GHD CLIENTS|PEOPLE|PERFORMANCE

1 September 2010

Capacity Infrasturcture Services Limited
Private Bag 39-804
Wellington Mail Centre 5045

Our ref: 51/28015//091202 LTR Capacity Re Oakleigh Street Services - v2.doc

Attn: Gary O'Meara

Dear Gary

Proposed Oakleigh Street Subdivision - Capacity of Existing Services

As requested in the email dated 19 August 2010, GHD have undertaken an assessment of the impact of a proposed plan change allowing subdivision of 54 Oakleigh Street, Maungaraki on the existing services.

A proposal for the subdivision of the Old Otonga School site (54A Oakleigh Street) with 19 residential lots has been approved. Hutt City Council is currently considering undertaking a Plan Change for the area which was previously the playing field for Otonga School (54 Oakleigh Street). This would require a change in zone in the District Plan from general recreation to general residential activity area. Figure 1, shows an Indicative Development Plan if this plan change is approved. Figure 1 shows 11 lots, retaining half the area as green space (This may be a recreational reserve in response to , "A Report on Submissions" from the "Western Ward Review"). If the entire site was developed it is suggested that there may be sufficient space for up to 20 lots.

Please find attached (for 54 Oakleigh Street- Formerly the playing field for Otonga School): -

- Figure 1 - Indicative Development Plan and
- Figure 2 - A GIS plan produced by GHD showing the council infrastructure in the immediate area.

Please also find attached (for 54A Oakleigh Street – the Old Otonga School Site) : -

- Figure 3 - Water As-built
- Figure 4 - Stormwater As-built
- Figure 5 - Sewer As-built

1 Water

The Old Otonga School Site (54A Oakleigh Street

There is an existing 100mm diameter AC water main which has serviced the school located within the existing access way. The Old Otonga School Site proposed to use this main in their original water supply connection application which was subsequently was refused by HCC.

This main is currently privately owned and maintained. Hutt City Council (HCC) has a policy of taking over ownership and maintenance of water mains used for fire supply where the main is supplying multiple domestic premises. As such, on completion of the proposed subdivision, any mains will pass to Council ownership. As the future asset owner, Capacity (on behalf of HCC) advised that they had concerns about the condition and likely maintenance requirements of the existing main and were not prepared to take ownership of the pipe. On this basis Capacity required that this main was renewed.

The subsequent proposal included a new 100 mm uPVC PN12 water main from the existing access way, along Oakleigh Street to the corner of Maungaraki Road and Oakleigh Street and then along a new access road, feeding a 63 mm PE80B PN12.5 rider main around the site. This was approved. The water reticulation as-built (Figure 3) for this site indicates that this pipeline was constructed before the 21st of April 2010.

Proposed Area (54 Oakleigh Street)

This site is located in the Normandale water zone. Water is supplied from the Waterloo Water Treatment Plant, is distributed primarily from the Normandale Reservoir and the zone generally has good supply and pressure. Maungaraki Reservoir provides additional storage for the zone and together their combined reservoir capacity is sufficient to provide 24 hours storage for the zone.

Figure 1 - The Indicative Development Plan shows a water supply to the site along the existing school access way. This is along the same alignment as the existing 100 mm diameter AC water main. As previously established Capacity would be unwilling to accept the use of the original pipe. It is therefore assumed that the pipe shown in Figure 1 is a new water main.

Figure 1 shows that the water main would be a dead end main. Given that it appears that the access way for 54 Oakleigh Street will connect to the new access way constructed for the development of 54A Oakleigh Street it is suggested that the proposed water main should be extended (a distance less than 40 metres) along the access way, connecting to the new 100 mm water main constructed to supply the Old Otonga School Site. While there would be an additional cost associated with this it is a small cost and would result in a ring main with significant benefits over a dead end main.

