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LOCATION					TIME		SUB-CATCHMENT RUNOFF						INLET DESIGN						DRAIN DESIGN										HEADLOSSES										PART FULL					DESIGN LEVELS									
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	SUB-CATCHMENT TIME OF CONC.	RAINFALL INTENSITY	10yr RUNOFF CO-EFFICIENT	CO-EFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	EQUIVALENT AREA	SUM OF (C * A)	SUB-CATCHMENT DISCHARGE	FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	MINOR FLOW ROAD CAPACITY	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	CRITICAL TIME OF CONC.	RAINFALL INTENSITY	TOTAL (C * A)	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY	MAJOR SURFACE FLOW	PIPE FLOW	REACH LENGTH	PIPE GRADE	PIPE / BOX DIMENSIONS (CLASS)	FLOW VELOCITY FULL (PIPE GRADE VELOCITY)	TIME OF FLOW IN REACH	STRUCTURE CHART No.	STRUCTURE RATIOS FOR 'K' VALUE CALCULATIONS	VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCT. HEADLOSS	LAT. HEADLOSS CO-EFFICIENT	LAT. PIPE STRUCT. HEADLOSS	W.S.E CO-EFFICIENT	CHANGE IN W.S.E	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L * Sf)	DEPTH	VELOCITY	OBVERT LEVELS	DRAIN SECTION H.G.L	UPSTREAM H.G.L	LAT. H.G.L	W.S.E.	SURFACE OR K&C INVERT LEVEL	STRUCTURE No.	
100	100	122	122 to 1/22	1221	%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m		m		m		m		122				
	100	1/22	1/22 to 2/22	1221		5.00	325		0.99	0.035	0.035	0.035	31								5.00	325	0.035	231			231	6.330	0.79	600(2)	0.79 (1.95)	0.11			0.032	4.67	0.149			4.67	0.149	0.13	0.008			1.790	2.184	2.333		2.333	2.980	1/22	
	100	222	222 to 2/22	1222		5.00	325		0.99	0.035	0.035	0.035	31								5.00	325	0.035	31			31																					222					
	100	2/22	2/22 to 2/20	1222;1221																	5.11	322	0.069	460			460	16.084	1.24	600(2)	1.57 (2.45)	0.17			0.126	1.68	0.211			2.08	0.261	0.51	0.083			1.710	1.965	2.176		2.226	2.970	2/22	
	100	141	141 to 1/41	2211		5.00	325		0.99	0.050	0.049	0.049	45								5.00	325	0.049	45			45																					141					
	100	1/41	1/41 to 2/41	2211																	5.00	325	0.049	245			245	6.330	0.79	600(2)	0.84 (1.95)	0.11			0.036	4.12	0.148			4.12	0.148	0.15	0.009			1.640	2.163	2.311		2.311	3.000	1/41	
	100	241	241 to 2/41	2212		5.00	325		0.99	0.050	0.049	0.049	45								5.00	325	0.049	45			45																					241					
	100	2/41	2/41 to 2/20	2212;2211																	5.11	322	0.099	487			487	4.267	1.17	600(2)	1.67 (2.38)	0.04			0.142	1.74	0.247			1.81	0.257	0.58	0.025			1.560	1.907	2.154		2.164	3.000	2/41	
	100	1/20	1/20 to 2/20																		5.00	325	0.000	300			300	13.020	0.58	600(2)	1.03 (1.67)	0.21			0.054	0.50	0.028			0.50	0.028	0.22	0.028			1.660	1.910	1.938		1.938	3.030	1/20	
	100	2/20	2/20 to 3/20	1222;1221;221																	5.28	318	0.168	1229			1229	13.580	1.18	1200(2)	1.05 (3.78)	0.22			0.056	1.13	0.063			1.16	0.065	0.09	0.012	0.440	3.24	1.819	1.819	1.882		1.884	3.080	2/20	
	100	133	133 to 1/33	1233		5.00	325		0.99	0.035	0.035	0.035	31								5.00	325	0.035	31			31																					133					
	100	1/33	1/33 to 2/33	1233																	5.00	325	0.035	231			231	6.330	0.79	600(2)	0.79 (1.95)	0.11			0.032	6.84	0.218			6.84	0.218	0.13	0.008			2.210	2.393	2.611		2.611	2.960	1/33	
	100	233	233 to 2/33	1224		5.00	325		0.99	0.035	0.035	0.035	31								5.00	325	0.035	31			31																					233					
	100	2/33	2/33 to 3/20	1224;1233																	5.11	322	0.069	460			460	20.014	1.00	600(2)	1.57 (2.19)	0.21			0.126	2.03	0.255			2.45	0.308	0.51	0.103	0.382	2.39	2.130	2.130	2.385		2.438	2.960	2/33	
	100	121	121 to 1/21	1211		20.00	193		0.88	1.230	1.082	1.082	580								20.00	193	1.082	580			580																						121				
	100	1/21	1/21 to 3/20	1211																	20.00	193	1.082	580			580	14.375	0.35	1200	0.81 (1.55)	0.24			0.033	3.29	0.110			3.29	0.110	0.09	0.013			0.851	1.768	1.878		1.878	2.900	1/21	
	100	3/20	3/20 to 4/20	1222;1221;221																	20.24	192	1.320	1593			1593	21.449	0.30	1800(2)	0.61 (2.49)	0.36			Part full downstream pipe Upstream HGL 1.755 below outlet pipe obv 1.948 Set Kp to 0.03	0.019	0.03	0.000			0.03	0.000	0.02	0.004	0.615	2.06	1.948	1.755	1.755		1.755	3.150	3/20
	100	Mirvac	Mirvac to 1.2	Mirvac		5.00	325		0.99	0.765	0.757	0.757	683								5.00	325	0.757	683			683																						Mirvac				
	100	1.2	1.2 to 1.1	Mirvac																	5.00	325	0.757	683			683	6.352	0.43	825(3)	1.26 (1.76)	0.08			Qo 0.683 Do 825 CHRT 32: Vo2/2gDo 0.10 H/Do Kg side flow 6.66 end flow 5.16	0.081	6.66	0.539			6.66	0.539	0.22	0.014			1.890	2.229	2.768		2.768	3.000	1.2
	100	1.1	1.1 to 2/23	Mirvac																	5.08	323	0.757	679			683	97.896	0.77	825(3)	1.26 (2.37)	1.29			Qo 0.683 Do 825 CHART 50 Du/Do1.00 alpha 85 K'w 0.30 Vu 1.28 WSE 0.17 Ku 1.76 Kw 2.07	0.081	1.76	0.143			2.07	0.167	0.22	0.212			1.833	2.072	2.215		2.239	2.900	1.1
	100	124	124 to 1/24	1241		5.00	325		0.99	0.042	0.042	0.042	38								5.00	325	0.042	38			38																						124				
	100	1/24	1/24 to 2/24	1241																	5.00	325	0.042	274			274	6.302	3.97	600(2)	0.94 (4.37)	0.11			0.045	5.95	0.268			5.95	0.268	0.18	0.011			2.140	2.192	2.460		2.460	2.800	1/24	
	100	Citimar	Citimar to CM/1	Citimar		5.00	325		0.99	0.225	0.222	0.222	201								5.00	325	0.222	201			201																							Citimar			
	100	CM/1	CM/1 to 2/24	Citimar																	5.00	325	0.222	201			201	4.134	0.50	450(3)	1.26 (1.26)	0.05			Qo 0.201 Do 450 CHRT 32: Vo2/2gDo 0.18 H/Do Kg side flow 4.70 end flow 3.83	0.081	4.70	0.380			4.70	0.380	0.50	0.021			1.860	2.202	2.582		2.582	3.000	CM/1
	100	224	224 to 2/24	1242		5.00	325																																														

