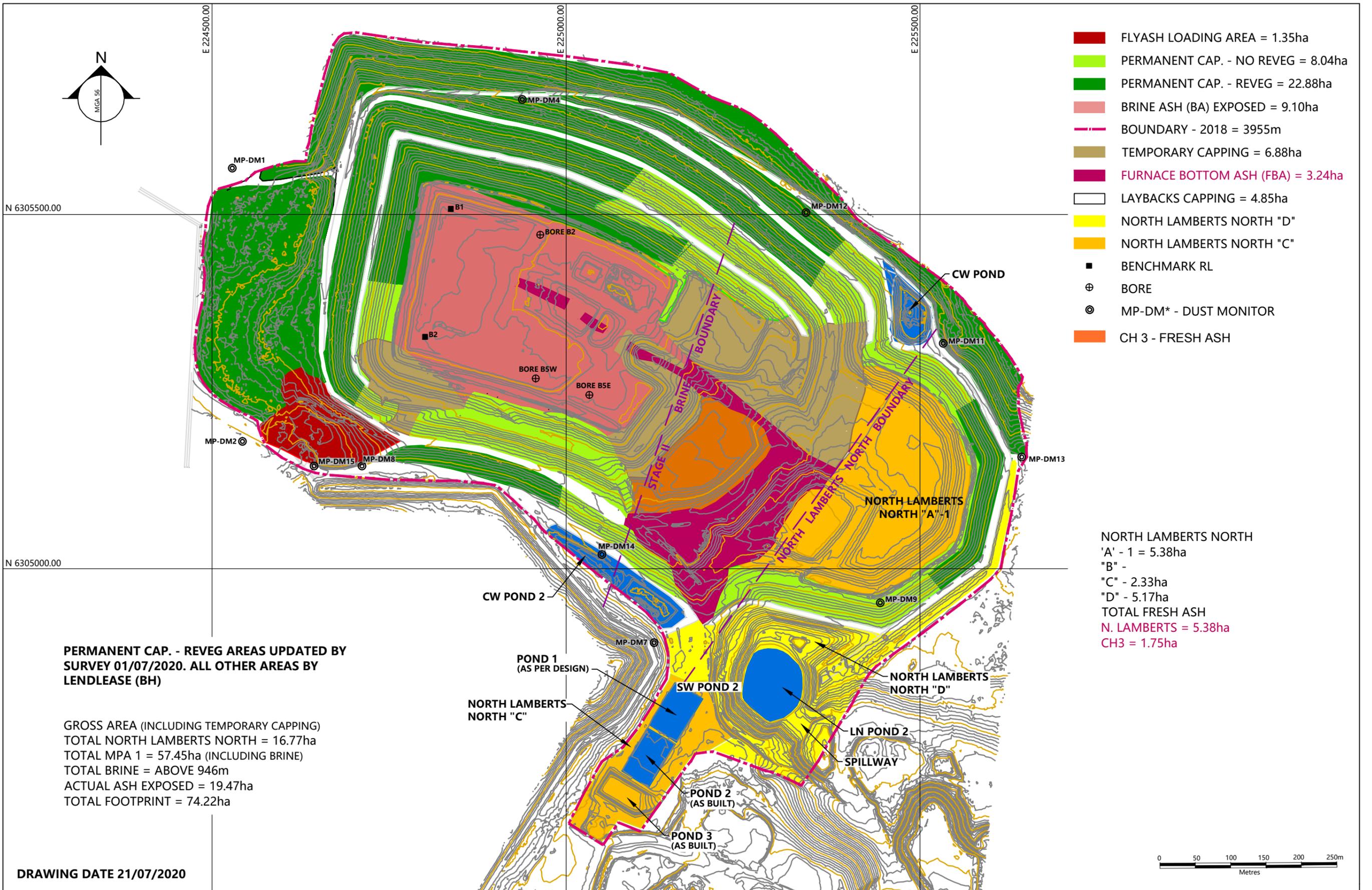


Appendix H Mt Piper Ash Repository & Lamberts North Rehabilitation Plan



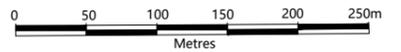
- FLYASH LOADING AREA = 1.35ha
- PERMANENT CAP. - NO REVEG = 8.04ha
- PERMANENT CAP. - REVEG = 22.88ha
- BRINE ASH (BA) EXPOSED = 9.10ha
- BOUNDARY - 2018 = 3955m
- TEMPORARY CAPPING = 6.88ha
- FURNACE BOTTOM ASH (FBA) = 3.24ha
- LAYBACKS CAPPING = 4.85ha
- NORTH LAMBERTS NORTH "D"
- NORTH LAMBERTS NORTH "C"
- BENCHMARK RL
- ⊕ BORE
- ⊙ MP-DM* - DUST MONITOR
- CH 3 - FRESH ASH

