AMENDMENT MAY 2013

ENVIRONMENTAL IMPACT ASSESSMENT
MARY'S MOUNT BLUE METAL QUARRY

SECTION 2:
DESCRIPTION OF THE PROPOSAL

PREPARED BY:

Stewart Surveys Pty Ltd

Section 2: Description of Proposal

Gunnedah Quarry Products Pty Ltd currently operates the Mary's Mount Blue Metal Quarry on the property "Burleith" Lot 161 in DP 755508. The existing quarry was granted development consent on the 8th February 2011 and has approval to operate until 2016. This quarry has a total area of 2 hectares and extracts up to 30,000 cubic metres of material each year. The proponent now intends to expand the current operations as outlined in this report. The proposed development is designated development. The total quarry footprint is proposed to be 17.21 hectares quarried in stages over a 30+ years program, with a total project boundary of 22 hectares plus the rehabilitation of 1.15 hectares which is currently used for material stockpile following processing. The estimated available resource within the proposed quarry design is 4.4 million bank cubic metres and the annual rate of extraction proposed is 120,000 bank cubic metre or 360,000 tonnes. Processing of the material will occur within the quarry footprint with material stockpiled also within the proposed quarry footprint and in the current stockpile area north of the pit.

The resource is a basalt volcanic plug derived from the Garrawilla Volcanoes dating back to the Jurassic period. The deposit is considered to be fairly unique in that the rock has been fractured after it has hardened, resulting in a fairly straight forward extraction process where the resource is currently being removed by machinery without the requirement for explosives.

In the Gunnedah region basalt products are not readily available. The closest known quarry is over 120 kilometres from the proposed development and many quarries in the region are not able to meet the stringent Roads and Maritime Service (RMS) specification for road base. The Gunnedah Quarry Products quarry provides blue metal meeting the RMS specification in the following sizes;

- Crusher Dust (6mm minus)
- Roadbase to RMS Spec 5031N (200 minus)
- Stemming Gravel used in the local mining industry blasting operations (15-25mm)
- Ballast (20-65mm)
- Gabion Rock (75-150mm)
- Rip Rap (300mm+)
- Concrete aggregate and other civil construction applications.

Quarry Design

The proposed project site boundary has been determined based on a number of factors, including maximising vegetation retention, proximity to the existing dwelling and allowing enough room for machinery manoeuvrability around the proposed quarry. The project site boundary around the top of hill has been determined by the zoning boundary between RU1 Primary Production and E3 Environmental Management zones under the Gunnedah Local Environment Plan, 2012. Quarrying is not permitted in the E3 zone. The limit of extraction shown in Figure 2.2 outlines the proposed quarry area, or limit of regrading of the land. At the top boundary a 10 metre minimum offset from the E3 zoning where extractive industries are prohibited has been left as a safeguard for this area.

The proposed quarry will result in a void with a maximum depth 85 metres from the high wall, or 32 metres high along the northern pit wall. The void daylights out to the north east of the pit where the pit, meets natural levels.

The final void has been designed to fall in the northern direction to the base of the northern pit wall where it falls at a grade of approximately 1 in 200 metres. Generally the site drainage in the basalt pit area results into little to no runoff. The shallow drainage of the pit is to allow this natural recharge area the opportunity for maximum water absorption into the ground water system thus maximising aquifer recharge. Excess runoff will be piped under the proposed haul route into a sedimentation basin located just north of the project area before running along contour banks and into a proposed dam at the northern property boundary of Burleith. Full details of these drainage dams are outlined in section 4.2 surface water study.

The final pit floor is set at a level varying from 406 metres in the north east to 410 meters in the south west. Pit access will maintain its current route until approximately year 19 (stage 2.4) when the new access will be constructed to the quarry's north east corner. At this time the pit floor is deepening at the current access point and grades will not allow heavy vehicle access. This route will be maintained as a light vehicle access and site facilities and parking will remain in their current location.

Figure 2.1 shows the existing site survey which has been conducted over a period between May and October 2012. It shows the natural grade of the land and has been used to calculate volumes sighted in this report. Figure 2.2 shows the proposed final quarry design. Staging boundaries have been indicated on this plan.