CALCULATIONS TABLE

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LOCATION				TIME		SUB-CATCHMENT RUNOFF						INLET DESIGN					DRAIN DESIGN										HEADLOSSES														PART FULL		DESIGN LEVELS											
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	LAND USE	SLOPE OF CATCHMENT	tc	I	C10	C	A	C*A	+CA	Q					Qg	Qb		tc	I	+CA	Qt	Qm	Qs	Qp	L	S		V	T				V2/2g	Ku	hu	Kl	hl	Kw	hw	Sf	hf		Vp								
yrs					%	min	mm/h			ha	ha	ha	l/s	l/s	%	l/s		l/s	l/s		min	mm/h	ha	l/s	l/s	l/s	l/s	m	%	mm	m/s	min			m		m		m		m		%	m	m	m/s	m	m	m	m	m	m	m	
100 100	6/20	6/20 to 7/20	1222 to 223 4;A;127;A;1501 ;1252																		21.51 21.51	187 187	5.322 9.088	4721	(Pipe flow= Sum upstr atten flows)	4762 11.137	65.969 11.137	0.11	1950(2) 1.52 (1.59)	0.12		Part full downstream pipe Upstream HGL 1.512 below outlet pipe obv 1.788 Set Kp to 0.9	0.118	0.90	0.150			0.90	0.150	0.10	0.011	1.568	1.81	1.788 1.776	1.362 1.394	1.512		1.512	2.800	6/20				
100 100	7/20	7/20 to 8/20	1222 to 223 4;A;127;A;1501 ;1252																		21.63 21.63	186 186	5.322 9.088	4696	(Pipe flow= Sum upstr atten flows)	4762 65.969	65.969 11.137	0.10 x 2100 (RCBQ.71)	2700 0.84 (2.01)	1.10		Part full downstream pipe Upstream HGL 1.295 below outlet pipe obv 1.713 Set Kp to 0.2	0.036	0.20	0.011			0.20	0.011	0.02	0.016	1.035	1.70	1.713 1.647	1.284 1.268	1.295		1.295	3.263	7/20				
100 100	8/20	8/20 to 9/20	1222 to 223 4;A;127;A;1501 ;1252																		22.73 22.73	182 182	5.322 9.088	4595	(Pipe flow= Sum upstr atten flows)	4762 39.853	39.853 11.137	0.10 x 2100 (RCBQ.72)	2700 0.84 (2.01)	0.66		Part full downstream pipe Upstream HGL 1.268 below outlet pipe obv 1.627 Set Kp to 1.8	0.036	1.80	0.107			1.80	0.107	0.02	0.010	1.034	1.71	1.627 1.587	1.161 1.151	1.268		1.268	3.149	8/20				
100 100	132	132 to 1/32	132			5.00 5.00	325 325					0 0									5.00 5.00	325 325	0.000 0.000	0			680																					132						
100 100	1/32	1/32 to 9/20	132																		5.00 5.00	325 325	0.000 0.753	680	(Pipe flow= Sum upstr atten flows)	680 4.000	4.000 0.63	750(2) 1.49 (2.01)	0.04		Part full downstream pipe Upstream HGL 1.787 below outlet pipe obv 1.937 Set Kp to 0.5	0.113	0.50	0.124			0.50	0.124	0.34	0.014	0.488	2.20	1.937 1.912	1.663 1.650	1.787		1.787	3.333	1/32					
100 100	9/20	9/20 to out/20	1222 to 125 2;132																		23.39 23.39	180 180	5.322 9.841	4921	(Pipe flow= Sum upstr atten flows)	5086 68.800	68.800 11.137	0.10 x 2100 (RCBQ.71)	2700 0.90 (2.01)	1.15				0.041	2.00	0.082			2.00	0.082	0.03	0.019			0.986 0.917	1.069 1.050	1.151		1.151	3.261	9/20			

