



Belmont Quarry Development – Part A

Substantive Application
Appendix A.7 – Indicative Construction Sequence and
Programme
Winstone Aggregates

16 August 2026

APPENDIX A.7

Indicative Construction Sequence and Programme

Belmont Quarry Development

Substantive application under the Fast-track Approvals Act 2024

Prepared for Winstone Aggregates
July 2026

Appendix A6.6 - Indicative construction sequence and programme

The proposed Belmont Quarry Overburden Disposal Area (OBDA) is anticipated to be developed through preliminary works followed by ten indicative stages. The sequence provides for early establishment of access, environmental controls and amenity measures, progressive construction of a permanent engineered landform, ongoing fines management, and rehabilitation as final profiles are achieved.

The stages are indicative phases of a continuous quarry support activity. The timing of commencement, construction duration and completion of each stage is tied to quarry production, stripping requirements, market demand, material characteristics, seasonal conditions and the performance of previously completed works. A stage may be delivered over more than one earthworks campaign, which may consist of works over several earthworks seasons and enabling works for a later stage may commence while placement or rehabilitation continues in an earlier stage, provided the relevant controls and stability requirements are maintained.

The OBDA is designed to accommodate approximately 2.7 million bank cubic metres (BCM) of overburden over the approximately 40-year quarry life. The estimated 40-year quarry life reflects the quantity of accessible aggregate resource made available through development of the proposed OBDA, whereas the 35-year duration sought for regional discharge permits reflects the maximum duration of those consents. The two periods are not required to align. The proposed OBDA enables access to resource extending beyond the consent duration.

A detailed breakdown of the works, per stage, is set out in Table 1 below. However, it is important to note that bulk placement is currently anticipated to commence in approximately Year 4 after preliminary and Stage 1 enabling works.

The Stage 1 fines containment cell is anticipated to be commissioned by approximately Year 5 to succeed the existing Cottle Block fines cell (which has consented capacity for fines). Development of the OBDA then proceeds generally from north to south, progressing away from the park and back towards the quarry, so the park-facing northern landform can be completed and rehabilitated early and can screen later work

Table 1 provides an overview of the indicative sequence, nature of works, indicative completion timing and cumulative placement volume. The stated years are measured from commencement of the programme and are approximate only. They are not proposed as fixed construction deadlines.

Approval is sought for the full project. The stage descriptions are an implementation framework for engineering design, environmental management, and progressive rehabilitation, rather than separate consent projects, the approvals are sought for all indicative construction stages of the OBDA project

Table 1: Indicative stages of development

Stage	Activity	Nature of works	Indicative completion	Cumulative fill (m³)	Cumulative footprint (ha)
Preliminary works	Initial access track along future central haul road; security fencing around the bunds during construction works and signage; northern amenity bund; initial ESC and topsoil stockpile establishment.	Enabling works & Access	Before bulk placement	-	1.8
1	Central haul road and Stage 1 foundation; drainage and ESC; bulk fill to near-final RL 210; Stage 1 fines containment cell established. Rehabilitation of northeastern faces. Progressive re-creation of drainage where final faces are complete.	Enabling works and OBDA construction	Year 11	536,000	5.3
2	Second northern catchment; toe bunds and drainage; fill to near-final RL 210; rehabilitation of completed northern faces. Progressive re-creation	Enabling works and OBDA construction	Year 12	594,000	6.74

Stage	Activity	Nature of works	Indicative completion	Cumulative fill (m³)	Cumulative footprint (ha)
	stream margins of drainage where final faces are complete.				
3	Raise northern landform above Stages 1 and 2 to near-final RL 220; migrate fines cell west; complete and rehabilitate park-facing slopes. Progressive re-creation of drainage paths or stream margins where final faces are complete.	OBDA construction and rehabilitation	Year 14	1,010,000	7.12
4	Establish central-eastern foundation catchment; remove unsuitable material where encountered; extend drainage and haul access; fill to near-final RL 200. Progressive re-creation of drainage paths or stream margins where final faces are complete.	Enabling works and OBDA construction	Year 16	1,352,000	11.38
5	Establish central-western foundation and integrate central landform; manage topsoil stockpiles; maintain fines capacity; fill to near-final RL 200. Progressive re-creation of drainage paths or stream margins where final faces are complete.	Enabling works and OBDA construction	Year 17	1,425,000	12.61
6	Develop western foundation; extend toe bunds, subsoil drainage and access; place fill to near-final RL 200.	Enabling works and OBDA construction	Year 19	1,811,000	14.56
7	Build on southern/western foundations; raise northern face to RL 230; migrate fines cell south; extend progressive rehabilitation. Progressive re-creation of drainage paths are completed.	OBDA construction and rehabilitation	Year 20	1,870,000	14.56
8	Complete central and southern shaping; prepare remaining foundation areas; install permanent drainage tie-ins; continue topsoiling and revegetation.	Enabling works, OBDA construction and rehabilitation	Year 25	2,448,000	15.68
9	Complete landform and permanent drainage connections; cap and shape remaining fines containment areas; complete residual planting.	OBDA construction and rehabilitation	Year 33*	2,666,000	15.68
10	Final capping, contouring, topsoiling, indigenous planting, closure, maintenance and monitoring.	Rehabilitation and closure	Year 35*	2,729,000	15.68