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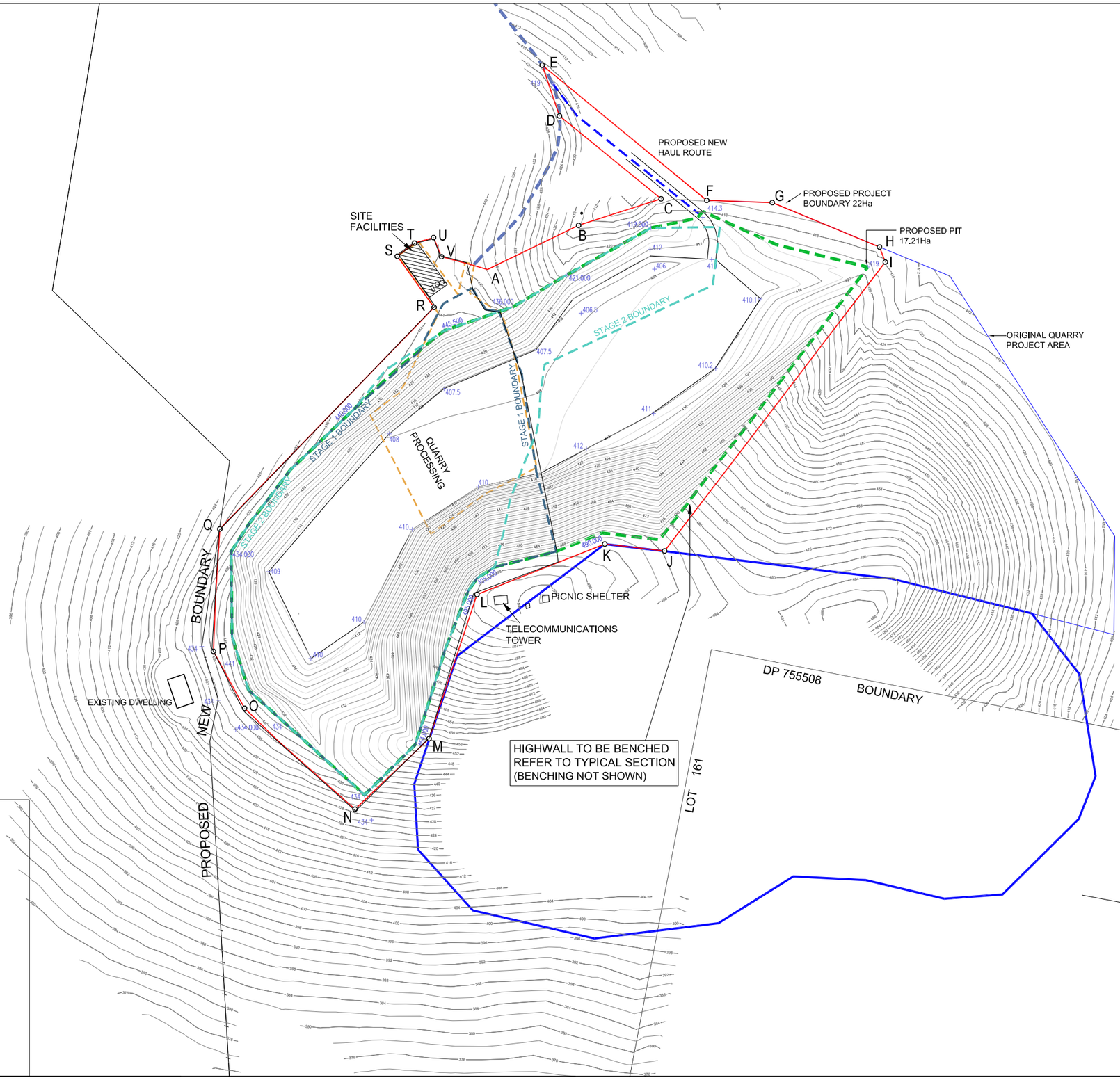
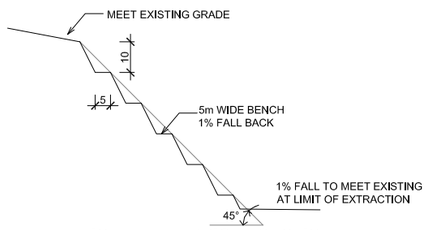
PROPOSED EXTENT OF QUARRY
ZONE 55 - MGA CO-ORDINATES

