

449 VICTORIA STREET WETHERILL PARK LOT 304(1) DP 1098762

- STORMWATER MANAGEMENT PLAN-



DRAWING SCHEDULE

DRG No.	DRAWING TITLE
C300	COVER SHEET & DRAWING INDEX
C301	EROSION AND SEDIMENT CONTROL PLAN
C302	CUT & FILL AND CATCHMENT PLANS
C303	GENERAL ARRANGEMENT PLAN
C304	STORMWATER LONG SECTIONS
C305	STORMWATER CALCULATIONS AND DRAINAGE PHILOSOPHY

DESIGNED: R.DIERCKE (BE CIVIL) JOB MANAGER: A.BROWN
VERIFIED: A.BROWN

DRAWN: R.DIERCKE (BE CIVIL) JOB MANAGER: A.BROWN

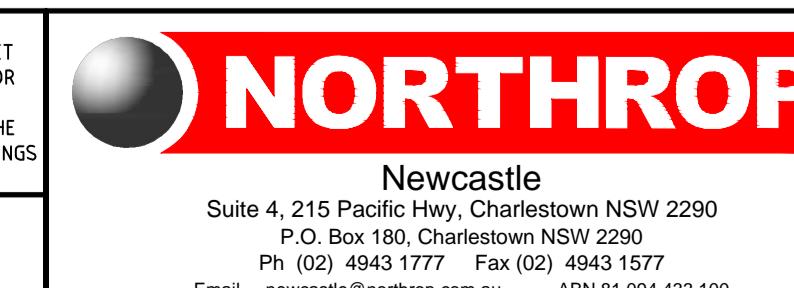
DRAWN: R.DIERCKE

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR APPROVAL	RD	AB	AB	02.06.17

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NOT FOR CONSTRUCTION		JOB NUMBER
		NL150032
DRAWING NUMBER	REVISION	
C300	A	
		DRAWING SHEET SIZE = A1