NORTH LAMBERTS NORTH
 'A' - 1 = 5.38ha
 "B" -
 "C" - 2.33ha
 "D" - 5.17ha
 TOTAL FRESH ASH
 N. LAMBERTS = 5.38ha
 CH3 = 1.75ha

PERMANENT CAP. - REVEG AREAS UPDATED BY SURVEY 01/07/2020. ALL OTHER AREAS BY LENDLEASE (BH)

GROSS AREA (INCLUDING TEMPORARY CAPPING)
 TOTAL NORTH LAMBERTS NORTH = 16.77ha
 TOTAL MPA 1 = 57.45ha (INCLUDING BRINE)
 TOTAL BRINE = ABOVE 946m
 ACTUAL ASH EXPOSED = 19.47ha
 TOTAL FOOTPRINT = 74.22ha

DRAWING DATE 21/07/2020



NOTES:	No.	AMENDMENT	DATE	DRAWN	CHECK'D	AUTH'D	CEH SURVEY		CLIENT:	PLAN:			
AREAS BY LENDLEASE <small>Disclaimer: CEH Survey Pty. Ltd. do not guarantee the accuracy or completeness of this plan and are not liable for any loss or damage which the user may suffer resulting from the use of this plan.</small>							 CONSULTING LAND, ENGINEERING AND MINING SURVEYORS "Astrolabe" 1 Rutherford Lane, LITHGOW 2790 ABN: 68 056 544 551 Office: (02) 6351 2281 Email: survey@ceh.com.au Website: www.ceh.com.au		LEND LEASE SERVICES PTY LTD	LEND LEASE SERVICES PTY LTD MOUNT PIPER ASH EMPLACEMENT SURVEY: FEBRUARY 2020			
									LOCALITY: MOUNT PIPER	SURVEYOR: T.H./B.N./L.B.	DRAWN: G.M./D.M.	DATE: 21-07-2020	PLAN No. MPA0220 (As surveyed)
									LGA: LITHGOW				
							SCALE: 1 : 5000 (A3)						



CALCULATION BOUNDARIES SHOWN BLUE



CEH SURVEY

CONSULTING LAND, ENGINEERING AND MINING SURVEYORS

"Astrolabe" 1 Rutherford Lane,
LITHGOW 2790
ABN: 68 056 544 551 Office: (02) 6351 2281
Email: survey@ceh.com.au Website: www.ceh.com.au



DATE	09-08-2021
AMENDED	
SURVEYOR	TH/BN
DRAWN	TH
CHECKED	

LEND LEASE SERVICES PTY. LTD.
MOUNT PIPER - ASH PLACEMENT
SURVEY : 9th AUGUST 2021

SCALE - 1:3500 (A3) DATUM: MGA (ZONE 56)

DRAWING No:
MPA0821
(as surveyed)

CCAD6 JOB & DWG:
MPA0821 - MPA0821 as survey

Appendix I Annual EnergyAustralia NSW Community Sponsorships and Donations

Sponsorship Contributions – 1 September 2020 – 31 August 2021

Date	Name	Project	Type
Nov-20	Lithgow & District Community Nursery	Assistance with propagation/plants	Sponsorship
Dec-20	Mingaan Aboriginal Corporation	Local Event	Sponsorship
Dec-20	Rydal Show Society	Annual Show	Sponsorship
Nov-20	Capertee Public School	Award - School Presentation	Sponsorship
Dec-21	Cooerwull Public School	Award - School Presentation	Sponsorship
Nov-21	Cullen Bullen Public School	Award - School Presentation	Sponsorship
Nov-20	Hampton Public School	Award - School Presentation	Sponsorship
Nov-20	La Salle Academy Lithgow	Award - School Presentation	Sponsorship
Nov-20	Lithgow High School	Award - School Presentation	Sponsorship
Nov-20	Lithgow Public School	Award - School Presentation	Sponsorship
Dec-20	Meadow Flat Public School	Award - School Presentation	Sponsorship
Oct-20	Portland Central School	Award - School Presentation	Sponsorship
Nov-20	St Josephs School Portland	Award - School Presentation	Sponsorship
Nov-20	St Patricks School	Award - School Presentation	Sponsorship
Nov-20	Wallerawang Public School	Award - School Presentation	Sponsorship
Nov-20	Zig Zag Public School	Award - School Presentation	Sponsorship
Oct-20	Lithgow Aged Care	Picnic Area	Grant
Nov-20	Lithgow District Community Nursery	Purchase Whipper Snipper	Grant
Oct-20	Lithgow District Junior Cricket Assoc.	Purchase Sun Shelters	Grant
Oct-20	Mary MacKillop Today	Financial Wellbeing Program	Grant
Nov-20	Mitchell Conservatorium	Student Scholarship	Grant
Oct-20	Rydal Show Society Youth Council	Purchase sound equipment	Grant
Jan-21	D McLaren Family - Engage Us	In Memory of David	Donation
Jan-21	Cancer Council	The Longest Day	Donation
Feb-21	Team Keely Fundraiser	Donation to Keely Sheehan	Donation
Mar-21	Portland Art Show	Purchase Artwork	Sponsorship
Mar-21	Sea Bees	Fishing Event Lake Lyell	Sponsorship
Apr-21	Pied Piper Preschool	eSafety Program	Grant
Apr-21	Wallerawang Memorial Mens Shed	Purchase Computer	Grant
Apr-21	Cooerwull School	Classroom Libraries	Grant
May-21	Lithgow Mens Shed	Purchase Power Tools	Sponsorship
May-21	Portland Central School	Deadly Dreaming Indigenous Garden	Grant
May-21	Lithgow Information & Neighbourhood Centre	Maths Train The Trainer	Grant
Mar-21	Portland Central School	Ride 2 School/ Bike Safe Day	Donation
May-21	Rydal Village Assoc	Daffodils in Rydal - Sculptures in the Scrub	Donation
Apr-21	Melanoma Institute of Aust	Melanoma March	Donation

