NASTASI & ASSOCIATES
Consulting Engineers

Sydney – Gold Coast - Brisbane
Residential, Commercial, Industrial, Infrastructure
Structural, Civil, Stormwater, Geotechnical, Survey, Site Services

47395

Date	Revision
12 May 2025	A

Nastasi NSW
P O Box 6048
Hammondville NSW 2170

Our Ref AWT 84605
Your Ref NAS 47395

Soil Permeability as per AS1547-2012

Lot 1, No 35 Blackbutts Road Frenchs Forest NSW

Soil category & Structure : Clay Loams

Indicative Permeability : K_{sat} = 0.05 to 1.5 m/d

Observed Permeability : K_{sat} = 0.48m/d or 0.02 L/s/m^2

Please find attached the results of the Soil Permeability test, log sections and site sketch, undertaken at the above address.

Providing the system is designed by a suitably qualified person for the recommended design Ksat, above, and the system is located a minimum setback distance of 1.5m from any adjacent property boundary and infrastructure, we do not see any reason why this proposal should not proceed to construction.

Although no water table was encountered during our testing, a perched water table or water seepage can occur during or after wet periods, generally where a porous layer overlies less porous strata.

If you have any queries please do not hesitate to contact the office.

For and behalf of Nastasi & Associates

Jason Bau
MIE Aus, NER, RPEQ

BORELOGS

TEST Area

Depth (mm)	Description Soil Type-Colour-Consistency	FILL	DCP	Qa kPa
100	**SILTY SANDY CLAY (CI) w gravel**		1	
200	(brn)		2	
300	Moist		2	
400			1	
500			1	
600			2	
700			2	
800	**SILTY SANDY CLAY (CI) w gravel**		2	
900	(or)		3	
1000	Moist		3	
1100			6	
1200			2	
1300			6	
1400			2	
1500			3	
1600	**END H/A**		3	
1700			9	
1800			20+	
1900				
2000				
2100				
2200				
2300				
2400				
2500				
2600				
2700				
2800				
2900				
3000				

NOMENCLATURE:

UTP=Unable to Penetrate XW ROCK=Extremely Weathered Rock P/A = Power Auger
Refer Tables 7.3.2 & 7.3.3. AS1726-2017 gy=grey or=orange yell=yellow rd=red wh=white brn=brown bk=black bl=blue gr=green
Refer AS1726-2017 Clause A2.4 for classifying soils.

Notes:

1. Hand Auger (H/A) is a portable auger and where utilised is used because of lack of access or trafficability, it is essential that the results of a hand auger are confirmed once access is provided, further testing using a 4WD mounted drill rig is carried out, or stakeholders shall accept the associated risk of results which may not represent the subject site conditions.

ABN 45 533 226 008
Unit 5, 1-3Whyalla Place, PRESTONS NSW 2170 P.O. Box 6048 HAMMONDVILLE NSW 2170
PH (02) 9607 2864
EMAIL reception@nastasiassociates.com.au WEB www.nastasiassociates.com.au

SITE SKETCH (Not to Scale)

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SITE PHOTOGRAPHS

ABN 45 533 226 008
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PERCOLATION TEST RESULTS

Soil Permeability Constant Head Test
(Refer AS1547-2012)

Address: Lot 1, No 35 Blackbutts Road **Ref :** AWT 84605
Suburb: Frenchs Forest NSW

Depth(cm) of auger hole(D):	60	cm
Depth(cm) of water in hole(H):	30	cm
Average radius(cm) of hole(r):	5	cm
Pretest Hole Saturation Duration (mins):	30	min

Apparatus Specifications:

Diameter of reservoir(cm):	3.65	cm
Diameter of Air Inlet(cm):	1.2	cm
Effective Surface Area(cm2)	37.3	cm2

Field Measurements

Start	Level	Drop	Volume	Q		Ksat	
(min)	(cm)	(cm)	cm^3	cm^3/min	Litres/sec	cm/min	m/s
Test 1							
0.00	30						
5.00	0	12.6	990	198	0.0033	0.0373	6.225E-06
Test 2							
0.00	30						
5.00	0	12.1	950	190	0.0032	0.0359	5.978E-06
Test 3							
0.00	50						
5.00	20	11.1	872	174	0.0029	0.0329	5.484E-06
Test 4							
0.00	50						
5.00	19	11.0	864	173	0.0029	0.0326	5.434E-06
Test 5							
0.00	60						
5.00	27	9.5	746	149	0.0025	0.0282	4.693E-06

Range of results

Ksat of 0.0282 to 0.0373 cm/min

Observed Permeability

Av $K_{sat=}$ 0.0334 cm/min AS1547-2012 Eq G6
Rate = 0.4806 m/d or 5.56E-06 m/s
= 0.02 l/s/m2 based on a hydraulic gradient of 1 for sand

Estimated Permeability Range & Soil

Type 4 Clay Loams (Moderately structured) Ksat = 0.12 to 0.5 m/d

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AWGEOTECHNICS

AS1547 SOIL DESCRIPTIONS & K_{sat} RANGE

Soil Category	**Soil Texture & Structure**	**Indicative Ksat** (m/d)
1	Gravel & Sands (Structureless / Massive)	>3.0
2	Sandy Loams - Weakly structured	>3.0
2	Sandy Loams(Massive)	1.4 to 3.0
3	Loams (High / Moderate Structured)	1.5 to 3.0
3	Loams (Weakly Structured / Massive)	0.5 to 1.5
4	Clay Loams (High/moderate structured)	0.5 to 1.5
4	Clay Loams (Moderately structured)	0.12 to 0.5
4	Clay Loams (Weakly structured / Massive)	0.06 to 0.12
5	Slight Clays (Strongly structured)	0.12 to 0.5
5	Light Clays (Moderately structured)	0.06 to 0.12
5	Light Clays (Weakly structured / Massive)	<0.06
6	Medium to Heavy Clays (Strongly structured)	0.06 to 0.5
6	Medium to Heavy Clays (Moderately structured)	<0.06
6	Medium to Heavy Clays (Weakly structured / Massive)	<0.06