FORUM CONSULTING ENGINEERS

1 May 2020

Ref. 40813

Lake Macquarie City Council
Box 1906
Hunter Regional Mail Centre NSW 2310

RE: DA/11/2017: Proposed Multistorey Commercial & Residential Flat Building – Brooks Parade, Belmont

Reference is made to Council's correspondence to Monteath & Powys P/L of 17th March 2020, itemising items to be addressed in support of the above development application.

In response to civil engineering matters raised, the following is advised:

Item 5 – Landscape Design

5.1 The stormwater design has been amended to have no adverse affect on proposed deep soil zones.

Item 7 – Stormwater Management

7.1 The actual site soil conditions, as detailed in the Regional Geotechnical Solutions report RGS01385.1-AC, 13/02/2018, indicate that the soil profile consists of aelion/alluvial sands from 0.3-2.6/2.8m below the surface (borehole results attached).
These materials are clearly permeable.
The reference to clays, siltstones and sandstones relate to profiles located from 3m and deeper from the surface, at a level well below the tidal Lake Macquarie water levels.
Therefore these are too deep to have any effect on infiltration.

7.2 The high water table is located 1-2m below the ground surface levels. From many years' experience of building along the foreshore in this area of Belmont, it is advised that the groundwater encountered is tidal.

7.3 Infiltration in this case is suitable, and Council's DCP conditions not relevant, as follows:

- The depth to the groundwater is not relevant, as this level is Lake Macquarie's water level
- From Council's DCP where the groundwater level is greater than 1m below the surface, the groundwater level is not an issue.

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- The volume of water generated by the area of the development is miniscule cf. the volume of Lake Macquarie, with the development having no effect on the levels of groundwater.
- The minimum clearance of the infiltration pits from buildings in accordance with Council's DCP for the soil types is 1m.
- The building basement level is significantly below the water table so infiltration has no adverse effect on the building foundations, even if located immediately adjacent to the building.

7.4 From the flood study undertaken for the developments, reference Forum Consulting Engineers 'Limited Flood Study Investigation', reference 40813.02, 30 September, 2016 (relevant extracts attached), it was determined that under tidal influences including potential lake level rises, the existing open stormwater channel to the north of the site only has an ARI 1 capacity.

7.5 Infiltration was proposed to drain all landscaped and paved areas to the development, whilst all roof areas are discharged to rainwater tanks for reuse. The requirement now to address water quality for the landscaped and paved areas is proposed to be addressed with construction of filter media basins.
Inclusion of these with an additional infiltration depth would result in the base levels being too close to the groundwater levels, so for this reason we are no longer proposed infiltration basins but water quality basins overflowing to a formal stormwater system connected to Brooks Parade stormwater system, as now detailed on our amended drawing 40813-SWD 01F.
Attached to this report are the MUSIC calculations supporting this proposal.

7.6 With reference to comment 7d) The stormwater concept has been misunderstood. The design is for all paved and landscaped areas to go now to the water quality basins (previously to the proposed infiltration basins), all roof water to the rainwater tanks for reuse.
The only water going to the basement pumpout pit is from 40m^2 of exposed ramp area.
For the amended stormwater drawings we have now amended our line types to hopefully indicate this more clearly.

Item 8 – Vehicular Access

8.1 Attached as drawings 40813-DWD-01, are complying details for the proposed vehicular ramp off Edgar Street to the basement and proposed service vehicle ramp off Sharp Street.

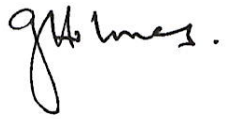
Item 10 – Flooding

10.1 We have undertaken a review of commercially available flood barriers, and confirm that suitable proprietary barriers can be easily accessed.

10.2 Attached are typical details of a Flow Defence Hidden Flood Barrier. They can be easily structurally accommodated in the building structure.

10.3 The flood barrier purchased would be not less than 1.13m high, being RL2.36-1.23 (driveway level at the flood barrier location).