The flow must be sufficient to provide 25 l/s (Fire Flow, a minimum of 12.5 l/s from a maximum of two fire hydrants) and two thirds of the peak flow. From the code of practice, for 11 lots the theoretical peak flow on maximum days would be 2.7 l/s. Therefore the demand that must be satisfied is 26.8 l/s.

54 Oakleigh Street is located in close proximity (within 500 m) of Maungaraki Reservoir and the reservoir provides a static head between 35 and 40 m.

Recent work in the area indicates that there is likely to be sufficient flow and pressure in this area to comply with the NZFS Code of Practice and the Hutt City Code of Practice for Water Supply.

However a Water Supply Connection Application will be required, this would need to be supported by Pressure and Flow Testing. It is recommended a Water Supply Connection Application is submitted as early as possible. As part of the evaluation process special requirements or conditions may be imposed.

2 Waste Water

Proposed Area (54 Oakleigh Street)

Figure 1 - The Indicative Development Plan provided shows the wastewater from the site would discharge into a 150 mm diameter pipeline as part of a gravity system. The existing system runs between 57 and 59 Oakleigh Street, down to Acacia Ave, parallel to Dowse Drive down past the western end of Holly Grove, Barberry Grove and Maple Grove.

Contours show that sufficient grade is available to achieve acceptable wastewater velocities.

Based on the 11 lots shown in the indicative development plan and the Hutt City Code of Practice for Sanitary Sewer it is expected that the Average Dry Weather Flow from the site would be approximately 9.5 m^3/day.

From previous work we are aware of capacity issues in the sewer through the reserve area at the end of Holly Grove, Barberry Grove and Maple Grove, manholes in this area have been sealed to prevent surcharging during significant wet weather events.

A basic calculation has been carried out based on the number of properties proposed and the number of properties contributing to this wastewater system and it is expected that this would result in a 3% increase in flows in this area.

GHD are unaware of any other existing capacity problems and do not expect that the additional flow contribution from a small subdivision of 11 lots will adversely affect the existing system and properties.

3 Stormwater

While new stormwater pipes are designed according to the council's Code of Practice for Stormwater to accommodate a 10-year return period design storm for primary flow, a significant amount of the existing stormwater system was designed to stormwater protection standards current at the time. These standards required the primary system to be designed to accommodate a 5-year return period rainfall event. There has also been a change in design rainfall intensity and the runoff coefficients used in stormwater design, both of which now result in higher design flows.

Figure 1 - The Indicative Development Plan provided and Figure 2 show the stormwater from the site would connect into a 300 mm diameter stormwater pipe. The existing stormwater system runs between 57 and 59 Oakleigh Street along the boundaries of private properties down to Acacia Ave (450 mm diameter pipe), before discharging into a gully in the Holdaway Scenic Reserve.

Based on the catchment area and slope and the expected capacity of the stormwater system it is expected that the primary system has sufficient capacity for a five year return period rainfall event based on the rainfall intensity chart compiled in 1987. While the system meets the requirements which were used at the time of its construction, it is unlikely to have sufficient capacity based on the current Code of Practice for stormwater.

If 11 lots are developed on the site (54 Oakleigh Street) this would increase the number of properties contributing run-off to this stormwater system by approximately 10%.

GHD are not aware of any significant surface flooding in the stormwater system downstream of 54 Oakleigh Street.

Figure 4, The Stormwater Asbuilt for 54A Oakleigh Street – The old Otonga School Site shows that the stormwater from this site is discharged into a gully feeding into the Belmont Regional Park. Figure 4, also shows a Stormwater inlet very near lot 1 as shown on Figure 1, looking at the contours and the indicative development plan it may be possible to discharge stormwater from 54 Oakleigh Street into the same gully as that used by 54A Oakleigh Street.

