampling and analysis requirements of the order.

The **Sampling Requirements** listed in **Tables 1, 2 and 3** of the order provide details on sampling requirements for ENM Classification. Any waste classification for ENM materials are to demonstrate compliance with the applicable sampling methodology (either stockpiled or insitu) with discrete samples collected from each sampling location.

Note, additional sample collection rates may be requested if sufficient data cannot be obtained from the site history and inspection, or if there is a potential (evident in the site history or site inspection) that the material may require further investigation.

3.5 ENM Sampling Criteria

Requirements for ENM classifications are detailed specifically in the Excavated Natural Material Order 2014 – provided in **Appendix A**. All materials that are assessed as ENM for inclusion into the PLDC Site must at a minimum address all sampling and analysis requirements of the order. These criteria are listed as **the Chemical and Other Material Requirements** in **Table 4** of the order.

All criteria must be addressed and meet the requirements of the ENM Order 2014.

3.6 Tunnel Boring Material Criteria

The tunnel boring material is required to meet the conditions set out within Table 3b of the Importation Protocol, as well as the site risk assessment as set out in Section 3.2 – *VENM Classification Sampling Requirements* prior to being accepted into the Penrith Lakes Scheme. The sampling densities nominated in Table 3a of the importation protocol are not required to be achieved to accept the material as the material is expected to be generated as a continuous process.

The material will potentially have minor inclusions of shotcrete (<0.2 % w/w), however it is not considered these inclusions will detrimentally affect the PLDC site in terms of health/environmental risks or impact the validity of the material from an engineering perspective.

4 Importation Approvals

Prior to the receipt of VENM or ENM, each source site (discrete property location) will be subject to a detailed site inspection by a PLDC representative to:

- confirm the supplied documentation is consistent with the materials on site; and
- no issues exist which have the potential to impact the VENM or ENM classification.

Inspections by PLDC representative/s do not remove the overall responsibility of the source site to provide VENM or ENM to the Site. Where non-conformances are identified at the source site, they must be rectified and reinspected by a PLDC representative prior to importation commencing/re-commencing.

Where the documentation and site inspection confirm the VENM or ENM classification, a validation number will be issued for the site which must be utilised for all transport of materials to PLDC. No validation number – No entry to Site.

4.1 Delivery and Placement Inspections

Only pre-validated and approved materials are to be imported to the site and will be subject to a thorough inspection to confirm the VENM or ENM classification.

A gatekeeper is to be present at the entry gate to the Site at all times when the gate is unlocked and open to traffic. No deliveries to the Site are to be made when the gatekeeper is not present at the gate. The gatekeeper will be responsible for recording and inspecting all deliveries of imported material to the site. This includes video surveillance for inspections of loads prior to entering the Site.

Written records to be kept by the gatekeeper for each truck load that will include:

- The time of truck arrival;
- Provided site validation number;
- The truck licence number;
- The VENM source site;
- The quantity of material delivered; and
- A description of the delivered material.

Full time supervision will be provided by both PLDC and the civil contractor managing the placement and compaction of the material. This will involve continuous visual assessment of the quality of materials being imported, with any concerns reported immediately to the PLDC site supervisor. The PLDC supervisor will also provide daily visual assessment of the material importation procedure and quality of materials.

Any loads identified to be inconsistent with the VENM classification or material type approved for the source site will be rejected and must be removed from site by the relevant Filling

Supplier. If this material is placed in the fill area prior to being identified, the material is to remain in stockpile and isolated to prevent this material spreading with the remaining site.

If any soils are identified as not suitable, i.e. contain odours, staining, foreign materials or do not comply with the material description form the specific site, the load will be isolated and reloaded into the importing truck for removal.

Visual inspection and quality assessments will be conducted by a suitably qualified environmental consultant. This will include an inspection of material placement areas active at the time of inspection. Soil samples will also be collected from every source site importing on that day with a proposed 1 sample for every 5,000m^3 of materials imported for the week.

4.2 Non-Compliance

For any material identified to be imported that is non-compliant an incident report will be completed, outlining, but not limited to the following:

- Filling Suppliers transport contractor;
- Truck configuration;
- Truck and trailer registration;
- Material type;
- Reason for non-compliance; and
- Actions taken.

The identification of non-compliant material will likely occur in two areas – during initial inspection at the gate area, where the truck will be denied authorisation to offload the material, or immediately following the dumping of the material by the spotter on inspection duty.

Where material has been offloaded and identified as non-compliant, the truck will be recalled and the material re-loaded into the truck for removal. Removal of any rejected materials will be at the cost of the Filling Supplier.

Any rejected/contaminated materials delivered to the Penrith Lakes Site must be removed by the contractor within 24 hours of notification at the cost of the contractor.

Where any issues are identified for a source site, PLDC will cease accepting any materials from that site until the issue is rectified by the source site. A site inspection by a PLDC representative

may be undertaken to satisfy themselves that the source site is operating free of issues that could potentially affect the Penrith Lakes Site. Site inspections performed by PLDC representatives do not constitute an approval/acceptance that the material being delivered is either VENM or ENM.