COR	EASTING	NORTHING
A	783027.65	6563059.38
B	783113.01	6563100.76
C	783190.4	6563125.66
D	783095.06	6563203.39
E	783078.85	6563250.98
F	783233.17	6563124.2
G	783294.63	6563122.1
H	783395.27	6563080.39
I	783400.61	6563066.37
J	783193.69	6562795.45
K	783137.56	6562801.95
L	783017.72	6562754.65
M	782972.77	6562619.45
N	782903.36	6562553.32
O	782799.77	6562647.97
P	782770.61	6562701.26
Q	782776.56	6562816.06
R	782977.51	6563023.82
S	782942.96	6563071.74
T	782959.13	6563084.11
U	782977.02	6563089.27
V	782984.4	6563071.37



LEGEND

- Proposed Project Site Boundary
- Existing Quarry Approved Limit
- Limit of Extraction
- Site Facilities
- Quarry Processing
- Existing Fences
- 404 Contours (2m Interval)
- Enviromental Management [E3]
  Zoning Under Gunnedah LEP 2012
- Lot 161 DP 755508 Boundary
- Existing Haul Road
- 401.500+ Proposed Spot Heights



HIGH WALL TYPICAL SECTION
NOTE: BENCHING NOT SHOWN IN CONTOURS

Issue	Date	Description
-	-	-

LENGTHS ARE IN METRES
1:2000@A1

LENGTHS ARE IN METRES
1:4000@A3

STEWART SURVEYS
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Client: GUNNEDAH QUARRY PRODUCTS PTY LTD