Yours sincerely
Forum Consulting Engineers



Graeme Holmes
Director/Structural & Civil Engineer
B.E. (Civil) MIEAust CPEng NER

Attached:

- Extract from Regional Geotechnical Solutions geotechnical report.
- Extract from Forum Consulting Engineers flood study.
- Detail of flood barrier.
- Amended stormwater drawings 40813-SWD-01F & 02E
- New Driveway details 40813 DVD-01

working platforms comprising durable crushed rock or recycled crushed concrete would be beneficial in areas of high traffic flows such as site access points.

7 EXCAVATIONS

7.1 Excavation Conditions

The proposed development includes a single basement level and therefore excavations of up to about 3m are anticipated on the southern side of the existing stormwater drainage channel. The excavations will extend up to the property boundaries along all four sides of the excavation. Excavations will generally encounter sand to depths of about 2.5m and clays below 2.5m. Groundwater will be encountered at approximately 1m depth causing collapse of the sand profile into excavations and therefore pre-support and dewatering will be required to support the saturated sands.

Excavation to 3m depth will be achievable using conventional earthmoving equipment such as medium to large sized (20 to 30 tonne) hydraulic excavators.

Other than the bulk excavation required for basement construction temporary, localised excavations such as service trenches that are required to extend into the sands at depths of more than 1.0m will require shoring boxes and/or horizontal dewatering prior to excavation.

7.2 Pre-support and Dewatering

Excavations will extend through the permeable upper sand profile into the underlying low permeability clay below 2.5m depth. The preferred system of pre-support and dewatering would therefore be installation of sheet piles or contiguous reinforced concrete piles around the perimeter of the excavation, socketed into the clay profile below bulk excavation level to a minimum depth of 5m.

Following installation of a system of this nature the excavation could be conducted within the pile walls with inflow restricted to some seepage into the base of the excavation. It is anticipated that inflow through the low permeability clays in the base of the excavation would be restricted to isolated seepage paths such as fissures within the clay. Such inflows could be managed by grading the base of the excavation towards a sump fitted with a pumpout system, and placing a drainage blanket over the floor of the bulk excavation. Taking into account the nature of the materials that will be encountered at bulk excavation level, a working platform over the base of the excavation will be required, and the drainage blanket could be incorporated into this layer.

The basement will be partially constructed below the groundwater table and should be constructed as fully tanked.

Table 1: Summary of Subsurface Conditions

Unit	Material Description	Depth Encountered (m)							
		BH1	BH2	BH3	BH4	BH5	BH6	BH7	BH8
	Surface cover	grass	grass	grass	grass	grass	grass	Concrete 130mm	Concrete 130mm
1	Topsoil / Fill	0 - 0.3	0 - 0.3	0 - 0.1	0 - 0.15	0 - 0.3	0 - 0.2	0 - 0.4	0 - 0.7
2	Aeolian / Alluvial Sand	0.3 - 2.6	0.3 - 2.6	0.1 - 2.4[1]	0.15 - 2.5	0.3 - 2.5	0.2 - 2.8	0.4 - 2.8	0.7 - 2.6
3	Alluvial Clay	2.6 - 4.0	2.6 - 4.0	2.4 - 3.5	2.5 - 3.1	2.5 - 4.0	2.8 - 4.0	2.8 - 4.4	2.6 - 4.5
4	Residual Clay	4.0 - 8.6	4.0 - 6.8	3.5 - 8.2	3.1 - 8.5	4.0 - 8.5	4.0 - 9.0	4.4 - 10	4.5 - 10
5	Extremely weathered Siltstone	8.6 - 11.75	6.8 - 11.5	8.2 - 11.9	8.5 - 12.5	8.5 - 12.5	9.0 - 13.7	10 - 13.58	10 - 12.85
6	Moderately weathered to fresh Sandstone	11.75 - ≥13.2	11.5 - ≥12.9	11.9 - ≥13.4	12.5 - ≥14.5	12.5 - ≥15.85	13.7 - ≥14.45	13.58 - ≥15.25	12.85 - ≥15.0

NOTES:

1. *Peat layer between 1.8m and 2.4m in BH3*

Groundwater was encountered during the drilling of all eight drill rig boreholes. A summary of the groundwater observations is presented in Table 2.