Appendix J Complaints Register

Complaint No.	Date Received	Nature (Enquiry / Notification / Complaint)	Issue(s)	EA NSW Response	Corrective Actions Required	Actions Completed	
						Y / N	Date
No complaints received.							

Appendix K Lamberts North Ash Repository Internal Audit

Lamberts North Ash Repository Internal Audit 2020 – 2021 *(sampling January and May 2021)*

Audit Report		
Audit Summary	<ul style="list-style-type: none"> An Audit was conducted across Mt Pipers operations including a focus on Lamberts North Ash repository against the requirements of EnergyAustralia’s environmental management system Audit Findings items are summarised in the adjacent table, and are detailed within the report. 	Audit Findings (see Audit Criteria overleaf, for full description)
		NC-H Non-compliance – High 0
		NC-M Non-compliance – Medium 0
		NC-L Non-compliance – Low 0
		NC-A Administrative non-compliance 0
		C Compliant 0
		NA Not Assessed 0
		O Observation 0
Auditor	Edwina White	
Audit Date	January 2021 and May 2021 (as sample months for ash repository management)	
Audit Type	Internal Audit	
Audit Method	Desktop sampling and site inspection	
Audit Scope	Lamberts North Ash Placement Project – Operation Environmental Management Plan (Section 2.2.3 Ash Placement and 2.2.4 Ash Management and Table 6.11 Mitigation Measures)	
Audit Limitations	Broad and limited depth audit: <ul style="list-style-type: none"> - based on presence and absence of required documentation, not degree (or quality) of implementation; - other items ‘Not Assessed’ due to coverage by previous internal audits; - other items ‘Not Assessed’ due to no current issues identified; - other items ‘Not Assessed’ due to no construction activities currently underway; - other items ‘Not Assessed’ due to project still being in operational phase. 	
Audit Documents	Document Title	Document Reference
	Lamberts North Ash Placement Project – Operation Environmental Management Plan (Section 6.5.3 Water Management System)	190902 LN OEMP Final.pdf (energyaustralia.com.au)
	LendLease Geotechnical Results	Objective Reference: A1946790

Audit Criteria	Risk Level	Colour Code	Description
	High	NC-H	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence.
	Medium	NC-M	Non-compliance with: <ul style="list-style-type: none"> • Potential for serious environmental consequences, but is unlikely to occur; or • Potential for moderate environmental consequences, but is likely to occur.
	Low	NC-L	Non-compliance with: <ul style="list-style-type: none"> • Potential for moderate environmental consequences, but is unlikely to occur; or • Potential for low environmental consequences, but is likely to occur.
	Administrative non-compliance	NC-A	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions).
	Compliant	C	The intent and all elements of the requirement of the regulatory approval have been complied with.
	Not Assessed	NA	Not assessed.
	Observation	O	Observation, based on identified inconsistency or opportunity for improvement.