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

Yours faithfully
GHD Limited

Clive Welling
Service Group Manager - Lower Hutt
(04) 570 0420

DRAWING STATUS: PRELIMINARY DRAFT

DESIGNED :	AJK	Feb.09
DRAWN :	MVS	Feb.09
DESIGN CHECKED :		
DRAFTING CHECKED :		
CADFILE : \\84009.004-04.dwg		
APPROVED		

NOT FOR CONSTRUCTION
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REVISION	DESCRIPTION	BY	DATE
0	First Issue		

NOTES :
1. All dimensions are in metres unless noted otherwise.

Appendix Two: Indicative Development Plan

REFERENCE :

Tonkin & Taylor
Environmental & Engineering Consultants
Wellington Level 4, 265 Wakefield St
Tel. (04) 381 8560 Fax. (04) 381 2908
Email : well@tonkin.co.nz
Auckland Christchurch Hamilton Tauranga Nelson

CLIENT, PROJECT
HUTT CITY COUNCIL
OAKLEIGH STREET SUBDIVISION

TITLE
INDICATIVE DEVELOPMENT PLAN
Site Plan

SCALES (AT A3 SIZE)	DWG. No.	REV.
1: 1000	84009.004-04	0

Legend

- Sewer Fixtures
- Sewer Pipe
- Stormwater Fixtures
- Stormwater Pipe
- Fire Hydrant
- Valve
- Watermain Pipes
- Watermain Lateral Pipes

MAUNGARAKI RD
OTAMARAU GR
CHERRY BLOSSOM GR
OAKLEIGH ST
WATTLE GR
HONEYSUCKLE GR
DOWSE DR
REESE JONES GR
REESE JONES/ACACIA AVE
ACACIA AVE
PROTEA ST

Meters
0 20 40 80 120 160

GHD

Project:

Oakleigh Street Infrastructure

Cadestral information sourced from Land Information New Zealand's data.
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Asset data sourced from Hutt City Council

Issued for:	Project Number:	Sheet Number:	Issue:
Information	5126888	Figure 2	Final

A1

COORDINATES FOR WATER TOBIES		
LOT NUMBER	mE	mN
1	408483.01	811077.21
2	408483.86	811095.41
3	408483.79	811113.67
4	408483.84	811131.57
5	408485.75	811135.00
6	408477.37	811139.74
7	408464.16	811139.76
8	408441.15	811141.33
9	408430.81	811141.43
10	408421.88	811134.02
11	408425.54	811111.14
12	408421.90	811097.20
13	408427.44	811085.39
14	408440.66	811085.36
15	408432.11	811112.07
16	408432.18	811113.42
17	408477.38	811110.48
18	408477.41	811109.19
19	408470.90	811080.08

LOT 9 LOT 8 LOT 7 LOT 6 LOT 5 LOT 10 LOT 11 LOT 12 LOT 13 LOT 14 LOT 15 LOT 16 LOT 17 LOT 18 LOT 19 LOT 4 LOT 3 LOT 2 LOT 1

GATE VALVE AND SCOUR VALVE OFFSETS

SCOUR VALVE	
mE	mN
408483.95	811134.76

GATE VALVE	
mE	mN
408482.51	811132.61

GATE VALVE	
mE	mN
408424.39	811090.17

HYDRANT	
mE	mN
408424.29	811088.16

GATE VALVE	
mE	mN
408473.48	811081.12

HYDRANT	
mE	mN
408473.45	811080.04

GATE VALVE AND HYDRANT OFFSETS

90° BEND AND THRUST BLOCK
GATE VALVE
100Φ uPVC
63mm OD PE
HYDRANT
THRUST BLOCK

GATE VALVE AND HYDRANT OFFSETS

SITE BENCHMARK
HNIII
408474.049 mE
811066.366 mN
RL = 207.097

MAIN CAPPED

EXISTING 100Φ PIPE

EXISTING HYDRANT

SEE DETAIL A

SCALE 1:250

NOTES:

1. THE SITE DATUM FOR THIS SURVEY IS: HNIII RL=207.097
ORIGIN OF LEVELS: EXISTING SWMH1 AS SHOWN ON BRICKELL MOSS RANKINE & HILL
DRAWING # 10450-R2
SOURCE: HUTT CITY COUNCIL
REDUCED LEVEL: 191.92m
MEAN SEA LEVEL WELLINGTON CITY DATUM

