

Soil Management Plan

Proposed Sand Quarry

3631 Nelson Bay Road, Bobs Farm, NSW

Final Report

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1 Introduction

1.1 Overview

This report documents a Soil Management Plan (SMP) prepared by Martens and Associates (MA) on behalf of Newcastle Sand C/- ADW Johnson (the Client) to practical, stage based procedures for the management of soils and materials during the proposed staged sand quarry development at 3631 Nelson Bay Road, Bobs Farm NSW (the Site).

The SMP has been developed to translate the findings of the Detailed Site Investigation (DSI) into clear requirements for soil stripping, segregation, stockpiling, blending/conditioning, validation and reuse (particularly for rehabilitation growth media), and to manage potential unexpected finds, including localised asbestos containing material (ACM).

The Site boundary and quarry stage overview are provided in Appendix A.

1.2 Scope

This SMP applies to all stages of works within the quarry disturbance footprint, including (as relevant to each stage):

- Vegetation clearance and preparation works.
- Stripping of topsoil and near-surface soils.
- Excavation and handling of subsoil/overburden and sand.
- Placement and management of stockpiles (topsoil and other materials).
- Blending/conditioning of soils proposed for reuse as rehabilitation growth media.
- Placement of soils for progressive rehabilitation and final landform establishment.
- Management of unexpected finds (including potential ACM fragments and localised placed/reworked material).

This SMP is intended to be a standalone document that integrates with the proposed staging plan and the DSI-defined soil units. The SMP is designed to be implemented by earthworks contractors and supervised by the proponent's site management team, with hold points and verification requirements clearly identified.

1.3 Background (DSI Context – Summary)

A DSI has been completed for the Site to assess land contamination considerations relevant to the proposed sand quarry. The DSI identified that the primary soil management issue relates to diffuse near-surface copper (Cu) and zinc (Zn) concentrations in soils within the former horticultural footprint (Soil Unit 1 / AEC A). The DSI also identified an isolated ACM fragment (cement sheeting) in a bushland area

(TP216), along with field evidence suggesting localised placed/reworked near-surface material in parts of the bushland/track areas (Soil Unit 5).

Other contaminant groups assessed (including petroleum hydrocarbons, PAHs, PCBs, pesticides and PFAS) were not identified as contaminant drivers for the proposed quarry land use scenario, and groundwater (assessed at a screening level only), is not considered a primary exposure pathway for the current “dry extraction above groundwater” quarry concept.

Accordingly, the SMP focuses on:

- Segregation and controlled management of horticultural near-surface soils intended for reuse as rehabilitation growth media;
- Blending/conditioning procedures (where required) to produce suitable growth media;
- Validation/verification sampling prior to reuse; and
- Hold points and unexpected finds procedures (UFP) to manage potential ACM/placed material in localised bushland areas (particularly Stage 11 / TP216 vicinity).

1.4 Objectives

The objectives of this SMP are to:

- Provide practical, stage based soil handling requirements that can be implemented during quarry development and progressive rehabilitation.
- Prevent inappropriate mixing or uncontrolled spreading of horticultural near-surface soils (Soil Unit 1) with elevated Cu/Zn, and ensure these soils are managed in a manner suitable for their intended reuse.
- Produce rehabilitation growth media that is suitable for post quarry use by applying controlled segregation and, where required, blending/conditioning of soils prior to placement.
- Provide verification/validation requirements (sampling, assessment criteria and decision rules) to confirm soils proposed for reuse (particularly as rehabilitation growth media) meet the project’s suitability objectives.
- Manage the localised asbestos identified in the DSI through clear hold points and an Unexpected Finds Protocol (including a Stage 11 / TP216-specific process).
- Maintain clear documentation and traceability of soil movements and reuse/disposal decisions through movement logs, inspection records and laboratory reporting.

2 Project Description and Staging Framework

2.1 Project Overview

The proposed development comprises a staged sand quarry involving dry extraction only, with no dredging and no extraction below the groundwater table. We understand works will involve vegetation clearance, stripping and stockpiling of topsoil and near-surface soils, staged extraction of sand, on-site processing, and progressive rehabilitation of exhausted extraction areas.

From a soil management perspective, the key activities relevant to this SMP include:

- Staged vegetation clearance and site preparation.
- Stripping and handling of topsoil and near-surface soils prior to extraction.
- Formation and management of stockpiles (topsoil, subsoil/overburden and other materials).
- Reuse of stripped soils as rehabilitation growth media (including blending/conditioning where required).
- Implementation of unexpected finds and asbestos controls during stripping and excavation (where required).

2.2 Staging Plans

A staging plan has been prepared and is provided in Appendix B defining the proposed extraction staging and sequencing (Stages 1–15) and associated disturbance areas. This SMP has been prepared to apply on a stage-by-stage basis, such that soil handling controls, stockpiling arrangements, validation requirements and hold points are implemented progressively as each stage is commenced and completed.

This SMP is intended to be used alongside the staging plans to support:

- Pre start planning for each stage (including identification of applicable Soil Units).
- Consistent application of soil stripping and segregation requirements;
- Progressive rehabilitation, including verification of soils proposed for reuse as growth media.

2.3 Stage Commencement Requirements

Prior to commencement of works in each stage, the following stage specific planning actions are to be completed (and documented) to ensure this SMP can be implemented effectively:

1. Stage boundary confirmation: Confirm the stage boundary on the ground (survey/set-out) consistent with the staging plan.

2. Soil Unit boundary overlay: Where the staging plan overlay indicates that a stage intersects more than one Soil Unit, the Soil Unit boundary is to be marked out on the ground prior to stripping (e.g., GPS line/flagging/painted pegs). The stage will then be managed as separate sub-areas by Soil Unit (e.g., Stage 2A = Soil Unit 1, Stage 2B = Soil Unit 5).
3. Soil Unit applicability check: Confirm which Soil Units are expected within the stage area (based on the DSI Soil Unit framework and the most current spatial information available).
4. Stockpile planning: Identify and mark out stockpile locations for the stage (including separate stockpile areas for different Soil Units where required), ensuring stockpiles are located away from drainage lines and are compatible with site access/haul routes and operational areas.
5. Watch zones and hold points: Identify any stage-specific watch zones/hold points (including Stage 11 / TP216 ACM process where applicable) and brief site personnel.
6. Environmental controls: Confirm dust and erosion/sediment controls are in place for stripping and stockpiling activities (interface with CEMP).