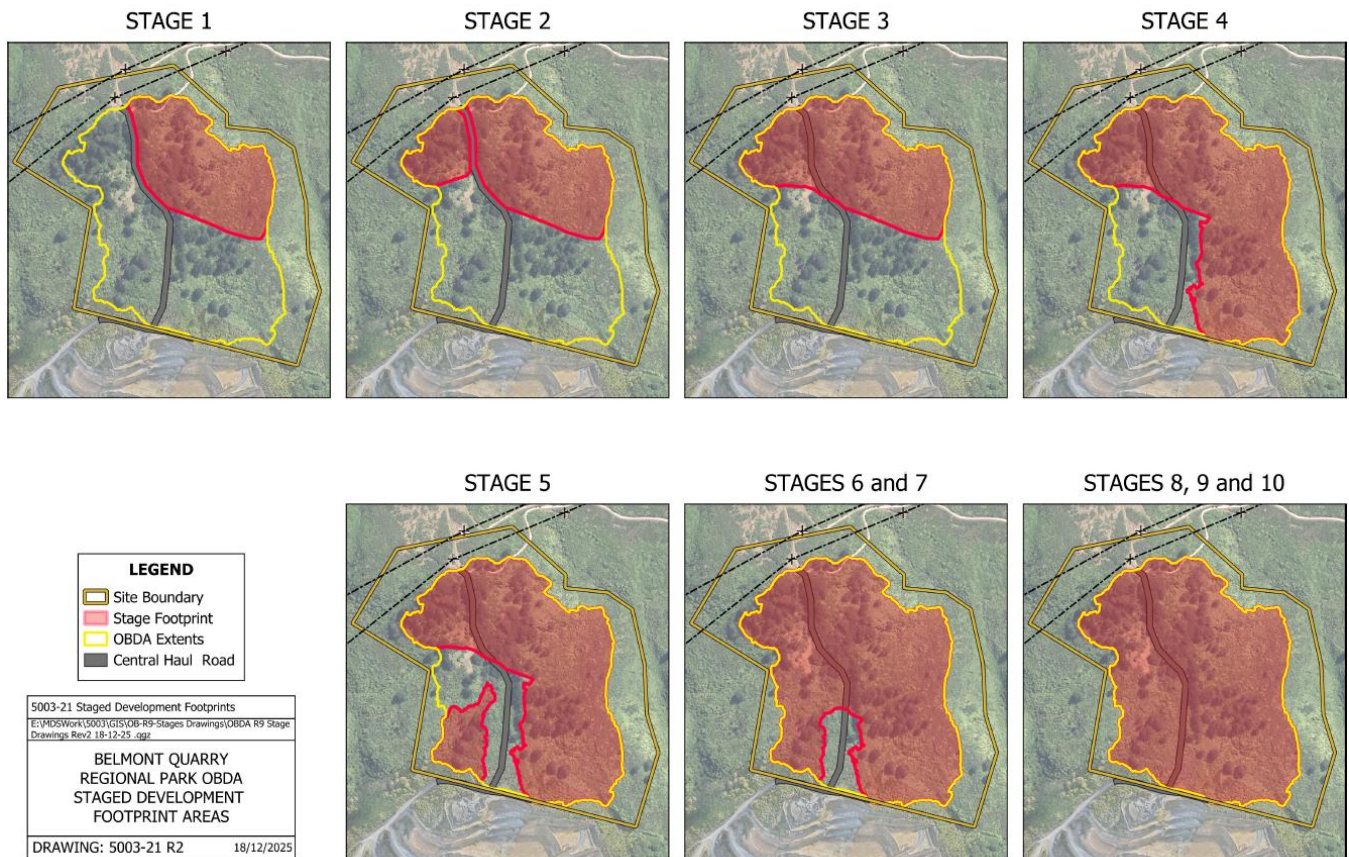


Figure A6.6-1: Indicative OBDA staged development

Construction approach applying to all stages

Operational interface

Quarry extraction and processing at the adjacent Belmont Quarry will continue under the separate operational consent framework while the OBDA is developed. Overburden generated by quarry stripping will be internally hauled from active extraction areas to the OBDA. Existing use of the Cottle Block fines cell will continue until the Stage 1 fines containment cell is available (circa year 5), after which fines management will transfer progressively to the new OBDA.

Stage enabling works

Where a stage opens new ground, works will generally comprise stage access, ecological pre-clearance requirements including targeted lizard relocation, installation of temporary erosion and sediment controls, vegetation clearance, topsoil stripping and stockpiling, foundation preparation, and installation of subsoil drainage. Enabling works are required for Stages 1, 2, 3, 4, 5, 6 and 8; Stages 7, 9 and 10 build predominantly on foundations established previously.

Stages 1, 4 and 6 will be broken down into sub-stages to allow for ESC management of smaller catchment areas.

Foundation preparation and stability

Foundation preparation will be confirmed for each stage from exposed ground conditions and the detailed geotechnical design. The mapped foundation includes alluvium and highly to completely weathered greywacke within gully floors and weathered greywacke on ridges and flanks. Soft, saturated, organic or otherwise unsuitable material will be removed to competent founding material. Treatment may include engineered replacement fill, weathered-greywacke rockfill toe buttresses, local undercuts or shear keys, and drainage blankets where required. A Type 1 subsoil drain network will collect groundwater at the natural ground/fill interface; drainage paths and outlets will be verified during foundation preparation (because the extent and continuity of seepage cannot be fully defined before stripping). Brown-rock mattressing and informal drainage blankets within the fill provide preferential internal drainage and are distinct from the formal subsoil collector system.

Overburden placement

Overburden will be hauled by internal quarry roads and placed in geotechnical material zones. Weathered greywacke rockfill will be preferentially used in structural outer zones, toe buttresses and drainage mattressing; improved clay fill and mixed clay fill will be placed in the designated internal zones; and process-water fines will remain in engineered containment areas. Placement, moisture conditioning, lift thickness, compaction acceptance and testing frequency will be prescribed by the stage-specific construction specification. Construction will be observed by the geotechnical professional, supported by survey, material records and as-built documentation. Benches will incorporate surface-water drainage and inter-bench drainage blankets where detailed design requires them.

Stormwater, erosion and sediment control

The ESC strategy will be implemented through manageable sub-stages rather than opening an entire OBDA design stage at once. Before clearing or stripping, clean-water diversions, dirty-water diversions and the receiving treatment device will be installed and stabilised. Controls identified in the ESC assessment include sediment retention ponds, decanting earth bunds, silt fences, stabilised entranceways and diversion bunds or channels. Chemical treatment or flocculation will be applied where required by the certified ESCP and Flocculation Management Plan. Early clean-water diversions are based on catchments less than 7.5 ha; the concept design uses bunds or channels at least 700 mm high and approximately 2% channel grades, while dirty-water diversions are generally at least 550 mm high, subject to detailed hydraulic design. Sediment retention devices are generally sized at 3% of contributing catchment area; final locations, dimensions and discharge arrangements will be confirmed for each earthworks campaign.

Fines containment and dewatering

Process fines and pond silts will be placed in engineered fines containment cells integrated with the OBDA. The active cell will be formed and raised in step with the surrounding structural fill, with adequate freeboard and controlled decant or subsurface drainage. Stage 1 ESC development will be divided into sub-stages so that initial earthworks and fines-containment capacity are established without exposing the full stage footprint. Runoff from disturbed surfaces will be directed to the fines containment system or downslope sediment retention devices, depending on the campaign-specific layout. Fines containment cells will be isolated from critical outer faces and quarry-interface areas as specified by detailed geotechnical design.

