



Rolls & Associates Surveyors

Consulting Land & Engineering Surveyors

Rolls Enterprises Pty Limited
A.C.N. 066 919 051 A.B.N. 70 066 919 051

Our Ref: 54694 (9810H)

28 August 2014

Rustrum Pty Ltd
P.O. Box 249
TOUKLEY NSW 2263

Dear Sir,

Re: Mean High Water Mark determination
216-222 Main Road and 21 Rowland Terrace **Toukley**
Lot 91 D.P. 565884, Lot 2 D.P. 213097
and Lots 2-4 DP 406181

As requested we have undertaken a contour and detail survey on Australian height datum of the foreshore area to determine the Mean High Water Mark (MHWM) frontage of the above-mentioned land.

Budgewoi Lake is defined as a tidal Lake on the parent deposited plans for the area. Thus the water frontage (Mean High Water Mark) of these lots is a natural and movable boundary in accordance with the doctrine of Accretion and Erosion-common law principle.

The **Title High Water Mark** boundary is the position of the **Mean High Water Mark** at that time the original Deposited Plan was created for the parent lots. **Mean High Water Mark** means the line of mean high tide between the ordinary high-water spring and ordinary high-water neap tides.

Mean High Water Mark determination

In order to define the position of Mean High Water Mark, tidal data is recorded over a period of years. The authority of responsible for collecting this data is Manly Hydraulics Laboratory (MHL). The data is owned by the NSW Office of Environment and Heritage.

MHL have advised that the tidal variation for this site is minimal with insufficient tidal influence to perform a tidal analysis (as described on page A5 and A7- Manly Hydraulics Laboratory OEH NSW Tidal Plans Analysis (1990-2010 Harmonic Analysis). Furthermore, the water level readings from the lake are influenced significantly by wind and a tidal analysis could not be performed.

As a tidal analysis cannot be accurately performed, mean Lake levels over a long period of time are the only means by which an approximation of Mean High Water Mark (MHWM) level



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can be made. Based on observations at the tide gauge adjacent the Toukley Bridge, MHL have advised that:

1. the average water levels at the Toukley station are:

2012-2013: 0.26m AHD
2003-2013: 0.26m AHD
1985-2013: 0.24m AHD
2. In the absence of being able to undertake a tidal analysis, adoption of the mean water levels over long period of time is the best solution to determine Mean High Water Mark (MHWM)
3. The lake is a large waterway with 3 interconnecting lakes and only one small outlet at The Entrance. Subsequently, floodwaters take a long time to be removed from the system. Thus Lake levels recorded will be a slightly higher than actual mean levels.
4. Better to adopt 0.24 meter AHD average Lake level over a longer period of time as the slightly lower level is more reflective of levels less affected by flooding.
5. The lake is slow to respond to receding floodwaters and takes a long time to return to its mean level after flood events.
6. A longer period of observations will imply a more accurate reflection of mean lake levels.

The height adopted for this survey was 0.24 meters Australian Height Datum (AHD). AHD was transferred to the foreshore area from a nearby Permanent Mark with a known AHD value of 9.452 meters - PM. 17507. The 0.24 meter AHD contour line was determined by measuring ground features for position and height along the foreshore. Measurements were taken along the foreshore to determine the positions of the 0.24 meter AHD contour line and the data recorded and plotted on the attached plan.

Foreshore building line setback

Wyong Local Environmental Plan (LEP) 2013 defines the **foreshore area** as the land between the **foreshore building line** and the **Mean High Water Mark** of the nearest bay or river. Thus the foreshore building line is determined from the Mean High Water Mark not the Title High Water Mark. The LEP does not define what the foreshore building line setback is for the subject property. Council's Duty Planner has verbally advised that the foreshore setback distance is 20 meters.

However, buildings on either side of the subject property stand within the 20 m foreshore setback distance.

The definition of Mean High Water Mark in the LEP is incorrect as it refers to a constant Australian Height Datum (AHD) value of 0.515 meters AHD. The height of Mean High Water Mark varies from area to area subject to tidal influences. The actual AHD value of Mean High Water Mark for any given location must be defined by tidal monitoring over a period of time.



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A plan showing the position of current Mean High Water Mark is attached together with our account.

Electronic copies of the plans have previously been forwarded to you and Terry Roche. A hard copy is enclosed for your records.