ENM must not be placed within 2.0m of the landform finished surface level. ENM is to only be placed in locations approved by the PLDC supervisor.

All material brought to the Site must be suitable for signoff as either VENM or ENM by the Penrith Lakes NSW EPA Accredited Contaminated Lands Site Auditor to allow a Site Audit Statement to be issued for placement areas stating that the land is suitable for its intended use

5 Imported Soil QA/QC

Visual quality control checks are the responsibility of all contractors handling the materials. This includes machine operators and supervisors. Any non-conformances or concerns shall be reported to the PLDC supervisor immediately and investigated to ensure all fill meets the importation protocol requirements.

The Environmental Consultant will also provide visual assessments of materials being imported, inspect gate keeper records and importation volumes, verify only approved materials are being imported as well as conduct representative sampling of the material at the tip face. Samples will be collected from all sites providing materials on the day with a minimum of one sample per providing Site and an additional sample for every 5,000m^3 imported from the preceding week. Materials that are sampled must demonstrate compliance with the land use suitability of the Site (‘*Residential A’* guidelines, NEPM 2013).

Any materials that are deemed to not meet the land use suitability that have already been placed on the Site are to be isolated, removed and disposed of at the cost of the supplying contractor. The Environmental Consultant must provide a clearance that the non-compliant material has been removed and the footprint validated.

Appendix A

The Excavated Natural Material Order 2014

Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014

The excavated natural material order 2014

Introduction

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of excavated natural material to which 'the excavated natural material exemption 2014' applies. The requirements in this order apply in relation to the supply of excavated natural material for application to land as engineering fill or for use in earthworks.

1. Waste to which this order applies

1.1. This order applies to excavated natural material. In this order, excavated natural material means naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that has:

a) been excavated from the ground, and
b) contains at least 98% (by weight) natural material, and
c) does not meet the definition of Virgin Excavated Natural Material in the Act.

Excavated natural material does not include material located in a hotspot; that has been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.

2. Persons to whom this order applies

2.1. The requirements in this order apply, as relevant, to any person who supplies excavated natural material, that has been generated, processed or recovered by the person.

2.2. This order does not apply to the supply of excavated natural material to a consumer for land application at a premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

3. Duration

3.1. This order commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

4. Generator requirements

The EPA imposes the following requirements on any generator who supplies excavated natural material.

Sampling requirements

4.1. On or before supplying excavated natural material, the generator must:

4.1.1. Prepare a written sampling plan which includes a description of sample preparation and storage procedures for the excavated natural material.

4.1.2. Undertake sampling and testing of the excavated natural material as required under clauses 4.2, 4.3, and 4.4 below. The sampling must be carried out in accordance with the written sampling plan.

4.2. The generator must undertake sampling and analysis of the material for ASS and PASS, in accordance with the NSW Acid Sulfate Soil Manual, Acid Sulfate Soils Management Advisory Council, 1998 and the updated Laboratory Methods Guidelines version 2.1 – June 2004 where:

4.2.1. the pH measured in the material is below 5, and/or

4.2.2. the review of the applicable Acid Sulfate Soil Risk Maps (published by the former Department of Land and Water Conservation and available at http://www.environment.nsw.gov.au/acidsulfatesoil/riskmaps.htm) indicates the potential presence of ASS.

4.3. For stockpiled material, the generator must:

4.3.1. undertake sampling in accordance with Australian Standard 1141.3.1-2012 Methods for sampling and testing aggregates – Sampling – Aggregates (or equivalent);

4.3.2. undertake characterisation sampling by collecting the number of samples listed in Column 2 of Table 1 with respect to the quantity of the waste listed in Column 1 of Table 1 and testing each sample for the chemicals and other attributes listed in Column 1 of Table 4. For the purposes of characterisation sampling the generator must collect:

4.3.2.1. composite samples for attributes 1 to 10 and 18 in Column 1 of Table 4.

4.3.2.2. discrete samples for attributes 11 to 17 in Column 1 of Table 4.

4.3.2.3. The generator must carry out sampling in a way that ensures that the samples taken are representative of the material from the entire stockpile. All parts of the stockpile must be equally accessible for sampling.

4.3.2.4. for stockpiles greater than 4,000 tonnes the number of samples described in Table 1 must be repeated.

4.3.3. store the excavated natural material appropriately until the characterisation test results are validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 4 and the absolute maximum concentration or other value listed in Column 3 of Table 4.

Table 1

Sampling of Stockpiled Material		
Column 1	**Column 2**	**Column 3**
Quantity (tonnes)	**Number of samples**	**Validation**
<500	3	Required
500 – 1,000	4	
1,000 – 2,000	5	
2,000 – 3,000	7	
3,000 – 4,000	10	

4.4. For in situ material, the generator must:

4.4.1. undertake sampling by collecting discrete samples. Compositing of samples is not permitted for in-situ materials.

4.4.2. undertake characterisation sampling for the range of chemicals and other attributes listed in Column 1 of Table 4 according to the requirements listed in Columns 1, 2 and 3 of Table 2. When the ground surface is not comprised of soil (e.g. concrete slab), samples must be taken at the depth at which the soil commences.