Table 2: Summary of Groundwater Observations

Borehole	Inflow Depth During Drilling (m)	Depth to Water After Completion of Drilling (m)
BH1	Not recorded (1)	Not recorded (2)
BH2	1.5	1.1
BH3	1.5	Not recorded(2)
BH4	1.6	1.1
BH5	1.3	Not recorded(2)
BH6	1.0	0.6
BH7	1.2	Not recorded(2)
BH8	1.0	1.0

NOTES:

1. *Borehole advanced by wash boring methods from 0.6m therefore no meaningful groundwater observations possible.*
2. *No meaningful groundwater observations possible due to water introduced during core drilling.*

It should be noted that groundwater levels may fluctuate seasonally and in response to rainfall and tidal variations.

6 GENERAL SITE CONDITIONS AND CONSTRUCTION PLANNING

The upper soil profile comprises very loose to loose sands which will tend to settle when disturbed by vibration induced movements. Therefore care should be exercised during demolition and construction activities to reduce the potential damage to neighbouring houses and lightly loaded elements of surrounding larger developments which are likely to be founded on shallow footings within the sands. Prior to construction, detailed property condition surveys should be completed for all immediately surrounding properties.

Once demolition of the existing structures is complete, including the removal of footings and services, site works will include the removal of all fill and building debris, any root affected material and any obvious deleterious or otherwise unsuitable material. All such material should be disposed of off-site in accordance with local regulations. Waste classification testing may be required to appropriately assess disposal requirements. Further comments in this regard are provided in the site contamination report (RGS01385.1–AD).

To avoid the risk of damage to adjoining properties during initial site preparation works care should be taken to limit excavations to no more than 1m prior to installing appropriate retention.

Site trafficability was good at the time of the fieldwork which was undertaken over a period of prolonged moderate to heavy rainfall. The near surface soils comprise sands and therefore

Table 3 below shows the subject site's Lake Macquarie peak flood levels for various storm intensities.

Table 1: Storm events and catchment flowrates

ARI Storm Event (year)	Time of Concentration (min)	Flow Rate (m^3/s)
1 in 1	30	3.11
1 in 20	20	8.68
1 in 100	18	11.20

Table 2: Lake Macquarie Flood Levels

	1 in 1 year	1in 20 year	1 in 100 year
Tailwater – Baseline Lake Macquarie Flood Level (m AHD)[1]	0.1	1.23	1.5

[1] – flood levels adopted from WMAwater "Lake Macquarie Flood Study" June 2012

Table 3: Calculated flood levels for the subject site

Tailwater – Baseline Lake Macquarie Flood Level (m AHD)[1]		Site Flood Level (m AHD)[2]		
		1 in 1 year	1 in 20 year	1 in 100 year
0.1	Existing site	0.69	1.12	1.17
	Developed site	0.69	1.16	1.24
1.23	Existing site	1.26	1.28	1.28
	Developed site	1.28	1.29	1.32
1.50	Existing site	1.56	1.56	1.56
	Developed site	1.58	1.58	1.58

[1] – flood levels adopted from WMAwater "Lake Macquarie Flood Study" June 2012

[2] – Flood levels obtained using DRAINS software.

Flow rates and flood levels were calculated using DRAINS computer software. Output files can be seen attached. DRAINS computer files can be supplied upon request

6. Development Recommendations

Based on findings of the Limited Flood Study Investigation, it was determined that:

- Storm evens up to and including the 1 in 1 year ARI storm can be conveyed within the concrete lined drain with the remainder conveyed as overland flow;

Figure 2 - Typical Flow Defence Hidden Flood Barrier (activated)

1.1 Principles of Operation

- The barrier does not require electricity to operate, it is fully activated by rising floodwater being captured within the interception chamber.
- The chamber has removable grates, this prevents any large debris from entering the chamber and also allows access into the chamber for routine maintenance.
- A submersible pump is located inside the chamber, this will lower the barrier after a flood event but it will also ensure that if only a small amount of water enters the chamber, the barrier will not raise up and just sit slightly above the ground surface level. The barrier will only raise when more water enters the chamber than can be pumped out.
- There is a sump below the barrier that can store any particles that sink to the bottom of the chamber, these can be removed with a vacuum truck during standard maintenance or after the barrier has been activated.
- The sealing mechanism is mounted to the barrier and cannot be tampered with while the barrier is retracted below ground level.
- The seal on the barrier is mounted in such a way that it is always above the water level within the chamber, this way when it raises into position the seal will not be prevented from compressing by floating debris.
- The barrier has been designed to have additional buoyancy in case a tree branch or other such object falls over the top of the barrier during a storm before it activates. This additional buoyancy is dependent on the barrier size but it equates to about 200kg of lifting force.

