R-Riches
Property Consultants Ltd.

盈卓物業
顧問有限公司

Our Ref.: DD82 Lot 1151 & VL
Your Ref.: TPB/A/NE-TKL/763

The Secretary,
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road,
North Point, Hong Kong

By Email

12 August 2024

Dear Sir,

1st Further Information

Proposed Temporary Open Storage of Construction Material and Machinery with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone, Various Lots in D.D. 82, Ta Kwu Ling, New Territories

(S.16 Planning Application No. A/NE-TKL/763)

We are writing to submit further information to address departmental comments of the subject application (**Appendix I**).

Should you require more information regarding the application, please contact our Mr. Danny NG at [redacted] or the undersigned at your convenience. Thank you for your kind attention.

Yours faithfully,

For and on behalf of
R-riches Property Consultants Limited

Louis TSE
Town Planner

cc DPO/STN, PlanD (Attn.: Ms. Sheren LEE email: sswlee@pland.gov.hk)
(Attn.: Ms. Katie LEUNG email: kyyleung@pland.gov.hk)

香港新界錦田吉慶圍 236 號盈匯坊 D 座
Block D, The Richfield, 236 Kat Hing Wai, Kam Tin, NT, HK
[redacted]

Responses-to-Comments

Proposed Temporary Open Storage of Construction Material and Machinery with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone, Various Lots in D.D. 82, Ta Kwu Ling, New Territories

(Application No. A/NE-TKL/763)

(i) A RtoC Table:

Departmental Comments		Applicant's Responses
1. Comments of the Commissioner for Transport (C for T)		
(a)	The applicant shall advise the management/control measures to be implemented to ensure no queuing of vehicles outside the subject site	As the application site (the Site) is proposed for 'open storage' use with no shopfront, no visitor is anticipated at the Site and only the applicant's fleets will be allowed to enter/exit the Site. As the vehicular trips could be strictly controlled by the applicant, queuing of vehicles outside the Site will not be anticipated. Staff will be deployed at the ingress/egress of the Site to direct vehicles entering and exiting the Site. Sufficient space is also reserved for smooth manoeuvring within the Site to ensure that no queuing of vehicle outside the Site at any time during the planning approval period.
(b)	The applicant shall advise the provision and management of pedestrian facilities to ensure pedestrian safety; and	Staff will be deployed by the applicant to direct vehicle entering/exiting the Site. 'Stop and give way' and 'beware of pedestrians' signs would also be erected to ensure pedestrian safety to/from the Site.
(c)	The proposed vehicular access between Ping Che Road and the application site is not managed by TD. The applicant should seek comments from the responsible party.	Noted.
2. Comments of the Chief Town Planner/Urban Design and Landscape, Planning Department (CTP/UD&L, PlanD)		
(a)	Landscape Observations and Comments With reference to the aerial photo of 2023, the site is located in an area of rural inland	According to our site visit conducted in July 2024, no old and valuable tree or protected

	plains landscape character comprising of farmlands, temporary structures, vegetated areas, clusters of tree groups, and woodland within the "GB" zones to the north and southeast. The proposed use is not compatible with the surrounding environment. There is a concern that approval of the application may alter the landscape character and degrade the landscape quality of the surrounding area, where the "Green Belt" zone is in close proximity to the north and immediate southeast of the site. Based on our site records taken on 2.7.2024, the site is fenced off and mainly covered by wild grasses. Some trees of undesirable and common species, e.g. Musa supp. (蕉屬) are observed within the site. Since tree information, proposed tree treatment and landscape treatment/ mitigation measures are not provided, potential impact on the landscape resources cannot be reasonably ascertained.	species has been identified at the Site. Due to the proposed hard-paving works for site formation of structures and circulation purpose, all existing trees will be affected, and it is not proposed to retain any of the existing trees within the Site. A landscape proposal is submitted by the applicant to provide landscape mitigation measures for the proposed development (**Annex I**). 12 new trees (N1 to N12) are proposed to be planted along the northwest and southwest periphery boundary of the Site as indicated on plan, to minimise adverse visual impact to the adjoining receivers. All these new trees within the Site will be maintained by the applicant during the planning approval period.
(b)	Detailed Comments/ Advisory Comments The applicant is advised to provide basic information (e.g. species, size, general conditions and tree photos) on existing trees within and along the site boundary, proposed tree treatments and mitigation measures for TPB's consideration. The applicant should be advised that approval of the application does not imply approval of tree works such as pruning, transplanting and felling. The applicant is reminded to seek approval for any proposed tree works from relevant authority prior to commencement of the works.	

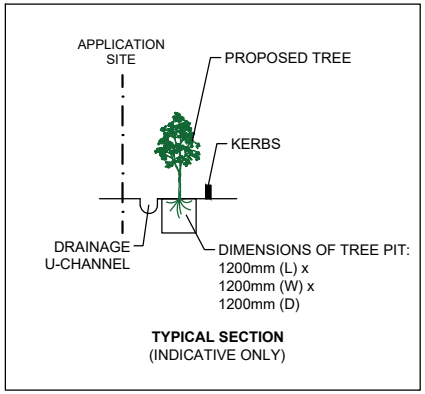
3. Comments of the Director of Agriculture, Fisheries and Conservation (DAFC)		
(a)	The subject site falls within the "AGR" zone and is generally abandoned. The agricultural activities are active in the vicinity, and agricultural infrastructures such as road access and water source are also available. The subject site can be used for agricultural activities such as open-field cultivation, greenhouses, plant nurseries, etc. As the subject site possesses potential for agricultural rehabilitation, the proposed development is not supported from agricultural perspective.	Although the Site falls within area zoned as "AGR", there is no active agricultural use within the Site. The Site is also surrounded by open storage yards and sites occupied by temporary structures for port back-up uses; hence, the proposed development is considered not incompatible with the surrounding area. Therefore, approval of the current application on a temporary basis of 3 years would not jeopardize the long-term planning intention of the "AGR" zone and better utilize deserted agricultural land in the New Territories. Fencing will be erected along the site boundary to avoid any disturbance during the planning approval period. The applicants will reinstate the Site to an amenity area after the planning approval period.
4. Comments of the Chief Engineer/Mainland North, Drainage Services Department (CE/MN, DSD)		
(a)	Flooding complaints have been recorded based on our records. It is revealed that the area adjoining the application site is subject to overland flows and/or regular flooding. Unless the applicant can submit satisfactory drainage proposal to mitigate the flooding susceptibility of the area to my satisfaction, I do not support the application. The site is in an area where public sewerage connection is not available. EPD should be consulted regarding the sewage impact assessment and sewage treatment/disposal facilities for the proposed development.	A drainage proposal is prepared by the applicant to mitigate the flooding susceptibility of the area (**Annex II**). According to the result of the drainage proposal, with the implementation of the proposed drainage system, adverse drainage impact to the surrounding area is <u>not</u> anticipated.