Yours faithfully,

ROLLS & ASSOCIATES SURVEYORS

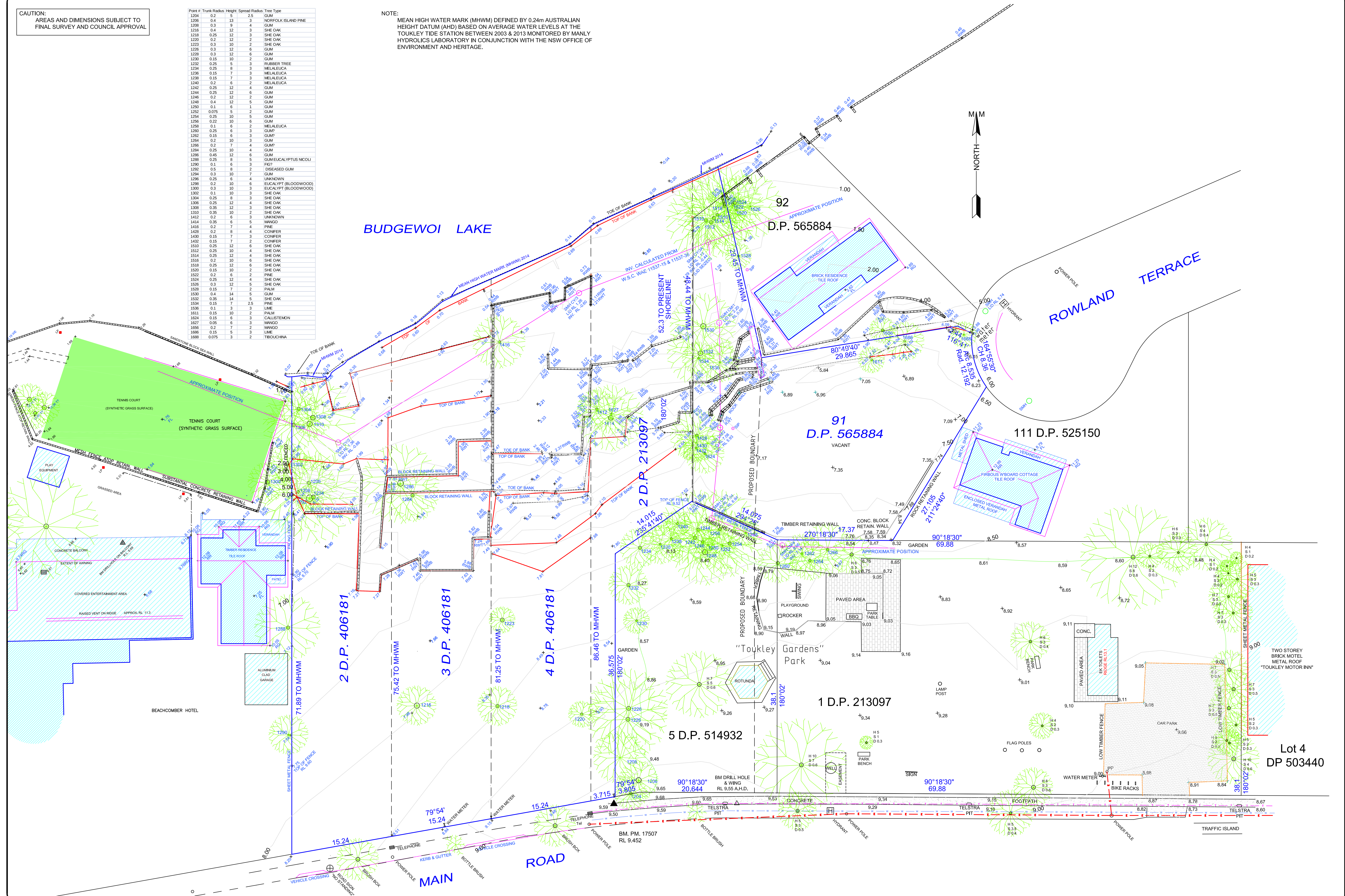
M.A. Rolls

Surveyor Registered under
The Surveying and Spatial
Information Act, 2002.