SEDIMENT & EROSION CONTROL NOTES

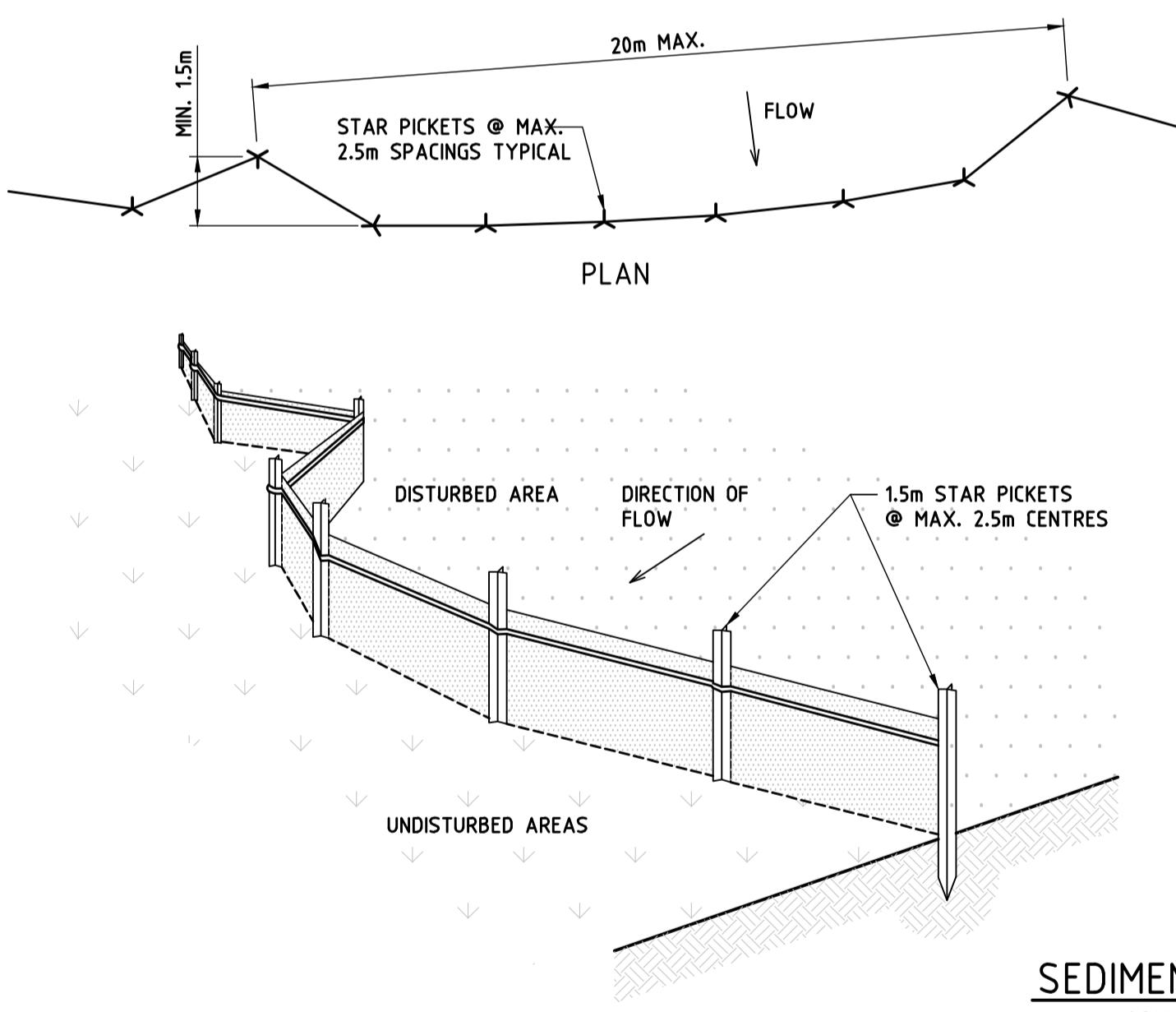
- ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS, NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION (THE 'BLUE BOOK').
- INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
- ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
- INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
- ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAY'S WORK.
- THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
- ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ON SITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
- STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
- CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
- ENSURE STOCKPILES DO NOT EXCEED 2.0M HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
- PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
- ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ALL MAINTENANCE, CLEANING & BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.

THE CONTRACTOR SHALL ENSURE COUNCIL ASSETS AND THE UTILITIES ARE PROTECTED AT ALL TIMES. ANY AND ALL DAMAGES TO COUNCIL ASSETS AND/OR UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR TO THE SPECIFICATION OF COUNCIL AND THE UTILITIES AUTHORITY AND AT NO COST TO THE PRINCIPAL OR NORTHRUP CONSULTING ENGINEERS.