Project: MARY'S MOUNT BLUE METAL QUARRY

Title: PROPOSED QUARRY SITE PLAN

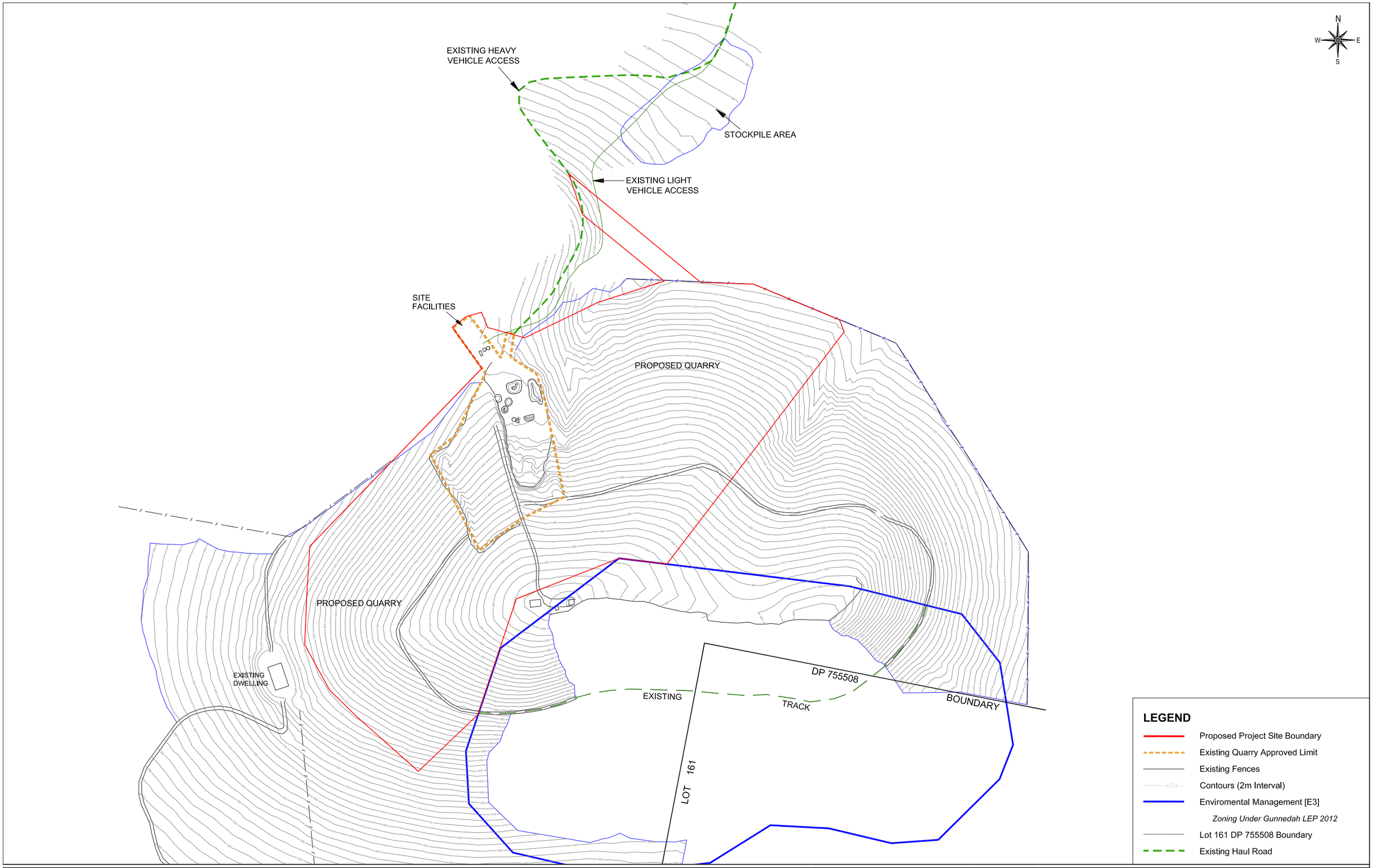
Date: 25 March 2013

Sheet No.: 2 of 3

Drawing number: 4122_quarry design

Issue: F

DRAWING SHEET SIZE = A1



Issue	Date	Description
-	-	-

REDUCTION RATIO 1:2000

LENGTHS ARE IN METRES 1:4000@A3

STEWART SURVEYS
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Client: GUNNEDAH QUARRY PRODUCTS PTY LTD

Project: MARY'S MOUNT BLUE METAL QUARRY

Title: EXISTING QUARRY SITE PLAN

Date: May - October 2012

Sheet No.: 1 of 3

Drawing number: 4122_quarry design

Issue: A

DRAWING SHEET SIZE = A1

Staging of the works

The operation under the current approval for the area of 2 hectares is to a depth of 443.5 metres, with the high wall graded back at 18 degrees. The current status of the pit in this area is not at the full design with approximately 40% quarried. Processing is currently undertaken within the pit footprint, with material trucked and stockpiled in a separate location on the site due to space restrictions at the current pit and operational procedures.

The proposed quarry operations have been broken into 3 main stages.

Stage 1 extends from the existing quarry footprint to the south west with a pit floor level of 440. The existing haul route is maintained throughout this stage. This stage has a volume of approximately 1,505,400 BCM and therefore based on 120,000 extraction will have a 12 year life. The footprint is 7.9 hectares.

Stage 2 quarries back over the stage 1 footprint to the final pit floor levels of 410 metres to 406 metres. This stage creates a pit void. A new internal haul route is constructed as shown with a ramp into the stage 1 area as shown. This stage quarries the south western area to final levels and has a total volume of approximately 1,390,700 BCM and therefore will have a 11 year life. The footprint is 9 hectares. As sections are completely quarried, land will be progressively rehabilitated as shown in figure 2.4 to 2.18

Figure 2.3 shows a typical cross section through stage 1.5 and 2.1 showing typically the pit level for stages 1 and 2 in relation to the existing dwelling level.