LEGEND:

- 63mm OD PE80B PN 12.5 WATERPIPE
- 100mm NB uPVC PN 12 WATERPIPE
- 20mm WATER LATERAL
- VALVE
- FIRE HYDRANT
- METER MANIFOLD AND SURFACE BOX
- THRUST BLOCK

DETAIL A
1:250

HYDRANT	
mE	mN
408378.44	811034.71

HYDRANT	
mE	mN
408375.34	810952.07

SLUICE VALCE	
mE	mN
408376.94	810950.64

90° BEND	
mE	mN
408359.41	810964.98

FIRE HYDRANT
100 DIA
EXISTING 150 DIA MAIN
SLUICE VALVE
100/150 TEE WITH THRUST BLOCK

CONNECTION DETAIL - NTS

LW/XX 2342-1A

AS-BUILT

Rev.	Date	Revision Details	By	Ver.	App.
2	06.05.10	AS CLOUDED	NM		
1	21.04.10	ISSUE FOR INFORMATION	NM		

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Client: GLOBE HOLDINGS

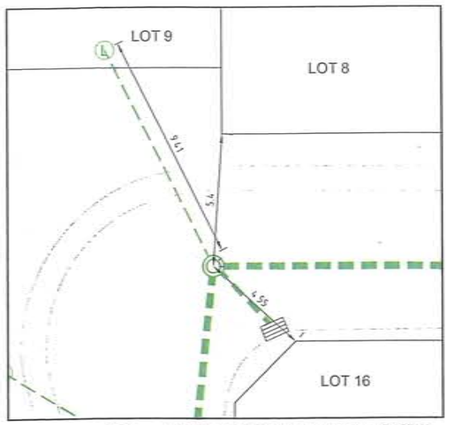
Project: OTONGA SCHOOL
52A OAKLEIGH ST, MAUNGARAKI

		Signed	Date
Drawn	NM		21.04.10
Designed	NM		21.04.10
Verified	AM		21.04.10
Approved	JF		21.04.10

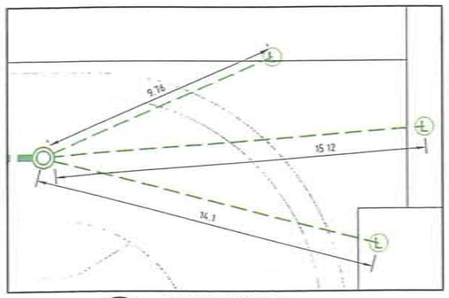
Drawing Title: WATER RETICULATION ASBUILT PLAN

