PRELIMINARY ASSESSMENT: Acid Sulfate

Alterations, Additions and New Pool at **8 Lido Avenue, North Narrabeen**

Class of land as shown on Acid Sulfate Soils Planning Maps		***Type of Works***
☐	**1**	Any works
☐	**2**	Works below the natural ground surface. Works by which the water table is likely to be lowered.
■	**3**	Works beyond 1m below the natural ground surface. Works by which the water table is likely to be lowered beyond 1m below the natural ground surface.
☐	**4**	Works beyond 2m below the natural ground surface. Works by which the water table is likely to be lowered beyond 2m below the natural ground surface.
☐	**5**	Works on land below 5m AHD and within 500m of adjacent Class1, 2, 3 or 4 land which are likely to lower the watertable below 1m AHD on adjacent Class 1, 2, 3 or 4 land.
The class of the site is highlighted in red, it should be noted that the classification does not mean acid sulfate soils are present on site but that there is a risk they could be present.		

1. Proposed Development

1.1 Construct a new pool on the NE side of the property by excavating to a maximum depth of ~1.8m.

1.2 Construct a new carport SW of the existing garage and porch at the road frontage.

1.3 Construct a new first floor addition.

1.4 Various other internal and external modifications.

1.5 Details of the proposed development are shown on 13 drawings prepared by Ukalovic Design, Job number 1840, drawings numbered 1-13, revision A, dated 9/7/19.

2. Site Description

The site was inspected on the 19th September, 2019.

The block is located on the level terrain just inland from the N reaches of Narrabeen Lagoon. The Sydney 1:100 000 Geological sheet indicates the site is underlain by Alluvial Stream and Estuarine Sediment (Qha). This is described as silty to peaty quartz sand, silt, and clay with ferruginous and humic cementation in places and common shell layers.

The NSW Environment and Heritage mapping program (eSpade) maps the soil landscape of the property as 'Swamp'. The ground tests indicate the majority of the underlying as bleached massive sand (wa2) that pale mottled massive sand (wa3). Their documentation indicates these soils range in pH from 5.5 to 7.0.

None of the ground tests encountered weathered rock. The sands that were encountered are likely Holocene in age (spanning in time from present to ~10,000 years ago).

No visible signs of acid sulfate soils such as bare low-lying areas, corrosion on man-made surfaces, or unusually clear, milky, or iron-stained surface water were observed on the property.

3. Earthworks

An excavation to a maximum depth of ~1.8m will be required to install the proposed pool. It will cover an area of ~13m^2. The excavation is only a risk in regards to potential acid sulfate soils while it is open. On completion of the pool footings, they will be sealed with concrete, preventing access of oxygen to the soil and therefore greatly reducing the potential for acid generation.

4. Watertable

The watertable was encountered at an average depth of ~1.1m (~RL1.0) below the current surface. This is to be pointed out to the pool builders as it will have an impact on excavation stability and the excavation walls will need to be supported until the pool structure is in place.

See our accompanying geotechnical report for design and excavation advice for the pool. It should be noted the watertable fluctuates with the tide and climatic changes.

5. Field Testing

Four hand auger holes were put down in the location shown on the site plan attached. Field pH and peroxide testing was carried out on samples taken from the auger holes at regular intervals. The logs of the auger holes and the test results are as follows.

AUGER HOLE 1 (~RL2.0) **–** AH1

Depth (m)	**Material Encountered**
0.0 to 0.4	**TOPSOIL,** sandy soil, dark brown, loose, dry, medium grained, fine trace organic matter.
0.4 to 1.2	**SAND**, brown, loose, damp, coarse grained with 5% shells.
0.2 to 1.5	**CLAYEY SAND**, dark grey to black, loose, wet, fine grained, trace charcoal.

End of hole @ 1.5m in clayey sand. No watertable encountered.