Finding	Comments / Evidence	
Methods for the placement of ash materials to optimise compaction and stability of the emplacement areas include target moisture content, compaction density, and progressive capping and revegetation. (2.2.3)	C	<ul style="list-style-type: none"> • Site inspection carried out January 2021 (see Photos below) and again in April/May 2021 • During January 2021 – <ul style="list-style-type: none"> • a total of four DCPs were conducted with results achieving target Performance results: 5.0, 6.5, 4.0, 9.0. • Optimum moisture content achieved 18.5% – 23% • During May 2021 – <ul style="list-style-type: none"> • a total of four DCPs were conducted with results achieving target Performance results: 8.0, 8.0, 10.5, 9.5. • Optimum moisture content achieved with average result of 18.5% - 24% •
The ash is treated to an average compaction of 95%, relative to its maximum standard compaction, through a controlled combination of water addition and machine compacting with the use of rollers and rubber-tyred vehicles. (2.2.3)	C	<ul style="list-style-type: none"> • January 2021 compaction achieved 94.3 – 99% Dry density Ratio • May 2021 compaction achieved 96.5% - 102.7%
Testing and monitoring is also routinely undertaken, including: <ul style="list-style-type: none"> ▪ Ash moisture content; ▪ Rainfall and evaporation; ▪ Water quality and volume; ▪ Compaction of ash; ▪ Dust; ▪ Ash placement levels; ▪ Engineering and geotechnical considerations (compaction and stability). (2.2.4) 	C	<ul style="list-style-type: none"> • January 2021 monitoring: <ul style="list-style-type: none"> • Optimum moisture content achieved 18.5% – 23% • Rainfall – 57.8mm; evaporation 139.00mm • Water use – total site use = 33.9ML • Dust monitoring – insoluble solids: 0mg/m2/month • Ash placement levels – cited in LL Monthly Client Report (January, 2021) • Compaction - 94.3 – 99% Dry density Ratio • May 2021 monitoring: <ul style="list-style-type: none"> • Optimum moisture content achieved with average result of 18.5% - 20% • Rainfall – 42.8mm; evaporation 38.00mm • Water use – total site use = 28.9ML • Dust monitoring – insoluble solids: 2.5mg/m2/month • Ash placement levels – cited in LL Monthly Client Report (May, 2021) • Compaction - 96.5% - 102.7% Dry density Ratio •
Site inspections records to confirm ash placement and compaction targets are being achieved; (Table 6.1)	C	<ul style="list-style-type: none"> • Site/workplace inspections undertaken – 6 in total for January • Site/workplace inspections undertaken – 19 in total for May

Finding	Comments / Evidence	
<ul style="list-style-type: none"> • Placement and compaction of fly ash will be targeted to have an in-place dry density of 95% of its maximum dry density and at moisture content within 0% to -4% of the optimum moisture content in accordance with AS 1289.5.1.1. (Table 6.11) • Ash will be placed in layers and the conditioning of fly ash with water shall be undertaken, ensuring that the moisture content sits at a target rate of 15-20% (or as otherwise determined by climatic conditions and compaction requirements). (Table 6.25) • Optimal moisture content (OMC) for compaction will be maintained to achieve the target compaction ratio. (Table 6.25) 	C	<ul style="list-style-type: none"> • January 2021 monitoring: <ul style="list-style-type: none"> • Optimum moisture content achieved 18.5% – 23% • Compaction : 94.3 – 99% Dry density Ratio • Dry of OMC : 1.5 – 4.5 • May 2021 monitoring: <ul style="list-style-type: none"> • Optimum moisture content achieved with average result of 18.5% - 24% • Compaction : 96.5% - 102.7% Dry density Ratio • Dry of OMC : 2.0 – 4.0



Figure 1 – Compaction activity at Lamberts North Ash Repository (January 2021)



Figure 2 – Compaction activity at Lamberts North Ash Repository (January 2021)



Figure 3 – Use of sprinklers on Lamberts North (April/May 2021)



Figure 4 – Use of water cart on haul roads around Lamberts North

---- END OF DOCUMENT ----



From: [Redacted]@lendlease.com>
Sent: Tuesday, 31 August 2021 9:32 AM
To: [Redacted]
Subject: Re: [EXT]:FW: Audit - LN Annual Report

Thanks [Redacted]

Detail below

E0009-Mt Piper Compaction Results				
May-2021				
Date	Location	Test 1 (%)	Test 2(%)	Test 3 (%)
Jan-21	B5	94.3	95.8	99.3
Feb-21	B6	99	101.5	99
Mar-21	B6	99	101.5	98
Apr-21	B5	98.3	98.3	96.5
May-21	B2	96.5	102.7	97.3
Jun-21				
Jul-21				
Aug-21				
Sep-21				
Oct-21				
Nov-21				
Dec-21				

Regards,

[Redacted]
 State Manager NSW, Industrial and Resources East, Services
 350 Boulder Road, Portland NSW 2847 Australia
 T +61 2 6355 7246 | M +61 400 637 632
 [Redacted]@lendlease.com | www.lendlease.com



Please consider the environment before printing this email

From: [Redacted]@energyaustralia.com.au>
Sent: Tuesday, 31 August 2021 9:26 AM
To: [Redacted]@energyaustralia.com.au>
Cc: [Redacted]@lendlease.com>
Subject: [EXT]:FW: Audit - LN Annual Report



FIELD DENSITY & COMPACTION TEST REPORT

Client	Lendlease	Job No.	B21029
Address	Level 5, 40 Miller Street North Sydney NSW 2060	Report No.	01-CT
Project	Ash Testing	Lot	B5 Ash Pads