Seasonality and temporary stabilisation

Bulk earthworks campaigns are expected primarily between 1 October and 30 April in accordance with GWRC guidelines. Limited out-of-season placement may occur for operational or unplanned circumstances, subject to the approved annual limit and certified controls. Work areas will be progressively stabilised, and incomplete areas will be temporarily stabilised by compaction, aggregate sealing, hydroseeding, straw mulching, geotextile or other methods specified in the campaign ESCP. The active extent will be kept to the minimum practicable area and controls will be adjusted as fill surfaces and flow paths change. Fines disposal will occur as year-round activity consisting of the daily transport of fines from the water treatment plant to the fines containment cell along formed roadways.

Progressive rehabilitation

Final external faces will be graded, topsoiled, stabilised and replanted with native species as soon as practicable after reaching final profile. ESC devices serving a completed area will remain operational until the contributing catchment is stabilised (i.e. 80% hydroseed grass strike or another approved stabilisation criterion), and decommissioning has been accepted. As per the staging sequence rehabilitation of final profiles proceeds from the northern park-facing areas toward the south, supported by maintenance, pest control and replacement planting where establishment is incomplete.

Preliminary works - infrastructure and site establishment

Preliminary works establish safe access to the northern extent of the project area before bulk Stage 1 placement. An initial access track will be formed along the future central haul road alignment. This will enable upgrading of the Transpower utilities track outside the OBDA footprint, establishing security fencing and signage across previous access points, construction of the northern amenity bund, and initial environmental controls.

The northern amenity bund will be approximately 3-5 m high and approximately 7 m wide and will be planted with native vegetation. It will provide a physical and visual barrier between park users and OBDA activity. A primary topsoil stockpile of approximately 0.6 ha will also be established within the footprint and retained until its material is progressively reused, including through Stage 5.

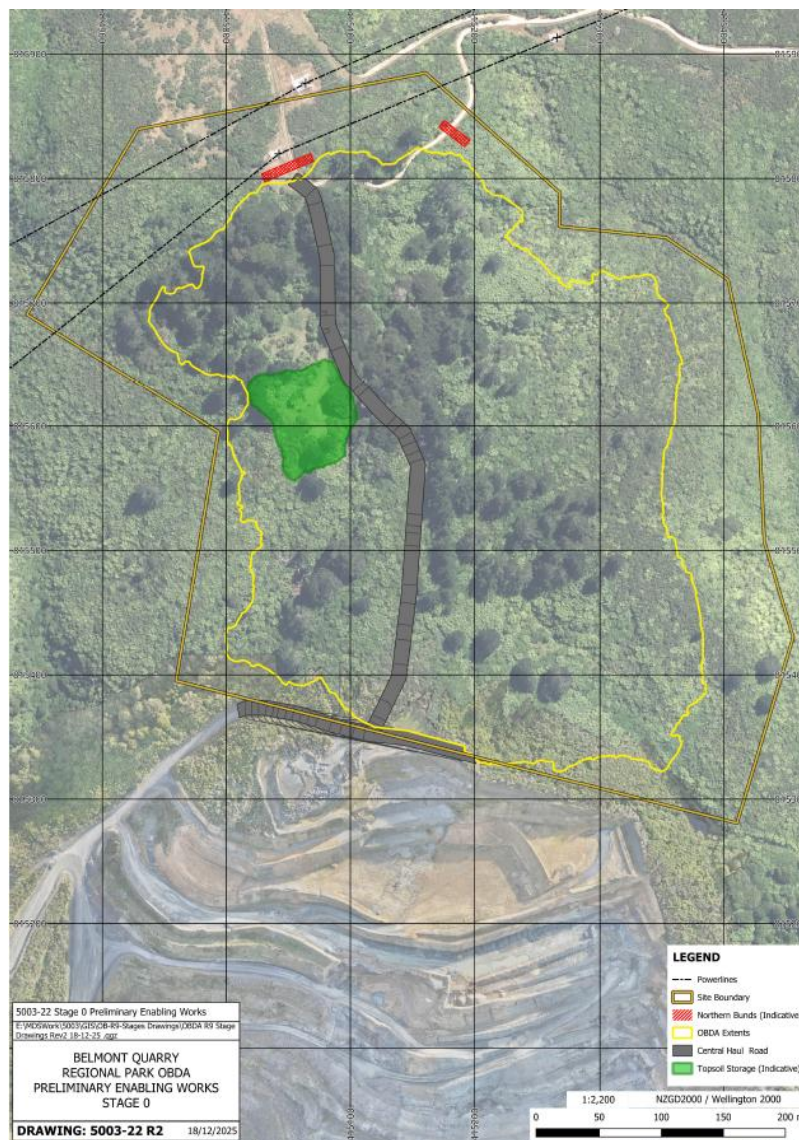


Figure A6.6-2: Indicative preliminary works

Stage 1 - central access, northern foundation and fines containment

Years 1-11 (bulk placement from approximately Year 4)

Stage 1 establishes the approximately 20 m wide main haul road along the central ridge and access to the toe of the eastern northern slope. Temporary erosion and sediment controls, approximately 5.3 ha of progressive vegetation clearance, topsoil stripping and stockpiling, foundation preparation, subsoil drainage and groundwater controls are completed before bulk placement.

Overburden is placed to form the northern eastern landform to near-final RL 210. The stage establishes and commissions the new fines containment cell by approximately Year 5, enabling the later transition from the Cottle Block fines cell. The completed stage provides the platform and drainage framework for Stages 2 and 3.

