Date: 16 December 2019
Ref: ISA-160-18-19

Jessica Creed
Head Regional Operations Unit
Environment Protection Authority
PO Box 397
Griffith, NSW 2680

InSitu Advisory Pty Ltd
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Dear Jessica,

RE: Development Application 2019/143

We thank you for your letter reference DOC19/212921-39 dated 13th December 2019 in respect of Development Application 2019/143. We shall respond to your queries in the same order as you have raised them.

1. Excavation of Materials

We acknowledge your comments in regard to Section 1 of the *Protection of the Environment Operations Act 1997* and that the bulk excavation will be deemed a scheduled activity. It is the intention of the proponent to apply for an Environment Protection Licence (EPL) and any other approval required upon granting of planning consent for the proposed development. Environmental impacts of the bulk excavation and temporary stockpiling have been considered in the EIS document, but further clarified in this response.

A detailed breakdown of excavation volumes and their use on site / off site was undertaken and used to inform EIS submission Figure 15 (excavation soils movement plan) and Figure 16 (rehabilitation soils movement plan). We attach the detailed breakdown of volumes and areas associated with the development, together with the details of the progressive reduction of materials stored in temporary stockpile until they have been completely removed back to original ground level. The attached spreadsheet titled '*Bangus Quarry Landfill Volumes and Areas Assessment*' details the volume of material to be excavated in Cell 1 with the balance stored in Cell 2 after Council have removed 10,000m_3 honouring their commitment to remove quarried materials from site to meet their annual requirements (*letter from Cootamundra-Gundagai Regional Council to proponent reference REC-190917-PM-120000, dated 17 September 2019*). The assessment also covers bulk excavation to achieve cell 2 formation levels, engineering, rehabilitation and operational needs together with ongoing quarried materials deductions undertaken by Council.

2. Impacts of Bulk Excavation Assessed Adequately in the EIS

2.1 Air Quality

The air quality impact assessment (AQIA) has taken into account the bulk excavation of material in the preparation of the landfill cells, loading of that material to trucks, movement to, and unloading at the stockpile area on the adjacent Lot (or upper flanks for engineering), and wind erosion associated with the storage of that material on the adjacent Lot. The AQIA also assessed the above activities to determine potential worst case daily impacts, and assumed that the material would be bulk excavated and hauled to stockpile over a nine (9) week period working 5.5 days per week.

The AQIA also assumed that the operations (landfilling) in Cell 1 would occur concurrently with the excavation of Cell 2, and all operations associated with both landfilling in Cell 1 and construction of Cell 2 have been assumed to be performed side by side.

The assumptions adopted in the AQIA in this regard are fully outlined in Section 2.4.2 (page 18 of 84) and Appendix D of the AQIA (page 78 of 84).

2.2 Surface Water

The management of environmental impacts in respect of surface water for the project has been covered in the EIS document. Further specific details of stormwater management and sediment control in respect of the proposed temporary stockpile are presented in the attached Soils and Water report undertaken by SLR Consulting.

2.3 Noise Impacts

Specialist noise and vibration consultancy, Waves Consulting has provided a response to the queries raised. We attach their response for your consideration.

2.4 Other impacts

Other environmental impacts associated with the bulk excavation and proposed stockpiling have been considered in detailed within the EIS, these include a specialist Biodiversity Development Assessment Report (BDAR)(Advitech), an Aboriginal Archaeological Impact Assessment (OzArk Environment & Heritage) undertaken for the proposed landfill area and stockpiling area together with other studies addressing the requirements of the SEARs,

3. Details of Temporary Stockpile

The temporary stockpile is to be positioned in the adjacent Lot (owned by the proponent) as shown on design Figure 2 presented within the EIS. An approximate boundary was marked, avoiding established vegetation prior to Advitech undertaking a detailed BDAR survey. As a result of the BDAR, the temporary stockpile boundary was revised to avoid PCT343 Zone 3 areas (see Advitech report Figure 6.1). The proposed stockpile has been further offset from the initial stockpile boundary (blue dashed line on Figure 21 attached) on the southern and northern aspect to allow for any stormwater and sediment control measures to be constructed.

Based on the '*Bangus Quarry Landfill Volumes and Areas Assessment'* calculation attached to this response, we envisage up to 107,800m_3 of bulk excavated materials being placed in temporary stockpile. The exact dimensions of the proposed stockpile are not certain at this stage as it will depend on placement compaction rates, soil moisture contents and the volume of materials removed by Council prior to excavation and stockpiling etc. However, based on a stockpile of 107,800m_3 capacity, having side slopes of between 1(V):1.5(H) to 1(V):2(H) the indicative geometry is presented as Figure 21 (attached). The proposed stockpile is anticipated to be between 8-9m in height. The stockpile shall have a 3% cross fall from east to west to assist in shedding water from the top surface of the proposed stockpile as recommended by specialist water consultants, SLR Consulting.