CALCULATIONS TABLE

PRELIMINARY

STATUS

PRELIMINARY

COPYRIGHT © - This document is and shall remain the property of Bornhorst & Ward Pty Ltd. The document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement. Unauthorised use of this document in any form whatsoever is prohibited.				REV	DATE	AMENDMENT / ISSUE	DWN	DES	CHK	APP	ASSOCIATED CONSULTANTS	APPROVED	CHECKED	BORNHORST + WARD CONSULTING ENGINEERS CIVIL AND STRUCTURAL Level 4, 67 Astor Terrace, Spring Hill, QLD 4000		Bornhorst & Ward Pty Ltd Brisbane Australia Phone (07) 3013 4699 Facsimile (07) 3013 4611 mail@bornhorstward.com.au www.bornhorstward.com.au A.C.N. 010 151 354 A.B.N. 78 010 151 354		CONSULT AUSTRALIA Member Firm		CLIENT MIRVAC LIMITED	PROJECT MIRVAC HAMILTON	SUBJECT STORMWATER DRAINAGE CALCULATION TABLES SHEET 3	PROJECT No. 10363 DRAWING No. C047 REVISION A
	A	04.11.10	ISSUE FOR INFORMATION																				

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1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT BRISBANE CITY COUNCIL SPECIFICATIONS AND STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. THE CONSTRUCTION OF SEWERAGE WORK SHOWN ON THIS DRAWING SHALL BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. SEWERAGE WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO THE COUNCILS SEWERAGE SYSTEM.
4. ALL WORKS ASSOCIATED WITH LIVE SEWERS OR MAINTENANCE HOLES SHALL BE CARRIED OUT BY COUNCIL AT THE DEVELOPER'S COST.
5. DICL SEWERS SHALL BE CLASS K12 TO A.S. 2280 AND POLYETHYLENE SLEEVED.
6. EACH UNIT SHALL BE SERVED BY A 100mm DIAMETER PROPERTY CONNECTION.
7. WHERE PIPES ARE LAID IN FILL, THE FILLING SHALL BE CARRIED OUT IN LAYERS NOT EXCEEDING 300mm (LOOSE) IN DEPTH AND SHALL BE COMPACTED UNTIL THE COMPACTION IS NOT LESS THAN 95% OF THE MATERIALS MAXIMUM COMPACTION WHEN TESTED IN ACCORDANCE WITH A.S. 1289 (MODIFIED COMPACTION). TESTING SHALL BE CARRIED OUT AFTER EACH ALTERNATE LAYER. IN ALL SUCH CASES APPROVAL OF CONSTRUCTED SEWERS WILL NOT BE ISSUED BY THE COUNCIL UNLESS CERTIFICATES ARE PRODUCED CERTIFYING THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.
8. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCING WORKS.
9. BENCH MARK AND LEVELS TO AHD.
10. NOTWITHSTANDING SURFACE LEVELS SHOWN ON THE PLANS, THE CONTRACTOR SHALL ENSURE THAT ALL SEWER TOPS MATCH THE ACTUAL FINISHED SURFACE.
11. HOUSE CONNECTIONS CROSSING UNDERGROUND ELECTRICITY ALLOCATIONS TO HAVE A MINIMUM COVER OF 1.10m COVER.
12. PE SEWER SHALL BE PE100 MIN SDR 21 TO AS/NZS 4130.
13. PROPERTY CONNECTION BRANCHES SHALL EXTEND INTO THE PROPERTY BOUNDARY A MINIMUM OF 300mm AND A MAXIMUM OF 750mm.