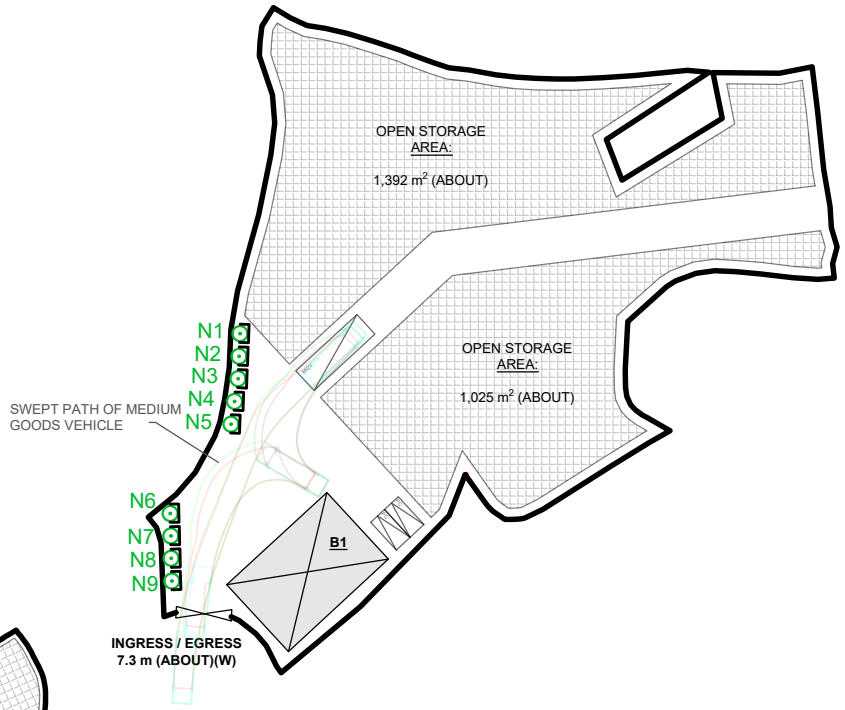
LANDSCAPE PROPOSAL

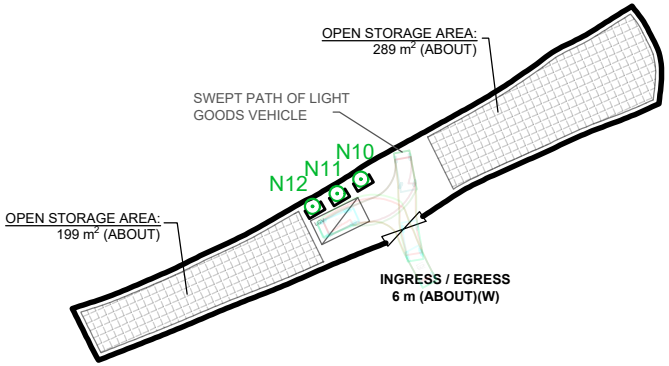
APPLICATION SITE AREA	: 4,970 m^2	(ABOUT)
COVERED AREA	: 216 m^2	(ABOUT)
UNCOVERED AREA	: 4,754 m^2	(ABOUT)

NO. OF NEW TREES WILL BE PLANTED	: 12 (N1 TO N12)
SPECIES OF NEW TREES	: *SENNA SURATTENSIS*
HEIGHT OF NEW TREES	: NO LESS THAN 2.75 m
SPACING OF NEW TREES	: NOT MORE THAN 4 m
DIMENSION OF TREE PITS	: 1.2 m (W) X 1.2 m (L) X 1.2 m (D)

STRUCTURE	USE	COVERED AREA	GFA	BUILDING HEIGHT
B1	STORAGE OF CONSTRUCTION MATERIAL AND MACHINERY, SITE OFFICE AND WASHROOM	216 m^2 (ABOUT)	216 m^2 (ABOUT)	5 m (ABOUT)(1-STOREY)
	TOTAL	**216 m^2 (ABOUT)**	**216 m^2 (ABOUT)**	







LEGEND

- APPLICATION SITE
- STRUCTURE
- L/UL SPACE (LGV)
- L/UL SPACE (MGV)
- INGRESS / EGRESS
- PRIVATE CAR/LIGHT GOODS VEHICLE
- SWEPT PATH OF VEHICLE
- PROPOSED NEW TREES

NOTES:

1) THE APPLICANT WILL MAINTAIN TREES IN GOOD CONDITION DURING THE PLANNING APPROVAL PERIOD.
2) THE APPLICANT WILL REPLACE TREES WHICH ARE DYING OR DEAD DURING THE PLANNING APPROVAL PERIOD.
3) THE APPLICANT WILL PROVIDE ADEQUATE IRRIGATION FOR TREES.

NORTH
W E
S

PLANNING CONSULTANT
R-Riches Property Consultants Ltd.

PROJECT
PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIAL AND MACHINERY WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND

SITE LOCATION
VARIOUS LOTS IN D.D. 82, TA KWU LING, NEW TERRITORIES

SCALE	1 : 700 @ A4
DRAWN BY	LT
DATE	7.8.2024
CHECKED BY	
DATE	
APPROVED BY	
DATE	
DWG. TITLE	LANDSCAPE PROPOSAL
DWG NO.	ANNEX I
VER.	001

Proposed Temporary Open Storage of Construction Material and Machinery with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone, Various Lots in D.D. 82, Ta Kwu Ling, New Territories

Drainage Proposal

Jul 2024

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1. Introduction

1.1 Background

1.1.1 The applicant seeks planning permission from the Town Planning Board (the Board) to use Lots 1151, 1152, 1161 S.B RP (Part) and 1162 (Part) in D.D. 82, Ta Kwu Ling, New Territories (the Site) for 'Proposed Temporary Open Storage of Construction Material and Machinery with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land'

1.1.2 This Drainage Proposal aim to support the development in drainage aspect.

1.2 The Site

1.2.1 The Sites are in vicinity of Ping Che Road. It has a total area of about 4,970m^2. The sites are mainly cover with vegetation and partially paved. The site location plan is shown in **Figure 1**.

1.2.2 The existing site ground levels are various from +11.5 mPD to +11.7 mPD. The site is proposed to all paved to +11.7 mPD.

1.2.3 An existing steam is running from east to the west at the south of the site. Existing Drainage Plan are shown in **Figure 2** for reference.

1.2.4 Proposed Development Layout plan is shown in **Appendix B** for reference.

2. Development Proposal

2.1 The Proposed Development

2.1.1 The total site area is approximately 4,970 m^2. The indicative development schedule is summarized in **Table 1** below for technical assessment purpose. The catchment plan is shown in **Figure 4**.

Proposed Development	
Total Site Area (m^2)	4,970
- Site A (m^2) (about)	783
- Site B (m^2) (about)	4,187

Table 1 - Key Development Parameters

3. Assessment Criteria

3.1.1 The Recommended Design Return Period based on Flood Level from SDM (Table 10) is adopted for this DIA. The recommendation is summarized in **Table 2** below.

Description	Design Return Periods
Intensively Used Agricultural Land	2 – 5 Years
Village Drainage Including Internal Drainage System under a polder Scheme	10 Years
Main Rural Catchment Drainage Channels	50 Years
Urban Drainage Trunk System	200 Years
Urban Drainage Branch System	50 Years

Table 2– Design Return Periods under SDM

3.1.2 The proposed drainage system intended to collect runoff from internal site and external catchment. 1 in 10 years return period is adopted for the drainage design.

3.1.3 Stormwater drainage design will be carried out in accordance with the criteria set out in the Stormwater Drainage Manual published by DSD. The proposed design criteria to be adopted for design of this stormwater drainage system and factors which have been considered are summarised below.