TEST: AH1	**FIELD pH & PEROXIDE RESULTS**				
Sample depth (m)	**pH_F**	**30% Peroxide reaction**	**pH_{FOX}**	**pH_F - pH_{FOX}**	**SS=Shell J=Jarosite R=Roots**
0.3	7.2	Very Weak Effervescence	7.8	-0.6	~5% Roots
0.8	7.7	Very Weak Effervescence	8.5	-0.8	~5% Shells
1.5	7.2	Very Weak Effervescence	8.0	-0.8	~5% Roots

AUGER HOLE 2 (~RL2.0) **–** AH2

Depth (m)	Material Encountered
0.0 to 0.3	**TOPSOIL,** sandy soil, dark brown, loose, dry, medium grained, fine trace organic matter.
0.3 to 1.1	**SAND**, brown, loose, damp, coarse grained with 5% shells.
1.1 to 1.4	**SAND**, brown, loose to medium dense, dry, coarse grained with fine trace organic matter.

End of hole @ 1.4m in wet sand. Watertable encountered at ~1.1m.

TEST: AH2	FIELD pH & PEROXIDE RESULTS				
Sample depth (m)	**pH_F**	**30% Peroxide reaction**	**pH_{FOX}**	**pH_F - pH_{FOX}**	**SS=Shell J=Jarosite R=Roots**
0.3	7.6	No Reaction	7.9	-0.3	~5% Roots
0.8	7.9	Very Weak Effervescence	8.5	-0.6	~5% Shells
1.4	7.7	Very Weak Effervescence	8.0	-0.3	~5% Shells

AUGER HOLE 3 (~RL2.1) **–** AH3

Depth (m)	Material Encountered
0.0 to 0.5	**TOPSOIL,** sandy soil, dark brown, loose, dry, medium grained, fine trace organic matter.
0.5 to 1.2	**SAND**, brown, medium grained and dry.
1.2 to 1.8	**SAND**, brown, medium grained and wet with 5% shells.
1.8 to 2.4	**SAND**, brown to grey, medium grained and wet with 5% shells.

End of hole @ 2.4m in wet sand. Water table encountered at ~1.2m.

TEST: AH3	FIELD pH & PEROXIDE RESULTS				
Sample depth (m)	**pH_F**	**30% Peroxide reaction**	**pH_{FOX}**	**pH_F - pH_{FOX}**	**SS=Shell J=Jarosite R=Roots**
0.5	7.5	No Reaction	8.1	-0.6	~5% Roots
1.	7.8	Weak Effervescence	8.6	-0.8	~5% Shells
1.5	7.7	Very Weak Effervescence	8.1	-0.4	~5% Shells
2.0	7.2	No Reaction	7.4	-0.2	~5% Shells
2.4	7.6	Very Weak Effervescence	7.9	-0.3	~5% Shells

AUGER HOLE 4 (~RL2.1) **–** AH4

Depth (m)	**Material Encountered**
0.0 to 0.3	**TOPSOIL,** sandy soil, dark brown, loose, dry, coarse grained, fine trace organic matter.
0.3 to 1.0	**SAND**, brown, loose, damp, coarse grained with 5% shells.
1.0 to 1.9	**SAND**, brown, loose, wet, coarse grained with 5% shells.

Refusal @ 1.9m in wet sand. Water table encountered at ~1.0m.

TEST: AH4	FIELD pH & PEROXIDE RESULTS				
Sample depth (m)	**pH_F**	**30% Peroxide reaction**	**pH_{FOX}**	**pH_F - pH_{FOX}**	**SS=Shell J=Jarosite R=Roots**
0.3	7.5	No Reaction	8.1	-0.6	<5% Roots
0.8	8.0	Very Weak Effervescence	8.5	-0.5	~5% Shells
1.3	7.9	Very Weak Effervescence	8.1	-0.2	~5% Shells
1.9	7.7	Very Weak Effervescence	8.2	-0.5	~5% Shells

6. Conclusions

This report was carried out in accordance with the Field pH and Peroxide Test guidelines (ASSMAC, 1998).