IT IS THE BUILDERS RESPONSIBILITY TO CONFIRM DEPTH & LOCATION OF ALL SERVICES PRIOR TO CONSTRUCTION AS THIS MAY AFFECT THE DESIGN.

DIAL 1100 BEFORE YOU DIG

NORTH

ELGAR STREET

ELGAR STREET

SHARP STREET

BROOKS PARADE

EXISTING OPEN STORMWATER CHANNEL

EXISTING OPEN STORMWATER CHANNEL

REFER TO DRIVEWAY LONGITUDINAL SECTION, DRAWING DWD-01

1200 x 1200 x MIN. 900 DEEP CONCRETE PIT, IL = -1.50, WITH 2 OFF SUBMERSIBLE PUMPS, EACH CAPABLE OF DELIVERING 5L/sec AGAINST A 2.5m HEAD

100Ø PRESSURE PIPE OUTLET TO PUMPOUT PIT

150 x 150 GBD GRATE RL -0.67 150Ø OUTLET INTO PUMPOUT PIT

SEALED ACCESS LID

25,000 LITRE RAINWATER TANK TO BE UTILISED FOR HARVESTING OF ROOFWATERS INTO LANDSCAPE WATERING. INSTALL TANK BENEATH BUILDING (SUSPENDED SLAB OVER)

120m² OF WATER QUALITY BASIN BENEATH OPEN TIMBER DECKS, IL 0.95. PERIMETER RL 1.20, MINIMUM

600SQ. SURCHARGE PIT GRATE RL 1.05, IL 0.50

600SQ. OVERFLOW PIT GRATE RL 1.15, IL 0.90

150Ø CONNECTION INTO SWC, 30° TO FLOW, IL 0.83

CONSTRUCT 600SQ. JB IL 0.85

INTERCONNECT PITS WITH 150Ø PIPE

INTERCONNECT PITS WITH 150Ø PIPE

600SQ. SURCHARGE PIT, GRATE RL 1.05, IL 0.70

600SQ. SURCHARGE PIT GRATE RL 1.05, IL 0.60

50m² OF WATER QUALITY BASIN BENEATH OPEN TIMBER DECKS, IL 0.95. PERIMETER RL 1.20, MINIMUM

FFL -0.64

FFL -0.64

x 1.00E

x -1.00E

x 1.13E

x 1.00E

x 1.21E

x -1.15E

x 1.15E

x 1.38E

x 1.04E

x 1.18E

x 1.22E

x TK – RL 1.27

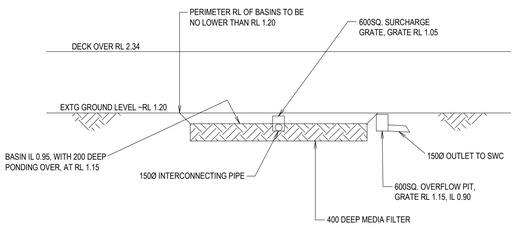
EXTG KIP

LEGEND

RL	REDUCED LEVEL
IL	INVERT LEVEL
FFL 2.36	FINISHED FLOOR LEVEL
x 2.28	FINISHED SURFACE LEVEL
1.04E	EXISTING SURFACE LEVEL, CONTOURS SHOWN ALSO EXISTING
	INDICATES DIRECTION OF SURFACE FLOW
	STORMWATER PITS ARE TO BE GRADED TO INFILTRATION PITS EXTERNAL TO CARPARK PERIMETER TYP. TO BE LOCATED CLEAR OF TREES IN PROPOSED DEEP SOIL PLANTING AREAS

PIPELINE LEGEND

- ROOFWATER LINES TO RAINWATER TANKS
- LANDSCAPING & PAVED AREAS TO WATER QUALITY BASINS
- GRATE AT BASEMENT ENTRY & PUMPOUT LINE