Completion of the above should be treated as a stage commencement hold point to be signed off by the site supervisor/environmental representative prior to bulk stripping.

2.4 Site Rehabilitation

As stripped topsoil and near-surface soils (including horticultural soils) are intended to be reused as rehabilitation growth media, this SMP places emphasis on:

- Segregation and controlled blending/conditioning of soils where required.
- Verification/validation prior to placement.
- Clear placement controls to achieve rehabilitation outcomes and minimise ecological exposure risks.

3 Soil Unit Framework

3.1 Purpose of Soil Unit Framework

The DSI defined a series of Soil Units to group soils with similar land use history, field characteristics and contaminant/hazard profiles. This SMP adopts the same Soil Unit framework to ensure soil handling requirements are riskbased, practical, and directly traceable to the DSI findings.

The Soil Units are used to determine:

- How soils are stripped and segregated.
- How soils are stockpiled and whether blending/conditioning is required.
- Whether verification sampling is required before reuse.
- What hold points and unexpected finds/asbestos controls apply.

3.2 Summary of Soil Units and Management Approach

Table 1 summarises the Soil Units adopted for this SMP, the key issues identified in the DSI and the management intent for each unit.

Table 1: Soil units and management intent.

Soil Unit	DSI Description / location	Key DSI findings	Management intent under the SMP
Soil Unit 1	Horticultural near-surface soils (AEC A) within the former/active agricultural footprint	Diffuse near-surface Cu (primary driver) and localised Zn exceedances; impacts predominantly surficial; relevant to rehab growth media	Strip and segregate; stockpile separately; blend/condition where required to achieve suitable rehabilitation growth media; validate prior to placement
Soil Unit 2	Deeper natural sands beneath horticultural footprint (AEC A)	Generally lower Cu/Zn than Unit 1; supports "surficial" interpretation	May be used as a cleaner blending source (where suitable); manage as "clean subsoil/natural sand" for rehab/earthworks subject to general controls
Soil Unit 3	Structures/curtilage soils (AEC B) around existing structures and footprints of former structures	Broader COPC suite assessed; no drivers identified; minor isolated metal exceedances only	Under the proposed development, no extraction activities are proposed for this soil unit. In the event of unforeseen excavations, standard stripping / handling can be applied. Material can be reused consisted general earthwork needs unless unexpected materials area encountered.

Soil Unit	DSI Description / location	Key DSI findings	Management intent under the SMP
Soil Unit 4	Bushland “natural” near-surface soils (background comparator)	Low metals; provides useful background/reference condition	Standard stripping/handling; may be used as a clean blending source and/or rehabilitation material (subject to normal controls)
Soil Unit 5	Bushland “possible fill / placed material” areas (including track-associated materials; TP216 vicinity)	Field indicators of placed/reworked material; isolated ACM fragment at TP216	Soil Unit 5 is treated as low risk overall, subject to enhanced visual inspection during stripping. Where no suspect ACM/debris is observed, Soil Unit 5 material may be managed and reused in accordance with general soil handling requirements. Where suspect ACM/debris is observed, the Unexpected Finds Protocol applies and the affected material is to be isolated and managed accordingly.

3.3 Key Management Principles for Soil Units

The following principles apply across the SMP and are derived from the Soil Unit framework:

1. Segregation is the primary control. Soils with different expected ‘contaminant’ profiles are to be kept separate unless blending/conditioning is specifically required and validated.
2. Rehabilitation growth media is the key decision unit. Soils intended for final surface placement during rehabilitation (particularly Unit 1-derived topsoil) require controlled handling and verification before reuse.
3. Soil Unit 5 is generally treated as low risk but requires additional visual inspections during initial stages of vegetation clearing and near surface soil stripping.
4. Soils within the TP216 vicinity and similar track associated materials, are managed under enhanced inspection/UFP controls and are not to be blended into rehabilitation growth media unless specifically assessed and cleared.
5. Unexpected finds procedures apply across all stages, even in “lower risk” units (e.g., Unit 4). The UFP remains applicable if unexpected debris, ACM, odours/staining or atypical materials are encountered.

3.4 Soil Units and Quarry Staging

Soil Unit extents adopted in this SMP are shown on Appendix A, Map 01. The relationship between Soil Units and the proposed quarry staging plan is shown on Appendix A, Map 02.

Where the staging overlay indicates that a given stage intersects more than one Soil Unit, the stage is to be managed as separate sub-areas by Soil Unit. In these cases, soil stripping, segregation, stockpiling, blending/conditioning and validation requirements are to be applied according to the Soil Unit applicable at the location of works. Soil Unit boundaries are to be confirmed during stage set-out and marked on the ground prior to stripping (refer Section 2.3).

4 Roles, Responsibilities and Hold Points

4.1 Purpose

This section defines the roles and responsibilities for implementing this SMP, including stage commencement requirements, hold points, and the minimum records required to demonstrate compliance and traceability of soil handling decisions.

4.2 Roles and Responsibilities

Table 2: Roles and responsibilities for SMP implementation.

Role	Key responsibilities under the SMP
Proponent / Project Manager	Overall accountability for SMP implementation and integration into staging and construction planning. Ensures contractors are briefed, resources are available, and hold points are addressed (or delegates authority in writing). Ensures SMP requirements are reflected in project-wide environmental management documentation where relevant (CEMP/EMP interfaces).
Site Supervisor / Earthworks Contractor	Implements day-to-day soil handling, segregation and stockpile controls. Ensures Soil Unit boundaries (including stage sub-areas where applicable) are adhered to and materials are not mixed contrary to this SMP. Maintains stockpile identification/signage and completes required logs/checklists. Initiates Unexpected Finds actions immediately where triggers are met (Section 7).
Environmental Representative (site-based)	Oversees SMP implementation through routine inspections during stripping and stockpile establishment/maintenance. Confirms completion/sign-off of the stage commencement checklist (Section 2.3) including Soil Unit set-out where applicable. Maintains SMP registers (stockpile register, movement log, unexpected finds log) and collates documentation. Coordinates verification/validation sampling and ensures results are reviewed against acceptance criteria prior to reuse/placement.
Suitably Qualified Environmental Consultant	Technical support including refinement of Soil Unit boundaries where required and design of verification/validation sampling programs (stockpiles and/or targeted areas). Reviews lab results and provides suitability advice for reuse of soils (particularly rehabilitation growth media). Attends hold points where requested/required (e.g., Stage 11/TP216 clearance activities; validation outcomes sign-off).
Waste transporter / receiving facility (if disposal required)	Provides appropriate licences/approvals and acceptance documentation for offsite transport/disposal. Supplies disposal dockets and supporting paperwork for the SMP record set.