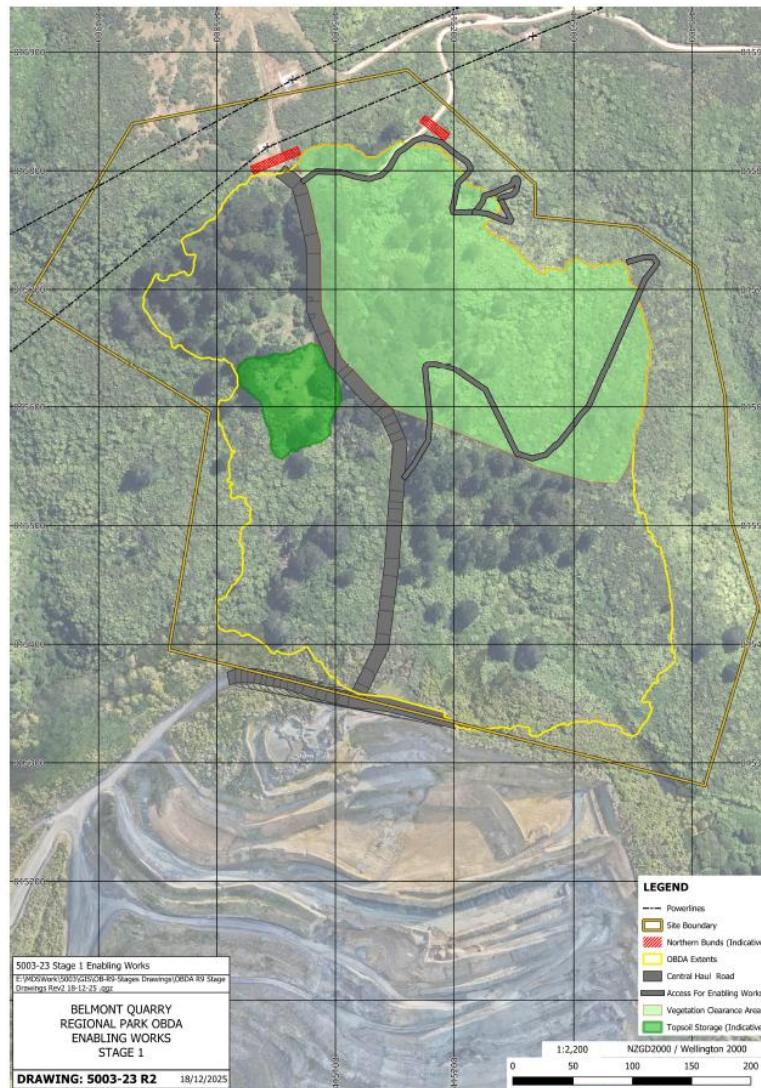


Figure A6.6-3: Stage 1 - indicative enabling works and OBDA design

Stage 2 - second northern catchment and early rehabilitation

Years 11-12

Stage 2 extends into the second northern catchment. Additional stage access, temporary controls, toe bunds and drainage structures are constructed, followed by approximately 1.44 ha of progressive vegetation clearance and the required foundation preparation.

Overburden is placed to near-final RL 210 and integrated with Stage 1. Northern external faces that reach final profile are topsoiled and stabilised, beginning the progressive rehabilitation of the park-facing edge.

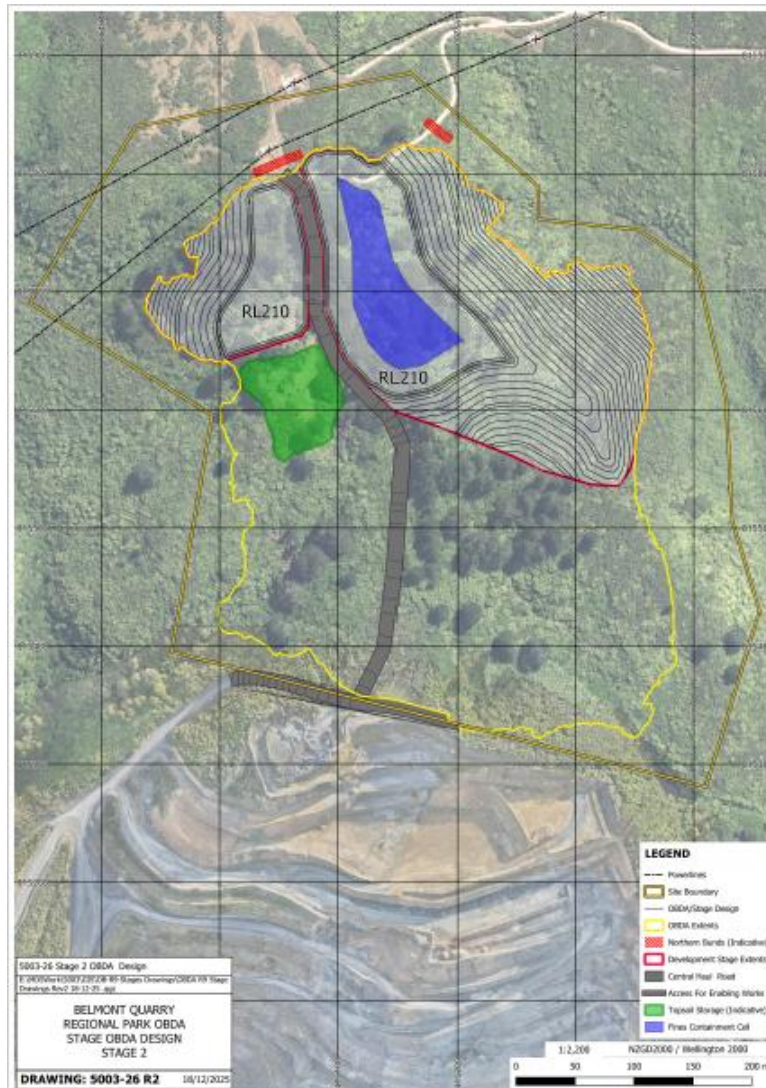


Figure A6.6-4: Stage 2 - indicative OBDA design

Stage 3 - northern lift, fines cell migration and park-facing completion

Years 12-14

Stage 3 is constructed predominantly above the Stage 1 and 2 foundations. Existing access and environmental controls are adapted as the active fill surface rises.

The northern section is raised to near-final RL 220. The fines containment cell migrates west as it is lifted. External slopes adjoining Belmont Regional Park are shaped to final contours, topsoiled, stabilised and planted, completing the first major park-facing landform and providing screening for later works to the south.



Figure A6.6-5: Stage 3 - indicative OBDA design

Stage 4 - central-eastern foundation catchment

Years 14-16

Stage 4 opens the central portion south of the completed northern area. Temporary controls, stage access and approximately 4.26 ha of progressive vegetation clearance are followed by foundation preparation. Unsuitable material, including remnants of historic fines cells where encountered, is removed to competent foundation and replaced with engineered fill. New subsoil and surface drainage is connected to the established network.