Test Procedure	<input checked="" type="checkbox"/>	AS 1289 2.1.1 - Determination of the moisture content of a soil - Oven drying method
	<input checked="" type="checkbox"/>	AS 1289 5.1.1 - Determination of the dry density/moisture content relation of a soil using standard compactive effort
	<input type="checkbox"/>	AS 1289 5.2.1 - Determination of the dry density/moisture content relation of a soil using modified compactive effort
	<input checked="" type="checkbox"/>	AS 1289 5.4.1 - Dry density ratio, moisture variation and moisture ratio
	<input checked="" type="checkbox"/>	AS 1289 5.8.1 - Determination of field density of a soil - Density gauge - Direct transmission mode*

Sampling	AS 1289.1.2.1 - 6.4b (Compacted layers)	Date Sampled	27/01/2021
Preparation	AS 1289.1.1		

FIELD TESTS

Date Tested	27/01/2021	27/01/2021	27/01/2021		
Time Tested	0930	0940	0950		
Test No.	01	02	03		
Test Depth	300mm	300mm	300mm		
Test Location **	B5	B5	B5		
Offset **	Pit 1	Pit 1	Pit 1		
Layer / RL	Surface	300mm Below	600mm Below		
Material Description	ASH	ASH	ASH		
Wet Density (t/m ³)	1.51	1.53	1.43		
Dry Density (t/m ³)	1.27	1.30	1.22		
Moisture Content (%)	18.5	17.0	16.5		

LAB TESTS

Date Tested	28/01/2021	28/01/2021	28/01/2021		
Oversize Retaining Sieve	19 mm	19 mm	19 mm		
Oversize Retained - Wet basis (%)	0	0	0		
Oversize Retained - Dry basis (%)	0	0	0		
Curing Time (hrs)	2 hrs	2 hrs	2 hrs		
Liquid Limit Determination	Technician Assessment	Technician Assessment	Technician Assessment		
Maximum Dry Density (t/m ³)	1.34	1.33	1.35		
Adj. Maximum Dry Density (t/m ³)	1.34	1.33	1.35		
Optimum Moisture Content (%)	21.0	21.5	18.5		
Adj. Optimum Moisture Content (%)	21.0	21.5	18.5		

RESULTS

Density Ratio / DR (%)	95.0	97.5	90.5		
Moisture Ratio / MR (%)	87.5	79.5	90.0		
Moisture Variation (%)	2.5	4.5	2.0		
	Dry of OMC	Dry of OMC	Dry of OMC		

Notes	** Specific test locations were chosen by the client. Information provided by the client: Lot, Layer and Location Macquarie Geotechnical is not responsible for the accuracy of information provided by the client; nor how that information may affect the validity of results. *Variation to test method AS 1289 5.8.1, field wet density readings are outside of gauge calibration limits.
--------------	--

 <p>Accredited for compliance with ISO/IEC 17025 - Testing.</p> <p>The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. This document shall not be reproduced, except in full. Results relate only to the samples tested.</p> <p>NATA Accredited Laboratory Number: 14874</p>	<p style="text-align: right;">Authorised Signatory:</p> <div style="text-align: center;">  <hr style="width: 100px; margin: 0 auto;"/> Barry Froebel </div>	<p style="text-align: right;">Date</p> <p style="text-align: right;">29/01/2021</p> <hr style="width: 100%; margin: 0 auto;"/> <p style="text-align: right;">Macquarie Geotechnical 3 Watt Drive Bathurst NSW 2795</p>
---	---	--

FIELD DENSITY & COMPACTION TEST REPORT

Client	Lendlease	Job No.	B21029
Address	Level 5, 40 Miller Street North Sydney NSW 2060	Report No.	02-CT
Project	Ash Testing	Lot	B5 Ash Pads

Test Procedure	<input checked="" type="checkbox"/>	AS 1289 2.1.1 - Determination of the moisture content of a soil - Oven drying method
	<input checked="" type="checkbox"/>	AS 1289 5.1.1 - Determination of the dry density/moisture content relation of a soil using standard compactive effort
	<input type="checkbox"/>	AS 1289 5.2.1 - Determination of the dry density/moisture content relation of a soil using modified compactive effort
	<input checked="" type="checkbox"/>	AS 1289 5.4.1 - Dry density ratio, moisture variation and moisture ratio
	<input checked="" type="checkbox"/>	AS 1289 5.8.1 - Determination of field density of a soil - Density gauge - Direct transmission mode*

Sampling	AS 1289.1.2.1 - 6.4b (Compacted layers)	Date Sampled	27/01/2021
Preparation	AS 1289.1.1		

FIELD TESTS

Date Tested	27/01/2021	27/01/2021	27/01/2021		
Time Tested	1000	1015	1020		
Test No.	04	05	06		
Test Depth	300mm	300mm	300mm		
Test Location **	B5	B5	B5		
Offset **	Pit 2	Pit 2	Pit 2		
Layer / RL	Surface	300mm Below	600mm Below		
Material Description	ASH	ASH	ASH		
Wet Density (t/m ³)	1.55	1.55	1.49		
Dry Density (t/m ³)	1.34	1.33	1.28		
Moisture Content (%)	16.5	16.5	16.5		