1. Intensity-Duration-Frequency Relationship – The Recommended Intensity-Duration-Frequency relationship is used to estimate the intensity of rainfall. It can be expressed by the following algebraic equation.

$$i = \frac{a}{(t_d + b)^c}$$

The site is located within the North District Zone. Therefore, for 10 years return period, the following values are adopted.

a	=	454.9
b	=	3.44
c	=	0.412

(Corrigendum_No.1_2024)

2. The peak runoff is calculated by the Rational Method
   i.e. $Q_p = 0.278CiA$

where	Q_p	=	peak runoff in m^3/s
	C	=	runoff coefficient (dimensionless)
	i	=	rainfall intensity in mm/hr
	A	=	catchment area in km^2

3. The run-off coefficient (C) of surface runoff are taken as follows:

   1. Paved Area: C = 0.95
   2. Unpaved Area: C = 0.35

4. Manning's Equation is used for calculation of velocity of flow inside the channels:

Manning's Equation: $v = \frac{R^{\frac{1}{6}}}{n} R^{\frac{1}{2}} S_f^{\frac{1}{2}}$

Where,

V = velocity of the pipe flow (m/s)
S_f = hydraulic gradient
n = manning's coefficient
R = hydraulic radius (m)

5. Colebrook-White Equation is used for calculation of velocity of flow inside the pipes:

Colebrook-White Equation: $\underline{v} = -\sqrt{32gRS}\ log\ log\ (\frac{k_s}{14.8R} + \frac{1.255v}{R\sqrt{32gRS_f}})$

where,

V	=	velocity of the pipe flow (m/s)
S_f	=	hydraulic gradient
k_f	=	roughness value (m)
v	=	kinematics viscosity of fluid
D	=	pipe diameter (m)
R	=	hydraulic radius (m)

4. Proposed Drainage System

4.1. Proposed UChannel

4.1.1 Proposed U-channels are designed for collection of runoff within and near the Development Site. Please refer to the **Figure 4** for proposed catchment plan. The U-channels from both site A and site B are proposed to be connected and discharged to existing stream at the south. The design calculations of proposed UChannels are shown in **Appendix A**.

4.1.2 The alignment, size, gradient and details of the proposed drains are shown in **Figure 3**.

4.1.3 The reference standard drawings of drains are shown in **Appendix C**.

5. Conclusion

5.1.1 Drainage study has been conducted for the Proposed Development. With implementation of proposed drainage system, no significant drainage impact is anticipated.

- End of Text -

FIGURES

LEGEND:

APPLICATION SITE BOUNDARY
(FOR IDENTIFICATION PURPOSE ONLY)

APPLICATION SITE BOUNDARY
(FOR IDENTIFICATION PURPOSE ONLY)

SITE B

SITE A

PING CHE ROAD

Tong Fong

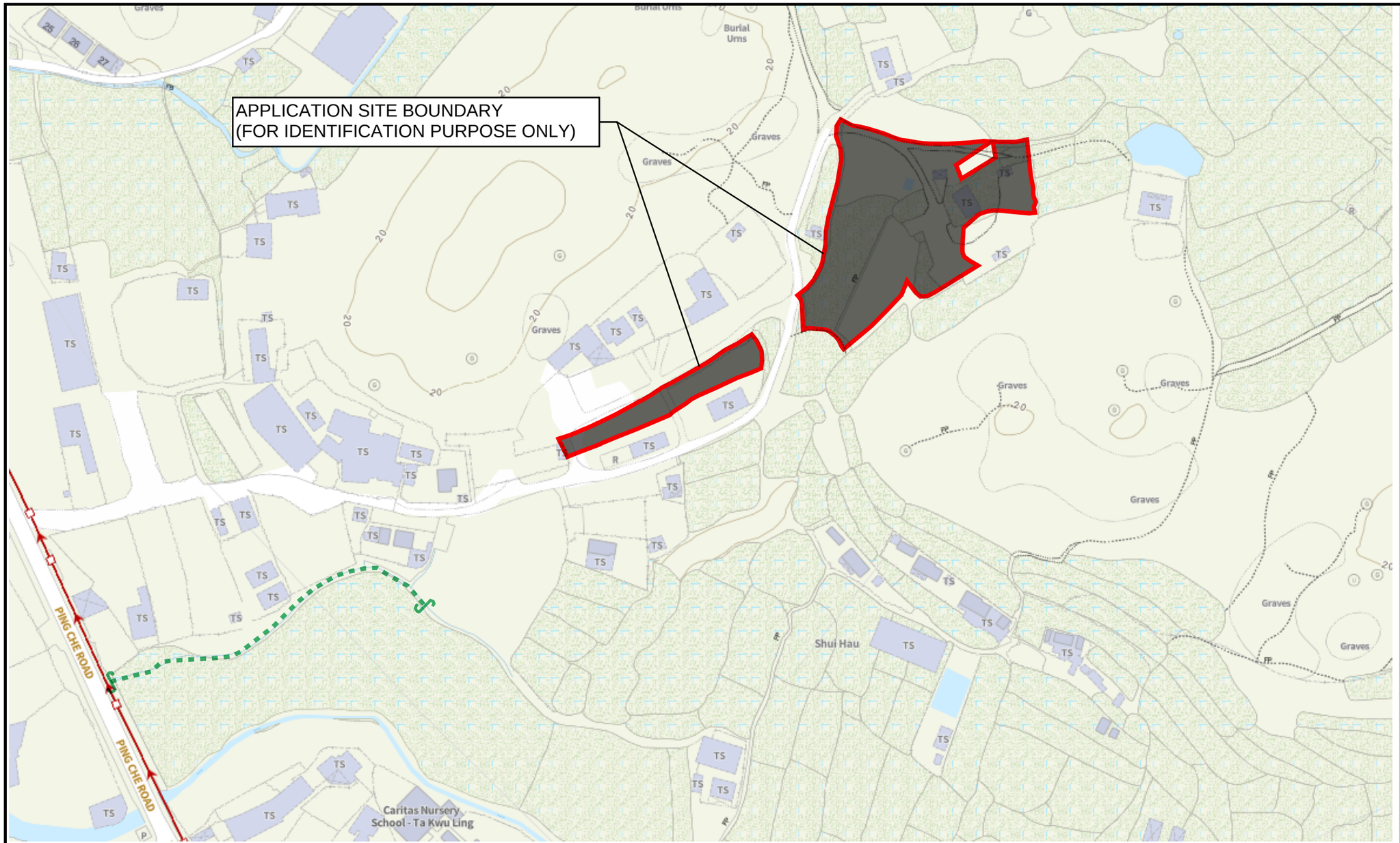
Shui Hau

PROJECT:
Proposed Temporary Open Storage of Construction Material and Machinery with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone, Various Lots in D.D. 82, Ta Kwu Ling, New Territories

REV	DESCRIPTION	DATE

DRAWING TITLE
SITE LOCATION PLAN

DRAWING NUMBER
FIGURE 1



LEGEND:

Combined Manhole	Tapping Point (Sewer)	Tapping Point (Storm)
Overflow (Combined)	Sewer Terminal Manhole	Storm Water Terminal Manhole
Pipe (Combined)	Catchpit	Tunnel Protection Zone (100m / 200m)
Interface Valve Chamber	Inlet	Tunnel Protection Zone (General Range)
Sewer Manhole	Storm Water Manhole	Tunnel / Box Culvert (Sewer)
Oil / Petrol Interceptor	Outlet	Tunnel / Box Culvert (Storm)
Overflow (Sewer)	Pipe (Storm)	EXISTING CHANNEL/STREAM
Pipe (Sewer)	Sand Trap	

PROJECT:
Proposed Temporary Open Storage of Construction Material and Machinery with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone, Various Lots in D.D. 82, Ta Kwu Ling, New Territories

REV	DESCRIPTION	DATE

DRAWING TITLE
EXISTING DRAINAGE PLAN

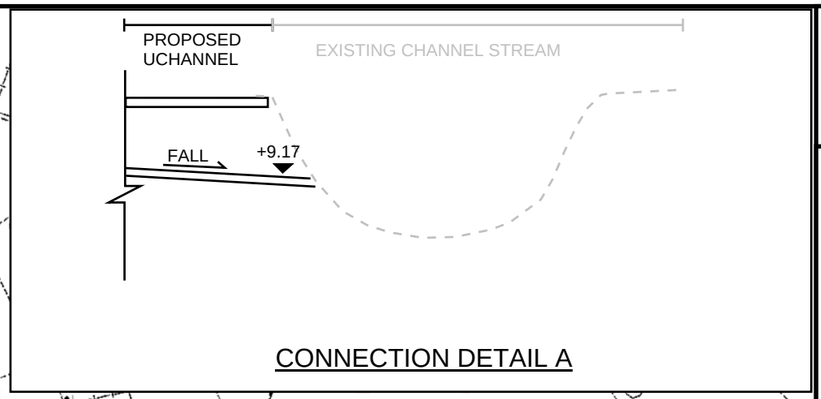
DRAWING NUMBER
FIGURE 2

LEGEND:

APPLICATION SITE BOUNDARY
(FOR IDENTIFICATION PURPOSE ONLY)

PROPOSED CATCHPIT

PROPOSED UCHANNEL



CONNECTION DETAIL A

CP2.1
CL +11.7
IL +10.74

IL +11.03

IL +11.03

CP3.1
CL +11.7
IL +10.97

UC2

UC2

UC2

SITE B

CP3.2
CL +11.7
IL +10.84

CP3.5
CL +11.7
IL +10.44

UC2

UC2

CP2.2
CL +11.7
IL +10.39

IL +10.33

UC2

UC2

CP3.3
CL +11.7
IL +10.60

CP3.4
CL +11.7
IL +10.49

IL +11.10

SITE A

CP3.6
CL +11.7
IL +10.25

CP3.6
CL +11.7
IL +10.16

CP1.1
CL +11.7
IL +10.56

UC1

UC1

UC2

IL +10.47

CP3.8
CL +10.4
IL +9.33

CP3.7
CL +10.7
IL +9.58

UC3

UC3

IL +9.17

CONNECTION DETAIL A

Existing Stream

Shui Hau

UCHANNEL TYPE
UCHANNEL 1 (UC1) - 525mm, MIN. 1 IN 150
UCHANNEL 2 (UC2) - 600mm, MIN. 1 IN 200
UCHANNEL 3 (UC3) - 750mm, MIN. 1 IN 200

NOTES:
1. INVERT LEVEL OF CONNECTION POINT SHOULD BE VERIFIED ON SITE BEFORE CONSTRUCTION.

PROJECT:
Proposed Temporary Open Storage of Construction Material and Machinery with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone, Various Lots in D.D. 82, Ta Kwu Ling, New Territories

REV	DESCRIPTION	DATE

DRAWING TITLE
PROPOSED DRAINAGE SYSTEM

DRAWING NUMBER
FIGURE 3

LEGEND:

APPLICATION SITE BOUNDARY
(FOR IDENTIFICATION PURPOSE ONLY)

ZONE A2
8,081 m²
(Assume 50% paved)

ZONE B1
4,187 m²

ZONE B3
92 m²
(Assume 100% paved)

SITE B

ZONE B2
6,856 m²
(Assume 30% paved)

SITE A

ZONE A1
783 m²

PING CHE ROAD

Tong Fong

Shek O

Shui Hau

PROJECT:
Proposed Temporary Open Storage of Construction Material and Machinery with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone, Various Lots in D.D. 82, Ta Kwu Ling, New Territories

REV	DESCRIPTION	DATE

DRAWING TITLE
CATCHMENT PLAN

DRAWING NUMBER
FIGURE 4

APPENDIX

Appendix A - Channel Design Calculation

U Channel 1 (Zone A1 + A2)

Runoff Estimation				
Design Return Period		1 in	10	years
Paved Area	783 + 8081 x 0.5=		4824	(m2)
Unpaved Area	8081 x 0.5 =		4041	(m2)
Total Equivalent Area	4824 x 0.95 + 4041 x 0.35 =		5997	(m2)
Time of Concentration			5	min
Rainfall Intensity, I *			189	mm/hr
Design Discharge Rate, Q	0.278 x 5997 x 189 / 1000000 =		0.315	m3/s

* $i = \frac{a}{(t_d + b)^c}$

U Channel				
Channel Size			525	(mm)
Gradient		1 in	150	
Area	π x 0.53^2 /8 + 0.53 x 0.53/2 =		0.246	(m2)
Wetted Perimeter	π x 0.53 / 2 + 0.53/2 x 2 =		1.350	(m)
R	0.246 / 1.35 =		0.104	(m)
Velocity			1.64	m/s
Capacity			0.404	m3/s

Utilization	0.315 / 0.404	=	**78.01**	%	OK	(less than 90%, for 10% siltation allowance)

U Channel 2 (Zone B1 + B2 + B3)

Runoff Estimation				
Design Return Period		1 in	10	years
Paved Area	4187 + 92 x 1 + 6856 x 0.3=		6336	(m2)
Unpaved Area	0 + 92 x 0 + 6856 x 0.7=		4041	(m2)
Total Equivalent Area	6336 x 0.95 + 4041 x 0.35 =		7433	(m2)
Time of Concentration			5	min
Rainfall Intensity, I *			189	mm/hr
Design Discharge Rate, Q	0.278 x 4041 x 189 / 1000000 =		0.390	m3/s

* $i = \frac{a}{(t_d + b)^c}$

U Channel				
Channel Size			600	(mm)
Gradient		1 in	200	
Area	π x 0.6^2 /8 + 0.6 x 0.6/2 =		0.321	(m2)
Wetted Perimeter	π x 0.6 / 2 + 0.6/2 x 2 =		1.542	(m)
R	0.321 / 1.542 =		0.208	(m)
Velocity			1.55	m/s
Capacity			0.499	m3/s

Utilization	0.39 / 0.499	=	**78.21**	%	OK	(less than 90%, for 10% siltation allowance)

U Channel 3 (Zone [A1 + A2] + [B1 + B2 + B3])

Runoff Estimation				
Design Return Period		1 in	10	years
Paved Area	4824 +6336 =		11159	(m2)
Unpaved Area	4041 +4041 =		8081	(m2)
Total Equivalent Area	11159 x 0.95 + 8081 x 0.35 =		13430	(m2)
Time of Concentration			5	min
Rainfall Intensity, I *			189	mm/hr
Design Discharge Rate, Q	0.278 x 13430 x 189 / 1000000 =		0.705	m3/s

* $i = \frac{a}{(t_d + b)^c}$

U Channel				
Channel Size			750	(mm)
Gradient		1 in	200	
Area	π x 0.75^2 /8 + 0.75 x 0.75/2 =		0.502	(m2)
Wetted Perimeter	π x 0.75 / 2 + 0.75/2 x 2 =		1.928	(m)
R	0.502 / 1.928 =		0.260	(m)
Velocity			1.80	m/s
Capacity			0.905	m3/s

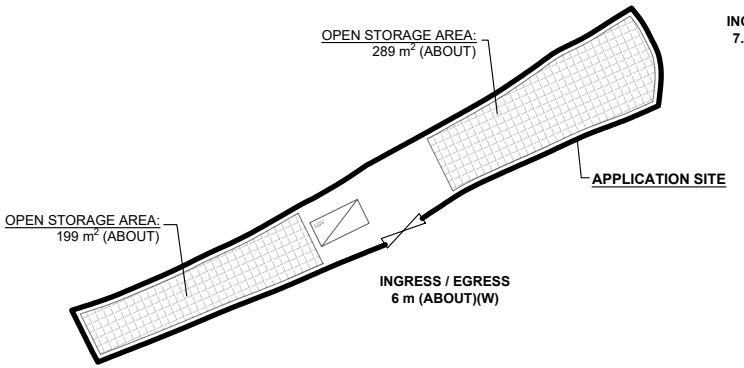
Utilization	0.705 / 0.905	=	**77.93**	%	OK	(less than 90%, for 10% siltation allowance)