4.3 Hold Points

Hold points are used to ensure that higher risk activities do not proceed without confirming required controls are in place. The minimum hold points for this SMP are as follows:

HP-1 Stage commencement hold point (all stages)

Works must not commence (bulk stripping/excavation) until the stage commencement checklist (Section 2.3) is completed, including confirmation/markings of Soil Unit sub-areas where applicable.

HP-2 Blending/conditioning hold point (Soil Unit 1 rehabilitation materials)

Soil Unit 1 topsoil/surficial soil stockpiles must not be blended/conditioned or placed as rehabilitation growth media unless:

- The blending source materials have been confirmed as appropriate (e.g., Soil Unit 2 and/or Soil Unit 4 materials); and
- The blending method and validation sampling approach have been agreed by the Environmental Representative / Environmental Consultant.

HP-3 Validation hold point (prior to placement of growth media)

Blended/conditioned rehabilitation growth media (and any other soil proposed for sensitive placement as final surface material) must not be placed until verification/validation sampling (where required by this SMP) has been completed and results have been reviewed and accepted against the project's agreed criteria/decision rules.

HP-4 Stage 11 / TP216 asbestos hold point

For Stage 11 (TP216 vicinity), stripping and bulk earthworks near TP216 must not proceed until the required asbestos inspection/clearance checks have been completed in accordance with Section 7.

HP-5 Unexpected Finds hold point (all stages)

If an unexpected find trigger is met (e.g., suspect ACM fragment, demolition debris, unusual fill, staining/odour), works in the immediate area must stop and must not recommence until the Unexpected Finds Protocol has been implemented and the area has been made safe and cleared for works to continue.

5 Soil handling procedures

5.1 Overview

This section sets out the practical procedures that apply across all stages for stripping, segregation, stockpiling, blending/conditioning and validation of soils and materials. Stage-specific requirements (including any spatial overlap of Soil Units and Stage 11 / TP216 controls) are addressed through the stage table in Section 6 and the hold points in Section 4.

5.2 Pre stripping controls

Prior to topsoil stripping in each stage, the following controls apply:

- Complete HP-1 Stage commencement requirements (Section 4), including marking Soil Unit sub-areas where a stage contains more than one Soil Unit.
- Establish stage stockpile areas and assign stockpile IDs (refer Section 5.5).

5.3 Stripping sequence and segregation requirements

Topsoil and near-surface soils are to be stripped and managed according to the Soil Unit present at the location of works.

5.3.1 Soil Unit 1 – Horticultural near-surface soils (Cu/Zn management)

- Strip the surficial/topsoil horizon and segregate into dedicated Soil Unit 1 stockpiles.
- Do not blend Soil Unit 1 materials with other Soil Units unless blending/conditioning is planned and approved (HP-2) and validation requirements (HP-3) are met.
- Soil Unit 1 topsoil is intended for reuse as rehabilitation growth media subject to blending/conditioning and validation (Section 5.7 and 5.8).

5.3.2 Soil Unit 2 - Deeper natural sands within horticultural footprint

- Underlying natural sands (where encountered/handled as separate material streams) may be stockpiled and used as a cleaner blending source for Soil Unit 1 materials, or for other suitable site uses, subject to general controls and any verification triggers specified in Section 5.8.
- If soils show unexpected debris, odours/staining or atypical lithology, apply the Unexpected Finds Protocol (Section 7).

5.3.3 Soil Unit 3 – structures/curtilage soils

- Strip and manage in accordance with general procedures.

- Maintain heightened vigilance for unexpected materials (e.g., buried debris, small quantities of waste, suspect ACM), particularly near former structure footprints.
- Apply Unexpected Finds Protocol if triggers occur (Section 7).

5.3.4 Soil Unit 4 – bushland natural soils (background/clean source)

- Strip and stockpile as required for progressive rehabilitation.
- Soil Unit 4 materials may be used as a blending source for Soil Unit 1 rehabilitation growth media, subject to the approval and validation framework (Sections 5.7–5.8).

5.3.5 Soil Unit 5 – bushland possible fill / placed material (suspect material at TP216)

- Enhanced inspection applies during stripping (visual checks for debris/ACM and atypical materials).
- Stage 11 includes an additional hold point specific to TP216 (HP-4).

If field conditions conflict with expected Soil Unit mapping, the Environmental Representative is to be notified and the more conservative controls applied until confirmed.

5.4 Blending/conditioning procedure for rehabilitation growth media (Soil Unit 1)

Where Soil Unit 1 topsoil/surficial soils are proposed to be reused as rehabilitation growth media, blending/conditioning may be required to reduce Cu/Zn concentrations and produce fit-for-purpose growing media.

5.4.1 General approach

- Blending sources may include Soil Unit 2 natural sands, Soil Unit 4 bushland natural topsoils and cleared Unit 5 topsoils, subject to approval under HP-2.
- Blending is to be undertaken in a controlled manner to achieve a homogeneous product (e.g., windrowing and turning with a loader for a defined number of passes).
- Blending must be followed by validation/verification sampling prior to placement (HP-3) as outlined in Section 8 of this SMP.

6 Quarry Stage Management Requirements

6.1 Overview

This section provides the stage-based soil handling requirements for the proposed quarry staging. The intent is to give clear instructions for how near-surface soils are to be stripped, segregated, stockpiled, blended/conditioned (where required), validated and reused, with additional controls for suspect placed/reworked material (Soil Unit 5) and the Stage 11 / TP216 asbestos hold point.