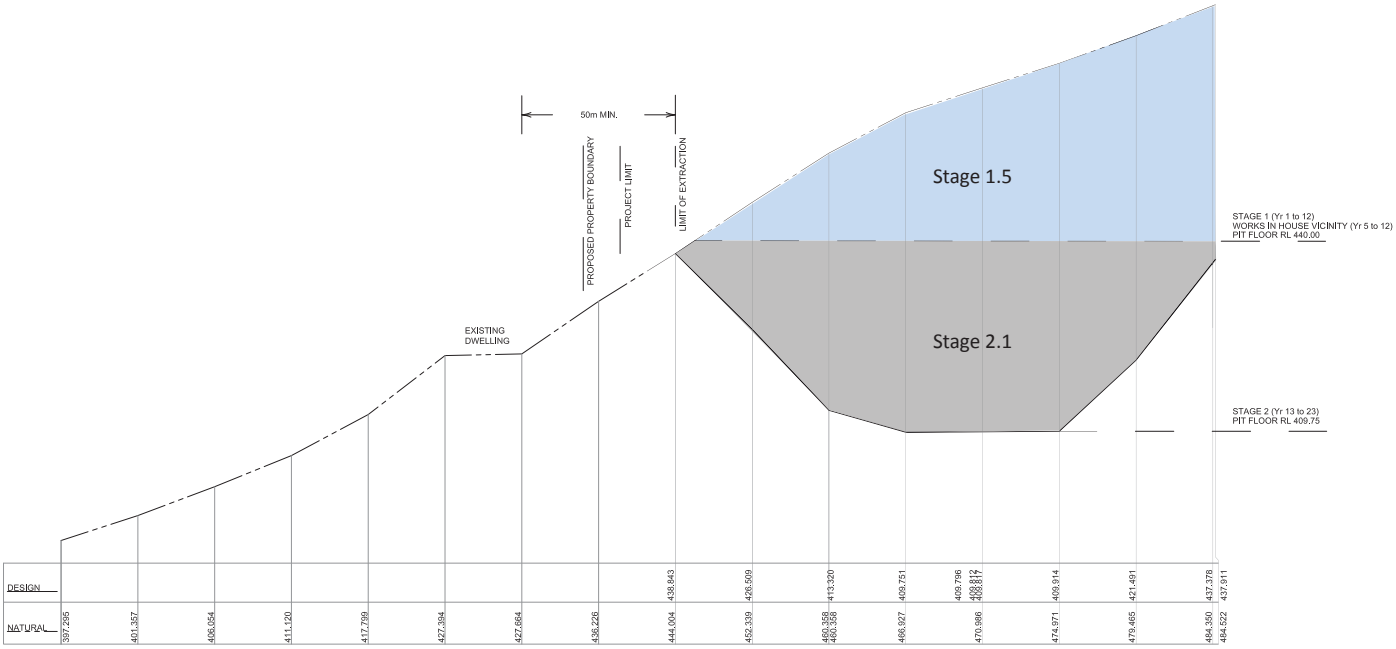

Figure 2.3 Indicative cross section through stages 1.5 & 2.1

Stage 3 quarries the remainder of the proposed pit, located east of the existing operations. The volume is approximately 1,542,600 BCM. The expected life is 13 years.

These three stages can then be broken into 12 more manageable stages described as 1.1-1.5, 2.1-2.5 and 3.1 to 3.2. These stages are shown in Figure 2.4 to 2.18 and summarised below.

Staging outlined in this report has been determined in consultation with ecologists to minimise impact on both Koala habitat and Semi-Evergreen Vine Thicket endangered ecological community which is located on the site. This staging design allows for the establishment of koala habitat elsewhere on the site (refer section 4.3 Koala Plan of Management) prior to the removal of the Redgum woodland which is the primary Koala feeding tree species on the site. Clearing of existing vegetation will only occur in the 12 months prior to operations moving into each stage. It is intended that all material processing occurs within the pit footprint. Some material will then be stockpiled within the pit footprint and other material will be stockpiled within the current stockpile area north of the pit.

Vegetation removal is discussed in greater detail in section 4.3 of this report. There are two significant vegetation categories in which the quarry has an impact. These vegetation groups are described by Niche Environment and Heritage as Semi-Evergreen Vine Thicket (SEVT), which is listed under the Threatened Species Conservation Act 1995 as an endangered ecological community and Redgum Open Woodland (ROW) which is a primary feed tree species identified on the site, which is classified as core Koala habitat under SEPP 44. The staged removal of these two vegetation groups is summarised below;

Stage 1 - Years 1 to 12

Year 1 – 5	-	0.6ha SEVT will be removed.
	-	1 ha of ROW will be removed.
Year 5-12	-	1.168 SEVT will be removed
	-	0.2 ha of ROW will be removed

Stage 2 – Years 12 to 23

Year 12	-	0.25 ha of SEVT will be removed
	-	0.06 ha of ROW will be removed

Stage 3 – Years 23-36

Year 22	-	2.378 ha of ROW will be removed
Year 30	-	1.103 ha of SEVT will be removed

To mitigate these impacts so as to not adversely impact on the environment a bio-banking scheme is proposed to offset impacts on the semi-evergreen vine thicket and supplementary planting elsewhere on the site is proposed to create compensatory Koala habitat, as outlined in section 4.3 of this report. This amendment and new quarry design has been centred on the principle of avoidance in impacting on these red flag flora and fauna constraints. Substantially reducing the impact the proposed development will have on the semi-evergreen vine thicket and Koala habitat.

Rehabilitation of each stage will also be progressive. As each stage is completed it will be rehabilitated to minimise visual impact and allow for tree establishment. The rehabilitation of this high wall is proposed to be benched at 10 metre vertical intervals. Full details of the proposed rehabilitation are outlined in section 4.14 of this report. This section only notes the stage in which each area's rehabilitation will take place.