SCHEMATIC DETAIL ON WATER QUALITY BASINS

NTS

BASEMENT 1/GROUND FLOOR STORMWATER PLAN

1:200

NOTE
ALL PIPES PENETRATING THROUGH THE SLAB ARE FIXED TO THE SLAB SOFFIT

Rev.	By	Date	Description	Des'd
G	E.R.	11.05.20	LAYOUT AMENDED	G.H.
F	E.R.	01.05.20	DETENTION AMENDED	G.H.
E	E.R.	16.12.19	AMENDED TO SUIT COMMENTS	G.H.
D	E.R.	13.12.19	LAYOUT AMENDED	G.H.
C	E.R.	23.02.18	LAYOUT AMENDED	G.H.
B	E.R.	12.10.16	TANK LOCATIONS AMENDED	G.H.
A	E.R.	08.09.16	ORIGINAL ISSUE	G.H.

REVISIONS

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Client: KML JOINT VENTURE

Project: PROPOSED DEVELOPMENT
BROOKS PARADE
BELMONT

Approved by: B.E. MIE (Aust) CPEng

Drawing No.: 40813-SWD · 01 OF 02

Revision: G

Sheet: A1

IT IS THE BUILDERS RESPONSIBILITY TO CONFIRM DEPTH & LOCATION OF ALL SERVICES PRIOR TO CONSTRUCTION AS THIS MAY AFFECT THE DESIGN.

DIAL 1100 BEFORE YOU DIG

NORTH

ELGAR STREET

EXISTING OPEN STORMWATER CHANNEL

SHARP STREET

EXTG KIP

TK – RL 1.27

DRIVEWAY CREST & FLOOD BARRIER AT RL 1.20

100Ø PUMPOUT LINE

EXTG KIP TK – 0.90 IL – 0.17

150Ø OVERFLOW INTO BACK OF EXTG KIP

SEALED JUNCTION BOX IL 1.00

25,000 LITRE RAINWATER TANK TO BE UTILISED FOR HARVESTING OF ROOFWATERS INTO LANDSCAPE WATERING

100Ø OVERFLOW IL 1.15

SEALED ACCESS LID

PROPOSED RESIDENTIAL FFL 2.91

PROPOSED COMMERCIAL FFL 2.91

PROPOSED COMMUNAL ROOM FFL 2.36

PROPOSED LOADING BAY FFL 1.13

PROPOSED COMMERCIAL FFL 2.36

25,000 LITRE IN-GROUND RAINWATER TANK TO BE UTILISED FOR HARVESTING OF ROOFWATERS INTO LANDSCAPE WATERING

CLEAR OF RAMP PERIMETER WALLS NO LOWER THAN RL 2.36

FLOOD BARRIER AT TOP OF RAMP TO RL 2.36

LEGEND

RL	REDUCED LEVEL
IL	INVERT LEVEL
FFL 2.36	FINISHED FLOOR LEVEL
x 2.28	FINISHED SURFACE LEVEL
1.04E	EXISTING SURFACE LEVEL, CONTOURS SHOWN ALSO EXISTING
	INDICATES DIRECTION OF SURFACE FLOW
DP	PRELIMINARY DOWNPIPE LOCATIONS
	450SQ. GRATED PITS U.N.O.
	100Ø SLOTTED SUBSOIL PIPES IN PLANTER BOXES, CONNECTED TO COURTYARD PITS, COURTYARD PIPES or DIRECT TO WATER QUALITY BASINS
	100Ø SLOTTED SUBSOIL PIPES IN GEOTEXTILE SOCK, WITH DROPPER INTO INFILTRATION TRENCH

PIPELINE LEGEND

- ROOFWATER LINES TO RAINWATER TANKS
- LANDSCAPING & PAVED AREAS TO WATER QUALITY BASINS
- GRATE AT BASEMENT ENTRY & PUMPOUT LINE

FIRST FLOOR STORMWATER & SITE LEVELS PLAN

1:200

NOTE
DP (DOWNPIPE LOCATIONS/PENETRATIONS) ARE SCHEMATIC ONLY & WILL BE CONFIRMED AT CC

NOTE
IF ANY VARIATION IN LEVELS BETWEEN THESE DRAWINGS & THE ARCHITECTURAL DRAWINGS, THE ARCHITECTURAL LEVELS TAKE PRECEDENCE.