4.4.3. undertake sampling at depth according to Column 1 of Table 3.

4.4.4. collect additional soil samples (and analyse them for the range of chemicals and other attributes listed in Column 1 of Table 4), at any depth exhibiting discolouration, staining, odour or other indicators of contamination inconsistent with soil samples collected at the depth intervals indicated in Table 3.

4.4.5. segregate and exclude hotspots identified in accordance with Table 2, from material excavated for reuse.

4.4.6. subdivide sites larger than 50,000 m² into smaller areas and sample each area as per Table 2.

4.4.7. store the excavated natural material appropriately until the characterisation test results are validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 4 and the absolute maximum concentration or other value listed in Column 3 of Table 4.

Table 2

***In Situ* Sampling at surface**				
Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**
Size of *in situ* area (m^2)	**Number of systematic sampling points recommended**	**Distance between two sampling points** (m)	**Diameter of the hot spot that can be detected with 95% confidence** (m)	**Validation**
500	5	10.0	11.8	Required
1000	6	12.9	15.2	
2000	7	16.9	19.9	
3000	9	18.2	21.5	
4000	11	19.1	22.5	
5000	13	19.6	23.1	
6000	15	20.0	23.6	
7000	17	20.3	23.9	
8000	19	20.5	24.2	
9000	20	21.2	25.0	
10,000	21	21.8	25.7	
15,000	25	25.0	28.9	
20,000	30	25.8	30.5	
25,000	35	26.7	31.5	
30,000	40	27.5	32.4	
35,000	45	27.9	32.9	
40,000	50	28.3	33.4	
45,000	52	29.3	34.6	
50,000	55	30.2	35.6	

Table 2 has been taken from NSW EPA 1995, *Contaminated Sites Sampling Design Guidelines*, NSW Environment Protection Authority.

Table 3

***In Situ* Sampling at Depth**	
Column 1	**Column 2**
Sampling Requirements *	**Validation**
1 soil sample at 1.0 m bgl from each surface sampling point followed by 1 soil sample for every metre thereafter. From 1.0 m bgl, sample at the next metre interval until the proposed depth of excavation of the material is reached. If the proposed depth of excavation is between 0.5 to 0.9 m after the last metre interval, sample at the base of the proposed depth of excavation.	Required if the depth of excavation is equal to or greater than 1.0 m bgl

* Refer to Notes for examples

Chemical and other material requirements

4.5. The generator must not supply excavated natural material waste to any person if, in relation to any of the chemical and other attributes of the excavated natural material:

4.5.1. The chemical concentration or other attribute of any sample collected and tested as part of the characterisation of the excavated natural material exceeds the absolute maximum concentration or other value listed in Column 3 of Table 4:

4.5.2. The average concentration or other value of that attribute from the characterisation of the excavated natural material (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 2 of Table 4.

4.6. The absolute maximum concentration or other value of that attribute in any excavated natural material supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 3 of Table 4.

Table 4

Column 1	Column 2	Column 3
Chemicals and other attributes	**Maximum average concentration for characterisation** (mg/kg 'dry weight' unless otherwise specified)	**Absolute maximum concentration** (mg/kg 'dry weight' unless otherwise specified)
1. Mercury	0.5	1
2. Cadmium	0.5	1
3. Lead	50	100
4. Arsenic	20	40
5. Chromium (total)	75	150
6. Copper	100	200
7. Nickel	30	60
8. Zinc	150	300
9. Electrical Conductivity	1.5 dS/m	3 dS/m
10. pH *	5 to 9	4.5 to 10
11. Total Polycyclic Aromatic Hydrocarbons (PAHs)	20	40
12. Benzo(a)pyrene	0.5	1
13. Benzene	NA	0.5
14. Toluene	NA	65
15. Ethyl-benzene	NA	25
16. Xylene	NA	15
17. Total Petroleum Hydrocarbons C_{10}-C_{36}	250	500
18. Rubber, plastic, bitumen, paper, cloth, paint and wood	0.05%	0.10%

* The ranges given for pH are for the minimum and maximum acceptable pH values in the excavated natural material.

Test methods

4.7. The generator must ensure that any testing of samples required by this order is undertaken by analytical laboratories accredited by the National Association of Testing Authorities (NATA), or equivalent.

4.8. The generator must ensure that the chemicals and other attributes (listed in Column 1 of Table 4) in the excavated natural material it supplies are tested in accordance with the test methods specified below or other equivalent analytical methods. Where an equivalent analytical method is used the detection limit must be equal to or less than that nominated for the given method below.

4.8.1. Test methods for measuring the mercury concentration.

4.8.1.1. Analysis using USEPA SW-846 Method 7471B Mercury in solid or semisolid waste (manual cold vapour technique), or an equivalent analytical method with a detection limit < 20% of the stated absolute maximum concentration in Column 3 of Table 2 (i.e. < 0.20 mg/kg dry weight).

4.8.1.2. Report as mg/kg dry weight.

4.8.2. Test methods for measuring chemicals 2 to 8.

4.8.2.1. Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils (or an equivalent analytical method).