- 1.1 TREES LOCATED ALONG THE FOOTPATH SHOULD BE, WHERE POSSIBLE TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
- 1.2 WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHOULD BE CONSTRUCTION WITH 1.8m BATTENS CLOSELY SPACED AND ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES MUST BE STRAPPED TO TREES PRIOR TO CONSTRUCTIONS AND REMAIN UNTIL COMPLETION.
- 1.2 WHERE POSSIBLE, TREE ROOTS SHOULD BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHOULD BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT COUNCIL ARBORIST FOR FURTHER ADVICE.
- 1.3 ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY COUNCIL'S METROPOLITAN TREE SERVICES.

2.1 TOPSOIL AND SUBSOIL SHOULD BE STOCKPILED SEPARATELY.
2.2 CARE SHOULD BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.

3.1 PREDISTURBANCE SOIL PROFILES AND COMPACTION LEVELS ARE TO BE REINSTATED.

3.2 PREDISTURBANCE VEGETATION PATTERNS SHOULD BE RESTORED. FOR FURTHER INFORMATION CONTACT BCC.

ALL ENVIRONMENT PROTECTION MEASURES SHOULD BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.

CONSULTING ENGINEERS ARE TO CONTACT QUEENSLAND URBAN UTILITIES 24 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION TO
ARRANGE FOR THIS WORK TO BE CARRIED OUT. (EXCAVATION, SAFE-SHORING AND ASSOCIATED WORK BY CONTRACTOR.) EXCAVATION
WORKS CARRIED OUT BY CONTRACTORS AT DEPTH OF 1.5m OR GREATER MUST PROVIDE A 'SAFE WORK PLAN' AS PER WORKPLACE HEALTH
AND SAFETY LEGISLATION TO COUNCIL PRIOR TO COUNCIL COMMENCING ANY WORKS. IT IS THE DEVELOPERS RESPONSIBILITY TO ENSURE ALL
LIVE SEWER WORKS ARE COMPLETE BEFORE ALLOWING PRIVATE DRAINAGE TO BE CONNECTED.

[illegible]

DATUM - A.H.D
ORIGIN - PSM: PM44509
LEVEL: RL 47.577

LOT 14/15 ON RP90234
PARISH OF OXLEY

CONSTRUCTION INSPECTIONS:
NOTIFICATION OF INSPECTIONS MUST BE RECEIVED
BY QUEENSLAND URBAN UTILITIES FIELD SERVICES
BRANCH AT LEAST TWO (2) WEEKS PRIOR TO
COMMENCEMENT OF CONSTRUCTION.
PLEASE CONTACT PAUL BALTA ON 0414 576 394

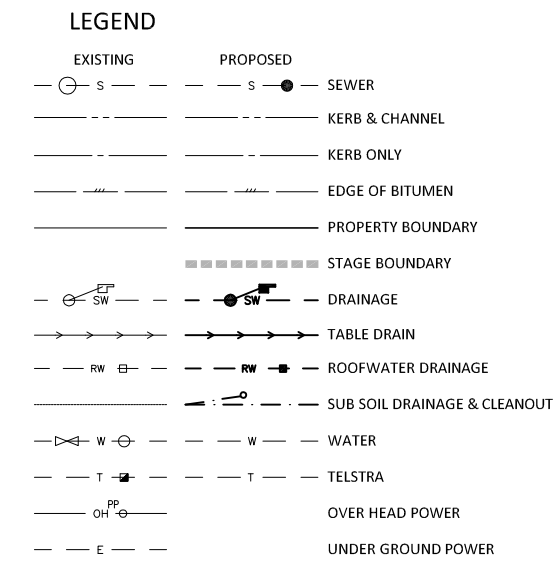
EXISTING	PROPOSED	
_____	_____	KERB AND CHANNEL
_____	_____	KERB ONLY
_____	_____	EDGE OF CONCRETE
_____	_____	PROPERTY BOUNDARY
— SW —	— SW —	DRAINAGE
— S —	—	SEWER
—	_____	ABANDONED SEWER
— W —	— W —	WATER RETICULATION
— T —	_____	TELSTRA
— E —	_____	UNDER GROUND POWER
— / — / —	_____	FENCE
→ → → →	_____	TABLE DRAIN
--- 52 ---	--- 52 ---	CONTOURS
	F.S.L. 41.300 +	CONTROL LEVEL
		FLOW DIRECTION ARROW
		MANHOLE NUMBER

NOTE: DRAWINGS ARE PRELIMINARY ONLY AND ARE
SUBJECT TO SURVEY, FURTHER COORDINATION AND
ADVICE FROM SERVICING AUTHORITIES.