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DESIGNED: R. DIERCKE (B.E. CIVIL) JOB MANAGER: A. BROWN

DRAWN: R. DIERCKE



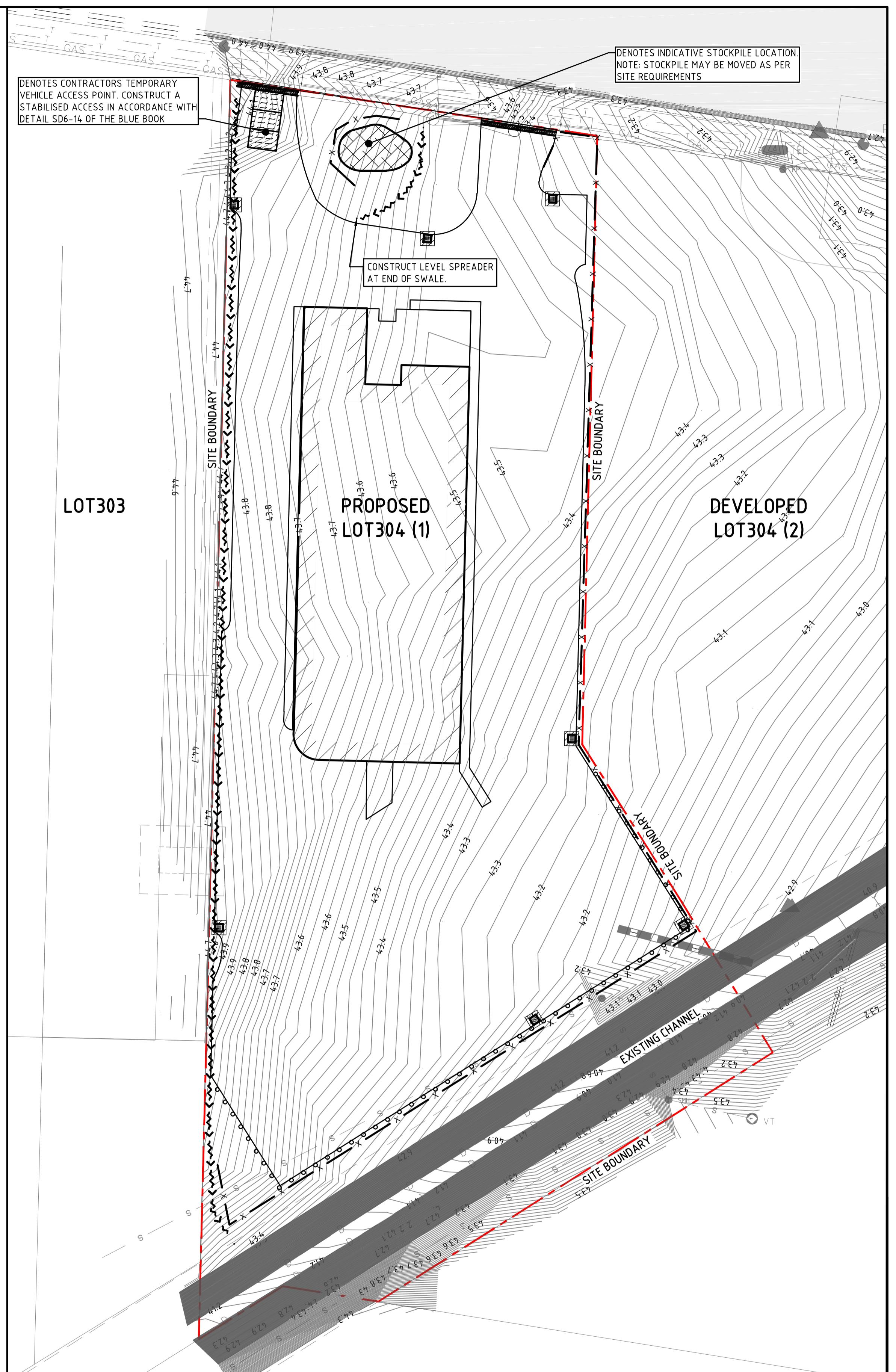
SEDIMENT FENCE
SCALE N.T.S.

SEDIMENT FENCE CONSTRUCTION NOTES:

- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
- CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- DRIVE 15m LONG STAR PICKETS INTO GROUND @ 2.5m INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
- FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
- JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
- BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