4.8.2.2. Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 10% of the stated absolute maximum concentration in Column 3 of Table 2, (e.g. 10 mg/kg dry weight for lead).

4.8.2.3. Report as mg/kg dry weight.

4.8.3. Test methods for measuring electrical conductivity and pH.

4.8.3.1. Sample preparation by mixing 1 part excavated natural material with 5 parts distilled water.

4.8.3.2. Analysis using Method 103 (pH) and 104 (Electrical Conductivity) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.8.3.3. Report electrical conductivity in deciSiemens per metre (dS/m).

4.8.4. Test method for measuring Polynuclear Aromatic Hydrocarbons (PAHs) and benzo(a)pyrene.

4.8.4.1. Analysis using USEPA SW-846 Method 8100 Polynuclear Aromatic Hydrocarbons (or an equivalent analytical method).

4.8.4.2. Calculate the sum of all 16 PAHs for total PAHs.

4.8.4.3. Report total PAHs as mg/kg dry weight.

4.8.4.4. Report benzo(a)pyrene as mg/kg.

4.8.5. Test method for measuring benzene, toluene, ethylbenzene and xylenes (BTEX).

4.8.5.1. Method 501 (Volatile Alkanes and Monocyclic Aromatic Hydrocarbons) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.8.5.2. Report BTEX as mg/kg.

4.8.6. Test method for measuring Total Petroleum Hydrocarbons (TPH).

4.8.6.1. Method 506 (Petroleum Hydrocarbons) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.8.6.2. Report as mg/kg dry weight.

4.8.7. Test method for measuring rubber, plastic, bitumen, paper, cloth, paint and wood.

4.8.7.1. NSW Roads & Traffic Authority Test Method T276 Foreign Materials Content of Recycled Crushed Concrete (or an equivalent method).

4.8.7.2. Report as percent.

Notification

4.9. On or before each transaction, the generator must provide the following to each person to whom the generator supplies the excavated natural material:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the excavated natural material exemption, or a link to the EPA website where the excavated natural material exemption can be found; and
- a copy of the excavated natural material order, or a link to the EPA website where the excavated natural material order can be found.

Record keeping and reporting

4.10. The generator must keep a written record of the following for a period of six years:

- the sampling plan required to be prepared under clause 4.1.1;
- all characterisation sampling results in relation to the excavated natural material supplied;
- the volume of detected hotspot material and the location;
- the quantity of the excavated natural material supplied; and
- the name and address of each person to whom the generator supplied the excavated natural material.

4.11. The generator must provide, on request, the characterisation and sampling results for that excavated natural material supplied to the consumer of the excavated natural material.

5. Definitions

In this order:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

Bgl means below ground level, referring to soil at depth beneath the ground surface.

composite sample means a sample that combines five discrete sub-samples of equal size into a single sample for the purpose of analysis.

consumer means a person who applies, or intends to apply excavated natural material to land.

discrete sample means a sample collected and analysed individually that will not be composited.

generator means a person who generates excavated natural material for supply to a consumer.

hotspot means a cylindrical volume which extends through the soil profile from the ground surface to the proposed depth of excavation, where the level of any contaminant listed in Column 1 of Table 2 is greater than the absolute maximum concentration in Column 3 of Table 2.

***in situ* material** means material that exists on or below the ground level. It does not include stockpiled material.

***in situ* sampling** means sampling undertaken on *in situ* material.

N/A means not applicable.

stockpiled material means material that has been excavated from the ground and temporarily stored on the ground prior to use.

systematic sampling means sampling at points that are selected at even intervals and are statistically unbiased.

transaction means:

- in the case of a one-off supply, the supply of a batch, truckload or stockpile of excavated natural material that is not repeated.
- in the case where the supplier has an arrangement with the recipient for more than one supply of excavated natural material, the first supply of excavated natural material as required under the arrangement.

Manager Waste Strategy and Innovation

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of each of the generator and processor to ensure it complies with all relevant requirements of the most current order. The current version of this order will be available on ' www.epa.nsw.gov.au

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies excavated natural material should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of excavated natural material remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet. Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.

Examples

In situ sampling at depth

Example 1.

If the proposed depth of ENM excavation is between 1 m bgl and 1.4 m bgl, then:

- 1 sample on surface (as per the requirements of Table 2).
- 1 sample at 1 m bgl.
- No further depth sampling after 1 m bgl, unless required under section 4.4.4.

Example 2.

If the proposed depth of ENM excavation is at 1.75 m bgl, then:

- 1 sample on surface (as per the requirements of Table 2).
- 1 sample at 1 m bgl.
- 1 sample at 1.75 m bgl.
- No further depth sampling after 1.75 m bgl, unless required under section 4.4.4.

Example 3.

If the proposed depth of ENM excavation is at 2.25 m bgl, then:

- 1 sample on surface (as per the requirements of Table 2).
- 1 sample at 1 m bgl.
- 1 sample at 2 m bgl.
- No further depth sampling after 2 m bgl, unless required under section 4.4.4.

Appendix B

Tunnel Boring Material Exemption and Orders –
The Sydney Metro Tunnel 2018
M4-M5 Link Tunnel Spoil 2019.

Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014

The Sydney Metro tunnel spoil exemption November 2018

Introduction

This exemption, issued by the Environment Protection Authority (EPA) under clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), exempts a consumer of Sydney Metro tunnel spoil from certain requirements in relation to the application of that waste to land or use as a raw material, provided the consumer complies with the conditions of this exemption.

This exemption should be read in conjunction with 'the Sydney Metro tunnel spoil order November 2018'. This exemption applies to Sydney Metro tunnel spoil that is, or is intended to be, applied to land as engineering fill, or for use in earthworks, or for use as an alternative raw material in the manufacture of bricks.

1. Waste to which this exemption applies

1.1. This exemption applies to Sydney Metro tunnel spoil. In this exemption, Sydney Metro tunnel spoil means approximately 1.22 million tonnes of naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that:

(a) has been generated from the Sydney Metro and Southwest Project extending from Chatswood to Sydenham (excluding estuarine sediments and slurry material sourced from the Barangaroo Site and beneath Sydney Harbour respectively);
(b) has been virgin excavated by the use of machinery;
(c) contains no more than 0.5% w/w shotcrete;
(d) has not been contaminated with manufactured chemicals or process residues (except for shotcrete); and
(e) does not meet the definition of virgin excavated natural material in the POEO Act; and
(f) may have been processed by intermediate waste facilities licensed by the EPA.

Sydney Metro tunnel spoil does not include material that has been mixed with glass fibre plastic reinforced rods and bolts; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.

2. Persons to whom this exemption applies

2.1. This exemption applies to any person who applies or intends to apply Sydney Metro tunnel spoil as set out in 1.1.

3. Revocation

3.1. 'The Sydney Metro tunnel spoil exemption 2018' which commenced on 9 August 2018 is revoked from 28 November 2018.

4. Duration

4.1. This order commences on 29 November 2018 and is valid until 9 August 2020 or until revoked by the EPA by notice in writing at an earlier date.

5. Premises to which this exemption applies

5.1. This exemption applies to the premises at which the consumer's actual or intended application of Sydney Metro tunnel spoil is carried out.

6. Exemption

6.1. Subject to the conditions of this exemption, the EPA exempts each consumer from the following provisions of the POEO Act and the Waste Regulation in relation to the consumer's actual or intended application of Sydney Metro tunnel spoil to land as engineering fill, or use in earthworks, or for use as an alternative input into thermal processes for non-energy recovery purposes in the manufacture of bricks at the premises:

- section 48 of the POEO Act in respect of the scheduled activities described in clauses 39, 40 and 42 of Schedule 1 of the POEO Act;
- Part 4 of the Waste Regulation;
- section 88 of the POEO Act; and
- clause 109 and 110 of the Waste Regulation.

6.2. The exemption does not apply in circumstances where Sydney Metro tunnel spoil is received at the premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

7. Conditions of exemption

The exemption is subject to the following conditions:

7.1. At the time Sydney Metro tunnel spoil is received at the premises, it must meet all material requirements for Sydney Metro tunnel spoil which are required under 'the Sydney Metro tunnel spoil order November 2018'.

7.2. Sydney Metro tunnel spoil can only be:

7.2.1. applied to land as engineering fill, or use in earthworks, or

7.2.2. used as an alternative input into thermal processes for non-energy recovery purposes in the manufacture of bricks.

7.3. The consumer must keep a written record of the following for a period of six years:

7.3.1. the quantity of Sydney Metro tunnel spoil received; and

7.3.2. the name and address of the supplier of Sydney Metro tunnel spoil received.

7.4. The consumer must make any records required to be kept under this exemption available to authorised officers of the EPA on request.

7.5. The consumer must ensure that any application of Sydney Metro tunnel spoil to land must occur within a reasonable period of time after receipt.

8. Definitions

In this exemption:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land;
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

consumer means:

- a person who applies, or intends to apply, Sydney Metro tunnel spoil to land; and
- a person who uses, or intends to use, Sydney Metro tunnel spoil in connection with a process involving thermal treatment.

generator means a person who generates Sydney Metro tunnel spoil for supply to a processor or consumer. The generator in this order is John Holland CPB Contractors Ghella Joint Venture (JHCPBG JV).

metal staples means small pieces of metal that resemble the shape of staples, with each staple having an approximate dimension of 35 mm x 0.5 mm.

plastic staples means small pieces of polypropylene with an approximate dimension of 65 mm x 1 mm.

processor means a person who processes Sydney Metro tunnel spoil into a material in its final form for supply to a consumer.

shotcrete means cement grout reinforced with metal staples and/or plastic staples used to line the tunnel of Sydney Metro and Southwest Project.

28.11.18

Director Waste Policy, Innovation and Strategy

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this exemption at any time. It is the responsibility of the consumer to ensure they comply with all relevant requirements of the most current exemption.

In gazetting or otherwise issuing this exemption, the EPA is not in any way endorsing the use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this exemption are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this exemption nor the accompanying order guarantee that the environment, human health or agriculture will not be harmed.