STATUS

PRELIMINARY

[illegible]



SCALES	UNREDUCED / REDUCED
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SCALES UNREDUCED / REDUCED
 0 2.5 5.0 7.5 10.0 12.5m
 A  1:250 / 1:500

PROJECT No.	
10363	
DRAWING No.	REVISION
C061	A

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04.11.10

ISSUE FOR INFORMATION

ASSOCIATED CONSULTANTS

APPROVED

CHECKED

BORNHORST + WARD

CONSULTING ENGINEERS

CIVIL AND STRUCTURAL

Level 4, 67 Astor Terrace, Spring Hill, QLD 4000

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Brisbane Australia

Phone (07) 3013 4699

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mail@bornhorstward.com.au

www.bornhorstward.com.au

A.C.N. 010 151 354 A.B.N. 78 010 151 354

CONSULT AUSTRALIA

Member Firm

CLIENT

MIRVAC LIMITED

PROJECT

MIRVAC HAMILTON

SUBJECT

SEWER LONGITUDINAL SECTIONS

PROJECT No.

10363

DRAWING No.

C065

REVISION

A

NOTE: DRAWINGS ARE PRELIMINARY ONLY AND ARE SUBJECT TO SURVEY, FURTHER COORDINATION AND ADVICE FROM SERVICING AUTHORITIES.

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE, CULVERT AND PIPE SIZES IN MILLIMETRES

SCALES

A1 UNREDUCED

A3 REDUCED

UNREDUCED / REDUCED

STATUS

PRELIMINARY

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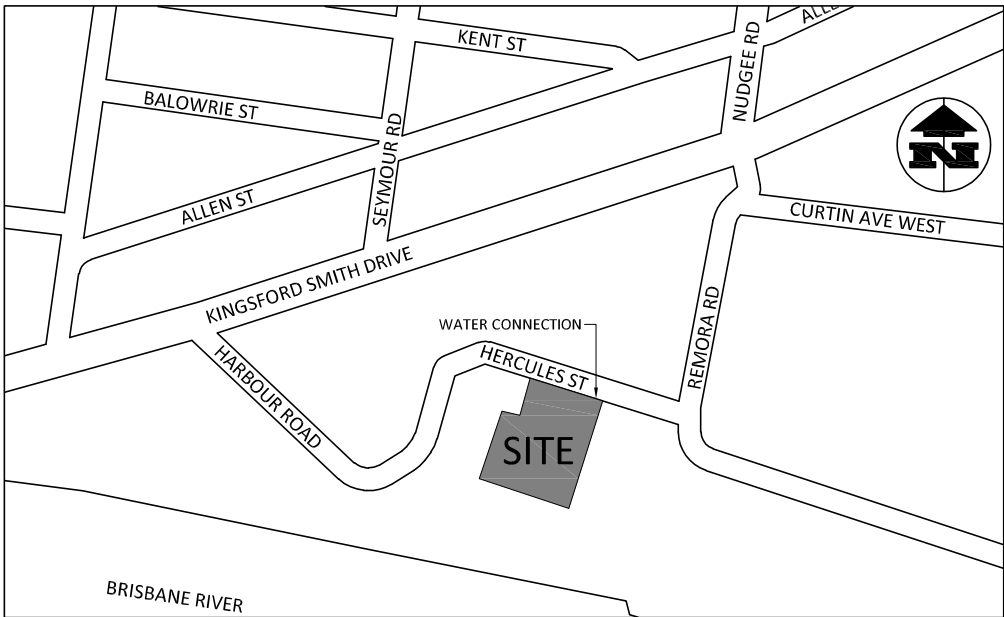
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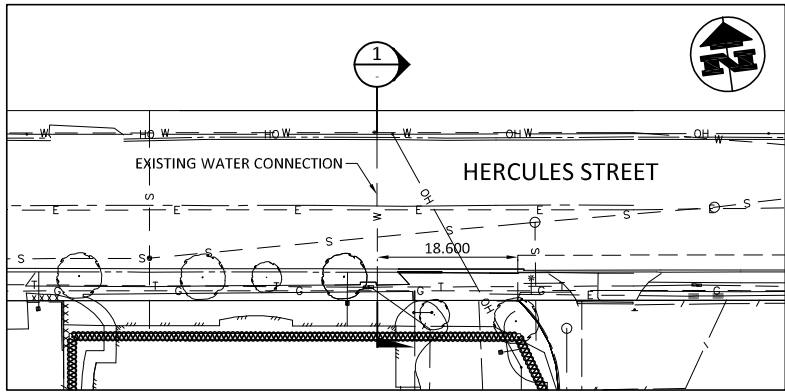
HOLD PENDING ADVICE FROM QUU