CAUTION:
AREAS AND DIMENSIONS SUBJECT TO
FINAL SURVEY AND COUNCIL APPROVAL

Point #	Trunk Radius	Height	Spread Radius	Tree Type
1204	0.2	5	2.5	GUM
1206	0.4	13	3	NORFOLK ISLAND PINE
1208	0.3	9	4	GUM
1216	0.4	12	3	SHE OAK
1218	0.25	12	3	SHE OAK
1220	0.2	12	2	SHE OAK
1223	0.3	10	2	SHE OAK
1226	0.3	12	6	GUM
1228	0.3	12	6	GUM
1230	0.15	10	2	GUM
1232	0.25	5	3	RUBBER TREE
1234	0.25	8	3	MEALAEUCA
1236	0.15	7	3	MEALAEUCA
1238	0.15	7	3	MEALAEUCA
1240	0.2	6	2	MEALAEUCA
1242	0.25	12	4	GUM
1244	0.25	12	6	GUM
1246	0.2	12	2	GUM
1248	0.4	12	5	GUM
1250	0.1	6	1	GUM
1252	0.075	5	2	GUM
1254	0.25	10	5	GUM
1256	0.22	10	6	GUM
1258	0.1	6	2	MEALAEUCA
1260	0.25	6	3	GUM?
1262	0.15	6	3	GUM?
1264	0.2	10	3	GUM
1266	0.2	7	4	GUM?
1268	0.25	10	4	GUM
1269	0.45	12	6	GUM
1288	0.25	8	5	GUM EUCALYPTUS NICOLI
1290	0.1	6	3	FIOT?
1292	0.5	8	2	DISEASED GUM
1284	0.3	10	7	GUM
1296	0.25	6	4	UNKNOWN
1298	0.2	10	6	EUCALYPT (BLOODWOOD)
1300	0.3	10	3	EUCALYPT (BLOODWOOD)
1302	0.1	10	3	SHE OAK
1304	0.25	8	3	SHE OAK
1306	0.25	12	4	SHE OAK
1308	0.35	12	3	SHE OAK
1310	0.35	10	2	SHE OAK
1412	0.2	6	3	UNKNOWN
1414	0.35	6	5	MANGO
1416	0.2	7	4	PINE
1428	0.2	8	3	CONIFER
1430	0.15	7	3	CONIFER
1432	0.15	7	2	CONIFER
1510	0.25	12	6	SHE OAK
1512	0.25	10	4	SHE OAK
1514	0.25	12	4	SHE OAK
1516	0.2	10	6	SHE OAK
1518	0.25	12	6	SHE OAK
1520	0.15	10	2	SHE OAK
1522	0.2	6	2	PINE
1524	0.25	12	4	SHE OAK
1526	0.3	12	5	SHE OAK
1528	0.15	7	2	PAUM
1530	0.4	14	5	GUM
1532	0.35	14	5	SHE OAK
1534	0.15	7	2.5	PINE
1536	0.1	3	3	LIME
1611	0.15	10	2	PAUM
1624	0.15	6	3	CALLISTEMON
1627	0.05	6	3	MANGO
1666	0.2	7	2	MANGO
1686	0.15	5	3	LIME
1688	0.075	3	2	TIBOUCHINA

NOTE:
MEAN HIGH WATER MARK (MHHM) DEFINED BY 0.24m AUSTRALIAN
HEIGHT DATUM (AHD) BASED ON AVERAGE WATER LEVELS AT THE
TOUKLEY TIDE STATION BETWEEN 2003 & 2013 MONITORED BY MANLY
HYDROLOGICS LABORATORY IN CONJUNCTION WITH THE NSW OFFICE OF
ENVIRONMENT AND HERITAGE.



SCALE: 1:250 @ A1
DATUM: AHD
Origin of Levels: PM 17507
BM: RL 9.452 AHD
CONTOUR INTERVAL: 0.5m

