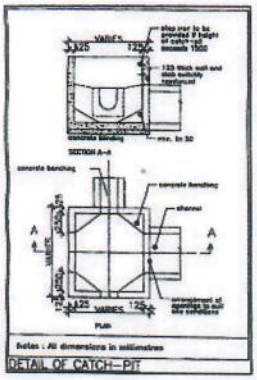
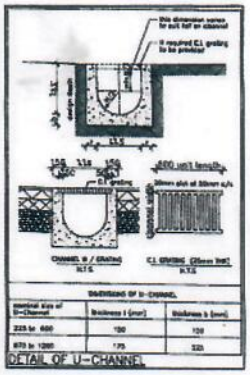
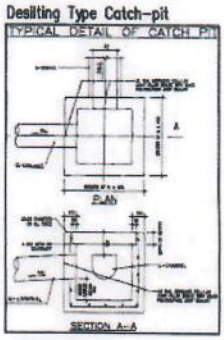
Drainage Plan of Lot Nos. 1442 and 1444 RP in D.D.76 and Adjoining Government Land





Desilting Type Catch-pit



Remark:

1) Lot boundary were scaled off from Lot Index Plan and which boundary should be subject to Land boundary survey.
2) All U-Channels and Catchpits with cover

Legend

- Existing Drainage
- Proposed Drainage
- Application Boundary
- Lot Boundary
- Adjoining Lot Boundary

CP = Catchpits (600mm)
ST = Sand Trap (600mm)
S = 300mm Dia.concrete surface U-channel
All U-channels are with 1:200 Fall as the direction marked

Scale : 1 : 300
Date : 13 June 2011
Plan No. : DN_1442_3

鄺志成測量師行有限公司
GEOFFREY KWONG LAND SURVEYOR LIMITED
總行:元朗安寧路十九號萬達樓一樓後座
電話: 2442 0358 圖文傳真 : 2442 0157

KWONG CHE SING
MRICS,MHKIS,RPS(LS)
AUTHORIZED LAND SURVEYOR

Drainage Design on Lot Nos. 1442 and 1444 RP in D.D.76 and Adjoining Government Land

The elevation of application site is higher than that of adjoining land. The proposed drainage will only intercept and convey the runoff from application site, and it will not affect the adjoining land.

The eastern section of proposed 300UC(s) (Fall 1:200) from CP1 to CP10 will intercept and convey all runoff from catchment Area 'A' and the western section of proposed 300UC(s) (Fall 1:200) from CP1 to CP10 will intercept and convey all runoff from catchment Area 'B'. Then the proposed underground 375pipe (Fall 1:200) from CP10 to CP11 will convey all runoff to existing 400UC (Fall 1:150) in north-east. Finally, the existing 400UC convey all runoff to nullah.

This proposed development will have no adverse impact, so it should be considered acceptable.

All the information is shown on the plan (DN_1442_2). Both proposed 300UC(s), proposed underground 375pipe and existing 400UC will not overload. The calculation is checked below.

Storm Water Calculation	Job: Lot Nos. 1442 and 1444 RP in D.D.76 and Adjoining Government Land Subject: Surface Drainage Design	Reference

1. <u>For Catchment Area 'A'</u>

a. Catchment Area 'A' to CP10

A = 796.5 sq.m.

L = 103 m

δh = 16.65 - 15.41 = 1.24 m (say application site level is 16.65m)

H = δh / L = 1.20 (m/100m)

$t_c = 0.14465 \times 103 / (1.20^{0.2} \times 796.5^{0.1})$
= 7.36 min

With design return period 1 in 100 Years for permanent drainage,
i_{100} = 270 mm/hr

Fig. 802 Geotechnical Manual for Slopes

Flow for 100 year return period,
$Q_{100} = 1.0 \times 796.5 \times 270 / 3600$ = 59.7 litres/sec

b. Design of flowing channel (Proposed eastern 300 UC)

For 300 UC at gradient 1 in 200 ,
Hydraulic Gradient = 0.5 (m/100m)

Q_{max} = 90 litres/sec > 59.7 litres/sec

Fig. 8.7 Geotechnical Manual for Slopes

Storm Water Calculation	Job: Lot Nos. 1442 and 1444 RP in D.D.76 and Adjoining Government Land Subject: Surface Drainage Design	Reference

2. <u>For Catchment Area 'B'</u>

a. Catchment Area 'B' to CP10

A = 811.5 sq.m.

L = 101 m

δh = 16.65 - 15.41 = 1.24 m (say application site level is 16.65m)

H = δh / L = 1.23 (m/100m)

$t_c = 0.14465 \times 101 / (1.23^{0.2} \times 811.5^{0.1})$
= 7.17 min

With design return period 1 in 100 Years for permanent drainage,
i_{100} = 270 mm/hr

Fig. 802 Geotechnical Manual for Slopes

Flow for 100 year return period,
$Q_{100} = 1.0 \times 811.5 \times 270 / 3600$ = 60.9 litres/sec

b. Design of flowing channel (Proposed western 300 UC)

For 300 UC at gradient 1 in 200 ,
Hydraulic Gradient = 0.5 (m/100m)

Q_{max} = 90 litres/sec > 60.9 litres/sec

Fig. 8.7 Geotechnical Manual for Slopes

Storm Water Calculation	Job: Lot Nos. 1442 and 1444 RP in D.D.76 and Adjoining Government Land Subject: Surface Drainage Design	Reference

3. <u>For Outlet</u>

Design of flowing channel (Proposed 375pipe)

For 375 pipe at gradient 1 in 200 ,
Hydraulic Gradient = 0.5 (m/100m)

Q_{max} = 160 litres/sec > 120.6 litres/sec (Fig. 8.7 Geotechnical Manual for Slopes)

(59.7 from Catchment Area A + 60.9 from Catchment Area B)

Design of outlet channel (Existing 400UC)

For 400 UC at gradient 1 in 150 ,
Hydraulic Gradient = 0.67 (m/100m)

Q_{max} = 200 litres/sec > 120.6 litres/sec (Fig. 8.7 Geotechnical Manual for Slopes)