PRELIMINARY

HERCULES STREET WATER CONNECTION

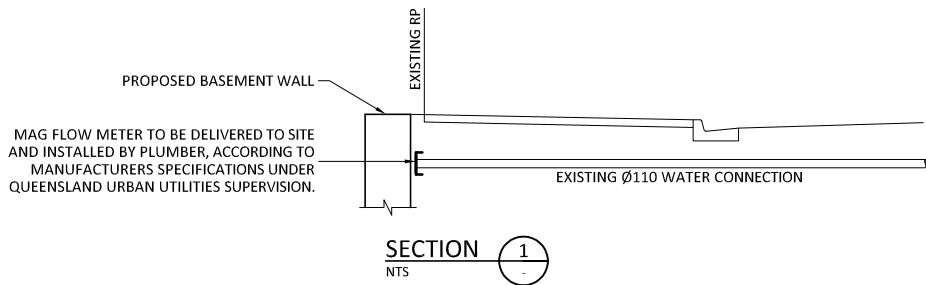


SITE LOCALITY PLAN
BRISBANE UBD MAP 140, GRID REFERENCE Q18
NTS



DETAIL A-2
SCALE 1:500

NOTE: DRAWINGS ARE PRELIMINARY ONLY AND ARE
SUBJECT TO SURVEY, FURTHER COORDINATION AND
ADVICE FROM SERVICING AUTHORITIES.



WATER NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT QUEENSLAND URBAN UTILITIES SPECIFICATIONS AND STANDARDS.
2. UNLESS SPECIFIED OTHERWISE, ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. ADOPT TOP OF KERB AS PERMANENT LEVEL.
4. COVER ON MAINS FROM PERMANENT LEVEL TO BE AS FOLLOWS:-
63, 100 & 150 DIAMETER PIPE - 600mm
200, 250 & 300 DIAMETER PIPE - 1000mm
5. CONDUITS TO BE INSTALLED IN ACCORDANCE WITH COUNCILS SPECIFICATIONS.
6. DUCTILE IRON CEMENT LINED (DICL) PIPES AND FITTINGS SHALL BE FLANGED CLASS 9 AND COMPLY WITH A.S. 2280. PIPES AND FITTINGS SHALL BE POLYETHYLENE SLEEVED.
7. ALL CONCRETE FOOTPATHS TO BE CLEAR OF WATER MAINS.
8. TEST/CHLORINATION POINTS TO BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWING NO. 486/4/25-WB006.
9. THE CONSTRUCTION OF THE WATER RETICULATION WORK SHOWN ON THIS DRAWING MUST BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO COUNCIL'S RETICULATION SYSTEM.

ENVIRONMENTAL NOTES

- 1.1 VEGETATION PROTECTION
1.1.1 TREES LOCATED ALONG THE FOOTPATH SHOULD BE, WHERE POSSIBLE TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
- 1.2 WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHOULD BE CONSTRUCTION WITH 1.8m BATTENS CLOSELY SPACED AND ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES MUST BE STRAPPED TO TREES PRIOR TO CONSTRUCTIONS AND REMAIN UNTIL COMPLETION.
- 1.2.1 WHERE POSSIBLE, TREE ROOTS SHOULD BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHOULD BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT COUNCIL ARBORIST FOR FURTHER ADVICE.
- 1.3 ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY COUNCIL'S METROPOLITAN TREE SERVICES.
- 2.1 TOPSOIL AND SUBSOIL SHOULD BE STOCKPILED SEPARATELY.
- 2.2 CARE SHOULD BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.
- 3.1 CREEK CROSSINGS
3.1.1 SILTATION CONTROL MEASURES SHOULD BE PLACED DOWNSTREAM OF ANY EXCAVATION WORK.
- 3.2 APPROPRIATE SEDIMENT CONTROLS SHOULD BE USED TO PREVENT SEDIMENT FROM ENTERING THE CREEK.
- 3.3 NO SOIL SHOULD BE STOCKPILED WITHIN 5m OF THE CREEK.
- 4.1 REHABILITATION
4.1.1 PREDISTURBANCE SOIL PROFILES AND COMPACTION LEVELS ARE TO BE REINSTATED.
- 4.2 PREDISTURBANCE VEGETATION PATTERNS SHOULD BE RESTORED. FOR FURTHER INFORMATION CONTACT THE COUNCIL ECOLOGICAL ASSESSMENT OFFICER.

NOTE
ALL ENVIRONMENT PROTECTION MEASURES SHOULD BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.

LEGEND

EXISTING	PROPOSED	
— W —	— W —	WATER MAIN
— W —	— W —	VALVE
— W —	— W —	FIRE HYDRANT
— E —	— E —	ELECTRICITY UG
— SW —	— SW —	STORMWATER
— OH —	— OH —	EXISTING ELECTRICITY OH
— T —	— T —	EXISTING TELSTRA

ALL WATER AND SEWER CONSTRUCTION WORK UNDERTAKEN BY THE CONTRACTOR IS TO COMPLY WITH THE REQUIREMENTS OF THE QUEENSLAND WORKPLACE HEALTH AND SAFETY ACT 1995.

CONTACT YOUR NEAREST OFFICE OF THE DIVISION OF WORKPLACE HEALTH AND SAFETY FOR INFORMATION. PHONE 1300 369915

PRIOR TO COMMENCEMENT OF WORK, CONTRACTOR TO ARRANGE FOR THE COMPLYING OF APPROVED TRAFFIC PLAN AND SEEK APPROVAL FROM PLANNING AND TRAFFIC BRANCH. TELEPHONE 34034150 FOR DETAILS. WORK MAY BE REQUIRED TO BE CARRIED-OUT DURING WEEKENDS AND/OR LATE AT NIGHT ONLY.

xxCAUTIONxx

APPROX. LOCATION OF PUBLIC UTILITIES ONLY. EXACT LOCATION AND DEPTH TO BE DETERMINED ON SITE BY RELEVANT AUTHORITY PERSONNEL PRIOR TO COMMENCING WORK.