No Acid Sulfate Soils were identified in the test holes. The pH_F levels tested in all auger holes did not fall lower than 7.2. This is above a PH of 4 that is an indicator of acid sulfate soils. No Potential Acid Sulfate Soils were identified in the test holes. The measured pH_F levels varied up to 0.8 from the measured pH_{FOX} levels. A movement of 1 unit or more is an indicator of potential acid sulfate soils. The measured pH_{FOX} for all tests did not fall lower than 7.2. A pH_{FOX} <3 is a strong indicator of potential acid sulfate soils. No observable colour change or sulphurous odours were identified during the peroxide testing. It is likely the varying weak reactions to peroxide testing were due to inclusions in the soil other than sulphides as where the reaction was strongest, pH_{FOX} changed little from pH_F as it did in most tests.

This preliminary assessment indicates that an Acid Sulfate Soils management plan is not required for the proposed works.

White Geotechnical Group Pty Ltd.

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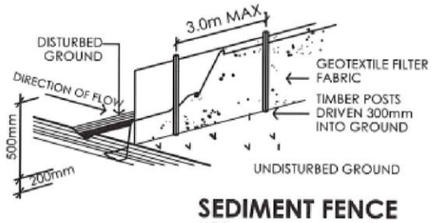
SITE CALCULATIONS

SITE AREA		464.52 m²
OPEN SPACE AREA	**59%**	276.09 m²
FSR		**0.35: 1**
RESIDENCE		
EXISTING LIVING		109.26 m²
PROPOSED LIVING		62.48 m²
TOTAL LIVING		**171.74 m²**
EXISTING PERGOLA (TO BE REMOVED)		25.75 m²
PROPOSED DECK AREAS		**61.36 m²**
EXISTING GARAGE		16.06 m²
PROPOSED CARPORT		**17.85 m²**



SEDIMENT FENCE
N.T.S

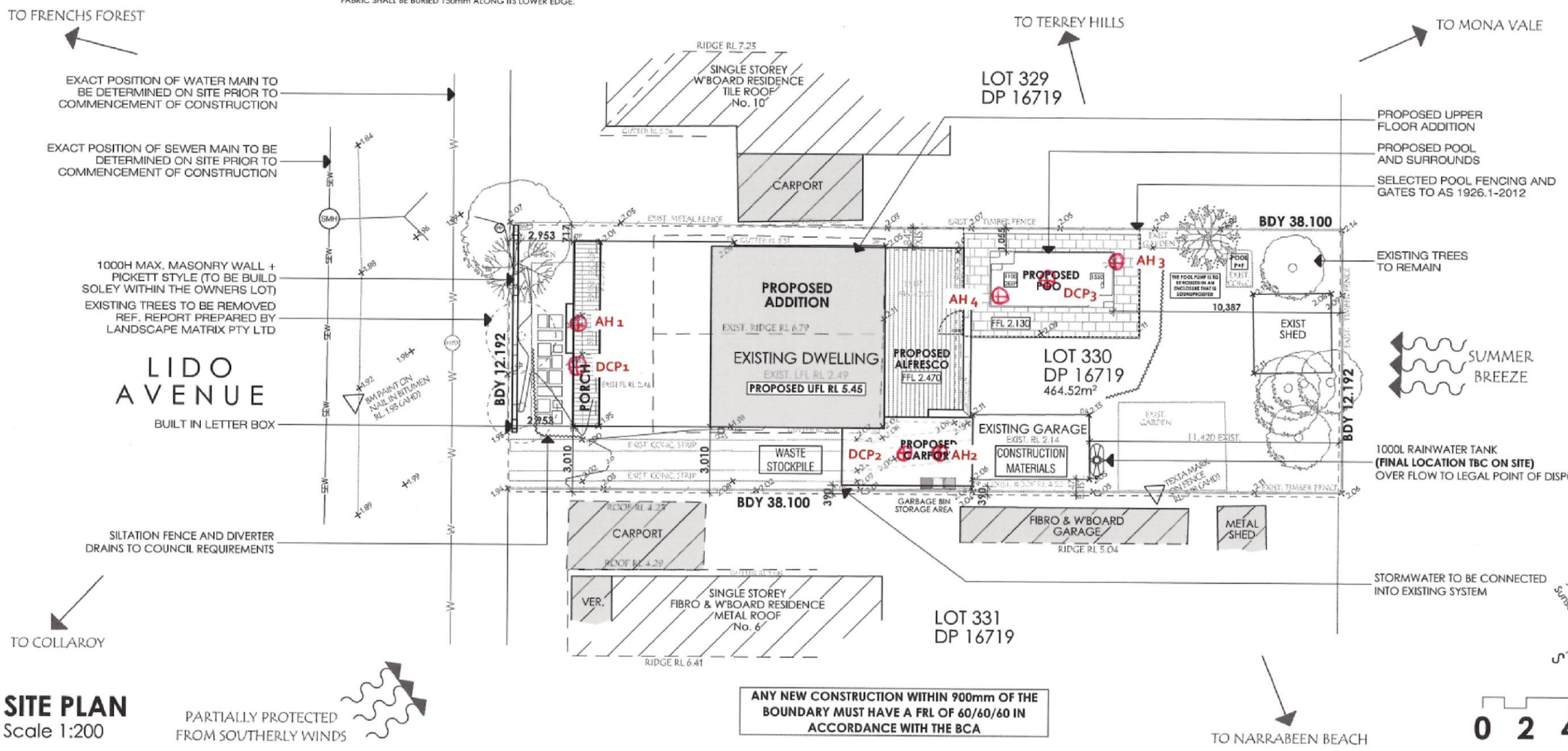
SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO COUNCIL REQUIREMENTS.
2. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
3. SEDIMENT TRAPS SHALL BE CONSTRUCTED AROUND ALL INLET PITS, CONSISTING OF 300mm WIDE X 300mm DEEP TRENCH.
4. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A 60% FULL OF SOIL MATERIALS, INCLUDING THE MAINTENANCE PERIOD.
5. ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.
6. SOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREA WHERE WATER MAY CONCENTRATE.
7. FILTER SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR APPROVED EQUIVALENT BETWEEN POST AT 3.0m CENTRES. FABRIC SHALL BE BURIED 150mm ALONG ITS LOWER EDGE.