Bulk placement forms the central-eastern landform to near-final RL 200. The central haul road remains aligned generally north-south. Runoff from active surfaces remains within the stage treatment system, and space is retained for the secondary topsoil stockpile required for Stage 5 works.

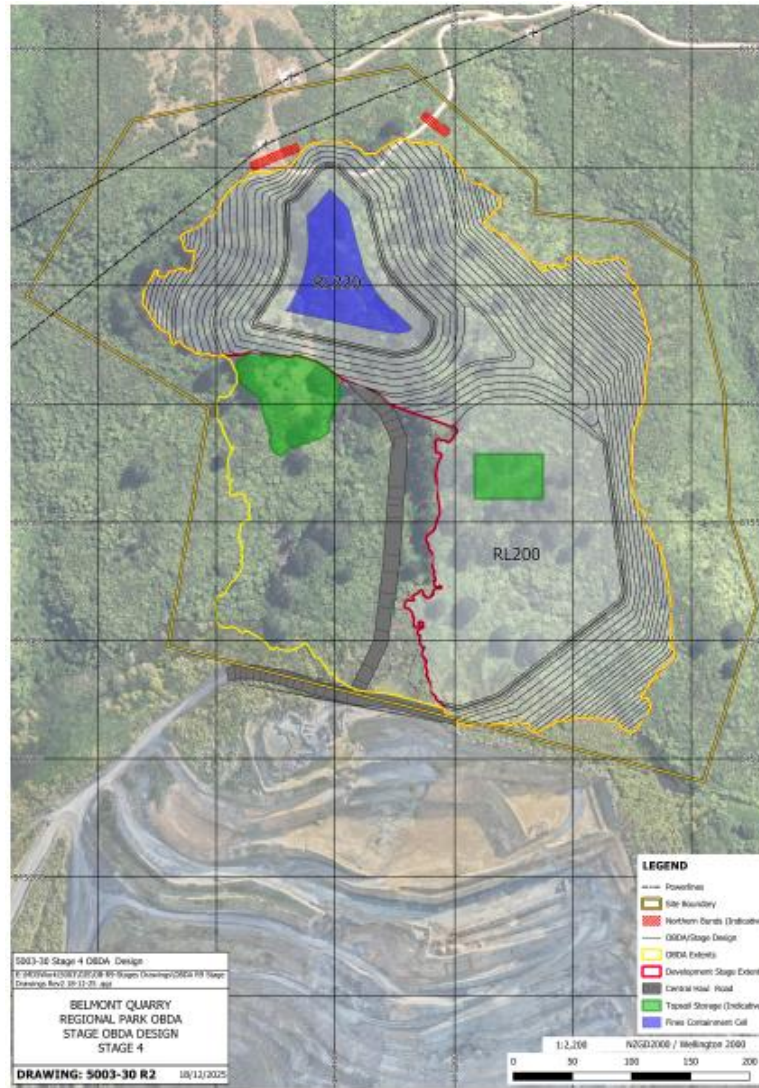


Figure A6.6-6: Stage 4 - indicative OBDA design

Stage 5 - central-western foundation and landform integration

Years 16-17

Stage 5 establishes the adjacent central-western foundation and integrates it with the earlier northern and central works. Foundation preparation includes removal of unsuitable material and historic fines remnants where encountered. The primary and secondary topsoil stockpile areas are managed so stored topsoil is recovered and progressively reused rather than buried.

Overburden is placed to near-final RL 200. The active fines containment system retains sufficient working capacity, while completed external faces are topsoiled and planted to extend rehabilitation southward from the northern stages.

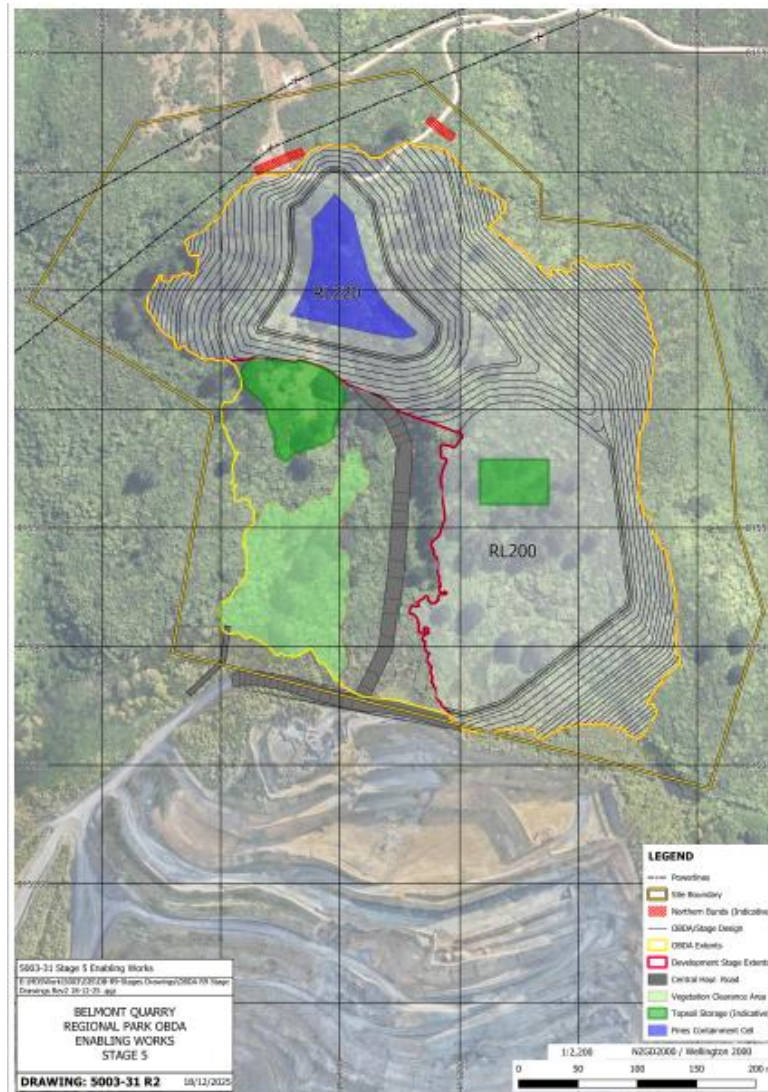


Figure A6.6-7: Stage 5 - indicative OBDA design

Stage 6 - western foundation and structural base

Years 17-19

Stage 6 shifts development to the western extent. Approximately 1.95 ha of vegetation is progressively cleared. Southern and western toe bunds, subsoil drainage and stage access are extended following foundation preparation.

