40 Bassett Street, Mona Vale

Acid Sulfate Comments for Section 4.55.

We have reviewed the existing preliminary acid sulfate assessment report, the original plans, and the 9 amended plans by Gartner Trovato, project number 2102, drawings numbered A.00 to A.08, dated 8/2/22.

The changes include:

- Minor alterations to the footprint of the proposed house and terrace.

The changes do not alter the conclusion of the report carried out by this firm numbered J3490 and dated the 22nd December, 2021.

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PRELIMINARY ASSESSMENT: Acid Sulfate
For Proposed Works at **40 Bassett Street, Mona Vale**

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 Demolish the existing house and garage.

1.2 Construct a new two storey house with garage attached.

1.3 Install a new pool by excavating to a maximum depth of ~2.8m.

1.4 Details of the proposed development are shown on 9 drawings prepared by Gartner Trovato, project number 2102, drawings numbered S4.55-00 and A.01 to A.08, Revision B, dated 15/12/21.

2. Site Description

The site was inspected on the 17th September, 2021 and previously on the 7th June, 2021.

The property is located on the gently graded lower reaches and toe of a hillslope. The surface varies between RL3.9 and RL7.2. The Sydney 1:100 000 Geological sheet indicates the site is underlain by the Newport Formation of the Narrabeen Group. This is described as interbedded laminite, shale, and quartz to lithic quartz sandstone. Ground testing indicates

the Narrabeen group rocks is located at the uphill portion of the property and at the location of the proposed pool. Sand and peat overlies the Narrabeen Group at the downhill portion of the property at the toe of the slope.

The NSW Environment and Heritage mapping program (eSpade) maps the soil landscape of the property as 'Erina' with 'Warriewood' in close proximity to the downhill property boundary. At the location of the proposed pool the upper ~0.5m of soil is a dark brown topsoil (er1) that overlies grey sandy clay (er3) and orange, brown and grey clay (er4). Their documentation indicates these soils range in pH from 4.0 to 6.5.

No visible signs of acid sulfate soils such as 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 ~2.8m is required for the proposed pool. It will cover an area of ~35m^2. The excavation is only a risk in regards to potential acid sulfate soils while it is open. On completion of the pool shell, the surface will be sealed preventing access of oxygen to the soil and therefore greatly reducing the potential for acid generation.

4. Watertable

The watertable was not encountered in the ground tests that reached a maximum depth of ~2.1m (~RL3.5) below the current surface (near the downhill side of the pool).

The proposed excavation will not exceed a depth of ~2.8m (~RL3.9) (at the uphill side of the pool) and it is envisaged the watertable will not be impacted.

5. Field Testing

Four hand auger holes (AH) were put down in the locations shown on the site plan attached. Field pH and peroxide testing was carried out on soil samples taken from the augers. The logs of the auger holes and the test results are as follows. The soil reaction rating scale for the pH_{FOX} test is shown in Appendix 1.

AUGER HOLE 1 (~RL5.6) **–** AH1

Depth (m)	Material Encountered
0.0 to 0.5	**TOPSOIL**, dark brown, damp, fine to medium grained.
0.5 to 1.8	**SANDY CLAY**, grey, damp.
1.8 to 2.1	**SANDY CLAY**, grey, mottled, derived from weathered shale, wet.

Refusal @ 2.1m auger grinding on rock. 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	6.6	L	6.6	0	-

AUGER HOLE 2 (~RL6.1) **–** AH1

Depth (m)	Material Encountered
0.0 to 0.5	**TOPSOIL**, dark brown, damp, fine to medium grained.
0.5 to 1.2	**SANDY CLAY and CLAY**, grey and orange, mottled, derived from weathered shale, moist to damp.

End of hole @ 1.2m. No watertable encountered.

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
0.4	6.0	L	5.8	0.2	-

AUGER HOLE 3 (~RL6.6) **–** AH1

Depth (m)	Material Encountered
0.0 to 0.4	**TOPSOIL**, dark brown, moist, fine to medium grained.
0.4 to 0.6	**CLAY**, orange/brown, mottled, derived from weathered shale, moist.