LAB TESTS

Date Tested	28/01/2021	28/01/2021	28/01/2021		
Oversize Retaining Sieve	19 mm	19 mm	19 mm		
Oversize Retained - Wet basis (%)	0	0	0		
Oversize Retained - Dry basis (%)	0	0	0		
Curing Time (hrs)	2 hrs	2 hrs	2 hrs		
Liquid Limit Determination	Technician Assessment	Technician Assessment	Technician Assessment		
Maximum Dry Density (t/m ³)	1.37	1.36	1.39		
Adj. Maximum Dry Density (t/m ³)	1.37	1.36	1.39		
Optimum Moisture Content (%)	19.5	19.5	21.0		
Adj. Optimum Moisture Content (%)	19.5	19.5	21.0		

RESULTS

Density Ratio / DR (%)	97.5	97.5	92.5		
Moisture Ratio / MR (%)	83.5	84.0	78.5		
Moisture Variation (%)	3.0	3.0	4.5		
	Dry of OMC	Dry of OMC	Dry of OMC		

Notes	** Specific test locations were chosen by the client. Information provided by the client: Lot, Layer and Location Macquarie Geotechnical is not responsible for the accuracy of information provided by the client; nor how that information may affect the validity of results. *Variation to test method AS 1289 5.8.1, field wet density readings are outside of gauge calibration limits.
--------------	--

	Accredited for compliance with ISO/IEC 17025 - Testing. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. This document shall not be reproduced, except in full. Results relate only to the samples tested. NATA Accredited Laboratory Number: 14874	Authorised Signatory:  Barry Froebel	29/01/2021 Date
		Macquarie Geotechnical 3 Watt Drive Bathurst NSW 2795	

FIELD DENSITY & COMPACTION TEST REPORT

Client	Lendlease	Job No.	B21029
Address	Level 5, 40 Miller Street North Sydney NSW 2060	Report No.	03-CT
Project	Ash Testing	Lot	B5 Ash Pads

Test Procedure	<input checked="" type="checkbox"/>	AS 1289 2.1.1 - Determination of the moisture content of a soil - Oven drying method
	<input checked="" type="checkbox"/>	AS 1289 5.1.1 - Determination of the dry density/moisture content relation of a soil using standard compactive effort
	<input type="checkbox"/>	AS 1289 5.2.1 - Determination of the dry density/moisture content relation of a soil using modified compactive effort
	<input checked="" type="checkbox"/>	AS 1289 5.4.1 - Dry density ratio, moisture variation and moisture ratio
	<input checked="" type="checkbox"/>	AS 1289 5.8.1 - Determination of field density of a soil - Density gauge - Direct transmission mode*

Sampling	AS 1289.1.2.1 - 6.4b (Compacted layers)	Date Sampled	27/01/2021
Preparation	AS 1289.1.1		

FIELD TESTS

Date Tested	27/01/2021	27/01/2021	27/01/2021		
Time Tested	1100	1105	1130		
Test No.	07	08	09		
Test Depth	300mm	300mm	300mm		
Test Location **	B5	B5	B5		
Offset **	Pit 3	Pit 3	Pit 3		
Layer / RL	Surface	300mm Below	600mm Below		
Material Description	ASH	ASH	ASH		
Wet Density (t/m ³)	1.65	1.58	1.51		
Dry Density (t/m ³)	1.39	1.34	1.29		
Moisture Content (%)	18.5	18.0	16.5		

LAB TESTS

Date Tested	28/01/2021	28/01/2021	28/01/2021		
Upsize Retaining Sieve	19 mm	19 mm	19 mm		
Upsize Retained - Wet basis (%)	0	0	0		
Upsize Retained - Dry basis (%)	0	0	0		
Curing Time (hrs)	2 hrs	2 hrs	2 hrs		
Liquid Limit Determination	Technician Assessment	Technician Assessment	Technician Assessment		
Maximum Dry Density (t/m ³)	1.36	1.38	1.36		
Adj. Maximum Dry Density (t/m ³)	1.36	1.38	1.36		
Optimum Moisture Content (%)	23.0	19.5	21.0		
Adj. Optimum Moisture Content (%)	23.0	19.5	21.0		

RESULTS

Density Ratio / DR (%)	102.0	96.5	95.0		
Moisture Ratio / MR (%)	81.5	93.0	79.5		
Moisture Variation (%)	4.0	1.5	4.5		
	Dry of OMC	Dry of OMC	Dry of OMC		

Notes	** Specific test locations were chosen by the client. Information provided by the client: Lot, Layer and Location Macquarie Geotechnical is not responsible for the accuracy of information provided by the client; nor how that information may affect the validity of results. *Variation to test method AS 1289 5.8.1, field wet density readings are outside of gauge calibration limits.
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---	---	---