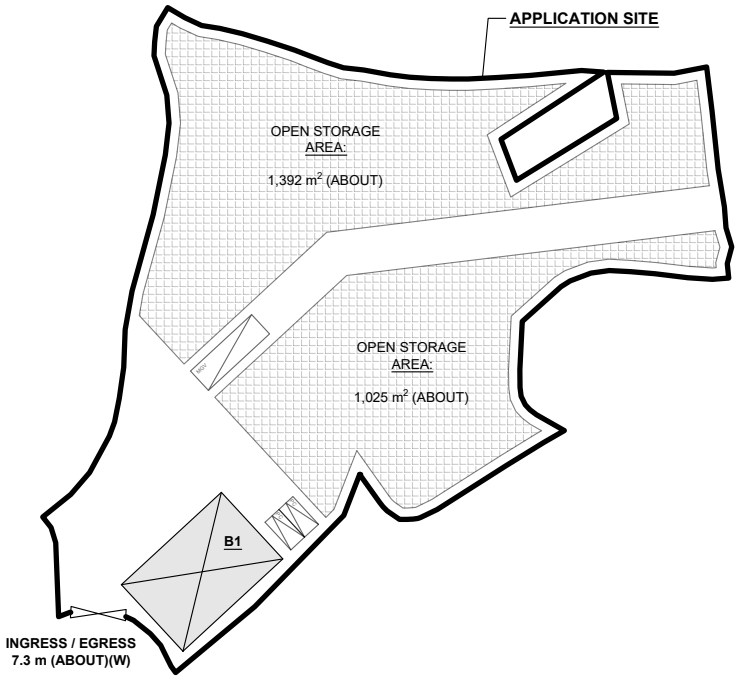
Appendix B - Proposed Development Layout Plan

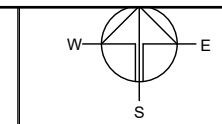
DEVELOPMENT PARAMETERS

APPLICATION SITE AREA	: 4,970 m^2	(ABOUT)
COVERED AREA	: 216 m^2	(ABOUT)
UNCOVERED AREA	: 4,754 m^2	(ABOUT)
PLOT RATIO	: 0.04	(ABOUT)
SITE COVERAGE	: 4 %	(ABOUT)
NO. OF STRUCTURE	: 1	
DOMESTIC GFA	: NOT APPLICABLE	
NON-DOMESTIC GFA	: 216 m^2	(ABOUT)
TOTAL GFA	: 216 m^2	(ABOUT)
BUILDING HEIGHT	: 5 m	(ABOUT)
NO. OF STOREY	: 1	

		AREA		HEIGHT
B1	STORAGE OF CONSTRUCTION MATERIAL AND MACHINERY, SITE OFFICE AND WASHROOM	216 m^2 (ABOUT)	216 m^2 (ABOUT)	5 m (ABOUT)(1-STOREY)
	TOTAL	**216 m^2 (ABOUT)**	**216 m^2 (ABOUT)**	







PARKING AND LOADING/UNLOADING PROVISIONS

NO. OF PRIVATE CAR PARKING SPACE	: 2
DIMENSION OF PARKING SPACE	: 5 m (L) X 2.5 m (W)
NO. OF L/UL SPACE FOR LIGHT GOODS VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 7 m (L) X 3.5 m (W)
NO. OF L/UL SPACE FOR MEDIUM GOODS VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 11 m (L) X 3.5 m (W)

LEGEND

- APPLICATION SITE
- STRUCTURE
- PARKING SPACE (PRIVATE CAR)
- L/UL SPACE (LIGHT GOODS VEHICLE)
- L/UL SPACE (MEDIUM GOODS VEHICLE)
- INGRESS / EGRESS

PLANNING CONSULTANT

R-Riches Property Consultants Ltd.

PROJECT

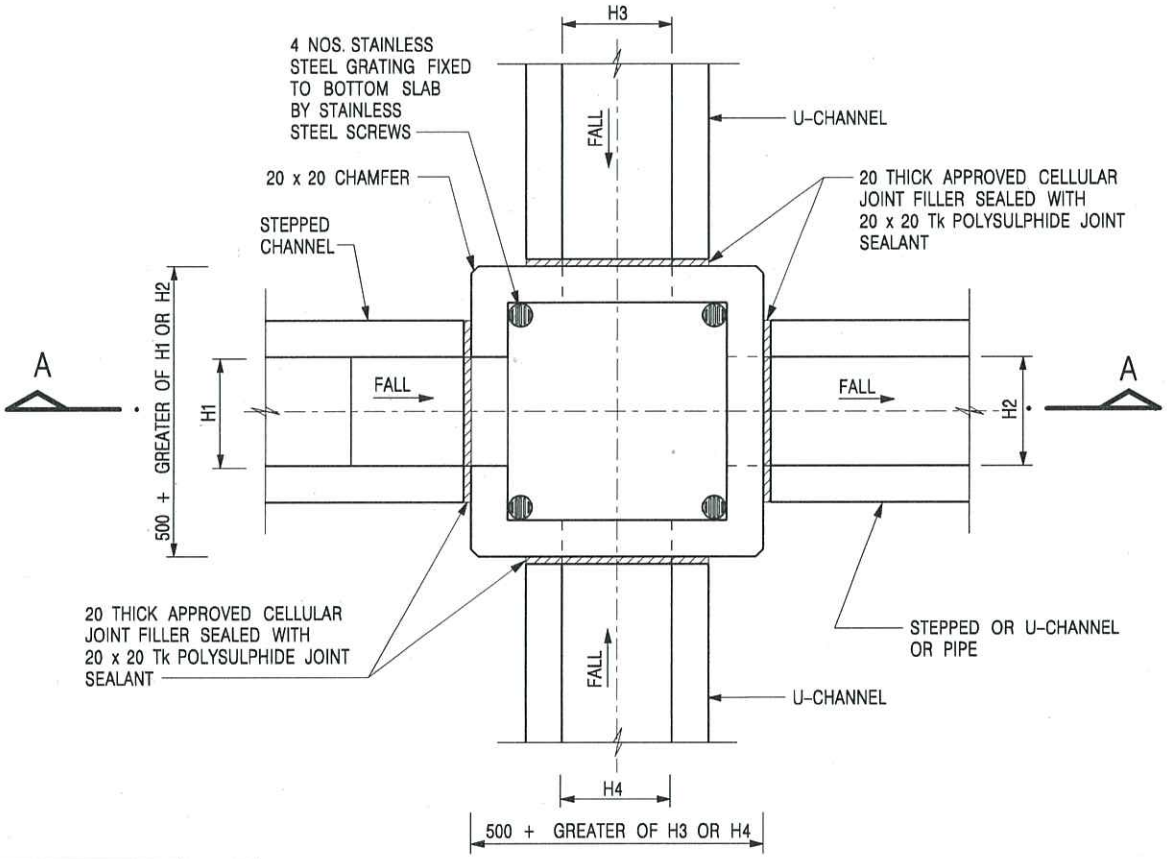
PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIAL AND MACHINERY WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND

SITE LOCATION

VARIOUS LOTS IN D.D. 82, TA KWU LING, NEW TERRITORIES

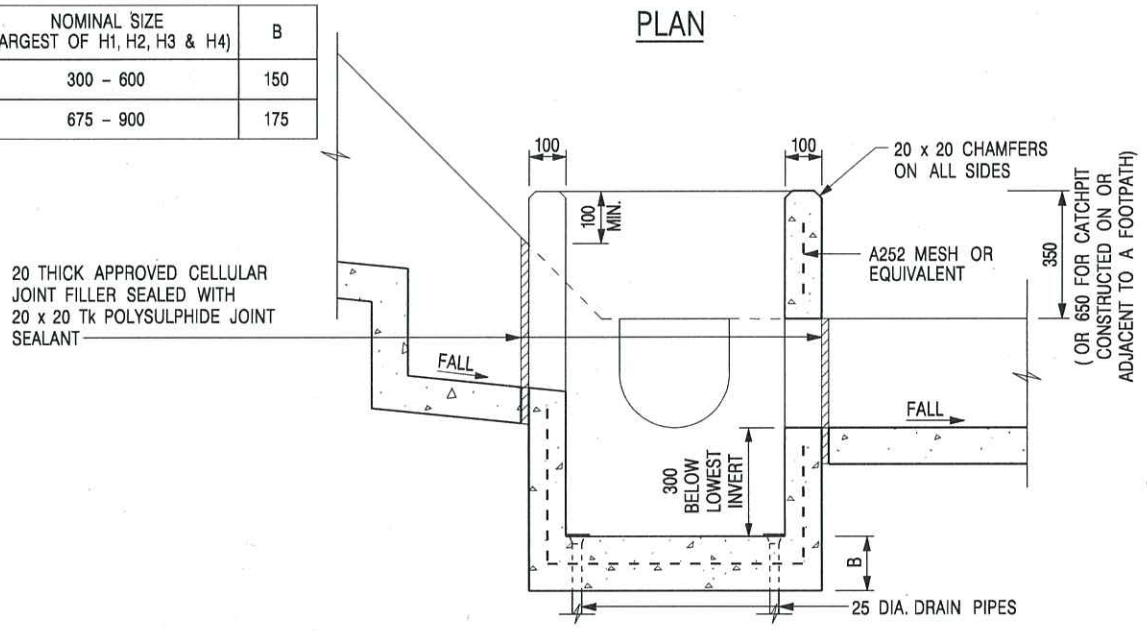
SCALE	1 : 1000 @ A4
DRAWN BY	MN
DATE	17.5.2024
CHECKED BY	
DATE	
APPROVED BY	
DATE	
DWG. TITLE	LAYOUT PLAN
DWG NO.	PLAN 5
VER.	001

Appendix C - Reference Drawings



PLAN

NOMINAL SIZE (LARGEST OF H1, H2, H3 & H4)	B
300 – 600	150
675 – 900	175



SECTION A – A

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 2 FOR OTHER NOTES.

REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

CATCHPIT WITH TRAP

(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2406 /1

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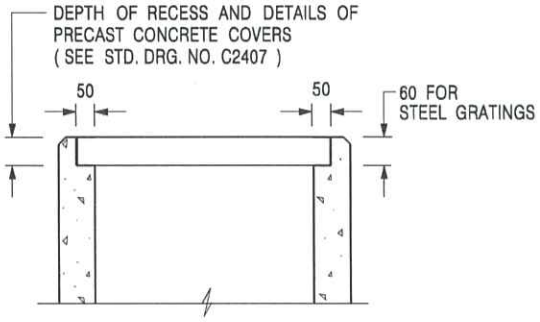


ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED BY THE ENGINEER, CATCHPIT WITH TRAP IS NORMALLY NOT PREFERRED DUE TO PONDING PROBLEM.
7. UPON THE REQUEST FROM MAINTENANCE PARTY, DRAIN PIPES AT CATCHPIT BASE CAN BE USED BUT THIS IS FOR CATCHPITS LOCATED AT SLOPE TOE ONLY AND AS DIRECTED BY THE ENGINEER.
8. FOR CATCHPITS CONSTRUCTED ON OR ADJACENT TO A FOOTPATH, STEEL GRATINGS (SEE DETAIL 'A' ON STD. DRG. NO. C2405 /2) OR CONCRETE COVERS (SEE STD. DRG. NO. C2407) SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.
9. IF INSTRUCTED BY THE ENGINEER, HANDRAILING (SEE DETAIL 'J' ON STD. DRG. NO. C2405 /5; EXCEPT ON THE UPSLOPE SIDE) IN LIEU OF STEEL GRATINGS OR CONCRETE COVERS CAN BE ACCEPTED AS AN ALTERNATIVE SAFETY MEASURE FOR CATCHPITS NOT ON A FOOTPATH NOR ADJACENT TO IT. TOP OF THE HANDRAILING SHALL BE 1 000 mm MIN. MEASURED FROM THE ADJACENT GROUND LEVEL.
10. MINIMUM INTERNAL CATCHPIT WIDTH SHALL BE 1 000 mm FOR CATCHPITS WITH A HEIGHT EXCEEDING 1 000 mm MEASURED FROM THE INVERT LEVEL TO THE ADJACENT GROUND LEVEL. AND, STEP IRONS (SEE DSD STD. DRG. NO. DS1043) AT 300 c/c STAGGERED SHALL BE PROVIDED. THICKNESS OF CATCHPIT WALL FOR INSTALLATION OF STEP IRONS SHALL BE INCREASED TO 150 mm.
11. FOR RETROFITTING AN EXISTING CATCHPIT WITH STEEL GRATING, SEE DETAIL 'G' ON STD. DRG. NO. C2405 /4.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

REF.	REVISION	SIGNATURE	DATE
A	MINOR AMENDMENT.	Original Signed	04.2016
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

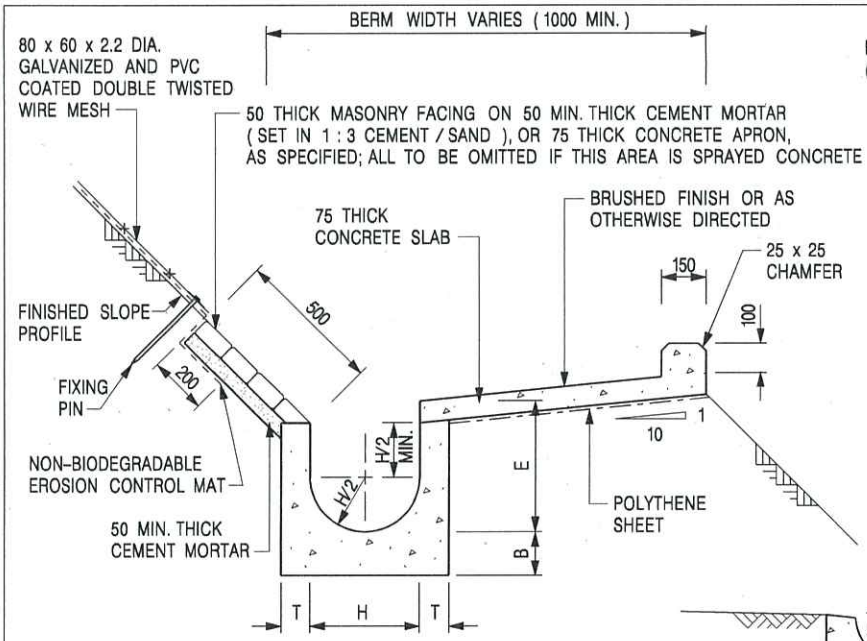
CATCHPIT WITH TRAP
(SHEET 2 OF 2)