Rev.	By	Date	Description	Des'd
G	E.R.	14.05.20	LOADING BAY & DRIVEWAY CREST LEVELS AMENDED	G.H.
F	E.R.	11.05.20	LAYOUT AMENDED	G.H.
E	E.R.	01.05.20	DETENTION AMENDED	G.H.
D	E.R.	16.12.19	AMENDED TO SUIT COMMENTS	G.H.
C	E.R.	13.12.19	LAYOUT AMENDED	G.H.
B	E.R.	23.02.18	LAYOUT AMENDED	G.H.
A	E.R.	08.09.16	ORIGINAL ISSUE	G.H.

REVISIONS

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BROOKS PARADE
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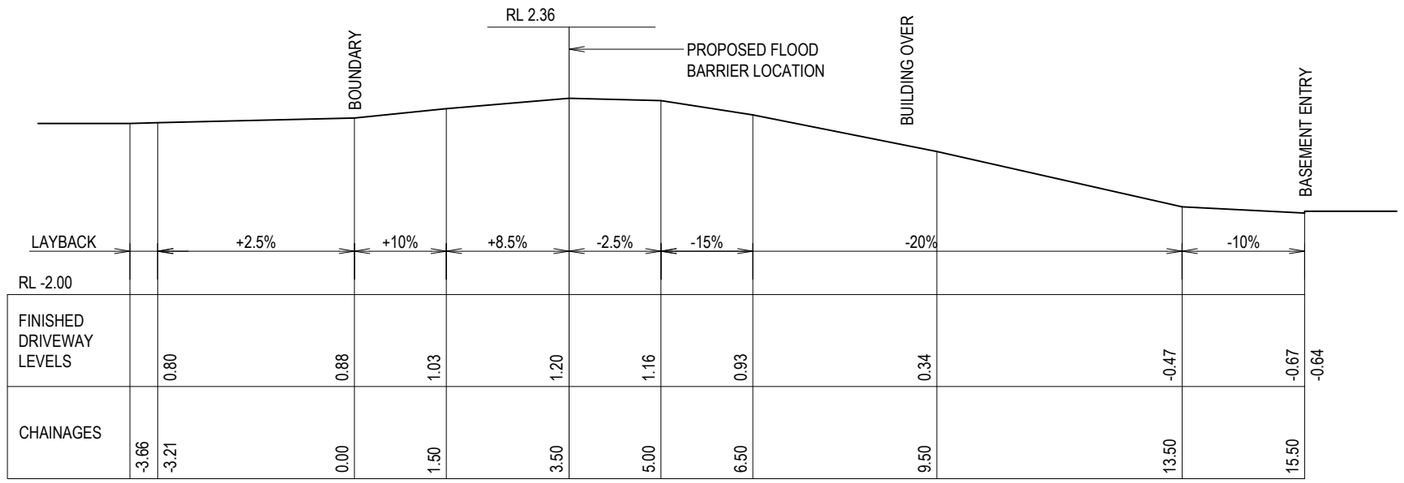
Approved by: B.E. MIE (Aust) CPEng

Drawing No.: 40813-SWD - 02 OF 02

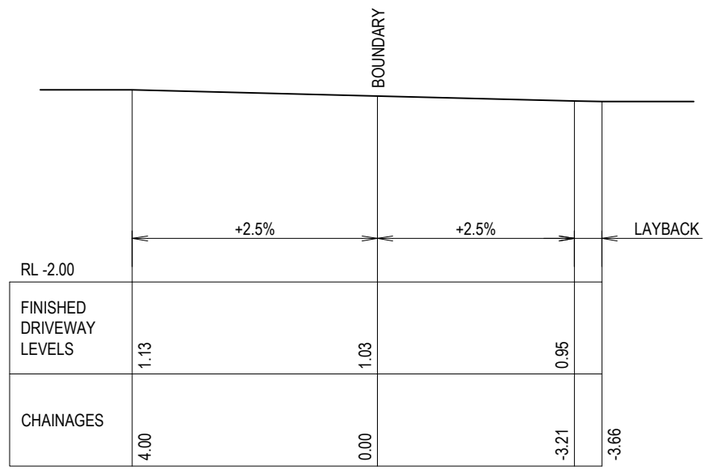
Revision: G

Sheet: A1



LONGITUDINAL SECTION VEHICLE RAMP TO BASEMENT

1:100 (NATURAL SCALE)



LONGITUDINAL SECTION MRV SERVICE RAMP

1:100 (NATURAL SCALE)

REVISIONS

Rev.	By	Date	Description	Des'd
C	E.R.	14.05.20	LEVELS AMENDED	G.H.
B	E.R.	05.05.20	LEVELS AMENDED	G.H.
A	E.R.	01.05.20	ORIGINAL ISSUE	G.H.