Bulk overburden placement raises the western landform to near-final RL 200 and establishes the structural base for later upper lifts and southern profiling. Drainage and stability performance are monitored as the stage integrates with the central landform.

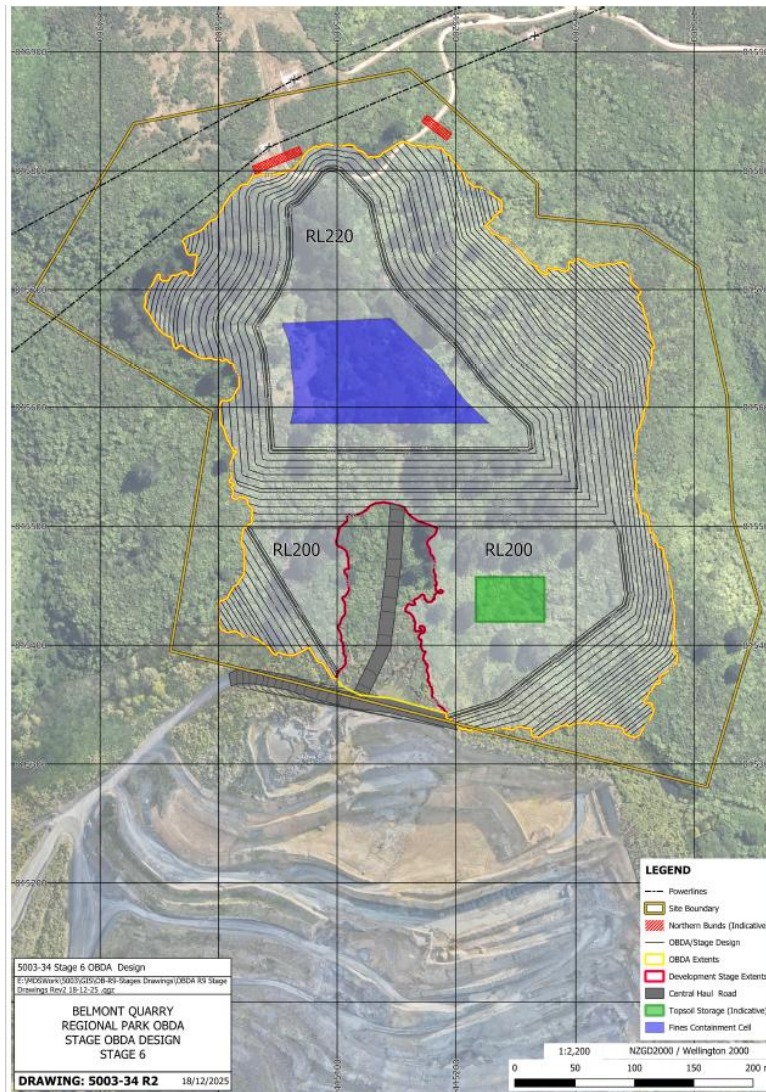


Figure A6.6-8: Stage 6 - indicative OBDA design

Stage 7 - upper landform, southern migration and continuous rehabilitation

Years 19-20

Stage 7 builds primarily on foundations formed in Stages 4-6 and therefore does not require a comparable new-ground enabling package. Existing access, drainage and controls are extended or adjusted as the fill level rises.

Bulk fill completes the upper central form, raises the northern face to RL 230 and migrates the active fines containment cell further south. Outer faces are graded to tie into the surrounding topography and are progressively topsoiled, hydroseeded and planted, connecting rehabilitation across the northern and central zones.

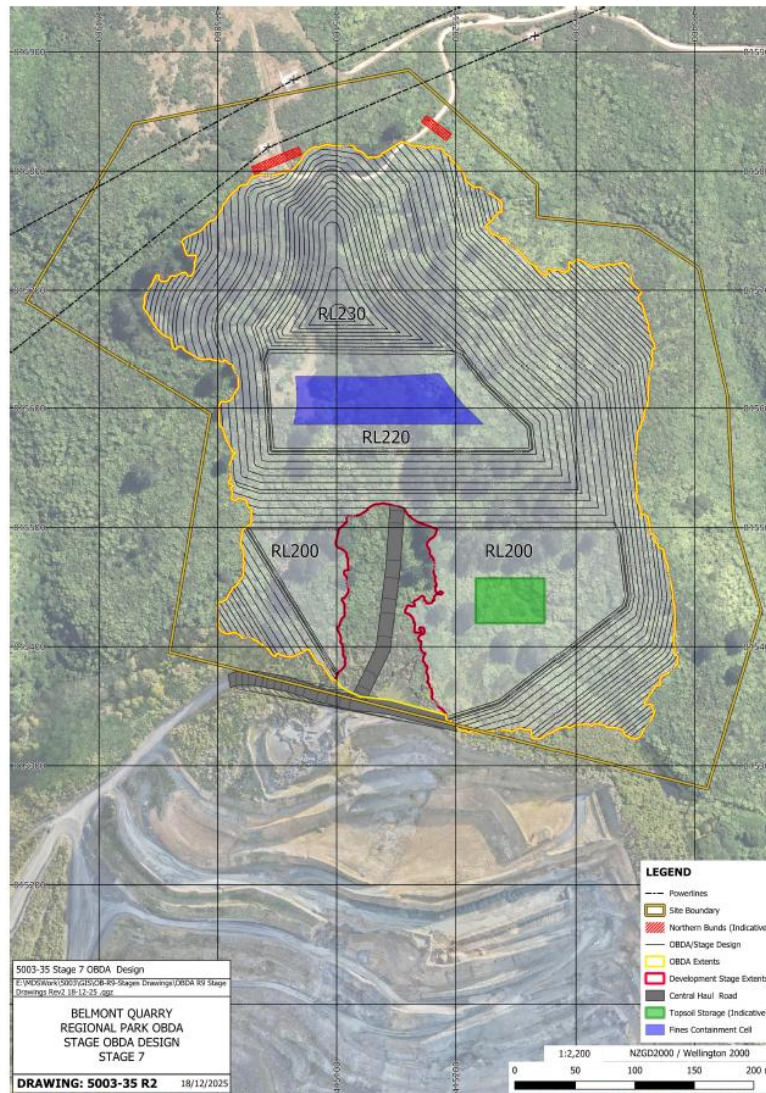


Figure A6.6-9: Stage 7 - indicative OBDA design

Stage 8 - central and southern shaping with permanent drainage tie-ins

Years 20-25

Stage 8 opens the remaining central-southern foundation area, including approximately 1.12 ha of progressive vegetation clearance. Foundation preparation includes removal of unsuitable material and historic fines remnants where encountered.