	Macquarie Geotechnical 3 Watt Drive Bathurst NSW 2795
--	---

FIELD DENSITY & COMPACTION TEST REPORT

Client	Lendlease	Job No.	B21029
Address	Level 5, 40 Miller Street North Sydney NSW 2060	Report No.	09-CT
Project	Ash Testing	Lot	B1 Ash Pad

Test Procedure	<input checked="" type="checkbox"/>	AS 1289 2.1.1 - Determination of the moisture content of a soil - Oven drying method
	<input checked="" type="checkbox"/>	AS 1289 5.1.1 - Determination of the dry density/moisture content relation of a soil using standard compactive effort
	<input type="checkbox"/>	AS 1289 5.2.1 - Determination of the dry density/moisture content relation of a soil using modified compactive effort
	<input checked="" type="checkbox"/>	AS 1289 5.4.1 - Dry density ratio, moisture variation and moisture ratio
	<input checked="" type="checkbox"/>	AS 1289 5.8.1 - Determination of field density of a soil - Density gauge - Direct transmission mode*

Sampling	AS 1289.1.2.1 - 6.4b (Compacted layers)	Date Sampled	25/05/2021
Preparation	AS 1289.1.1		

FIELD TESTS					
Date Tested	25/05/2021	25/05/2021	25/05/2021		
Time Tested	0930	0940	0950		
Test No.	28	29	30		
Test Depth	300mm	300mm	300mm		
Test Location **	B1	B1	B1		
Offset **	-	-	-		
Layer / RL	Surface	300mm Below	600mm Below		
Material Description	ASH	ASH	ASH		
Wet Density (t/m ³)	1.56	1.56	1.46		
Dry Density (t/m ³)	1.34	1.33	1.26		
Moisture Content (%)	16.0	17.0	16.5		

LAB TESTS					
Date Tested	28/05/2021	28/05/2021	28/05/2021		
Oversize Retaining Sieve	19 mm	19 mm	19 mm		
Oversize Retained - Wet basis (%)	0	0	0		
Oversize Retained - Dry basis (%)	0	0	0		
Curing Time (hrs)	3 hrs	2 hrs	2 hrs		
Liquid Limit Determination	Technician Assessment	Technician Assessment	Technician Assessment		
Maximum Dry Density (t/m ³)	1.39	1.37	1.38		
Adj. Maximum Dry Density (t/m ³)	1.39	1.37	1.38		
Optimum Moisture Content (%)	18.5	20.0	19.0		
Adj. Optimum Moisture Content (%)	18.5	20.0	19.0		

RESULTS					
Density Ratio / DR (%)	96.5	97.0	91.0		
Moisture Ratio / MR (%)	87.5	85.5	87.5		
Moisture Variation (%)	2.5	3.0	2.5		
	Dry of OMC	Dry of OMC	Dry of OMC		

Notes	** Specific test locations were chosen by the client. Information provided by the client: Lot, Layer and Location Macquarie Geotechnical is not responsible for the accuracy of information provided by the client; nor how that information may affect the validity of results. *Variation to test method AS 1289 5.8.1, field wet density readings are outside of gauge calibration limits.
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	Macquarie Geotechnical 3 Watt Drive Bathurst NSW 2795		

FIELD DENSITY & COMPACTION TEST REPORT

Client	Lendlease	Job No.	B21029
Address	Level 5, 40 Miller Street North Sydney NSW 2060	Report No.	10-CT
Project	Ash Testing	Lot	B2 Ash Pad Southern Pit

Test Procedure	<input checked="" type="checkbox"/>	AS 1289 2.1.1 - Determination of the moisture content of a soil - Oven drying method
	<input checked="" type="checkbox"/>	AS 1289 5.1.1 - Determination of the dry density/moisture content relation of a soil using standard compactive effort
	<input type="checkbox"/>	AS 1289 5.2.1 - Determination of the dry density/moisture content relation of a soil using modified compactive effort
	<input checked="" type="checkbox"/>	AS 1289 5.4.1 - Dry density ratio, moisture variation and moisture ratio
	<input checked="" type="checkbox"/>	AS 1289 5.8.1 - Determination of field density of a soil - Density gauge - Direct transmission mode*

Sampling	AS 1289.1.2.1 - 6.4b (Compacted layers)	Date Sampled	25/05/2021
Preparation	AS 1289.1.1		

FIELD TESTS

Date Tested	25/05/2021	25/05/2021	25/05/2021		
Time Tested	1000	1010	1020		
Test No.	31	32	33		
Test Depth	300mm	300mm	300mm		
Test Location **	B2	B2	B2		
Offset **	Southern Pit	Southern Pit	Southern Pit		
Layer / RL	Surface	300mm Below	600mm Below		
Material Description	ASH	ASH	ASH		
Wet Density (t/m ³)	1.61	1.72	1.58		
Dry Density (t/m ³)	1.33	1.47	1.33		
Moisture Content (%)	21.0	17.5	19.0		