SITE PLAN – showing test locations

SITE NOTES:

- REMOVE EXISTING STRUCTURES ON SITE AS NOTED
- NO KNOWN WATERCOARSES OR WATERWAYS ON SITE
- NO CUT AND FILL REQUIRED
- PROVIDE SILTATION BARRIER AS REQUIRED BY COUNCIL
- STORMWATER TO BE CONNECTED INTO EXISTING SYSTEM
- EXISTING TREES TO BE REMOVED SHOWN DASHED LINE
- THE BUILDING SITE IS TO BE SECURED BY A SAFETY FENCE TO PROHIBIT UNAUTHORISED PUBLIC ACCESS DURING THE COURSE OF CONSTRUCTION
- ALL LEVELS ARE TO AHD
- DRAINAGE/STORMWATER INDICATIVE ONLY:- SUBJECT TO SITE CONDITIONS
- **ALL BUILDING MATERIALS USED OR LOCATED BELOW RL 3.53m AHD MUST BE FLOOD COMPATABLE REFER TO FLOOD RISK MANAGEMENT REPORT PREPARED BY PITTWATER DATA SERVICES PTY LTD**



SITE PLAN
Scale 1:200

PARTIALLY PROTECTED FROM SOUTHERLY WINDS

ANY NEW CONSTRUCTION WITHIN 900mm OF THE BOUNDARY MUST HAVE A FRL OF 60/60/60 IN ACCORDANCE WITH THE BCA

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Tuesday, 9 July 2019

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ISSUE	DATE	AMENDMENT
a	09.07.2019	DA SUBMISSION

PROJECT: **ALTERATIONS AND ADDITIONS INCLUDING ATTACHED CARPORT + SWIMMING POOL**

CLIENT: **SHARPLES**

ADDRESS: **LOT 330 DP 16719 No. 8 LIDO AVENUE, NORTH NARRABEEN**

SHEET TITLE: **SITE PLAN + SITE ANALYSIS PLAN**

SCALE: **1:200**

PROJECT No: **1840**

REVISION: a