The consumer should assess whether or not Sydney Metro tunnel spoil is fit for the purpose the material is proposed to be used for, and whether this use will cause harm. The consumer may need to seek expert engineering or technical advice.

Regardless of any exemption provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The receipt of Sydney Metro tunnel spoil remains subject to other relevant environmental regulations in the POEO Act and the Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of having an exemption, is guilty of an offence and subject to prosecution.

This exemption does not alter the requirements of any other relevant legislation that must be met in utilising this material, including for example, the need to prepare a Safety Data Sheet (SDS).

Failure to comply with the conditions of this exemption constitutes an offence under clause 91 of the Waste Regulation.

Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014

The M4-M5 Link tunnel spoil order 2019

Introduction

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of M4-M5 Link tunnel spoil to which 'the M4-M5 Link tunnel spoil exemption 2019' applies. The requirements in this order apply in relation to the supply of M4-M5 Link tunnel spoil for application to land as engineering fill, or for use in earthworks, or for use as an alternative raw material in the manufacture of bricks, or applied to land within the road corridor for public road related activities including road construction, maintenance and installation of road infrastructure facilities.

1. Waste to which this order applies

1.1. This order applies to M4-M5 Link tunnel spoil. In this order, M4-M5 Link tunnel spoil means approximately 3 million cubic meters of naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that:

(a) has been generated from the WestConnex M4-M5 Link Tunnel Project extending from Haberfield to St Peters;
(b) has been excavated by the use of machinery;
(c) contains no more than 0.2% w/w shotcrete;
(d) has not been contaminated with manufactured chemicals or process residues (except for shotcrete);
(e) does not meet the definition of virgin excavated natural material in the POEO Act; and
(f) may have been processed by intermediate waste facilities licensed by the EPA.

M4-M5 Link tunnel spoil does not include material that has been mixed with glass fibre plastic reinforced rods and bolts; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.

2. Persons to whom this order applies

2.1. The requirements in this order apply to any person who supplies M4-M5 Link tunnel spoil that has been generated, or recovered by Lendlease Samsung Bouygues Joint Venture ('LSBJV').

2.2. This order does not apply to the supply of M4-M5 Link tunnel spoil to a consumer for land application or at a premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

3. Duration

3.1. This order commences on 17 April 2019 and is valid until 17 April 2021 unless revoked by the EPA by notice in writing at an earlier date.

4. Generator requirements

The EPA imposes the following requirements on any generator who supplies M4-M5 Link tunnel spoil.

Notification

4.1. On or before each transaction, the generator must provide the following to each person to whom the generator supplies the M4-M5 Link tunnel spoil to:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the 'M4-M5 Link tunnel spoil exemption 2019'; and
- a copy of the 'M4-M5 Link tunnel spoil order 2019'.

Record keeping and reporting

4.2. The generator must keep a written record of the name and address of each person to whom the generator supplied M4-M5 Link tunnel spoil and quantity supplied for a period of six years.

4.3. The generator of M4-M5 Link tunnel spoil must make information available to the EPA upon request.

5. Processor requirements

The EPA imposes the following requirements on any processor who supplies M4-M5 Link tunnel spoil that has been processed:

5.1. The processor must only process M4-M5 Link tunnel spoil by crushing, grinding, separating and screening.

Notification

5.2. On or before each transaction, the processor must provide the following to each person to whom the processor supplies the M4-M5 Link tunnel spoil to:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the 'M4-M5 Link tunnel spoil exemption 2019'; and
- a copy of the 'M4-M5 Link tunnel spoil order 2019'.

Record keeping and reporting

5.3. The processor must keep a written record of the name and address of each person to whom the processor supplied M4-M5 Link tunnel spoil and quantity supplied for a period of six years.

5.4. The processor of M4-M5 Link tunnel spoil must make information available to the EPA upon request.

6. Definitions

In this order:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land;
- ploughing, injecting or mixing into the land; or

- filling, raising, reclaiming or contouring the land.

consumer means:

- a person who applies, or intends to apply, M4-M5 Link tunnel spoil to land; and
- a person who uses, or intends to use, M4-M5 Link tunnel spoil in connection with a process involving thermal treatment.

generator means a person who generates M4-M5 Link tunnel spoil for supply to a processor or consumer. The generator in this order is LSBJV.

metal staples means small pieces of metal that resemble the shape of staples, with each staple having an approximate dimension of 35 mm x 1 mm.

processor means a person who processes M4-M5 Link tunnel spoil into a material in its final form for supply to a consumer.

shotcrete means cement grout reinforced with metal staples used to line the tunnel of the WestConnex M4-M5 Link project.

DATE 17/04/2019

Director Resource Recovery Policy

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of the generator to ensure it complies with all relevant requirements of the most current order.

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies M4-M5 Link tunnel spoil should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of M4-M5 Link tunnel spoil remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet. Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.

Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014

The M4-M5 Link tunnel spoil exemption 2019

Introduction

This exemption, issued by the Environment Protection Authority (EPA) under clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), exempts a consumer of M4-M5 Link tunnel spoil from certain requirements in relation to the application of that waste to land or use as a raw material, provided the consumer complies with the conditions of this exemption.