TELSTRA:- PH: 1800 114 918
ENERGEX:- PH: 3407 6381
B.C.C:- PH: 3403 8888
GAS INSPECTOR:- PH: 3467 9514

ANCHOR BLOCK NOTES

1. CONCRETE SHALL BE PLACED IN CONTACT WITH UNDISTURBED SOIL.
2. CONCRETE SHALL BE CLASS N20 MPA STRENGTH, 20mm AGGREGATE & 75mm SLUMP, eg 20.20.75.
3. UNLESS DETAILED OTHERWISE, ALL ANCHOR BLOCK DETAILS SHALL COMPLY WITH STANDARD DWG 486/4/25-WB001

STOP NETWORK EXISTS IN THE AREA, IF YOUR ACTIVITIES ARE WITHIN TELSTRA ENCROACHMENT DISTANCES (SEE DUTY OF CARE) CONTACT 1800 114 918 AT LEAST 2 BUSINESS DAYS BEFORE STARTING ACTIVITY.

STOP MAJOR CABLES EXIST IN THE AREA, IF YOUR ACTIVITIES ARE WITHIN TELSTRA ENCROACHMENT DISTANCES (SEE DUTY OF CARE) CONTACT 07 3898 1918 AT LEAST 2 BUSINESS DAYS BEFORE STARTING ACTIVITY.

NOTE: SERVICE LOCATIONS AND DEPTHS ARE ESTIMATED FROM SURVEY DATA AND RECORDS. THE ACTUAL LOCATION OF SERVICES IS TO BE DETERMINED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS

"DIAL BEFORE YOU DIG" TO BE CONTACTED
PH: 1100 FOR LOCATION FOR THE LOCATION OF EXISTING PUBLIC UTILITIES, PRIOR TO EXCAVATION

WATER METER TO BE LOCATED AT PROPERTY BOUNDARY UNLESS OTHERWISE AGREED TO IN WRITING BY QUEENSLAND URBAN UTILITIES

HIGH RISK ACTIVITY ASBESTOS CEMENT PRODUCTS

THIS PROJECT MAY REQUIRE THE HANDLING, REMOVAL AND DISPOSAL OF ASBESTOS CEMENT PRODUCTS. ANY ACTIVITY ASSOCIATED WITH ASBESTOS CEMENT PRODUCTS SHALL BE IN ACCORDANCE WITH RELEVANT AUTHORITY GUIDLINES AND SAFETY REQUIREMENTS.

ON MAINTENANCE DETAILS

START -	FINISH -
FUNDING	
PRIVATE BOOSTER REQUIRED?	YES/NO
FUNDED BY QUU ()	DEVELOPER (X)
FED GOV'T ()	STATE ()
OTHER ()	
DRS OFFICER	-
DATE RELEASED	-
PLAN CUSTODIAN	
OFFICER/REC'D	-
DATE RELEASED	-
LIVE CONNECTION(S)/PASSED(W)	
REFERENCE	-
DATE	-
BIMAP CAPTURE	
JOB NUMBER	-
OFFICER CODE	-
DATE	-
AS BUILT RECEIVED	
BY	-
OFFICER	-
DATE	-

CONNECTION FITTINGS SCHEDULE

DESCRIPTION	QTY
150mm MAGFLOW METER & ACCESSORIES	1

CONSTRUCTION INSPECTIONS:
NOTIFICATION OF INSPECTIONS MUST BE RECEIVED BY QUEENSLAND URBAN UTILITIES FIELD SERVICES BRANCH AT LEAST TWO (2) WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
PLEASE CONTACT PAUL BALTA ON 0414 576 394

DATE:	
QUEENSLAND URBAN UTILITIES DELEGATE (APPROVAL VALID FOR 12 MONTHS FROM DATE SHOWN)	
CLIENT	MIRVAC LIMITED
CONTACT:	BORNHORST & WARD
QUU AUDITOR:	AUDIT AND COMPLIANCE OFFICER QUEENSLAND URBAN UTILITIES
CONTACT:	
AS CONSTRUCTED DETAILS FOR AMEND.	
I CERTIFY THAT THE "AS CONSTRUCTED" DETAILS SHOWN ON THIS PLAN ARE TRUE AND ACCURATE RECORD OF THE WORKS	
SIGNED	DATE
NAME OF SIGNATORY	
RPEQ No. or LICENCE	
COMPANY NAME	
START DATE	FINISH DATE
SHEET No.	
QUEENSLAND URBAN UTILITIES DRAWING No.	AMEND.
-	0
QUEENSLAND UrbanUtilities	