LEGEND

- DENOTES SANDBAG OR GEOTEXTILE SOCK FILLED WITH NO FINES GRAVEL, PLACED IN INVERT OF GUTTER.
- ~~~~~ DENOTES CATCH DRAIN
- X — DENOTES SITE & SEDIMENT CONTROL FENCE.
- DENOTES PROPOSED STOCKPILE LOCATION.
- DENOTES TEMPORARY STABILISED SITE ACCESS.



NOT FOR CONSTRUCTION	JOB NUMBER
	NL150032
	DRAWING NUMBER C301

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A	ISSUED FOR APPROVAL	RD	AB	AB	02.06.17

CLIENT	ARCHITECT
	JS ARCHITECTS PTY LTD
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LEGEND

EARTHWORKS DEPTHS				
#	COLOUR	MIN DEPTH	MAX DEPTH	
1		-10.000	-4.000	
2		-4.000	-2.000	
3		-2.000	-1.000	
4		-1.000	-0.500	
5		-0.500	-0.250	
6		-0.250	-0.100	
7		-0.100	0.000	
8		0.000	0.100	
9		0.100	0.250	
10		0.250	0.500	
11		0.500	1.000	
12		1.000	2.000	
13		2.000	4.000	
14		4.000	10.000	

NOTE:
EARTHWORKS DEPTHS AND QUANTITIES SHOWN ARE
BETWEEN THE EXISTING NATURAL SURFACE AND THE
PROPOSED FINISHED SURFACE LEVELS.

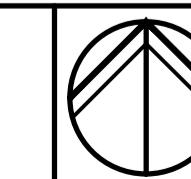
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CUT & FILL PLATE



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PROJECT
**449 VICTORIA ST, WETHRILL PARK
LOT 304 DP 1098762
PROPOSED SUBDIVISION**

DRAWING TITLE

CUT & FILL AND CATCHMENT PLANS

JOB NUMBER	
NL150032	
DRAWING NUMBER	REVISION
C302	A
DRAWING SHEET SIZE - A1	

NOT FOR CONSTRUCTION

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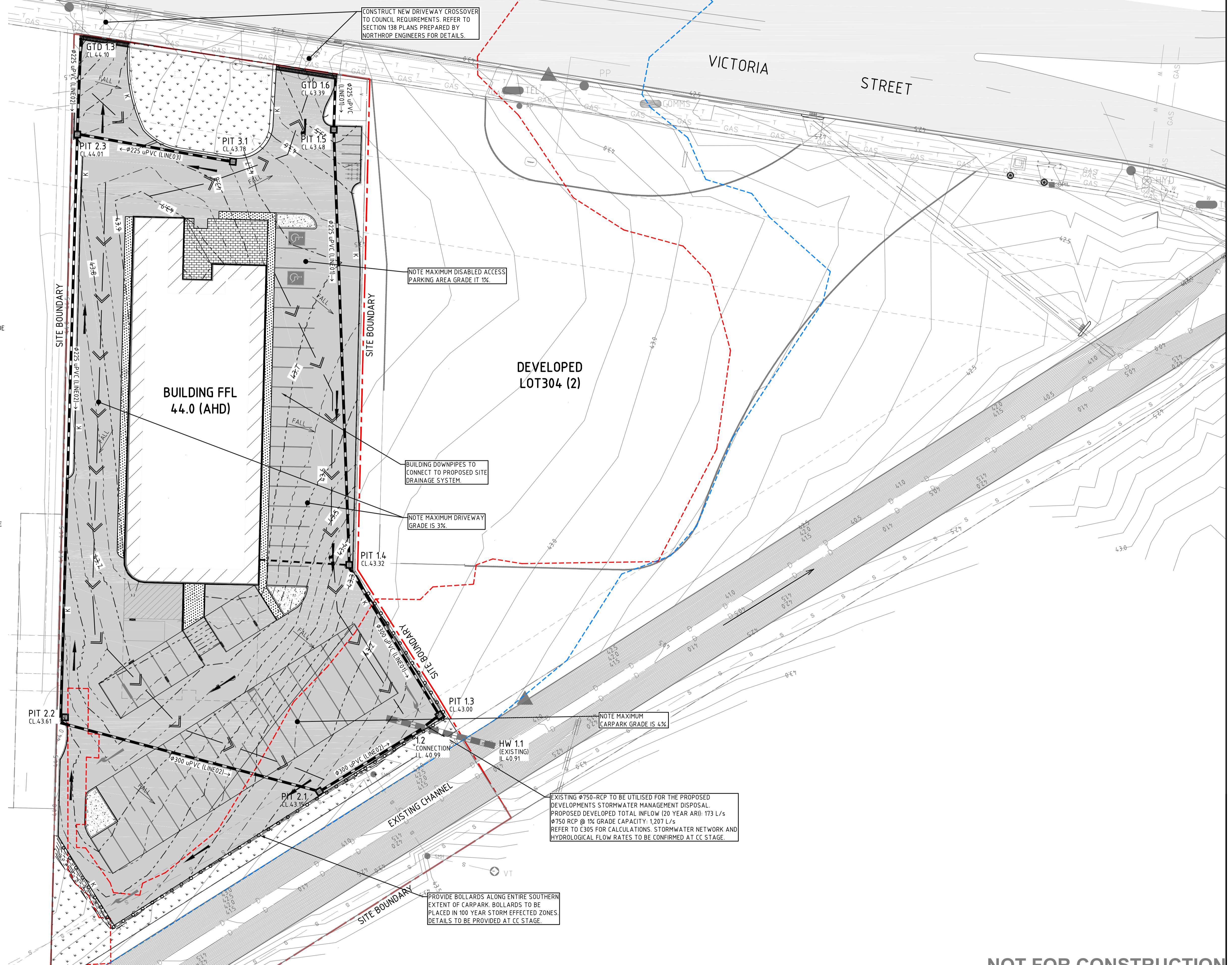
LEGEND

- DENOTES SITE BOUNDARY
- DENOTES MAJOR DESIGN CONTOURS @ 0.10m INTERVALS
- DENOTES MINOR DESIGN CONTOURS @ 0.05m INTERVALS
- DENOTES EXISTING SURFACE CONTOURS @ 0.10m INTERVALS
- PIT CL.22.10
- DENOTES PROPOSED STORMWATER INLET PIT AND COVER LEVEL. PITS TO CONTAIN ENVIRO-POD INSERTS OR SIMILAR TO TREAT GROSS POLLUTANTS. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES EXTENT OF PROPOSED DRIVEWAY PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES EXTENT OF PROPOSED DRIVEWAY PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES EXTENT OF PROPOSED FOOTPATH PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES EXTENT OF FUTURE DRIVEWAY PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES EXTENT OF PROPOSED LANDSCAPING. REFER TO LANDSCAPE ARCHITECTURAL PLANS FOR DETAILS.