CW Project No. 27983
Scale 1:250 @ A1, 1:500 @ A3
Drawing No. AB-005 Rev. 2

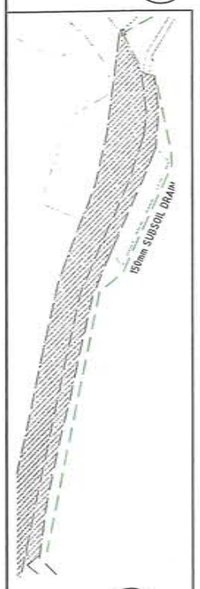
A1



DETAIL A 1:125 — MANHOLE OFFSET AND LATERAL LENGTHS



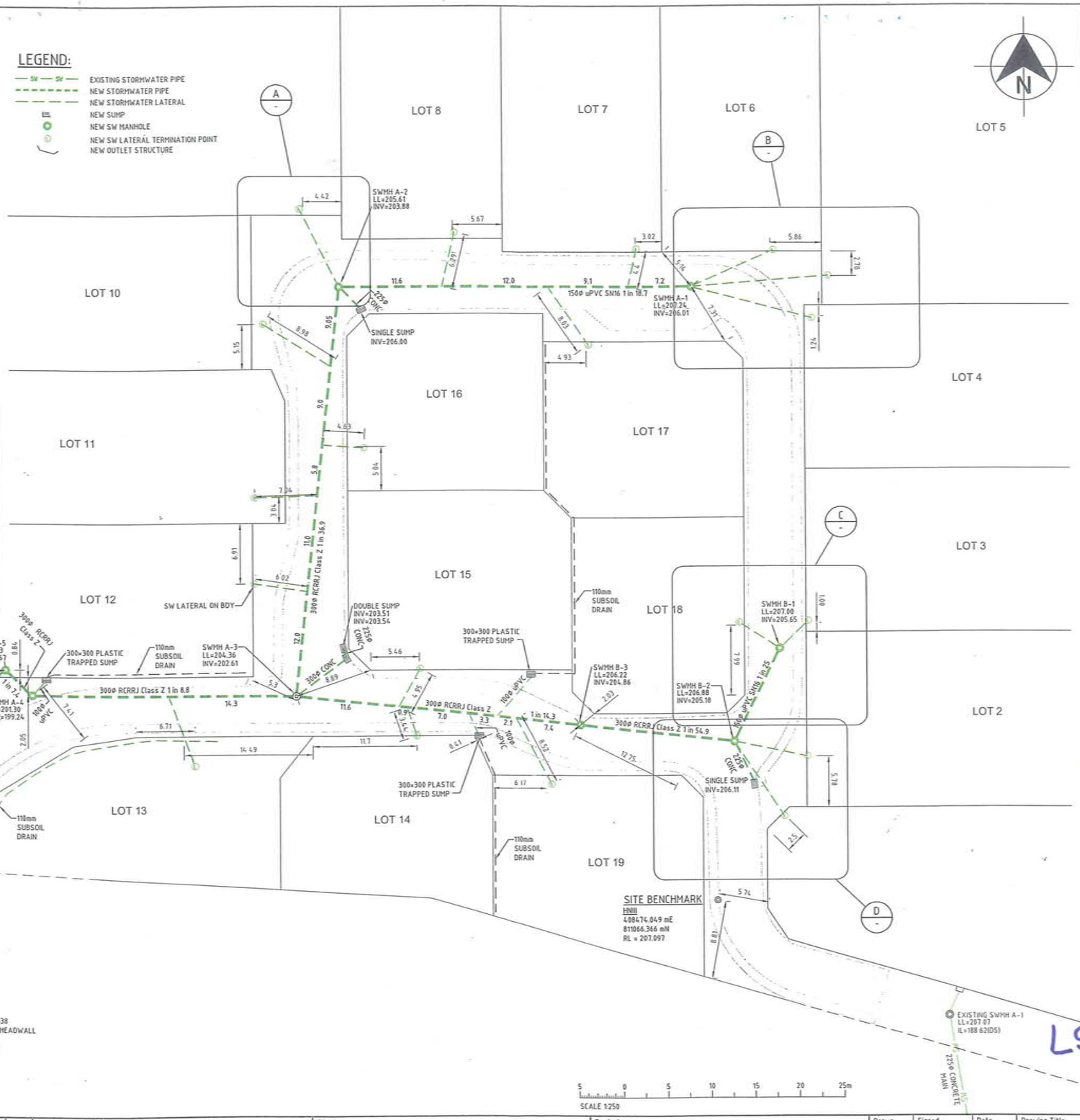
DETAIL B 1:125 — LATERAL LENGTHS



DETAIL E 1:500

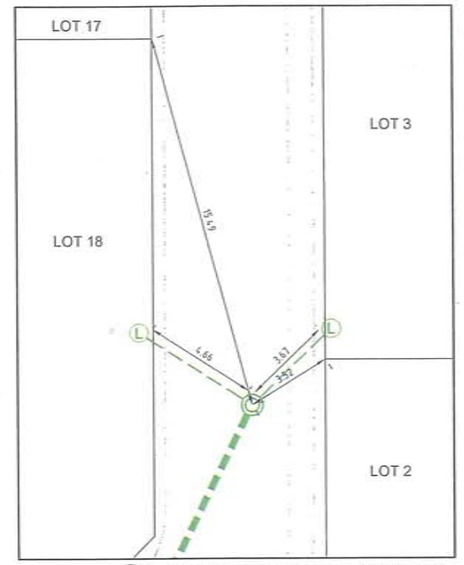
LEGEND:

- SW — SW — EXISTING STORMWATER PIPE
- NEW STORMWATER PIPE
- NEW STORMWATER LATERAL
- NEW SUMP
- NEW SW MANHOLE
- NEW SW LATERAL TERMINATION POINT
- NEW OUTLET STRUCTURE

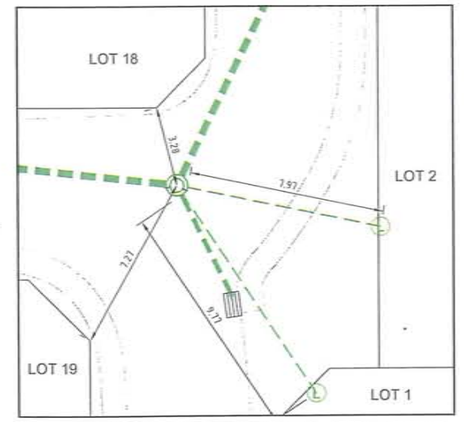


NOTES:

1. ALL STORMWATER LATERALS ARE 100mm Ø uPVC SN16.
2. FOR MH TO MH PIPE LENGTHS SEE AURECON DRAWING AB003.
3. THE SITE DATUM FOR THIS SURVEY IS: HNIII RL=207.097
   ORIGIN OF LEVELS: EXISTING SWMH1 AS SHOWN ON BRICKELL MOSS RANKINE & HILL DRAWING # 10450-R2
   SOURCE: HUTT CITY COUNCIL
   REDUCED LEVEL: 191.92m
   MEAN SEA LEVEL WELLINGTON CITY DATUM



DETAIL C 1:125 — MANHOLE OFFSET AND LATERAL LENGTHS



DETAIL D 1:125 — MANHOLE OFFSET AND LATERAL LENGTHS

LSW/XX 2402-1A

AS-BUILT

Rev.	Date	Revision Details	By	Ver.	App.
2	06.05.10	LATERAL DISTANCES ALONG MAIN / SUBSOILS ADDED	NM		
1	21.04.10	ISSUE FOR INFORMATION	NM		

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Client:	GLOBE HOLDINGS
Project:	OTONGA SCHOOL 52A OAKLEIGH ST, MAUNGARAKI

Drawn	NM	Signed	Date 21.04.10
Designed	NM	Signed	Date 21.04.10
Verified	AM	Signed	Date 21.04.10
Approved	JF	Signed	Date 21.04.10

Drawing Title: STORMWATER DRAINAGE ASBUILT PLAN

CW Project No.	27983
Scale	1:250 @ A1 1:500 @ A3
Drawing No.	AB-001
Rev.	2

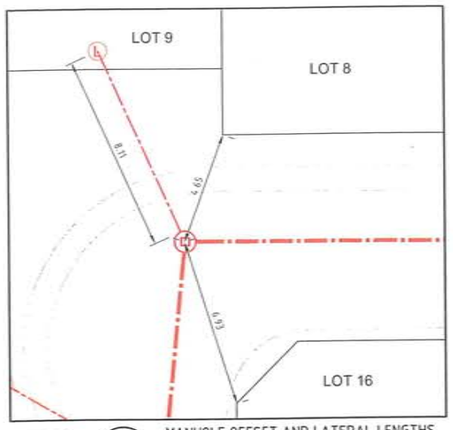
A1

LEGEND:

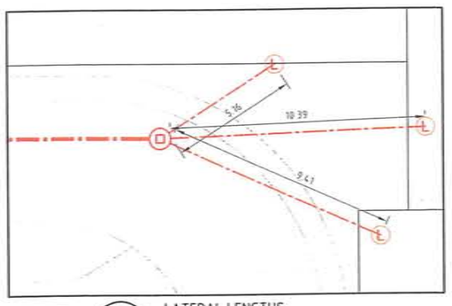
- EXISTING WASTEWATER PIPE
- NEW WASTEWATER PIPE
- NEW WASTEWATER LATERAL
- EXISTING MANHOLE
- NEW SS MANHOLE
- NEW SS LATERAL TERMINATION POINT

NOTES:

1. ALL SEWER LATERALS ARE 100mm Ø uPVC SN16.
2. FOR MH TO MH PIPE LENGTHS SEE AURECON DRAWING 27983-AB-004.
3. THE SITE DATUM FOR THIS SURVEY IS: HNII RL=207.097
   ORIGIN OF LEVELS: EXISTING SWMH1 AS SHOWN ON BRICKELL MOSS RANKINE & HILL DRAWING # 10450-R2
   SOURCE: HUTT CITY COUNCIL
   REDUCED LEVEL: 191.92m
   MEAN SEA LEVEL WELLINGTON CITY DATUM