The proponent will hydromulch and hydroseed the proposed stockpile flanks and crown to minimise erosion together with implementing additional stormwater management and sediment control recommendations made by SLR Consulting in their response letter (attached). All sediment control and stormwater management infrastructure shall be rigorously maintained for the duration that the temporary stockpile will be in service.

We trust this provides you with the information you require. Should you have any queries, or wish to discuss this project further, please do not hesitate to contact us.

For and on behalf of InSitu Advisory Pty Ltd

Alan Dyer

Director

B.Sc. (Hons) M.Sc. C.Env. FGS, MAusIMM, MIQA, MCIWM

InSitu Advisory Pty Ltd is a Member of the APIV Limitation of Liability Scheme approved under Professional Standards Legislation.

cc. Martin Hay – MH Earthmoving Pty Ltd

NOISE IMPACTS

WAVES CONSULTING REPONSE

18 December 2019
Document No. 60.00805.01 LTR1R1.DOCX

Insitu Advisory Pty Ltd
PO Box 503
Frenches Forest
Sydney
NSW 1604

Attention: Alan Dyer

Dear Alan

Consultant Advice Notice
Bangus Quarry Landfill Development, Tumblong NSW
Noise Impact Assessment – EPA Questions (DOC 19212921-39)

1 Introduction

The following discussion / additional information is provided to address two (2) noise and vibration related questions by the EPA in response document DOC 19/212921-39 (dated 13 December 2019) in relation to development application DA 2019/143 for the Bangus Quarry Landfill Development.

2 Noise Impacts - Question 1

2.1 EPA Question

The question is provided below:

> The Noise Impact Assessment only includes a single noise emission level for each receiver which is based on the "worst case operation". This worst-case operation is not specified within the report, nor the landform scenario to which the noise level belongs. This is problematic as any assumed reduction in noise level due to site/landform conditions are not specifically outlined within the report.
>
> Given that the predicted noise emission levels are exactly equal to the project noise trigger levels at R1, a small increase in noise will result in an exceedance.
>
> Additional information is required on noise levels for different landform scenarios. Furthermore, any assumptions in place relating to noise reduction provided by the landform should be outlined in the report.

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2.2 Waves Response

As the site develops over time the mobile noise sources will progress from operating below the surrounding ground level (ie in the quarry hole), to level with the surrounding ground, to finally above the surrounding ground level (ie a small hill).

The assessment report created three (3) separate noise models to simulate the noise impacts throughout the lifetime of the development ie as the noise sources change locations horizontally and vertically (below ground level, level and above ground level) across the site.

In the noise model the entire site footprint was covered with a 5 x 5 m grid of noise sources which represented a cluster of the operational and construction noise sources all operating in one location – this represents a very conservative approach as it would be unlikely for the sources to operate together in this manner. This grid of noise sources was then overlaid onto the differing topographies created for the site during the operational lifetime ie site with quarry hole, level site and site with a small hill. For each noise model the worst-case noise emission from each cluster of noise sources (on the 5 x 5 m grid) were calculated. Overall, this approach simulated every possible horizontal and vertical position of the cluster of noise sources.

The perimeter noise source positions are the closest to the residential receivers and it is these positions that drive the worst-case noise emissions from the site for each noise model. The perimeter positions are the least affected by the height changes of the site, which is most significant towards the middle of the site. Shielding affects will not affect the perimeter position either, with respect to the closest receiver to that perimeter position. Since the perimeter positions were virtually identical for each noise model this means that the worst-case noise emissions for each model were also virtually identical.

In other words, the worst-case noise levels are identical regardless of the site topography used for the site, as it is the noise sources operating towards the perimeter of the site which drive the noise emissions from the development.

3 Noise Impacts - Question 2

3.1 EPA Question

There is no assessment of cumulative impacts on the nearest receivers from the simultaneous construction of Cell 2 and the operation of Cell 1.

We note that noise associated with construction will be largely indistinguishable from the operational noise and based on the data provided in the Noise Impact Assessment, the cumulative noise level would be up to 9 dBA over the project noise trigger level at receiver 1 for operational noise.

Further information is required regarding the cumulative impact from construction and operation at the nearby receivers, as well as any reasonable and feasible mitigation that can be employed during this period.