- DENOTES PROPOSED STORMWATER DRAINAGE PIPE. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES EXISTING STORMWATER DRAINAGE PIPE.
- DENOTES PROPOSED DOWNPipe LINE, Ø225 UNLESS NOTED OTHERWISE. PROVIDE MIN COVER OF 300mm & LAY WITH MIN 1% GRADE TO OUTLET. DETAILS TO BE PROVIDED AT CC STAGE.
- K
- PL.30.18
- MTE
- DENOTES 100 YEAR ARI STORM EVENT EXTENT.
- DENOTES 20 YEAR ARI STORM EVENT EXTENT.
- FALL
- DENOTES PROPOSED DIRECTION OF FALL IN FINISHED SURFACE. MINIMUM FALL IN SURFACE 0.5%.
-
- DENOTES THE APPROXIMATE ALIGNMENT FOR OVERLAND FLOW PATH
-
- DENOTES PERMANENT BOLLARD SPACED AT 1.3m CENTRES TO PREVENT LARGE FLOATING DEBRIS/CARS ENTERING EXISTING CHANNEL DURING LARGE STORM EVENTS. DETAILS TO BE PROVIDED AT CC STAGE. NOTE MAXIMUM DEPTH OF PONDING IN PARKING SPACES IS 120mm.
-
- DENOTES PAVEMENT LINE MARKING. DETAILS TO BE CONFIRMED AT CC STAGE.

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DRAWN: R. DIERCKE



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 PLANS 1:250 0 2.5 5 7.5 10 12.5m

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PROJECT: 449 VICTORIA ST, WETHRILL PARK
 LOT 304 DP 1098762
 PROPOSED SUBDIVISION
 DRAWING TITLE: GENERAL ARRANGEMENT PLAN
 JOB NUMBER: NL150032
 DRAWING NUMBER: C303
 REVISION: A
 DRAWING SHEET SIZE: A1

WEST CATCHMENT

PROJECT: Wetherill Park - Lot 304 (1) WEST

DATE: 29.05.2017
Project #: NL150032
REVISION: A

User Input		
IFD Rainfall Variables		
$^2I_1 =$	31.80 mm/hr	2 year, 1 hour rainfall intensity
$^2I_{12} =$	6.68 mm/hr	2 year, 12 hour rainfall intensity
$^2I_{72} =$	1.95 mm/hr	2 year, 72 hour rainfall intensity
$^50I_1 =$	60.10 mm/hr	50 year, 1 hour rainfall intensity
$^50I_{12} =$	13.50 mm/hr	50 year, 12 hour rainfall intensity
$^50I_{72} =$	4.47 mm/hr	50 year, 72 hour rainfall intensity
$G =$	0.00	Skew
$F_2 =$	4.30	
$F_{50} =$	15.82	
Catchment Variables		
t_c Method =	Kinematic Wave	Method used to calculate the time of concentration
A =	0.1499 ha	Catchment Area
Percent Impervious =	100 %	Percent of Catchment Area Impervious
$L_{impervious} =$	101 m	Impervious Channel Length
$n^*_{impervious} =$	0.013	Impervious Channel Roughness
$L_{pervious} =$	m	Pervious Channel Length
$n^*_{pervious} =$	0.035	Pervious Channel Roughness
Upstream RL =	44.1 m	Upstream Elevation AHD
Downstream RL =	43.15 m	Downstream Elevation AHD