LAB TESTS

Date Tested	28/05/2021	28/05/2021	28/05/2021		
Oversize Retaining Sieve	19 mm	19 mm	19 mm		
Oversize Retained - Wet basis (%)	0	0	0		
Oversize Retained - Dry basis (%)	0	0	0		
Curing Time (hrs)	2 hrs	2 hrs	2 hrs		
Liquid Limit Determination	Technician Assessment	Technician Assessment	Technician Assessment		
Maximum Dry Density (t/m ³)	1.31	1.38	1.32		
Adj. Maximum Dry Density (t/m ³)	1.31	1.38	1.32		
Optimum Moisture Content (%)	24.0	19.5	22.0		
Adj. Optimum Moisture Content (%)	24.0	19.5	22.0		

RESULTS

Density Ratio / DR (%)	101.5	106.0	100.5		
Moisture Ratio / MR (%)	88.0	89.0	85.0		
Moisture Variation (%)	3.0	2.0	3.5		
	Dry of OMC	Dry of OMC	Dry of OMC		

Notes	** Specific test locations were chosen by the client. Information provided by the client: Lot, Layer and Location Macquarie Geotechnical is not responsible for the accuracy of information provided by the client; nor how that information may affect the validity of results. *Variation to test method AS 1289 5.8.1, field wet density readings are outside of gauge calibration limits.
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NATA Accredited Laboratory Number: 14874

Authorised Signatory:

Barry Froebel

1/06/2021

Date

**MACQUARIE
GEO TECH**

Macquarie Geotechnical
3 Watt Drive
Bathurst NSW 2795

FIELD DENSITY & COMPACTION TEST REPORT

Client	Lendlease	Job No.	B21029
Address	Level 5, 40 Miller Street North Sydney NSW 2060	Report No.	11-CT
Project	Ash Testing	Lot	B2 Ash Pad North Pit

Test Procedure	<input checked="" type="checkbox"/>	AS 1289 2.1.1 - Determination of the moisture content of a soil - Oven drying method
	<input checked="" type="checkbox"/>	AS 1289 5.1.1 - Determination of the dry density/moisture content relation of a soil using standard compactive effort
	<input type="checkbox"/>	AS 1289 5.2.1 - Determination of the dry density/moisture content relation of a soil using modified compactive effort
	<input checked="" type="checkbox"/>	AS 1289 5.4.1 - Dry density ratio, moisture variation and moisture ratio
	<input checked="" type="checkbox"/>	AS 1289 5.8.1 - Determination of field density of a soil - Density gauge - Direct transmission mode*

Sampling	AS 1289.1.2.1 - 6.4b (Compacted layers)	Date Sampled	25/05/2021
Preparation	AS 1289.1.1		

FIELD TESTS

Date Tested	25/05/2021	25/05/2021	25/05/2021		
Time Tested	1040	1050	1100		
Test No.	34	35	36		
Test Depth	300mm	300mm	300mm		
Test Location **	B2	B2	B2		
Offset **	Northern Pit	Northern Pit	Northern Pit		
Layer / RL	Surface	300mm Below	600mm Below		
Material Description	ASH	ASH	ASH		
Wet Density (t/m ³)	1.53	1.59	1.49		
Dry Density (t/m ³)	1.34	1.37	1.28		
Moisture Content (%)	14.0	16.0	16.5		

LAB TESTS

Date Tested	29/05/2021	29/05/2021	29/05/2021		
Oversize Retaining Sieve	19 mm	19 mm	19 mm		
Oversize Retained - Wet basis (%)	0	0	0		
Oversize Retained - Dry basis (%)	0	0	0		
Curing Time (hrs)	2 hrs	2 hrs	2 hrs		
Liquid Limit Determination	Technician Assessment	Technician Assessment	Technician Assessment		
Maximum Dry Density (t/m ³)	1.37	1.36	1.35		
Adj. Maximum Dry Density (t/m ³)	1.37	1.36	1.35		
Optimum Moisture Content (%)	19.0	20.0	20.5		
Adj. Optimum Moisture Content (%)	19.0	20.0	20.5		

RESULTS

Density Ratio / DR (%)	97.5	100.0	94.5		
Moisture Ratio / MR (%)	74.5	80.5	81.0		
Moisture Variation (%)	5.0	4.0	4.0		
	Dry of OMC	Dry of OMC	Dry of OMC		

Notes	** Specific test locations were chosen by the client. Information provided by the client: Lot, Layer and Location Macquarie Geotechnical is not responsible for the accuracy of information provided by the client; nor how that information may affect the validity of results. *Variation to test method AS 1289 5.8.1, field wet density readings are outside of gauge calibration limits.
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