3.2 Waves Response

We note that Cell 2 construction period is only scheduled to occur for nine (9) weeks – this is a short duration compared to the lifetime of the site. In addition, the criteria derived for the operational and construction noise assessment are as conservative as possible using the current guidelines and legislation. Further, the assessment methodology is also very conservative by assuming that all operational and construction noise sources are tightly clustered and operating at the same time. Based on the above, it is safe to assume that the operational or construction noise levels would frequently be lower than predicted in the assessment as the intensity of use and location of the equipment will vary throughout the site and throughout the day.

We acknowledge that the operational and construction noise associated with the site will be broadly similar, but do not believe it is reasonable to mix operational and construction assessments together based purely on this factor. The construction noise assessment has recommended standard mitigation measures as per the ICNG guidelines, which if implemented would reduce noise emissions considerably when compared to the very conservative noise predictions in the assessment. Most notably, the first mitigation measure in the assessment report recommends:

> *Avoiding the coincidence of noisy plant working simultaneously close together would result in reduced noise emissions.*

If properly implemented, this could reduce noise level by at least 10 dB, if equipment is separated and used throughout the site, rather than clustered together as used in the worst-case noise model predictions.

Based on the additional modelling information above, we believe the existing assessment and construction noise mitigation measures are feasible and reasonable and the likelihood of adverse cumulative noise impacts is low.

I trust this letter provides sufficient detail for your current requirements. If you have any questions, please do not hesitate to contact me.

Yours sincerely

Tom Cockings
Director | Acoustic Engineer

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M: +614 3121 2614
E: tom@wavesconsulting.com.au

Waves Acoustic Consulting Pty Ltd

STORMWATER IMPACTS

SLR CONSULTING REPONSE

19 December 2019

610.19102-L01-v0.2.docx

InSitu Advisory
15/23 Narabang Way, Belrose NSW 2085
PO Box 503 Frenchs Forest NSW 1640

Attention: Alan Dyer

Dear Alan

Soils and Water report
Proposed Stockpile Erosion and Sediment Control Measures

This letter has been prepared as an addendum to SLR's Soils and Water report *'610.19102-R01-v0.4'*, to address comments by the EPA dated 17th December 2019 with regard to additional erosion and sediment controls (ESC) required for the stockpile of materials on adjacent land.

ESC measures are required to mitigate potential environmental impacts from sediment export to the downstream receiving environment, as previously described in the SLR Report.

Appropriate management measures were identified using best practice and the 'Blue Book' Managing Urban Stormwater: Soils and Construction Vol. 1, 4th edition (Landcom, 2004).

The following ESC measures are proposed to manage the disturbed area associated with the stockpile:

Clean Water Diversion Bunds

Clean water diversion bunds will be constructed upslope of the proposed stockpile to divert any clean water runoff before it contributes to generating sediment runoff over the disturbed area.

Sediment Fencing

Sediment fencing will be implemented downstream of the disturbed area to capture any sediment runoff generated by activities associated with operations around the stockpile.

Stockpile

InSitu Advisory mentioned that the stockpile will need to hold up to 108,000m^3 and will likely be in place for approximately 8 years (worst case scenario used to prepare this conceptual ESC plan addendum). An inner bund will be constructed on top of the stockpile to redirect runoff towards a chute built into the access track and leading to a dissipation basin.

Additional Controls

The proponent intends to hydromulch and hydroseed the side slopes and crown of the proposed temporary stockpile and maintain the vegetative cover for the duration of the stockpile operation.

When a better understanding of the stockpile geometry is known (which is dependent on continued removal of quarried materials by Council and the factors such as compaction rates during stockpiling) a more detailed ESC plan will be generated. Appropriate measures will be constructed to manage stormwater runoff and sediment control through engineered measures which may include additional ditches or swales and the possibility of a small stormwater collection pond within the adjacent stockpile lot. These additional measures will be developed using best practice and in accordance with blue Book requirements.

Further information on location and layout of proposed ESC measures is provided on *'Figure 1 – Conceptual ESC Plan'* accompanying this letter.

Monitoring and Maintenance

The performance of ESC devices will decline if they are not maintained. All ESC devices will be inspected regularly to ensure that they are functioning effectively.

With these preliminary measures in place and the proponent's commitment to undertake a more detailed ESC plan prior to operations, we are satisfied that the temporary stockpile will not induce any environmental harm with regard to sediment export.