EAST CATCHMENT

PROJECT: Wetherill Park - Lot 304 (1) EAST

DATE: 29.05.2017
Project #: NL150032
REVISION: A

User Input		
IFD Rainfall Variables		
$^2I_1 =$	31.80 mm/hr	2 year, 1 hour rainfall intensity
$^2I_{12} =$	6.68 mm/hr	2 year, 12 hour rainfall intensity
$^2I_{72} =$	1.95 mm/hr	2 year, 72 hour rainfall intensity
$^50I_1 =$	60.10 mm/hr	50 year, 1 hour rainfall intensity
$^50I_{12} =$	13.50 mm/hr	50 year, 12 hour rainfall intensity
$^50I_{72} =$	4.47 mm/hr	50 year, 72 hour rainfall intensity
$G =$	0.00	Skew
$F_2 =$	4.30	
$F_{50} =$	15.82	
Catchment Variables		
t_c Method =	Kinematic Wave	Method used to calculate the time of concentration
A =	0.1538 ha	Catchment Area
Percent Impervious =	100 %	Percent of Catchment Area Impervious
$L_{impervious} =$	91 m	Impervious Channel Length
$n^*_{impervious} =$	0.013	Impervious Channel Roughness
$L_{pervious} =$	m	Pervious Channel Length
$n^*_{pervious} =$	0.035	Pervious Channel Roughness
Upstream RL =	43.4 m	Upstream Elevation AHD
Downstream RL =	43 m	Downstream Elevation AHD

ROOF CATCHMENT

PROJECT: Wetherill Park - Lot 304 (1) ROOF

DATE: 29.05.2017
Project #: NL150032
REVISION: A

User Input		
IFD Rainfall Variables		
$^2I_1 =$	31.80 mm/hr	2 year, 1 hour rainfall intensity
$^2I_{12} =$	6.68 mm/hr	2 year, 12 hour rainfall intensity
$^2I_{72} =$	1.95 mm/hr	2 year, 72 hour rainfall intensity
$^50I_1 =$	60.10 mm/hr	50 year, 1 hour rainfall intensity
$^50I_{12} =$	13.50 mm/hr	50 year, 12 hour rainfall intensity
$^50I_{72} =$	4.47 mm/hr	50 year, 72 hour rainfall intensity
$G =$	0.00	Skew
$F_2 =$	4.30	
$F_{50} =$	15.82	
Catchment Variables		
t_c Method =	Kinematic Wave	Method used to calculate the time of concentration
A =	0.0843 ha	Catchment Area
Percent Impervious =	100 %	Percent of Catchment Area Impervious
$L_{impervious} =$	40 m	Impervious Channel Length
$n^*_{impervious} =$	0.013	Impervious Channel Roughness
$L_{pervious} =$	m	Pervious Channel Length
$n^*_{pervious} =$	0.035	Pervious Channel Roughness
Upstream RL =	43.4 m	Upstream Elevation AHD
Downstream RL =	43 m	Downstream Elevation AHD

Results		AVERAGE RECURRENCE INTERVAL (ARI)						
		1	2	5	10	20	50	100
	t_c (min)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	I (mm/hr)	80.45	103.19	131.44	147.63	169.17	197.19	218.41