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

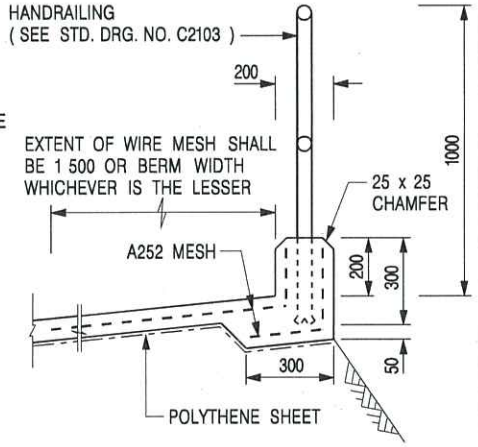
SCALE 1 : 20

DATE JAN 1991

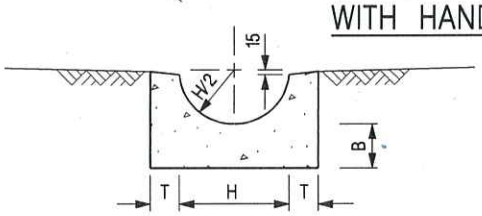
DRAWING NO. C2406 /2A



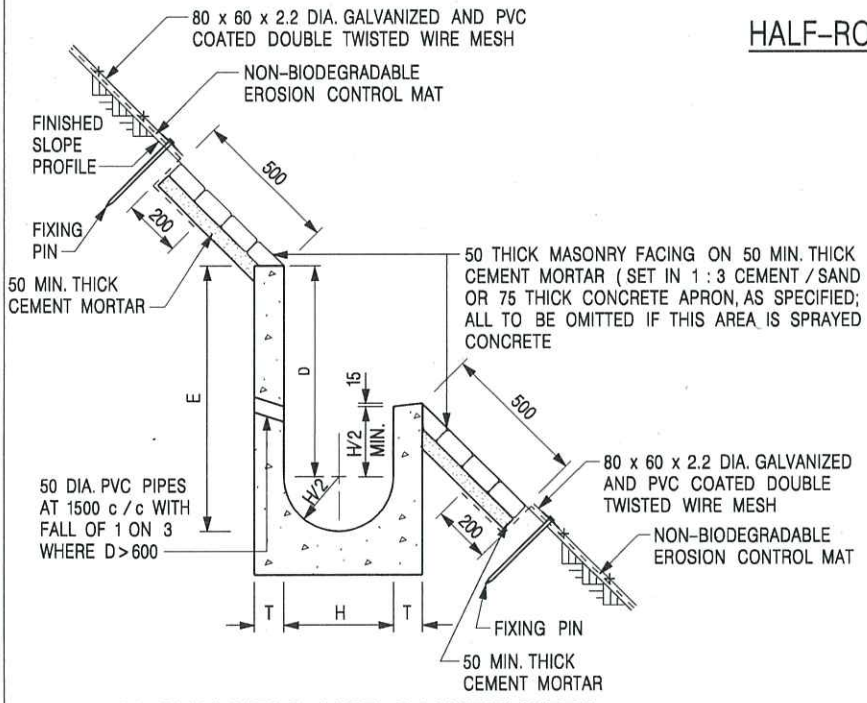
U-CHANNELS CONSTRUCTED ON BERM



DETAILS OF BERM WITH HANDRAILING



HALF-ROUND CHANNEL



U-CHANNELS NOT CONSTRUCTED ON BERM

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE TO BE GRADE 20 / 20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2, F2 OR BRUSHED FINISH AS DIRECTED.
4. SPACING OF EXPANSION JOINT IN CHANNELS, BERM SLABS AND APRONS TO BE 10 METRES MAXIMUM, SEE STD. DRG. NO. C2413 FOR DETAILS.
5. JOINTS FOR CHANNELS, BERM SLABS, APRONS AND WALLS, ETC. TO BE ON THE SAME ALIGNMENT.
6. FOR DIMENSIONS T, H, & B, SEE TABLE BELOW.
7. BIODEGRADABLE EROSION CONTROL MAT IF REQUIRED, SEE STD. DRG. NO. C2511/1E.
8. CONCRETE TO BE COLOURED AS SPECIFIED.
9. CONCRETE U-CHANNEL CAN BE CAST IN-SITU OR PRECAST CONCRETE SUBJECT TO THE ENGINEER'S AGREEMENT ON THE DETAILS.
10. DETAILS OF EROSION CONTROL MAT AND WESH MESH ON BERM. (SEE STD DRG. NO. C2511/1E)

NOMINAL SIZE H	T	B	REINFORCEMENT
300	80	100	A252 MESH PLACED CENTRALLY AND T=100 WHEN E>650
375 - 600	100	150	
675 - 900	125	175	A252 MESH PLACED CENTRALLY

REF.	REVISION	SIGNATURE	DATE
I	MINOR AMENDMENT.	Original Signed	07.2018
H	THICKNESS OF MASONRY FACING AMENDED.	Original Signed	01.2005
G	MINOR AMENDMENT.	Original Signed	01.2004
F	GENERAL REVISION.	Original Signed	12.2002
E	DRAWING TITLE AMENDED.	Original Signed	11.2001
D	MINOR AMENDMENT.	Original Signed	08.2001
C	150 x 100 UPSTAND ADDED AT BERM.	Original Signed	6.99
B	MINOR AMENDMENTS.	Original Signed	3.94

DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE A - WITH MASONRY APRON)

CEDD **CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

SCALE 1 : 25

DATE JAN 1991

DRAWING NO. C2409I

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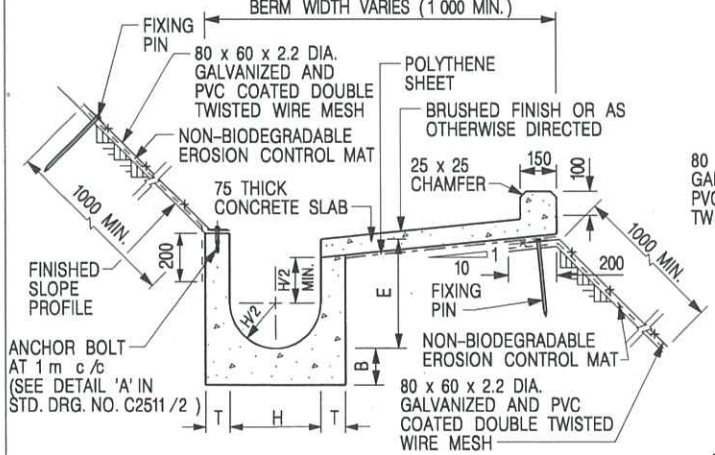
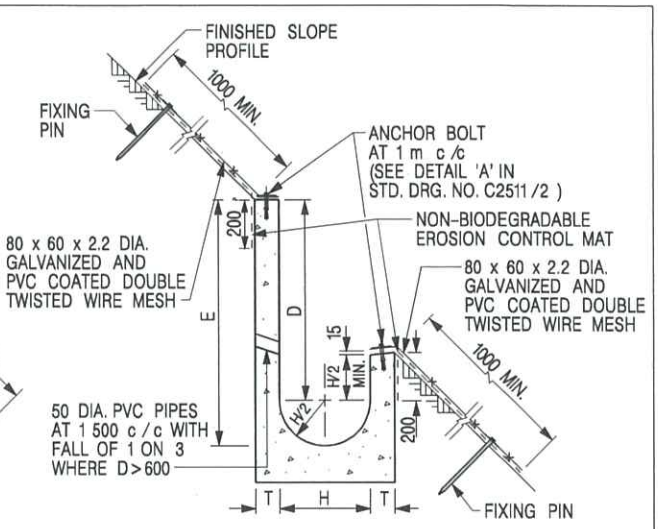
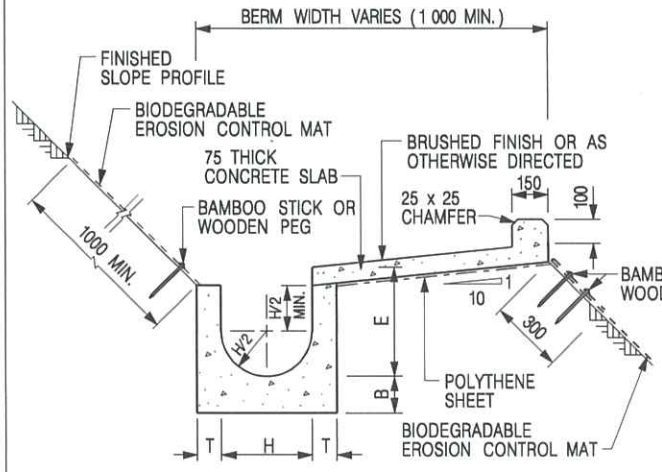