Yours sincerely,

STEPHANE PEIGNELIN
Environmental Engineer

Checked/Authorised by: Paul Delaney

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Scale: 1:900
(GDA94) MGA Zone 56

19.12.2019
610.19102

BASE SOURCE: InSitu Advisory / MH Earthmoving

CONCEPTUAL ESC PLAN

FIGURE 1

SLR
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BANGUS QUARRY LANDFILL VOLUMES AND AREAS ASSESSMENT

BANGUS QUARRY LANDFILL VOLUMES AND AREAS ASSESSMENT

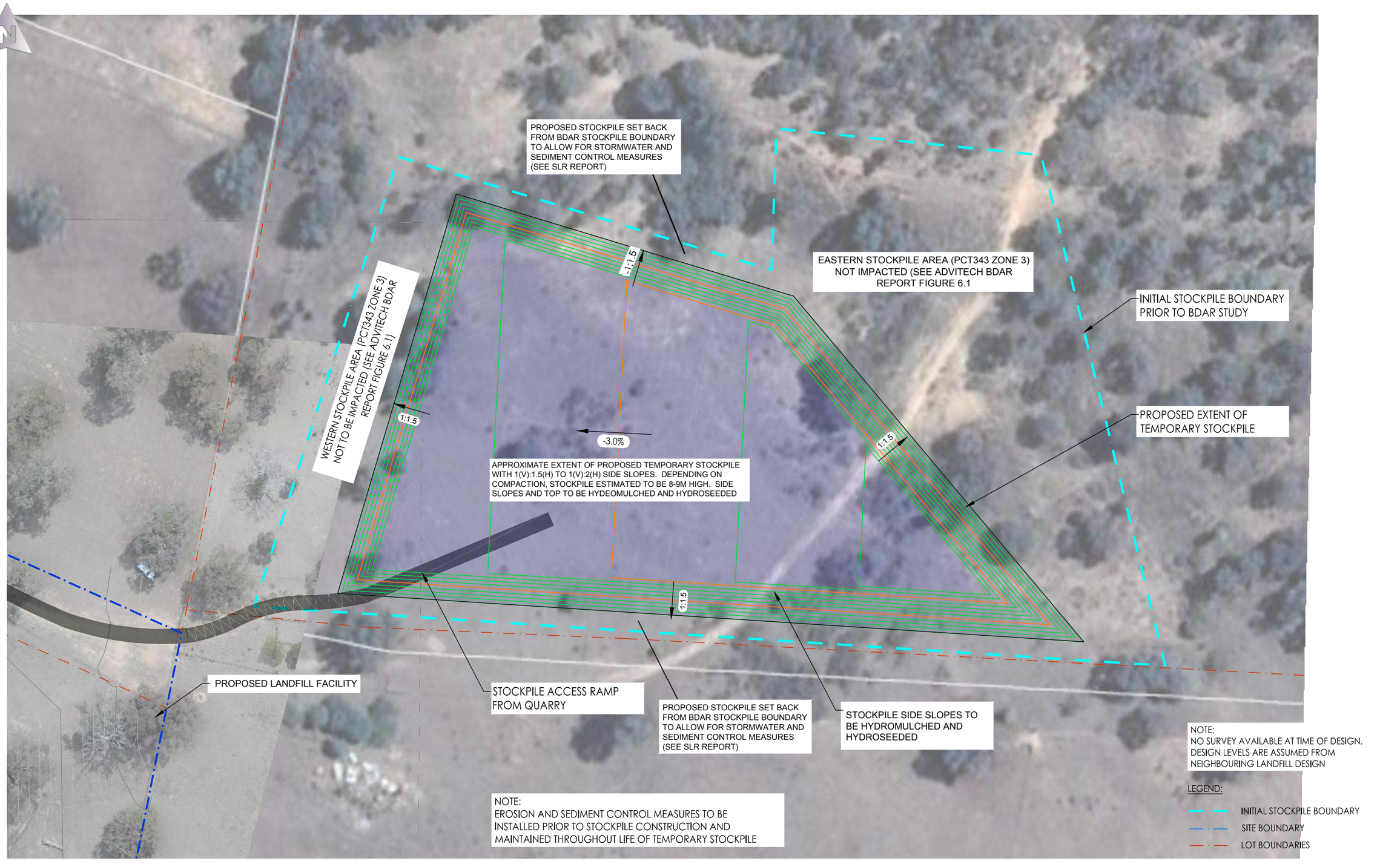
STAGE	ASPECT	SURFACE AREA (m^2)	CUBIC METRES (m^3)	LENGTH (Linear m)
CELL 1	Bulk Excavation Volume	-	28,240	-
	Perimeter Bunds	-	3,450	450
	Cell 1 / 2 Intercell Bund	-	2,160	180
	Sub-Base Layer (200mm)	13,580	2,716	-
	GCL Layer (including anchor trenches)	14,135	-	-
	HDPE Layer (including anchor trenches)	14,135	-	-
	Protection Geotextile Layer (including anchor trenches)	14,135	-	-
	Leachate Drainage Blanket (300mm)	9,300	2,790	-
	Leachate Pipework Length	-	-	472
	Leachate Riser Pipe	-	-	25
	Anchor Trenches	-	-	556
CELL 2	Bulk Excavation Volume	-	127,000	-
	Sub-Base Layer (200mm)	23,030	4,610	-
	GCL Layer (including anchor trenches)	23,435	-	-
	HDPE Layer (including anchor trenches)	23,435	-	-
	Protection Geotextile Layer (including anchor trenches)	23,435	-	-
	Leachate Drainage Blanket (300mm)	4,800	1,440	-
	Leachate Pipework Length	-	-	320
	Leachate Riser Pipe	-	-	60
	Anchor Trenches	-	-	405
REHABILITATION		**SURFACE AREA (m^2)**	**CUBIC METRES (m^3)**	**LENGTH (Linear m)**
CELL 1	Cell 1 Waste Capping Area	7,900	-	-
	Seal Bearing Layer (300mm)	7,900	2,370	-
	GCL Layer	7,900	-	-
	LLDPE Layer	7,900	-	-
	Protection Geotextile Layer	7,900	-	-
	Rehabilitation Subsoil / Infiltration Layer (min. 800mm)	12,760	10,208	-
	Topsoil Layer (200mm)	12,760	2,552	-
CELL 2	Cell 2 Waste Capping Area	27,400	-	-
	Seal Bearing Layer (300mm)	27,400	8,220	-
	GCL Layer	27,400	-	-
	LLDPE Layer	27,400	-	-
	Protection Geotextile Layer	27,400	-	-
	Rehabilitation Subsoil / Infiltration Layer (min. 800mm)	30,040	24,032	-
	Topsoil Layer (200mm)	30,040	6,008	-