Where a stage includes spatial overlap of Soil Units (e.g., Stage 2 contains both Soil Unit 1 and Soil Unit 5), the stage is to be managed as separate sub-areas by Soil Unit, with separate stockpiles and controls applied accordingly (refer Section 2.3 and Section 3.4).

6.2 Stage requirements

Table 3 summarises the minimum requirements for each stage. These requirements apply in addition to the general procedures in Section 5 and the hold points in Section 4.

Table 3: Stage by stage soil management requirement summary.

Stage	Soil Unit(s) expected (spatial)	Key issue(s)	Minimum required actions	Stockpile / reuse pathway	Hold points
1A	Unit 1 (sub area within Stage 1)	Cu/Zn enrichment in horticultural near-surface soils	Strip and segregate Unit 1 topsoil/surficial soils. Maintain separation from other units. Prepare for blending/conditioning as required for rehab growth media.	Stockpile for later blending/validation prior to rehab placement.	HP-1 (stage start), HP-2 (blend approval), HP-3 (validate prior to placement)
1B	Unit 5	Suspect placed/reworked material risk	Enhanced visual inspection during stripping. Apply UFP if debris/ACM suspected. Once cleared, suitable for general reuse.	Reuse only if cleared/validated; otherwise manage appropriately.	HP-1; HP-5 (if triggered)
2A	Unit 1 (sub-area within Stage 2)	Cu/Zn enrichment in horticultural near-surface soils	Strip and segregate Unit 1 topsoil/surficial soils. Maintain separation from other units. Prepare for blending/conditioning as required for rehab growth media.	S02-U1-TS (rehab growth media after blend/validation)	HP-1, HP-2, HP-3
2B	Unit 5 (sub-area within Stage 2)	Suspect placed/reworked material risk (no blending by default)	Enhanced visual inspection during stripping. Apply UFP if debris/ACM suspected. Once cleared, suitable for general reuse.	Reuse only if cleared/validated; otherwise manage appropriately.	HP-1, HP-5 (if triggered)
3A	Unit 1 (sub-area within Stage 3)	Cu/Zn enrichment in horticultural near-surface soils	Strip and segregate Unit 1 topsoil/surficial soils. Maintain separation from other units. Prepare for blending/conditioning as required for rehab growth media.	Stockpile for later blending/validation prior to rehab placement.	HP-1, HP-2, HP-3
3B	Unit 5 (sub-area within Stage 3)	Suspect placed/reworked material risk (no blending by default)	Enhanced visual inspection during stripping. Apply UFP if debris/ACM suspected. Once cleared, suitable for general reuse.	Reuse only if cleared/validated; otherwise manage appropriately.	HP-1, HP-5 (if triggered)
4	Unit 5	Suspect placed/reworked material risk	Enhanced visual inspection during stripping. Apply UFP if debris/ACM suspected. Once cleared, suitable for general reuse.	Reuse only if cleared/validated; otherwise manage appropriately.	HP-1; HP-5 if triggered

Stage	Soil Unit(s) expected (spatial)	Key issue(s)	Minimum required actions	Stockpile / reuse pathway	Hold points
5	Unit 5	Suspect placed/reworked material risk	Enhanced visual inspection during stripping. Apply UFP if debris/ACM suspected. Once cleared, suitable for general reuse.	Reuse only if cleared/validated; otherwise manage appropriately.	HP-1; HP-5 if triggered
6A	Unit 4 (sub unit area within Stage 6)	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered
6B	Unit 5	Suspect placed/reworked material risk	Enhanced visual inspection during stripping. Apply UFP if debris/ACM suspected. Once cleared, suitable for general reuse.	Reuse only if cleared/validated; otherwise manage appropriately.	HP-1; HP-5 if triggered
7	Unit 4	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered
8	Unit 4	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered
9	Unit 4	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered
10A	Unit 5 (sub-area within Stage 10)	Suspect placed/reworked material risk	Enhanced visual inspection during stripping. Apply UFP if debris/ACM suspected. Once cleared, suitable for general reuse.	Reuse only if cleared/validated; otherwise manage appropriately.	HP-1; HP-5 if triggered
10B	Unit 4 (sub unit area within Stage 10)	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered

Stage	Soil Unit(s) expected (spatial)	Key issue(s)	Minimum required actions	Stockpile / reuse pathway	Hold points
10C	Unit 1 (sub area within Stage 1)	Cu/Zn enrichment in horticultural near-surface soils	Strip and segregate Unit 1 topsoil/surficial soils. Maintain separation from other units. Prepare for blending/conditioning as required for rehab growth media.	Stockpile for later blending/validation prior to rehab placement.	HP-1 (stage start), HP-2 (blend approval), HP-3 (validate prior to placement)
11A	Unit 5 (TP216 watch zone)	Known ACM fragment at TP216 + suspect placed material	Following vegetation clearance, implement Stage 11 asbestos hold point: targeted inspection/check/clearance within the defined watch zone prior to stripping. Consider targeted additional pits/hand scrapes around TP216 if required to confirm extent. Segregate suspect material; no blending unless cleared/validated.	No reuse as growth media unless cleared/validated.	HP-4 (mandatory); HP-5 if triggered
11B	Unit 1 (sub area within Stage 1)	Cu/Zn enrichment in horticultural near-surface soils	Strip and segregate Unit 1 topsoil/surficial soils. Maintain separation from other units. Prepare for blending/conditioning as required for rehab growth media.	Stockpile for later blending/validation prior to rehab placement.	HP-1 (stage start), HP-2 (blend approval), HP-3 (validate prior to placement)
11C	Unit 4 (sub unit area within Stage 10)	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered
12A	Unit 1 (sub area within Stage 1)	Cu/Zn enrichment in horticultural near-surface soils	Strip and segregate Unit 1 topsoil/surficial soils. Maintain separation from other units. Prepare for blending/conditioning as required for rehab growth media.	Stockpile for later blending/validation prior to rehab placement.	HP-1 (stage start), HP-2 (blend approval), HP-3 (validate prior to placement)
12B	Unit 4	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered

Stage	Soil Unit(s) expected (spatial)	Key issue(s)	Minimum required actions	Stockpile / reuse pathway	Hold points
13	Unit 4	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered
14	Unit 4	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered
15	Unit 4	Bushland natural soils	Standard stripping/stockpiling; maintain general vigilance/UFP. Material may be used as a clean blending source for Unit 1 growth media if required.	Direct rehab use and/or blending source	HP-1; HP-5 if triggered

7 Unexpected Finds Protocol and Asbestos Management

7.1 Overview

This section sets out the Unexpected Finds Protocol (UFP) to be applied across all stages, and the additional asbestos-specific requirements for Stage 11 (TP216). The intent is to ensure that any unexpected contamination or hazardous materials (including ACM fragments) are managed appropriately and consistently, and that soil/material pathways (reuse, blending, disposal) remain appropriate.