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Client KML JOINT VENTURE

Project PROPOSED DEVELOPMENT
BROOKS PARADE
BELMONT

Approved by NOT FOR CONSTRUCTION

Drawing No. 40813-DVD - 01 OF 01

Revision C

Sheet A3

LAKE MACQUARIE CITY COUNCIL

MUSIC-*link* Report

Project Details		Company Details	
Project:	Proposed Development	**Company:**	
Report Export Date:	7/05/2020	**Contact:**	Graeme
Catchment Name:	40813-MUSIC	**Address:**	Brooks Parade, Belmont
Catchment Area:	0.49ha	**Phone:**	02 4961 4980
Impervious Area*:	89.94%	**Email:**	graemeh@forumengs.com.au
Rainfall Station:			
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1999 - 31/12/2008 11:54:00 PM		
Mean Annual Rainfall:	1015mm		
Evapotranspiration:	1425mm		
MUSIC Version:	6.3.0		
MUSIC-link data Version:	6.33		
Study Area:	South Region		
Scenario:	South Region		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

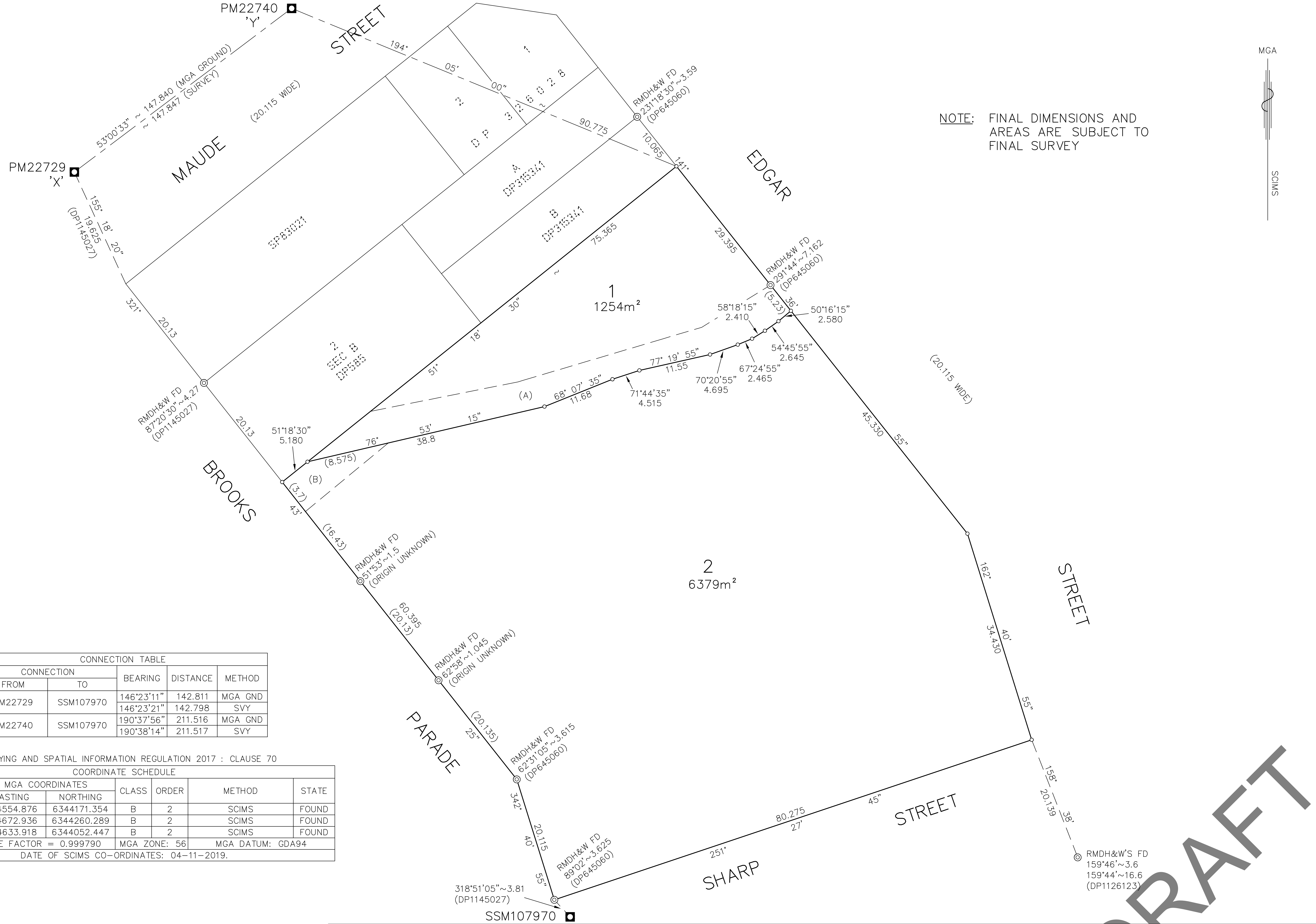
Treatment Train Effectiveness		Treatment Nodes		Source Nodes	
Node: Receiving Node	**Reduction**	**Node Type**	**Number**	**Node Type**	**Number**
Flow	-0.0458%	Media Filtration Node	1	Urban Source Node	1
TSS	92.8%				
TP	74.7%				
TN	45.4%				
GP	100%				