End of hole @ 0.6m. No watertable encountered.

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**
0.3	6.2	L	5.9	0.3	-

AUGER HOLE 4 (~RL6.8) **–** AH4

Depth (m)	Material Encountered
0.0 to 0.4	**TOPSOIL**, dark brown, moist, fine to medium grained.
0.4 to 0.9	**CLAY**, orange and grey, mottled, derived from weathered shale, moist to wet.

End of hole @ 0.9m. No watertable encountered.

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	5.9	L	5.6	0.3	-

6. Conclusions

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

Ground testing performed in the location of the proposed pool indicates the subsurface profile below the topsoil is derived from the Newport formation of the Narrabeen Group Rocks. This formation is Middle Triassic in age and is much older than the Holocene sediments from which acid sulphates are generally derived from on the east coast. Additionally, the Narrabeen Group Rocks do not contain high concentrations of sulphides which can provide the required iron concentrations for acid generation in older bedrock. As such, only the overlying topsoil was tested as its origin is unknown.

No Acid Sulfate Soils were identified in the test holes. The pH_F levels tested in the auger holes did not fall lower than 5.9. 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 0.3 from the measured pH_{FOX} levels. A movement of 1 unit or more is an indicator of potential acid sulfate soils. In addition, the measured pH_{FOX} for all tests did not fall lower than 5.6. 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 weak reactions to peroxide testing were due to inclusions in the soil other than sulphides.

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

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Appendix 1: Soil Reaction Rating Scale

Rate of Reaction	Reaction Scale
Low	L
Medium	M
High	H
Extreme	X
Volcanic	V

Source: DER (2015a)

SITE PLAN – showing test locations

BASIX NOTES:

Shingle roof + sarking (roof dark colour)
- R4.0 insulation batts to all ceilings & internal walls adjacent to roof space
- R3.0 insulation to raked ceilings & flat ceiling/flat roof
- Sarking plus R2.5 batts to all external walls
- R2.0 insulation batts to all internal walls
- GF suspended concrete slab (minimum 150mm thickness) + R2.0 underslab insulation
- Framed first floor to include R2.0 underfloor insulation
- Louvre windows U= 5.4 SHGC=0.58 (+/-10%)
- All other windows/glass doors are aluminium thermally broken frames/DG/clear U= 3.6 SHGC=0.47 +/-10% (hinged) SHGC=0.54 +/-10% (fixed)
- All windows/door are weather sealed
- All recessed downlights are sealed and to allow for uninterrupted ceiling insulation
- All exhaust fans sealed
- Fireplaces sealed

42 BASSETT ST
1 STOREY DWELLING
LOT 25 SEC A, DP 6195

38 BASSETT ST
2 STOREY APARTMENT BUILDING
SP 15697

2A ORANA ST
2 STOREY DWELLING +
2 STOREY GRANNY FLAT
LOT 1, DP 215349

BASSETT ST

BDY 72.255
BDY 68.605
BDY 16.67
BDY 15.24

GARAGE
RW TANK
BINS
GARDEN
FAMILY ROOM
ENS
GUEST
FOYER
STORAGE
LDY
PANTRY
KITCHEN
DINING
LIVING
TERRACE
BBQ
POOL
8 x 3.0m
Vol. 36m³
OUTLINE OF APPROVED DA
ORIGINAL DA HOUSE OUTLINE
AH 1
AH 2
AH 3
AH 4

GARTNERTROVATO ARCHITECTS
A PITTWATER PLACE
LV13 10 PARK STREET
PO BOX 1122
MONA VALE NSW 2103
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E GTA@GTCOM.AU

DATE	REV	DESCRIPTION
29/4/21	A	DA
15/12/2021	B	DA - Revised

PROJECT
SECTION 4.55
40 BASSETT STREET, MONA VALE
LOT 26, SECT E, DP 6195

FOR SIMON EDWARDS

DRAWING TITLE
GROUND FLOOR PLAN

PROJECT NO.	DRAWN BY	PLOT DATE
2102	LT / AB	15/12/2021
SCALE	DRAWING NO.	REVISION
1:100 @ A1	A.02	B