This exemption should be read in conjunction with 'the M4-M5 Link tunnel spoil order 2019'. This exemption applies to M4-M5 Link tunnel spoil that is, or is intended to be, applied to land as engineering fill, or for use in earthworks, or for use as an alternative raw material in the manufacture of bricks, or applied to land within the road corridor for public road related activities including road construction, maintenance and installation of road infrastructure facilities.

1. Waste to which this exemption applies

1.1. This exemption applies to M4-M5 Link tunnel spoil. In this exemption, M4-M5 Link tunnel spoil means approximately 3 million cubic meters of naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that:

(a) has been generated from the WestConnex M4-M5 Link Tunnel Project extending from Haberfield to St Peters;
(b) has been excavated by the use of machinery;
(c) contains no more than 0.2% w/w shotcrete;
(d) has not been contaminated with manufactured chemicals or process residues (except for shotcrete);
(e) does not meet the definition of virgin excavated natural material in the POEO Act; and
(f) may have been processed by intermediate waste facilities licensed by the EPA.

M4-M5 Link tunnel spoil does not include material that has been mixed with glass fibre plastic reinforced rods and bolts; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.

2. Persons to whom this exemption applies

2.1. This exemption applies to any person who applies or intends to apply M4-M5 Link tunnel spoil as set out in 1.1.

3. Duration

3.1. This exemption commences on 17 April 2019 and is valid until 17 April 2021 unless revoked by the EPA by notice in writing at an earlier date.

4. Premises to which this exemption applies

4.1. This exemption applies to the premises at which the consumer's actual or intended application of M4-M5 Link tunnel spoil is carried out.

5. Exemption

5.1. Subject to the conditions of this exemption, the EPA exempts each consumer from the following provisions of the POEO Act and the Waste Regulation in relation to the consumer's actual or intended application of M4-M5 Link tunnel spoil to land as engineering fill, or use in earthworks, or for use as an alternative input into thermal processes for non-energy recovery purposes in the manufacture of bricks at the premises:

- section 48 of the POEO Act in respect of the scheduled activities described in clauses 39, 40 and 42 of Schedule 1 of the POEO Act;
- Part 4 of the Waste Regulation;
- section 88 of the POEO Act; and
- clause 109 and 110 of the Waste Regulation.

5.2. The exemption does not apply in circumstances where M4-M5 Link tunnel spoil is received at the premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

6. Conditions of exemption

The exemption is subject to the following conditions:

6.1. At the time M4-M5 Link tunnel spoil is received at the premises, it must meet all material requirements for M4-M5 Link tunnel spoil which are required under 'the M4-M5 Link tunnel spoil order 2019'.

6.2. M4-M5 Link tunnel spoil can only be:

6.2.1. applied to land as engineering fill, or use in earthworks; or

6.2.2. applied to land within the road corridor for public road related activities including road construction, maintenance and installation of road infrastructure facilities; or

6.2.3. used as an alternative input into thermal processes for non-energy recovery purposes in the manufacture of bricks.

6.3. The consumer must keep a written record of the following for a period of six years:

6.3.1. the quantity of M4-M5 Link tunnel spoil received; and

6.3.2. the name and address of the supplier of M4-M5 Link tunnel spoil received.

6.4. The consumer must make any records required to be kept under this exemption available to authorised officers of the EPA on request.

6.5. The consumer must ensure that any application of M4-M5 Link tunnel spoil to land must occur within a reasonable period of time after receipt.

7. Definitions

In this exemption:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land;
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

consumer means:

- a person who applies, or intends to apply, M4-M5 Link tunnel spoil to land; and
- a person who uses, or intends to use, M4-M5 Link tunnel spoil in connection with a process involving thermal treatment.

generator means a person who generates M4-M5 Link tunnel spoil for supply to a processor or consumer. The generator in this order is Lendlease Samsung Bouygues Joint Venture ('LSBJV').

metal staples means small pieces of metal that resemble the shape of staples, with each staple having an approximate dimension of 35 mm x 1 mm.

processor means a person who processes M4-M5 Link tunnel spoil into a material in its final form for supply to a consumer.

shotcrete means cement grout reinforced with metal staples used to line the tunnel of the WestConnex M4-M5 Link project.

Director Resource Recovery Policy

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this exemption at any time. It is the responsibility of the consumer to ensure they comply with all relevant requirements of the most current exemption.

In gazetting or otherwise issuing this exemption, the EPA is not in any way endorsing the use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this exemption are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this exemption nor the accompanying order guarantee that the environment, human health or agriculture will not be harmed.

The consumer should assess whether or not M4-M5 Link tunnel spoil is fit for the purpose the material is proposed to be used for, and whether this use will cause harm. The consumer may need to seek expert engineering or technical advice.

Regardless of any exemption provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The receipt of M4-M5 Link tunnel spoil remains subject to other relevant environmental regulations in the POEO Act and the Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of having an exemption, is guilty of an offence and subject to prosecution.

This exemption does not alter the requirements of any other relevant legislation that must be met in utilising this material, including for example, the need to prepare a Safety Data Sheet (SDS).