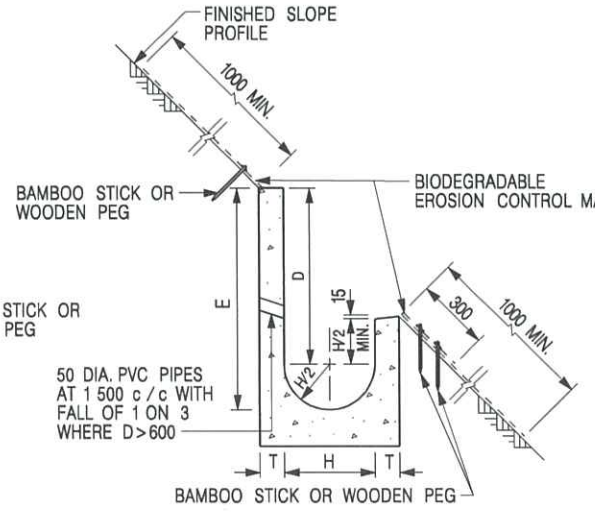
U-CHANNELS CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT



U-CHANNELS NOT CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT



U-CHANNELS CONSTRUCTED ON BERM WITH BIODEGRADABLE EROSION CONTROL MAT



U-CHANNELS NOT CONSTRUCTED ON BERM WITH BIODEGRADABLE EROSION CONTROL MAT

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE TO BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2, F2 OR BRUSHED FINISH AS DIRECTED.
4. SPACING OF EXPANSION JOINT IN CHANNELS, BERM SLABS AND APRONS TO BE 10 METRES MAXIMUM, SEE STD. DRG. NO. C2413 FOR DETAILS.
5. JOINTS FOR CHANNELS, BERM SLABS, APRONS AND WALLS, ETC. TO BE ON THE SAME ALIGNMENT.
6. FOR DIMENSIONS T, H, & B, SEE TABLE BELOW.
7. FOR TYPICAL FIXING PIN DETAILS, SEE STD. DRG. NO. C2511/2.
8. MINIMUM SIZE OF 25 x 50 x 300mm SHALL BE PROVIDED FOR WOODEN PEG.
9. MINIMUM SIZE OF 10mm DIAMETER WITH 200mm LONG SHALL BE PROVIDED FOR BAMBOO STICK.
10. THE FIXING DETAILS OF NON-BIODEGRADABLE AND BIODEGRADABLE EROSION CONTROL MATS ON EXISTING BERM SHALL REFER TO STD. DRG. NO. C2511/1.

NOMINAL SIZE H	T	B	REINFORCEMENT
300	80	100	A252 MESH PLACED CENTRALLY AND T=100 WHEN E>650
375 - 600	100	150	
675 - 900	125	175	A252 MESH PLACED CENTRALLY

REF.	REVISION	SIGNATURE	DATE
I	MINOR AMENDMENT.	Original Signed	07.2018
H	FIXING DETAILS OF BIODEGRADABLE EROSION CONTROL MAT ADDED.	Original Signed	12.2017
G	DIMENSION TABLE AMENDED.	Original Signed	01.2005
F	MINOR AMENDMENT.	Original Signed	01.2004
E	GENERAL REVISION.	Original Signed	12.2002
D	MINOR AMENDMENT.	Original Signed	08.2001
C	150 x 100 UPSTAND ADDED AT BERM.	Original Signed	6.99
B	MINOR AMENDMENT.	Original Signed	3.94
A	MINOR AMENDMENT.	Original Signed	10.92

DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE B - WITH EROSION CONTROL MAT APRON)

CEDD **CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

SCALE DIAGRAMMATIC

DATE JAN 1991

DRAWING NO. C2410I

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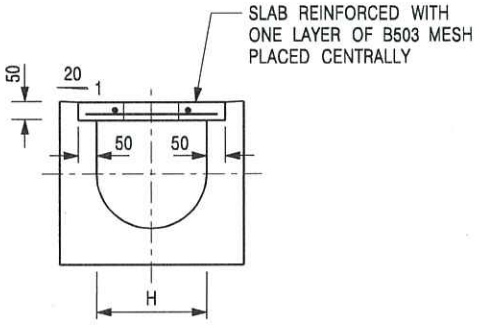
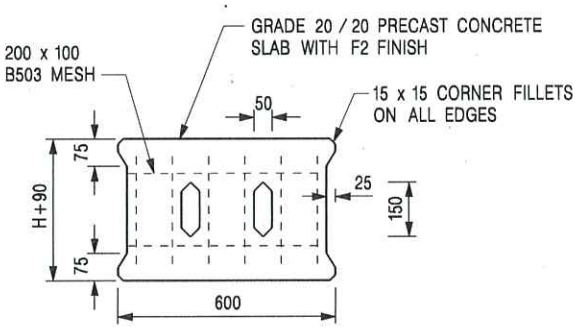


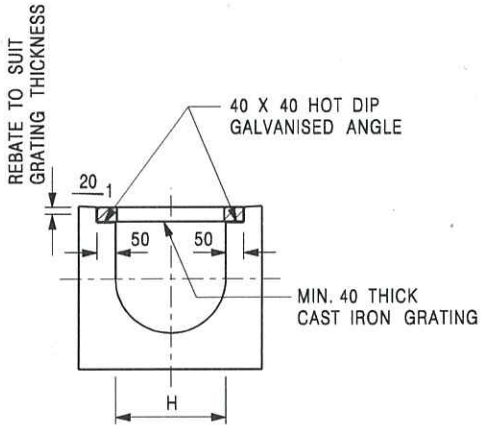
TYPICAL SECTION



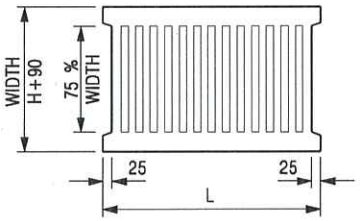
PLAN OF SLAB

U-CHANNELS WITH PRECAST CONCRETE SLABS

(UP TO H OF 525)



TYPICAL SECTION



L = 600mm FOR H ≤ 375mm
L = 400mm FOR H > 375mm

CAST IRON GRATING

(DIMENSIONS ARE FOR GUIDANCE ONLY, CONTRACTOR MAY SUBMIT EQUIVALENT TYPE)

U-CHANNEL WITH CAST IRON GRATING

(UP TO H OF 525)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. H = NOMINAL CHANNEL SIZE.
3. ALL CAST IRON FOR GRATINGS SHALL BE GRADE EN-GJL-150 COMPLYING WITH BS EN 1561.
4. FOR COVERED CHANNELS TO BE HANDED OVER TO HIGHWAYS DEPARTMENT FOR MAINTENANCE, THE GRATING DETAILS SHALL FOLLOW THOSE AS SHOWN ON HyD STD. DRG. NO. H3156.

REF.	REVISION	SIGNATURE	DATE
E	NOTES 3 & 4 AMENDED.	Original Signed	12.2014
D	NOTE 4 ADDED.	Original Signed	06.2008
C	MINOR AMENDMENT. NOTE 3 ADDED.	Original Signed	12.2005
B	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
A	CAST IRON GRATING AMENDED.	Original Signed	12.2002

COVER SLAB AND CAST IRON GRATING FOR CHANNELS

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2412E