Comments

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Receiving	Receiving Node	% Load Reduction	None	None	-0.04
Receiving	Receiving Node	GP % Load Reduction	70	None	100
Receiving	Receiving Node	TN % Load Reduction	45	None	45.4
Receiving	Receiving Node	TP % Load Reduction	45	None	74.7
Receiving	Receiving Node	TSS % Load Reduction	80	None	92.8
Urban	Urban	Area Impervious (ha)	None	None	0.440
Urban	Urban	Area Pervious (ha)	None	None	0.049
Urban	Urban	Total Area (ha)	None	None	0.49

Only certain parameters are reported when they pass validation



CONNECTION TABLE				
CONNECTION FROM	CONNECTION TO	BEARING	DISTANCE	METHOD
PM22729	SSM107970	146°23'11"	142.811	MGA GND
		146°23'21"	142.798	SVY
PM22740	SSM107970	190°37'56"	211.516	MGA GND
		190°38'14"	211.517	SVY

SURVEYING AND SPATIAL INFORMATION REGULATION 2017 : CLAUSE 70

COORDINATE SCHEDULE						
MARK	MGA COORDINATES EASTING	MGA COORDINATES NORTHING	CLASS	ORDER	METHOD	STATE
PM22729	374554.876	6344171.354	B	2	SCIMS	FOUND
PM22740	374672.936	6344260.289	B	2	SCIMS	FOUND
SSM107970	374633.918	6344052.447	B	2	SCIMS	FOUND
COMBINED SCALE FACTOR = 0.999790			MGA ZONE: 56		MGA DATUM: GDA94	
DATE OF SCIMS CO-ORDINATES: 04-11-2019.						

(A) – EASEMENT TO DRAIN WATER VARIABLE WIDTH (E31178)
(B) – RIGHT OF WAY 3.7 WIDE

SURVEYOR	PLAN	LGA	REGISTERED
Name: DAVID LUKE SULLIVAN, MONTEATH & POWYS PTY LTD	PLAN OF SUBDIVISION OF LOTS 3, 4, 10 & 11 SEC B DP585, LOTS A & B DP400644, LOTS A & B DP339105, LOTS 1 & 2 DP353066 AND LOTS 4, 5, 6, 7 & 8 DP12898	LGA: LAKE MACQUARIE	DP
Date: 04/11/2018		Locality: BELMONT	
Reference: 130524DPA		Reduction Ratio: 1:400	
		Lengths are in metres.	

DRAFT

D09572058

130524DPA