DETAIL A (-) 1:125 — MANHOLE OFFSET AND LATERAL LENGTHS



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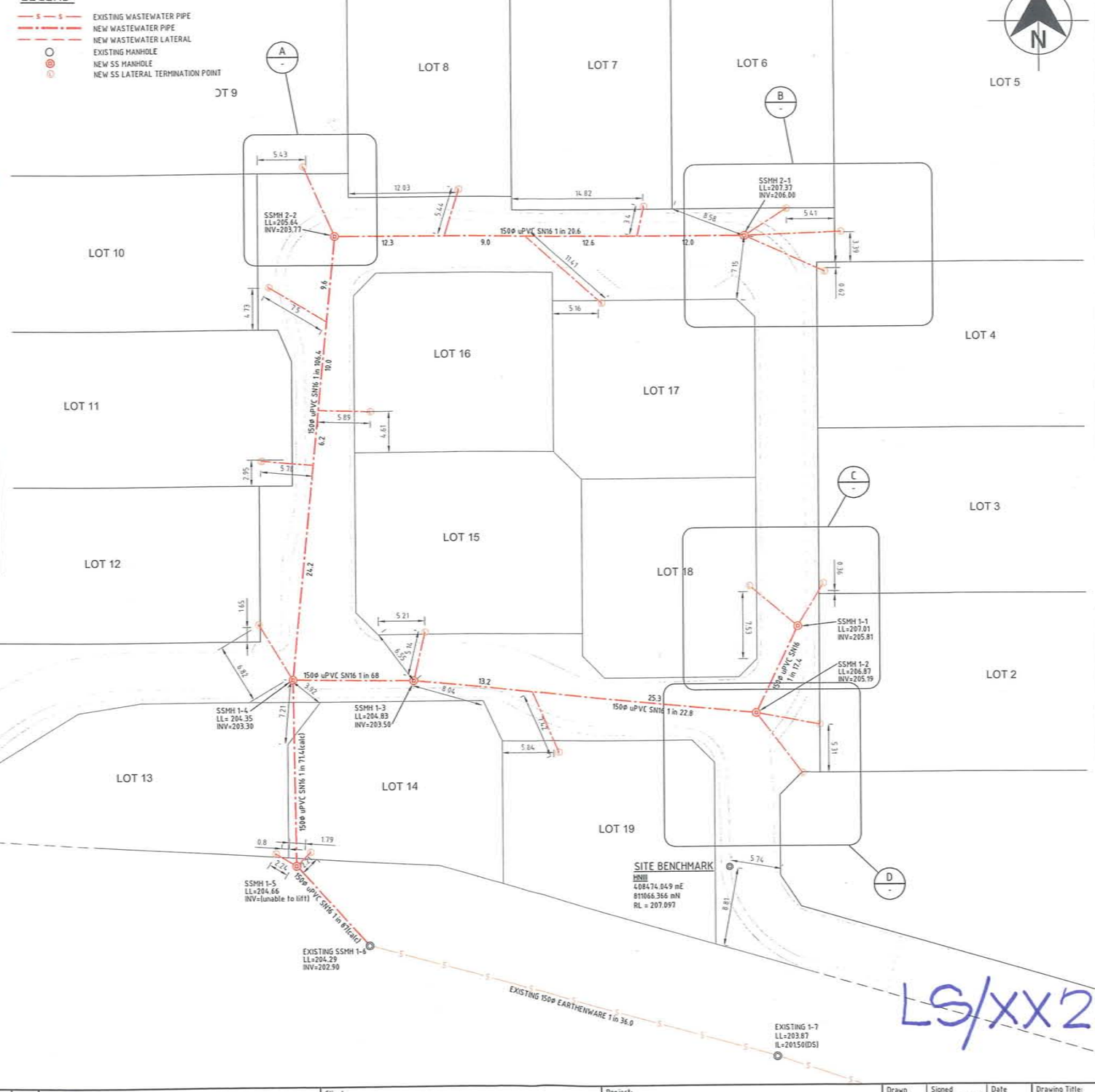
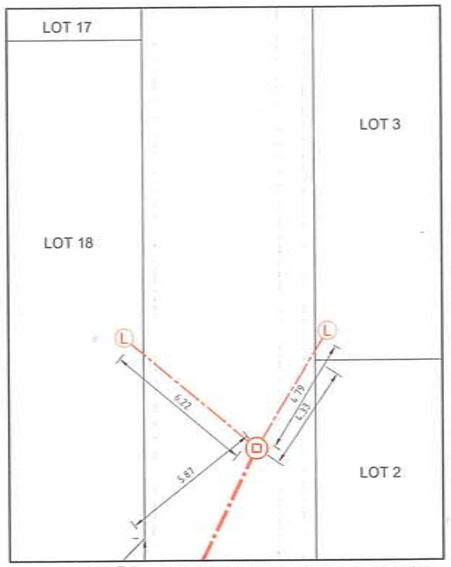
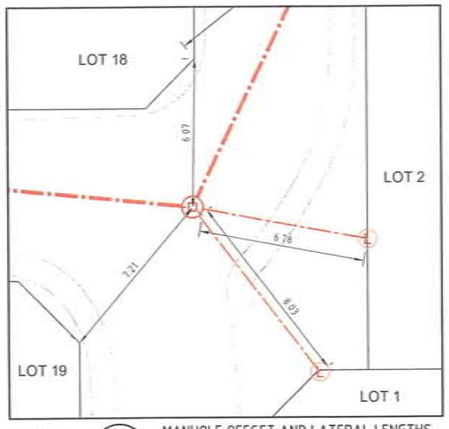




DETAIL C (-) 1:125 — MANHOLE OFFSET AND LATERAL LENGTHS



DETAIL D (-) 1:125 — MANHOLE OFFSET AND LATERAL LENGTHS

LS/XX2286-1A

AS-BUILT

SCALE 1:250

Rev.	Date	Revision Details	By	Ver.	App.
2	06.05.10	LATERAL DISTANCES ALONG MAIN ADDED	NM		
1	21.04.10	ISSUE FOR INFORMATION	NM		

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Designed	NM	Signed	Date 21.04.10
Verified	AM	Signed	Date 21.04.10
Approved	JF	Signed	Date 21.04.10

Drawing Title: WASTEWATER DRAINAGE ASBUILT PLAN

CW Project No. 27983

Scale 1:250 @ A1
1:500 @ A3

Drawing No. AB-002 Rev. 2