Note: Bulk soil volumes are in the solid

Geosynthetics areas shown do not allow for overlaps and wastage

		m^3
TOTAL CELL 1 EXCAVATION (FROM FEB 2019 SURVEY)		28,240
COUNCIL EXCAVATED MATERIAL SINCE FEBRUARY 2019	Deduct	10,000
TOTAL CELL 1 ENGINEERING FILL REQUIREMENTS	Deduct	8,326
BALANCE FOR TEMPORARY STOCKPILING IN CELL 2		**9,914**
TOTAL CELL 2 EXCAVATION (From Feb 2019 Survey)		127,000
Add STOCKPILED MATERIAL FROM CELL 1	Add	9,914
BALANCE OF SOILS		**136,914**
TOTAL CELL 2 ENGINEERING FILL REQUIREMENTS	Deduct	4,610
WASTE COVER SOILS FOR CELL 1 (18 months or 300 days @ 15m3/day)	Deduct	4,500
COUNCIL REMOVAL OF QUARRIED FILL UP TO CELL 1 FILLING (0.5 years @ 10,000m3/pa)	Deduct	5,000
COUNCIL REMOVAL OF QUARRIED FILL DURING CELL 1 FILLING (1.5 years @ 10,000m3/pa)	Deduct	15,000
BALANCE FOR STOCKPILING IN ADJACENT LOT		**107,804**
REHABILITATION PHASES		
CELL 1 Stockpiled Soils		107,804
CELL 1 Rehabilitation of Cell 1 Soils	Deduct	15,130
CELL 1 Balance of Soils in Stockpile		**92,674**
CELL 2 Stockpiled Soils		**92,674**
CELL 2 Rehabilitation of Cell 2 Soils	Deduct	38,260
WASTE COVER SOILS FOR CELL 2 (6.5 years or 1300 days @ 15m3/day)	Deduct	19,500
Balance of Soils in LOT 1 Stockpile		**34,914**
COUNCIL REMOVAL OF QUARRIED FILL DURING CELL 2 FILLING TO STOCKPILE EXHAUSTION	Deduct	34,914
TOTAL SOILS BALANCE		**0**

INDICATIVE TEMPORARY STOCKPILE LAYOUT PLAN



InSitu Advisory

CLIENT: **MH EARTHMOVING**

SITE: **TUMBLONG QUARRY**

TITLE: **PROPOSED STOCKPILE LAYOUT**

DATE: **07.03.2019** SCALE: **1:1,000** PAPERSIZE: **A3** DWG: **FIGURE 21**