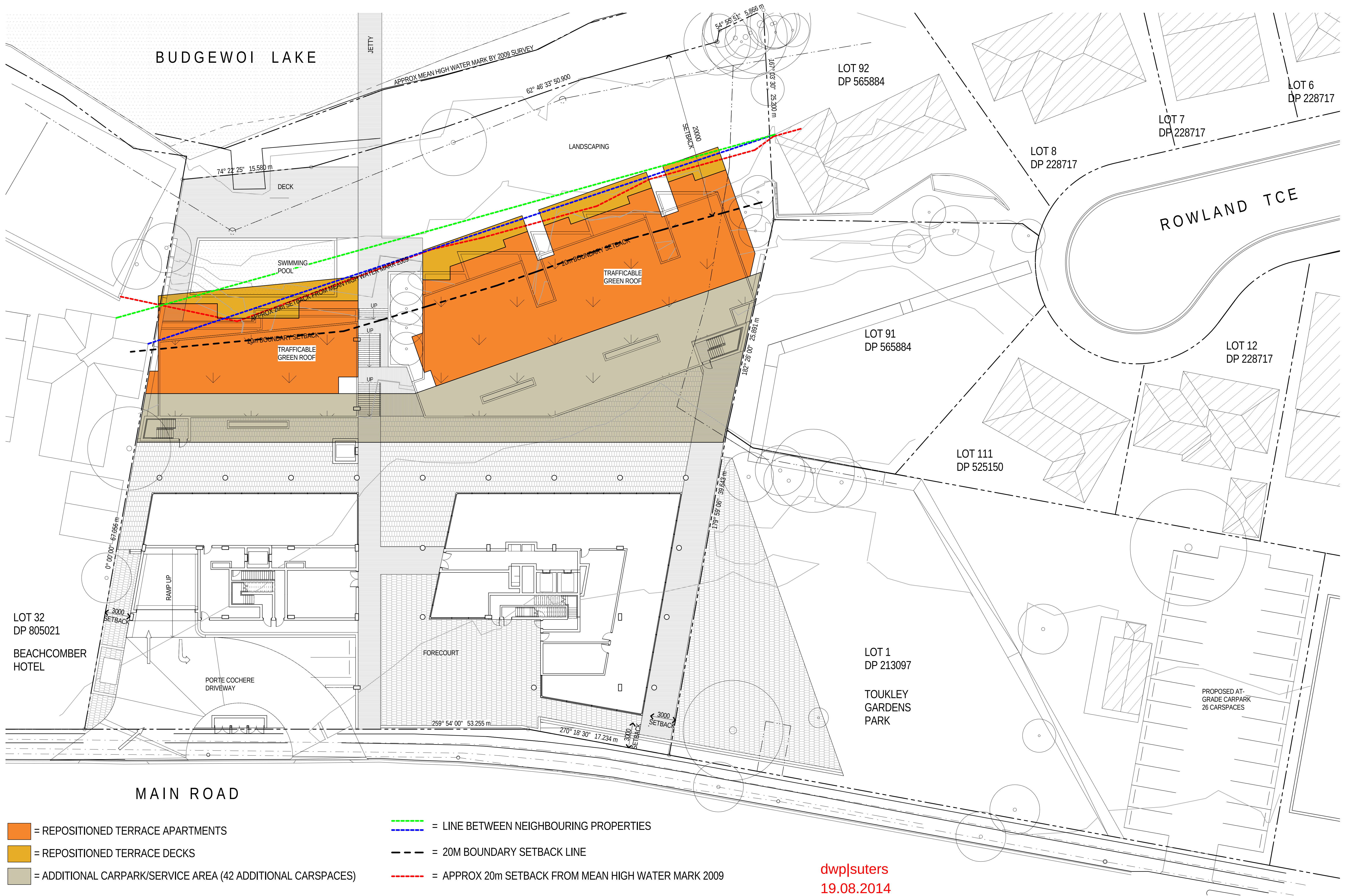
DRAWING FILE: 54694 2014MHHM SENT
DATE: 27/08/2014
DRAWN BY: J.R.C.H
CHECKED BY: M.R.
OUR REFERENCE No: 54694 2014MHHM SENT

PREPARED BY:
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PLAN OF MEAN HIGH WATER MARK,
DETAIL & LEVELS OF LOTS 2,3 & 4 D.P.406181,
LOT 1 & 2 D.P.213097, LOT 5 DP 514932 & LOT 91 D.P.565884
BEING 216 TO 232 MAIN RD & 21 ROWLAND TERRACE, TOUKLEY
FOR RUSTRUM P/L

RG DENOTES ROOF GUTTER LEVEL
RR DENOTES ROOF RIDGE LEVEL
FL DENOTES FLOOR LEVEL
SIP DENOTES SEWER INSPECTION PIT
WM DENOTES WATER METER
RWB DENOTES LEVEL AT BOTTOM OF RETAINING WALL
RWTT DENOTES LEVEL AT TOP OF RETAINING WALL
SMH DENOTES SEWER MANHOLE

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dwp|suters
19.08.2014
BUILDING SETBACK TESTING