Failure to comply with the conditions of this exemption constitutes an offence under clause 91 of the Waste Regulation.

Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014

The Sydney Metro tunnel spoil order November 2018

Introduction

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of Sydney Metro tunnel spoil to which 'the Sydney Metro tunnel spoil exemption November 2018' applies. The requirements in this order apply in relation to the supply of Sydney Metro tunnel spoil for application to land as engineering fill, or for use in earthworks, or for use as an alternative raw material in the manufacture of bricks.

1. Waste to which this order applies

1.1. This order applies to Sydney Metro tunnel spoil. In this order, Sydney Metro tunnel spoil means approximately 1.22 million tonnes of naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that:

(a) has been generated from the Sydney Metro and Southwest Project extending from Chatswood to Sydenham (excluding estuarine sediments and slurry material sourced from the Barangaroo Site and beneath Sydney Harbour respectively);
(b) has been virgin excavated by the use of machinery;
(c) contains no more than 0.5% w/w shotcrete;
(d) has not been contaminated with manufactured chemicals or process residues (except for shotcrete);
(e) does not meet the definition of virgin excavated natural material in the POEO Act; and
(f) may have been processed by intermediate waste facilities licensed by the EPA.

Sydney Metro tunnel spoil does not include material that has been mixed with glass fibre plastic reinforced rods and bolts; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.

2. Persons to whom this order applies

2.1. The requirements in this order apply to any person who supplies Sydney Metro tunnel spoil that has been generated, or recovered by John Holland CPB Contractors Ghella Joint Venture (JHCPBG JV).

2.2. This order does not apply to the supply of Sydney Metro tunnel spoil to a consumer for land application or at a premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled

activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

3. Revocation

3.1. 'The Sydney Metro tunnel spoil order 2018' which commenced on 9 August 2018 is revoked from 28 November 2018.

4. Duration

4.1. This order commences on 29 November 2018 and is valid until 9 August 2020 or until revoked by the EPA by notice in writing at an earlier date.

5. Generator requirements

The EPA imposes the following requirements on any generator who supplies Sydney Metro tunnel spoil.

General requirements

5.1. Sampling and validation of Sydney Metro tunnel spoil must be undertaken in accordance with sections 5.5 and 5.6 of the application submitted to the EPA by ADE Consulting Group on behalf of JHCPBG JV dated 25 May 2018.

Notification

5.2. On or before each transaction, the generator must provide the following to each person to whom the generator supplies the Sydney Metro tunnel spoil to:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the 'Sydney Metro tunnel spoil exemption November 2018'; and
- a copy of the 'Sydney Metro tunnel spoil order November 2018'.

Record keeping and reporting

5.3. The generator must keep a written record of the name and address of each person to whom the generator supplied Sydney Metro tunnel spoil and quantity supplied for a period of six years.

5.4. The generator must provide, on request, the most recent characterisation and sampling results for Sydney Metro tunnel spoil supplied to any consumer of Sydney Metro tunnel spoil.

5.5. The generator of Sydney Metro tunnel spoil must make information available to the EPA upon request.

6. Processor requirements

The EPA imposes the following requirements on any processor who supplies Sydney Metro tunnel spoil that has been processed:

6.1. The processor must only process Sydney Metro tunnel spoil by crushing, grinding, separating and screening.

Notification

6.2. On or before each transaction, the processor must provide the following to each person to whom the processor supplies the Sydney Metro tunnel spoil to:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the 'Sydney Metro tunnel spoil exemption November 2018'; and
- a copy of the 'Sydney Metro tunnel spoil order November 2018'.

Record keeping and reporting

6.3. The processor must keep a written record of the name and address of each person to whom the processor supplied Sydney Metro tunnel spoil and quantity supplied for a period of six years.

6.4. The processor must provide, on request, the most recent characterisation and sampling results for Sydney Metro tunnel spoil supplied to any consumer of Sydney Metro tunnel spoil.

6.5. The processor of Sydney Metro tunnel spoil must make information available to the EPA upon request.

7. Definitions

In this order:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land;
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

consumer means:

- a person who applies, or intends to apply, Sydney Metro tunnel spoil to land; and
- a person who uses, or intends to use, Sydney Metro tunnel spoil in connection with a process involving thermal treatment.

generator means a person who generates Sydney Metro tunnel spoil for supply to a processor or consumer. The generator in this order is JHCPBG JV.

metal staples means small pieces of metal that resemble the shape of staples, with each staple having an approximate dimension of 35 mm x 0.5 mm.

plastic staples means small pieces of polypropylene with an approximate dimension of 65 mm x 1 mm.

processor means a person who processes Sydney Metro tunnel spoil into a material in its final form for supply to a consumer.

shotcrete means cement grout reinforced with metal staples and/or plastic staples used to line the tunnel of Sydney Metro and Southwest Project.

28.11.18

Director Waste Policy, Innovation and Strategy

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of the generator to ensure it complies with all relevant requirements of the most current order.

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies Sydney Metro tunnel spoil should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of Sydney Metro tunnel spoil remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet. Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.