7.2 Unexpected Finds Protocol

Unexpected finds may include (but are not limited to):

- Suspect asbestos-containing materials (e.g., cement sheeting fragments).
- Demolition debris (brick, fibro fragments, building rubble).
- Buried waste or foreign materials (plastics, glass, metal, drums).
- Evidence of contamination such as staining, odours, oily sheen, discoloured soils.
- Atypical fill materials inconsistent with mapped soils/geology (including shale gravels/rock fragments).
- Any material that may affect the suitability of soil for reuse as rehabilitation growth media.

7.2.1 Trigger and immediate response

If an unexpected find is encountered:

1. Stop work immediately in the immediate area of the find (minimum 10 m exclusion zone, adjusted as required).
2. Isolate and make safe: barricade the area, restrict access, and prevent tracking/spreading of material.
3. Notify the Site Supervisor and Environmental Representative.
4. Prevent mixing: do not load or move suspect material into general stockpiles; if material has already been moved, isolate the affected stockpile and record the location and approximate quantity.

This constitutes HP-5 Unexpected Finds hold point (Section 4.3). Works may only recommence once a suitably qualified environmental consultant confirms that appropriate controls have been implemented and it is safe to proceed.

7.2.2 Initial assessment and classification

An Environmental Consultant will undertake an initial assessment to determine the likely nature of the unexpected find and the required response. Assessment work may include:

- Photograph and GPS/mark-up the location.
- Record the type, extent and context (surface vs subsurface, along track vs within stage floor).
- Determine whether the find is likely to include suspect ACM.

7.2.3 Management actions

Depending on the nature of the find, one or more of the following actions may be required:

A. Suspected ACM or asbestos-impacted material:

- Treat as suspect ACM until confirmed otherwise.
- A suitability qualified environmental consultant will be required to guide sampling/clearance.
- Segregate material and manage as asbestos waste as required.
- Do not blend into rehabilitation growth media.

B. Demolition debris / buried waste:

- Segregate and stockpile separately as suspect material.
- A suitability qualified environmental consultant will undertake targeted sampling/classification if required to determine disposal pathway.
- Update stage-specific soil unit interpretation if the find indicates additional placed material.

C. Evidence of chemical contamination (odour/staining/sheens):

- Segregate material and prevent migration (dust/runoff controls).
- A suitability qualified environmental consultant will undertake targeted sampling/classification if required to determine disposal pathway.
- Determine suitability for reuse vs disposal based on results.

D. Atypical fill / placed material (e.g., shale gravels/rock fragments):

- Treat as Soil Unit 5 suspect placed/reworked material.
- Segregate and quarantine. Do not blend into growth media unless cleared/validated.

- Consider targeted confirmation sampling if reuse is proposed or if the extent is uncertain.

7.2.4 Clearance and Recommencement of Works

Works may recommence only when:

- Any required sampling/assessment outcomes have been reviewed by the appointed Environmental Consultant.
- The Environmental Consultant has reviewed any additional management measures implemented as a result of the unexpected find.
- Any contaminated material has been removed/isolated and disposal arrangements have been confirmed.

All actions are to be recorded in the Unexpected Finds Log with supporting photographs and documentation (Section 4.4).

7.3 Asbestos management

The following general requirements apply across all stages:

- Maintain visual vigilance during stripping and excavation for suspect ACM fragments and demolition debris.
- Any suspect ACM triggers stop work and implementation of the UFP (Section 7.2).
- Suspect ACM must be segregated, contained and disposed of in accordance with applicable NSW requirements using appropriately licensed personnel/transporters and disposal facilities.
- Do not blend suspect ACM or asbestos-impacted soils into any rehabilitation material streams.

7.4 Stage 11 (TP216) – asbestos hold point procedure

A laboratory-confirmed ACM fragment was previously identified at TP216, within Soil Unit 5. Accordingly, Stage 11 includes a specific asbestos-focused hold point (HP-4) to reduce uncertainty prior to bulk stripping/earthworks.

7.4.1 Timing

The Stage 11 asbestos hold point is to be implemented after vegetation clearance and prior to topsoil stripping and bulk earthworks in the defined Stage 11 watch zone (TP216 location).

7.4.2 Minimum requirements

At a minimum, the following will be undertaken within the defined Stage 11 watch zone:

1. Targeted visual inspection of exposed ground surface and any shallow disturbed areas following vegetation clearance, focusing on:
 - The TP216 vicinity.
 - Along internal tracks and any disturbed/placed material zones.
 - Any areas where anthropogenic inclusions are visible.
2. Removal and segregation of any suspect fragments encountered, with appropriate containment and temporary storage pending assessment/disposal.
3. Documentation of inspection outcomes.

7.4.3 Clearance and release to proceed

Stripping and bulk earthworks within Stage 11 may proceed only once:

- The Environmental Representative / Environmental Consultant confirms the inspection/clearance process has been completed.
- Any suspect ACM fragments have been appropriately managed (removed/isolated).
- The outcome has been recorded, and the HP-4 hold point signed off.

7.5 Records

The following records are required for unexpected finds and asbestos management:

- Unexpected Finds Log entries (including entries for Stage 11 asbestos inspection).
- Marked-up plans showing locations of finds/clearance areas.
- Waste classification/disposal documentation for any removed ACM or other material requiring offsite disposal.