	PEAK FLOW (m³/s)	0.024	0.033	0.047	0.055	0.067	0.085	0.098
	PEAK FLOW (L/s)	24	33	47	55	67	85	98

Results		AVERAGE RECURRENCE INTERVAL (ARI)						
		1	2	5	10	20	50	100
	t_c (min)	6.0	6.0	5.0	5.0	5.0	5.0	5.0
	I (mm/hr)	75.42	96.74	131.44	147.63	169.17	197.19	218.41
	PEAK FLOW (m³/s)	0.023	0.032	0.048	0.057	0.068	0.087	0.101
	PEAK FLOW (L/s)	23	32	48	57	68	87	101

Results		AVERAGE RECURRENCE INTERVAL (ARI)						
		1	2	5	10	20	50	100
	t_c (min)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	I (mm/hr)	80.45	103.19	131.44	147.63	169.17	197.19	218.41
	PEAK FLOW (m³/s)	0.014	0.018	0.026	0.031	0.037	0.048	0.055
	PEAK FLOW (L/s)	14	18	26	31	37	48	55

STORMWATER DRAINAGE PHILOSOPHY

PROPOSED DEVELOPMENT

THE PROPOSED DEVELOPMENT AT LOT 304(1) DP 1098762, VICTORIA STREET, WETHERILL PARK CONSISTS OF THE CONSTRUCTION OF A NEW HOTEL AND ASSOCIATED DRIVEWAY AND CARPARKING PAVEMENT AREAS. THE PROPOSED SITE WILL DISCHARGE INTO THE EXISTING OPEN CONCRETE CHANNEL THROUGH ONE EXISTING DISCHARGE PIPE, AS SPECIFIED IN CLAUSE 3.13 FAIRFIELD CITY COUNCIL'S (FCC) STORMWATER DRAINAGE POLICY - SEPTEMBER 2002. THE PROPOSED STORMWATER NETWORK WILL DISCHARGE THROUGH THE EXISTING Ø750 RCP LOCATED AT THE SOUTH-EAST CORNER OF THE SITE. THE SIZE AND CAPACITY OF THIS PIPE HAS BEEN ASSESSED AND DEEMED SUITABLY SIZED TO CATER FOR THE EXPECTED POST-DEVELOPED FLOWS.

PROPOSED SITE CONDITIONS

THE PROPOSED DEVELOPMENT INTENDS TO CREATE APPROXIMATELY 3,880m² OF HARDSTAND/ROOF AREA. THE PROPOSED STORMWATER MANAGEMENT PHILOSOPHY PRESENTED HEREIN CAN BE SUMMARISED AS FOLLOWS:

- GENERAL RUNOFF FROM ALL NEW IMPERVIOUS SURFACES WILL BE COLLECTED BY AN IN-GROUND STORMWATER PIT AND PIPE NETWORK AND CONVEYED TO THE EXISTING STORMWATER SYSTEM IN THE CONCRETE OPEN CHANNEL.
- AS THE SITE IS CONSIDERED SMALL (~1ha), PRELIMINARY STORMWATER RUNOFF AND HYDRAULIC CALCULATIONS WERE DETERMINED USING THE RATIONAL METHOD AND KINEMATIC WAVE EQUATION AS SPECIFIED IN CLAUSE 2.1 OF FAIRFIELD CITY COUNCIL'S - STORMWATER DRAINAGE POLICY - SEPTEMBER 2002. THE RELATIVE CALCULATIONS ARE SHOWN ABOVE. IDF DATA WAS OBTAINED FROM THE BUREAU OF METEOROLOGY WEBSITE.
- PRELIMINARY PIPE SIZES ARE BASED OFF MANNINGS CAPACITIES FOR PIPES AS SHOWN IN TABLE