Final shaping and slope trimming progress across the central and southern landform. Permanent surface-water channels and drainage tie-ins are established, while topsoil placement and native revegetation continue over completed surfaces. Monitoring verifies slope performance and vegetation establishment before active construction areas are closed out.

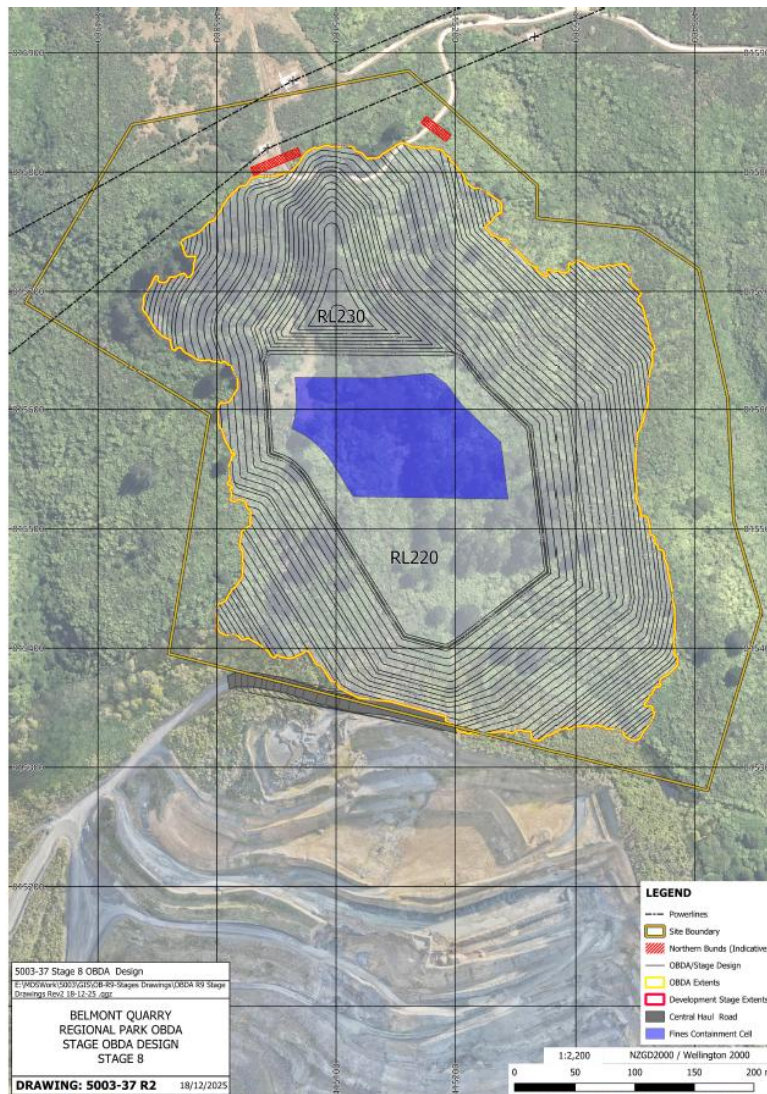


Figure A6.6-10: Stage 8 - indicative OBDA design

Stage 9 - final bulk landform and drainage connections

Years 25-33

Stage 9 builds on established foundations and focuses on completing the overall form rather than opening significant new ground. Existing controls remain until the remaining active areas are stabilised.

Permanent drainage connections are completed to the approved outlets and treatment system. Remaining portions of the fines containment cell are capped, shaped and incorporated into the landform. Final contour adjustments and residual planting are undertaken where required.

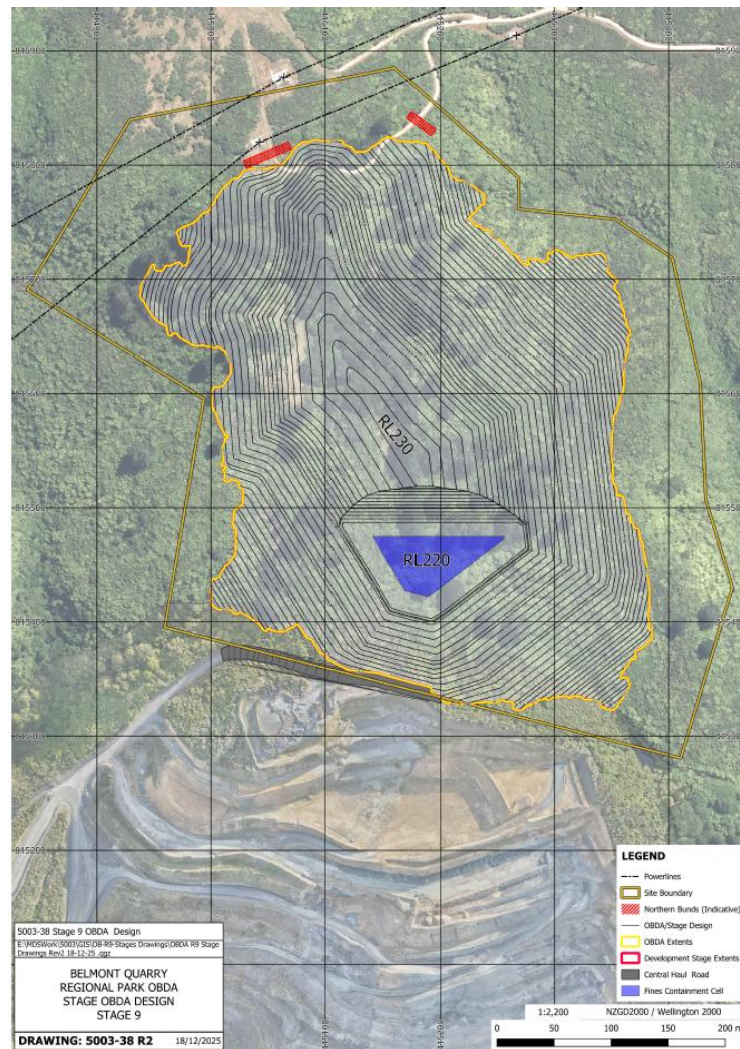


Figure A6.6-11: Stage 9 - indicative OBDA design

Stage 10 - rehabilitation and closure

Years 33-35

Stage 10 is the formal closure phase. The fines containment cell is fully capped and integrated into the final landform. Remaining surfaces are regraded, topsoiled and planted, and temporary construction infrastructure is removed where it is no longer required.