8 Material Blending and Verification

8.1 Overview

This section sets out the minimum requirements to manage soils proposed for reuse as rehabilitation growth media, noting the DSI identified elevated Cu and localised Zn in Soil Unit 1 horticultural near-surface soils. The intent is to ensure final placed growth media is fit-for-purpose through segregation, controlled blending (where required)¹, and verification prior to placement.

8.2 Material Inputs

Rehabilitation growth media may comprise:

- Horticultural topsoil/surficial soils: reuse permitted subject to this section.
- Deeper natural sands (horticultural footprint): potential blending/conditioning source.
- Bushland natural topsoil: suitable as growth media and/or blending source (subject to general controls).
- Bushland possible placed/reworked material: may be used once cleared through enhanced inspection (no suspect ACM/debris observed). Stage 11 requires HP-4 clearance prior to stripping.

8.3 Key Decision Rules

- Strip and stockpile Unit 1 soils separately before any blending decisions.
- No uncontrolled mixing. Blending only occurs under a documented plan (HP-2).
- Unit 5 soils can be used as a blending source/growth media only after enhanced inspection clearance is recorded (inspection log + photos).
- Any suspect ACM/debris/staining/odour triggers the UFP (Section 7) and affected material is isolated.
- Growth media placement must meet HP-3 where sampling verification is required (see Section 8.5).

8.4 Rehabilitation Media Preparation Options

Option A – Direct placement (no blending):

¹ Blending/conditioning adopts principles consistent with NSW EPA (2003) *Guidelines for the Vertical Mixing of Soil on Contaminated Sites* focusing on controlled mixing and verification for diffuse surficial impacts.

- Suitable for Unit 4 and cleared Unit 5 soil material where no unexpected finds are present.
- Record inspection outcome and photos.

Option B – Blended/conditioned growth media:

- Used where Unit 1 topsoil is to be reused and conditioning is required to manage elevated Cu/Zn.
- Blend sources may include Unit 2 and/or Unit 4 soils, and cleared Unit 5 material.

8.4.1 Blending method

- Blend by windrowing and turning with a loader (or equivalent method capable of producing a homogeneous mixture).
- Undertake a minimum of three full turns/passes, or until a consistent mixture is achieved.
- Remove and segregate any unexpected materials encountered during blending (UFP applies).

8.5 Verification/Validation (Unit 1 blended growth media) – HP-3

8.5.1 Analytical Suite

Where growth media includes Soil Unit 1 horticultural soils, sampling based validation is required unless otherwise agreed and documented.

The minimum analytical suite should include:

- Cu and Zn.
- Metals suite as appropriate (to confirm no other contamination drivers).

Additional analytes are not required unless triggered by unexpected finds (Section 7).

Sampling frequency should be proportionate to stockpile volumes and staged works. Sampling is to be undertaken after blending / mixing and prior to placement (HP-3).

8.5.2 Indicative Sampling Frequency

As a guide, a minimum of one stockpile sample per 250 m³ of blended/conditioned growth media, with sample locations distributed across the stockpile should be collected.

The final sampling design (including sample numbers, approach and QA/QC) is to be prepared and implemented by the Project Environmental Representative and/or suitably qualified environmental consultant, having regard to stockpile volumes, staging, and observed variability.

8.5.3 Acceptance Criteria

Validation results are to be assessed against the NEPM (NEPC, 2013) Ecological Investigation Levels (EILs) adopted for the project for the intended rehabilitation end use (including the site-specific EIL derivations documented in the DSI). At a minimum, blended/conditioned growth media should demonstrate Cu and Zn concentrations that are consistent with the adopted EILs. Where results exceed adopted EILs, growth media must be re-blended/conditioned, placed with restrictions, or managed via an alternative pathway as determined by the Environmental Representative/Consultant.

9 Reporting and Review

9.1 Overview

This section outlines the minimum requirements for ongoing review, reporting and updating of this SMP to ensure it remains appropriate throughout staged extraction and progressive rehabilitation.

9.2 Reporting and documentation (implementation evidence)

The following records are to be maintained to demonstrate implementation of this SMP:

- Stage commencement checklists (HP-1) including Soil Unit boundary set-out where spatial overlap occurs.
- General soil movement log (source stage/sub-area → stockpile; stockpile → placement area).
- Inspection and clearance records, including:
 - Enhanced inspection outcomes for Soil Unit 5 with photo references.
 - Stage 11 / TP216 asbestos clearance documentation (HP-4).
- Unexpected Finds Log (if required) and supporting evidence (photos, sample records, clearance sign-off).
- Laboratory documentation (COCs, SRAs, certificates) and validation summary sheets where sampling is undertaken (HP-3).
- Waste classification and disposal documentation (where applicable), including transport and disposal dockets.

9.3 Hold point close out and communication

Hold points are to be tracked and formally closed out prior to progressing to the next relevant activity:

- HP-1, HP-2, HP-3, HP-4 and HP-5 outcomes are to be recorded in the project's environmental records system (or maintained in the SMP register).
- Any restrictions or special placement requirements identified through validation are to be communicated to site personnel (toolbox briefings) and reflected in the soil movement log.

9.4 Review and update triggers

This SMP is to be reviewed and, where required, updated if any of the following occur:

- Changes to the staging sequence, disturbance footprint or rehabilitation approach.
- Repeated unexpected finds suggesting broader extent than anticipated (e.g., multiple ACM fragments outside Stage 11).
- Updated assessment criteria, regulatory expectations or approval conditions that affect soil reuse/validation requirements.
- Any significant non-conformance or incident related to soil/material handling.

10 References

- Martens and Associates Pty Ltd (2026) Detailed Site Investigation, Proposed Sand Quarry, 3631 Nelson Bay Road, Bobs Farm, NSW. Report ref. P2511038JR05V01.
- NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure (NEPM), as amended in May 2013.
- NSW EPA (2020a) Contaminated Land Guidelines: Consultants Reporting on Contaminated Land. EPA 2020P2233, April 2020.
- NSW EPA (2022a) Contaminated Land Guidelines: Sampling design part 1 – application. EPA 2022P3915, NSW Environmental Protection Authority, Parramatta.
- NSW EPA (2022b), Contaminated Land Guidelines: Sampling design Part 2 – interpretation. EPA 2022P3916, NSW Environmental Protection Authority, Parramatta.
- VGT Environmental Compliance Solutions Pty Ltd (2026) Development Plans, Bobs Farm Sand Quarry, Ref. Nos. 12786_BF_SitePlan2026_Q001_V0_F1, 12786_BF_ProposedExtractionStages2026_Q001_V0_F3 and 12786_BF_ExtStgtoFinal2026_Q001_V0_F4, Version 0, dated 27/02/2026 (VGT, 2026).