- AS THE SITE IS LOCATED WITHIN THE WETHERILL INDUSTRIAL ZONE NO ON-SITE-DETENTION IS REQUIRED AS SPECIFIED IN CLAUSE 1.3 OF FAIRFIELD CITY COUNCIL'S - URBAN AREA OSD HANDBOOK.
- IT SHALL BE NOTED IN REGARD TO OVERLAND FLOW PATHS AND FLOOD LEVELS, THAT THE 44.00FLF OF THE PROPOSED HOTEL COMPLIES WITH THE SITE SPECIFIC DEVELOPMENT CONTROL PLAN ISSUED BY FAIRFIELD CITY COUNCIL FOR 449 VICTORIA STREET AND 96 NEWTON ROAD, WETHERILL PARK.
- THE FLOOD LEVEL FROM THE 1 IN 20 YEAR EVENT GENERATED IS APPROXIMATELY 42.5m AHD AT THE EXISTING OUTLET PIPE DRAINING THE SERVICE STATION SITE BASED ON FIGURE 4.1 OF FAIRFIELD CITY COUNCIL'S - WETHERILL PARK OVERLAND FLOOD STUDY. SUBSEQUENTLY, WHEN CONSIDERING THE TAILWATER EFFECTS FOR THE 1 IN 20 YEAR EVENT A CONSERVATIVE APPROACH WILL ASSUME A TAIL WATER LEVEL OF 42.5m.

THE 1 IN 20 YEAR STORM EVENT DOES NOT ENCRAGE THE PROPOSED CARPARK (REFER TO CARDNO'S FLOOD MODELLING RESULTS - FIGURE D16 (b)). ADDITIONALLY, FLOOD FROM THE 1 IN 100 YEAR STORM EVENT DOES NOT ENCRAGE ON THE MAIN DRIVEWAY ACCESS'S FOR THE SITE.

THE NEW FACILITY IS LIKELY TO PRODUCE POLLUTANTS SUCH AS SEDIMENTS, SMALL AMOUNTS OF NUTRIENTS AND OILS AND GREASE TYPICAL OF VEHICULAR AREAS. A TREATMENT TRAIN HAS BEEN DEVELOPED FOR THE IN-LINE REMOVAL OF OIL AND SILT IN THE STORMWATER RUN-OFF FROM PAVED AREAS AND SHALL PROVIDE THE NECESSARY TREATMENT OF STORMWATER.

TO ACHIEVE THESE OBJECTIVES THE FOLLOWING TREATMENT DEVICES ARE RECOMMENDED:

- THE GENERAL PAVEMENT AND ROOF AREAS SHALL DRAIN TO STORMWATER INLET PITS FITTED WITH ENVRO-PODS OR SIMILAR PRIOR TO DISCHARGE FROM THE SITE. DETAILS RELATING TO THE SIZE AND TYPE OF PODS SHALL BE PROVIDED AT CC STAGE.
- IT IS NOTED THAT 100% OF NEW PAVED AREAS WILL PASS THROUGH THE ENVRO-POD PIT INSERTS (ALSO INSTALLED AT END OF GRATED TRENCH DRAINS), WITH MINIMAL POLLUTED WATER ENTERING THE EXISTING SYSTEM.

SUMMARY

THE STORMWATER SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF FCC'S GUIDELINES AND POLICIES (REFER TO REFERENCES BELOW). IT IS DETERMINED THAT THE STORMWATER SYSTEM PRESENTED WILL SAFELY CONVEY RUNOFF FROM THE PROPOSED SITE, AND NOT IMPACT ON ADJACENT PROPERTIES. ALL STORMWATER RUNOFF FROM THE SITE WILL PASS THROUGH APPROPRIATE STORMWATER QUALITY CONTROLS BEFORE ENTERING THE EXISTING OPEN CHANNEL.

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