A Rehabilitation Plan will guide indigenous planting, ecological integration, long-term stability, pest plant and animal control, maintenance and monitoring. Erosion and sediment controls will be removed only after vegetation is established and the surface is certified stable by a suitably qualified professional. Ongoing access controls or fencing will be retained only where required for safety or property management.

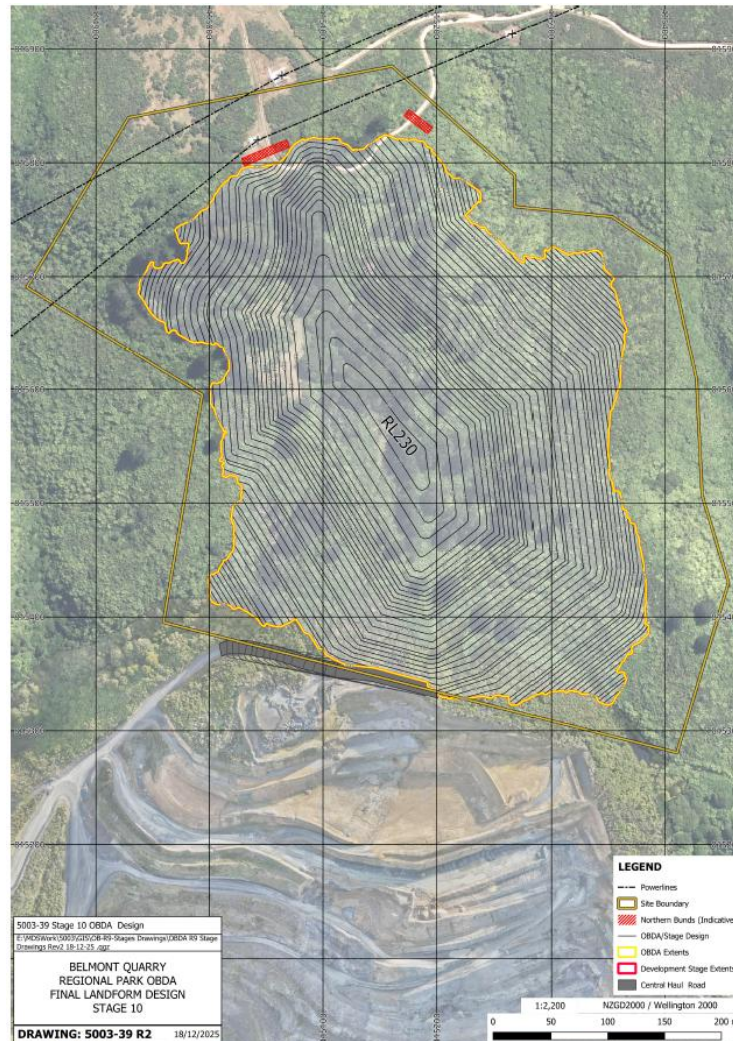


Figure A6.6-12: Stage 10 - indicative final landform and rehabilitation

Construction verification and monitoring

Before bulk fill is placed in a new foundation area, the stage-specific design assumptions, foundation treatment, drainage installation and ESC devices will be inspected and documented. Hold points will be established in the construction documentation for acceptance of exposed foundations, subsoil drains, toe buttresses or shear keys, structural fill zones and fines-cell interfaces. Survey and as-built records will confirm the completed geometry and drainage network.

During active works, ESC inspections and maintenance will be undertaken at the frequency specified in the certified plans, including after significant rainfall. The ESC technical report identifies quarterly auditing during pre-capping, weekly auditing during capping and rehabilitation, and inspection within 24 hours after rainfall exceeding 25 mm in 24 hours. Monitoring includes pH, turbidity and total suspended solids at nominated inlet, outlet and receiving-water locations. The assessment identifies pH 5.5-8.5 and TSS triggers of no more than 105 mg/L above background or 30% above upstream, subject to the final consent conditions and certified monitoring plan.

A control failure, unauthorized discharge or monitoring trigger exceedance will initiate the incident-response process: stop or contain the source where safe, reinstate treatment, notify the relevant authority as required, investigate the cause, document the event photographically and implement corrective actions. Annual review of the ESCP and Flocculation Management Plan will allow monitoring results and lessons from earlier campaigns to be carried into later stages.

Indicative programme, flexibility and management

The integrated programme anticipates completion of the northern stages (subject to market demand) within approximately the first 14 years, the central stages by approximately Year 17, the western stages by approximately Year 20, and final southern shaping, capping and closure through to approximately Year 35. The geotechnical concept indicates typical fill depths of approximately 10-15 m, a maximum depth of approximately 45 m and a final crest near RL 230. These dimensions describe the overall concept and do not replace stage-specific design sections. Average placement is approximately 55,000 cubic metres in situ per year over the programme, while annual volumes vary with quarry production and stripping requirements.

Operational flexibility is fundamental to the programme. A stage may comprise several seasonal campaigns, and a single campaign may involve work in more than one stage. Fines placement and maintenance may continue outside bulk campaigns. The controlling requirements are that each active area has suitable access, certified erosion and sediment controls, verified foundation and drainage preparation, stable interim geometry, and temporary or permanent stabilisation appropriate to its status.

Detailed design will confirm stage-specific construction drawings, material zoning, compaction and testing requirements, drainage layouts, temporary works, monitoring and hold points. These matters are not fixed by this indicative programme and will be refined within the approved consent and management-plan framework.