Appendix A – Maps



0 40 80 120 160 200 m

1:4000 @ A3

Viewport

Notes:
- Aerial from Nearmap (2025).

Map Title / Figure:
Soil Units

Map	Map 01
Site	3631 Nelson Bay Road, Bobs Farm, NSW
Project	Sand Quarry Development - 3631 Nelson Bay Road, Bobs Farm, NSW
Sub-Project	Soil Material Management Plan
Client	ADW Johnson
Date	25/03/2026



Legend

Site Boundary

Soil Units

1

4

5

Staging Plan

Stage Boundaries

Stage 1 Works Area

0 40 80 120 160 200 m

1:4000 @ A3

Viewport

Notes:
- Aerial from Nearmap (2025).

Map Title / Figure:
Soil Units and Staging Plan

Appendix B – Development Plans

Plan of:	Bobs Farm Sand Quarry Proposal - Site Plan
Figure:	One
Version/ Date:	V2 20/04/2026
Our Ref:	12786_BF_SitePlan2026_Q001_V2_F1

Location:	3631 Nelson Bay Road, Bobs Farm, NSW
Council:	Port Stephens
Tenure:	Not Applicable
Client:	Newcastle Sand

Source:	Nearmap 24/07/2025
Survey:	Centurion 2025
Projection:	GDA2020/MGA Zone 56 EPSG:7856
Contour Interval:	Not Applicable

Plan By:	SK
Project Manager:	GT



0100200 m



This figure may be based on third party data which has not been verified by vgt and may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and vgt does not warrant its accuracy.

Legend

-  Project Boundary
-  Sand Extraction Boundary
-  Processing & Sales Area
-  Buffers
-  Stage 1 Works Area
-  Electricity Easement
-  New Acceleration Lane
-  Deceleration Lane
-  Light Vehicle Only Access (Existing)

Note:

- Access to / from the site will be via a new Left in Left out intersection.
- No right turns onto Nelson Bay Road are proposed.
- Marsh Road is not to be used by sand haulage trucks.
- All Southbound trucks to utilise Port Stephens Drive Roundabout to turn around for Southbound deliveries.



Note: Indicative Layout Only

Plan of:	Bobs Farm Sand Quarry Proposal - Processing and Sales Area Plan
Figure:	Two
Version/Date:	V0 04/03/2026
Our Ref:	12786_BF_ProcessingSales2026_Q002_V0_F2

Location:	3631 Nelson Bay Road, Bobs Farm, NSW
Council:	Port Stephens
Tenure:	Not Applicable
Client:	Newcastle Sand

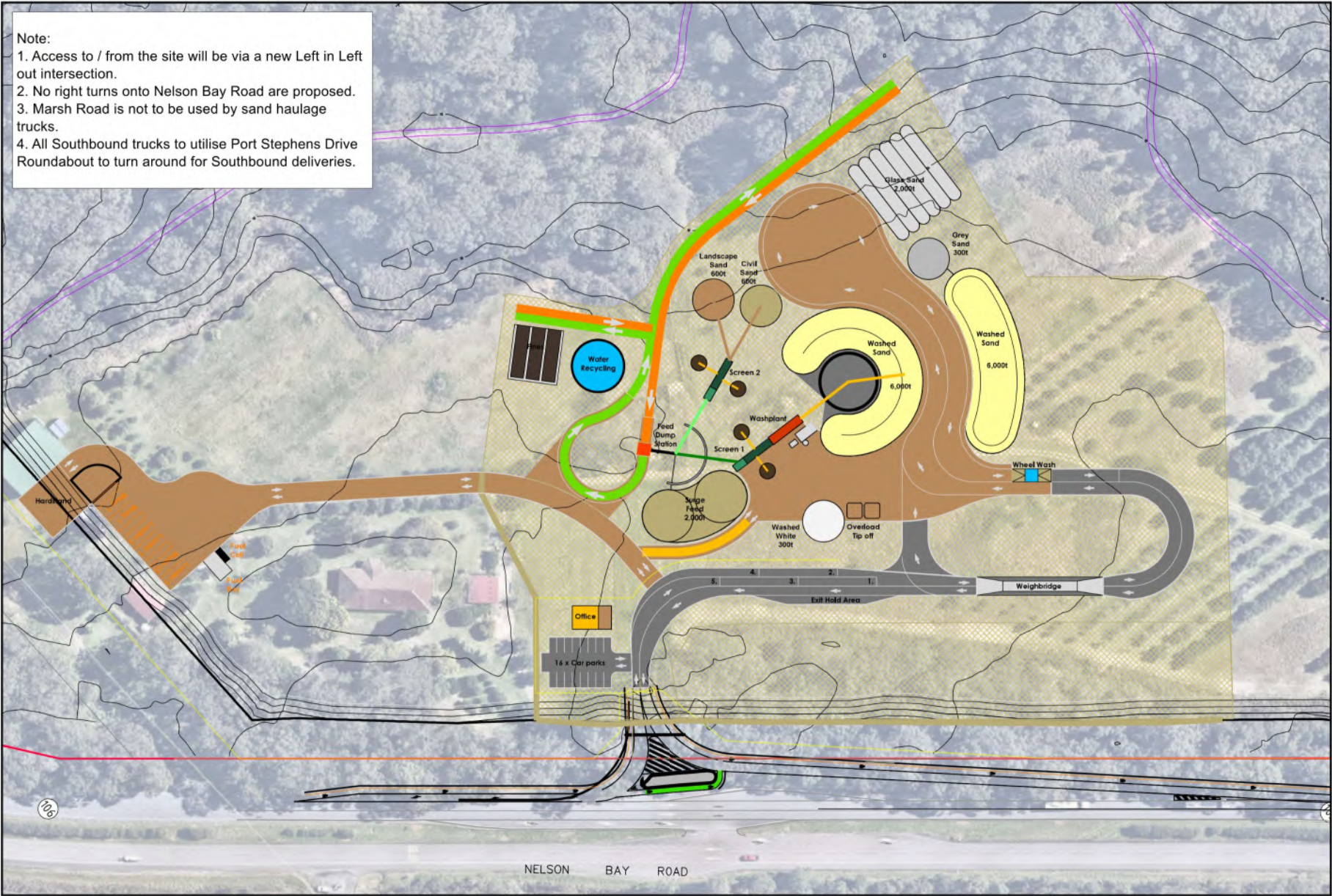
Source:	Nearmap 24/07/2025
Survey:	Newcastle Sands 2026
Projection:	Not Applicable
Contour Interval:	2m

Plan By:	SK
Project Manager:	GT



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- Note:
1. Access to / from the site will be via a new Left in Left out intersection.
 2. No right turns onto Nelson Bay Road are proposed.
 3. Marsh Road is not to be used by sand haulage trucks.
 4. All Southbound trucks to utilise Port Stephens Drive Roundabout to turn around for Southbound deliveries.



Note: Indicative Layout Only

Plan of:	Bobs Farm Sand Quarry Proposal - Proposed Extraction Stages
Figure:	Three
Version/ Date:	V2 10/03/2026
Our Ref:	12786_BF_ProposedExtractionStages2026_Q003_V2_F3

Location:	3631 Nelson Bay Road, Bobs Farm, NSW
Council:	Port Stephens
Tenure:	Not Applicable
Client:	Newcastle Sand

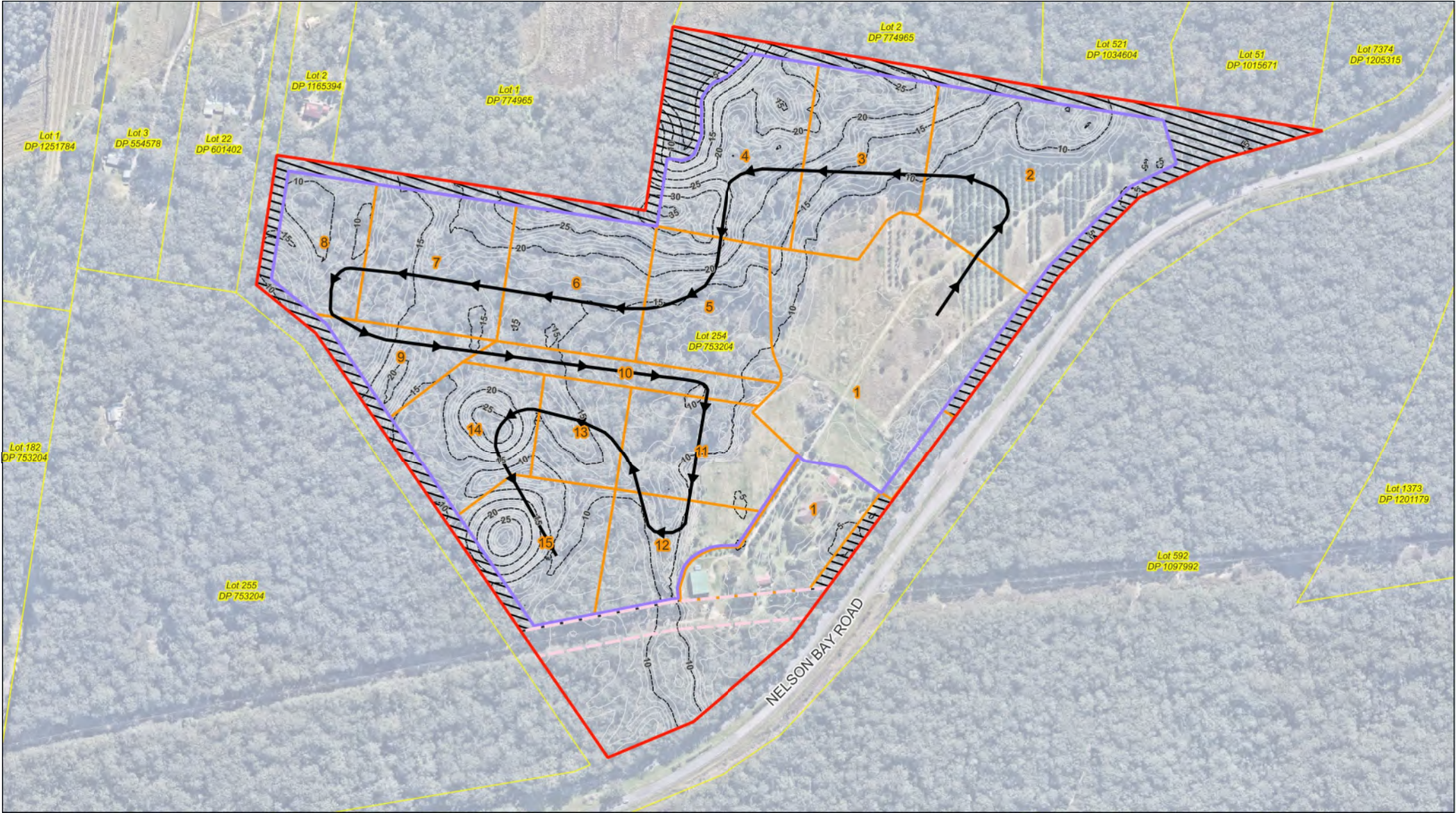
Source:	Nearmap 24/07/2025
Survey:	2025 Centurion Survey Pty Ltd
Projection:	GDA2020/MGA Zone 56 EPSG:7856
Contour Interval:	1m

Plan By:	SK
Project Manager:	GT



0 25 50 75 100 m

This figure may be based on third party data which has not been verified by vgt and may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and vgt does not warrant its accuracy.



Legend

Lot Boundaries

Project Boundary

Buffers

Electricity Easement

Existing Topography

5m

1m

Proposed Stages

Top of Final Cut

Extraction Path

Stage Boundaries

1-15

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