STATUS

PRELIMINARY

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REV.	DATE	AMENDMENT / ISSUE	DWN	DES	CHK	APP
A	04.11.10	ISSUE FOR INFORMATION				

ASSOCIATED CONSULTANTS

APPROVED

CHECKED

BORNHORST + WARD

CONSULTING ENGINEERS

CIVIL AND STRUCTURAL
Level 4, 67 Astor Terrace, Spring Hill, QLD 4000

Bornhorst & Ward Pty Ltd
Brisbane Australia
Phone (07) 3013 4699
Facsimile (07) 3013 4611
mail@bornhorstward.com.au
www.bornhorstward.com.au
A.C.N. 010 151 354 A.B.N. 78 010 151 354



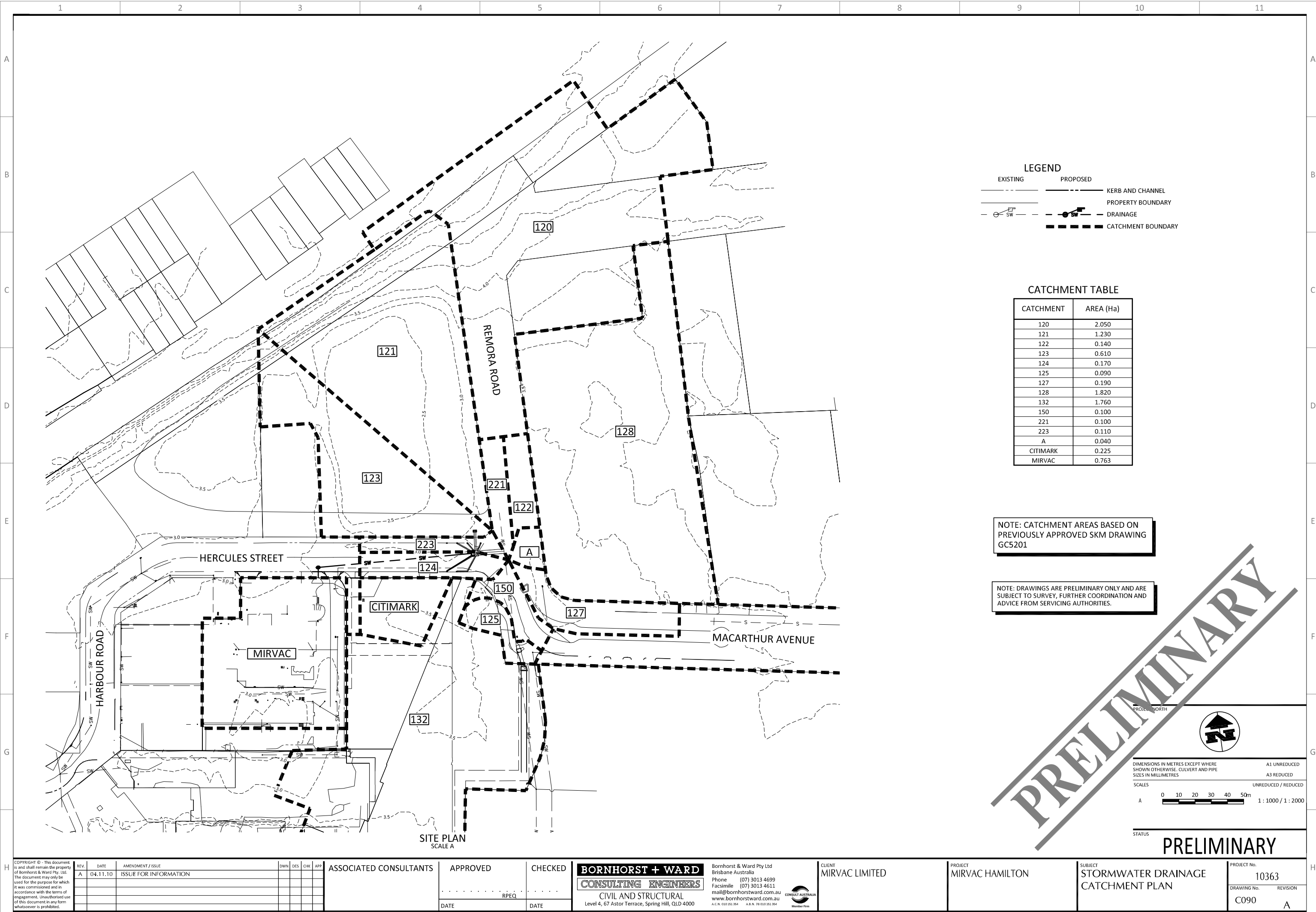
CLIENT
MIRVAC LIMITED

PROJECT
MIRVAC HAMILTON

SUBJECT
HERCULES STREET WATER
CONNECTION

PROJECT No.
10363

DRAWING No. REVISION
C070 A



LEGEND

EXISTING	PROPOSED

KERB AND CHANNEL
PROPERTY BOUNDARY
DRAINAGE
CATCHMENT BOUNDARY

CATCHMENT TABLE

CATCHMENT	AREA (Ha)
120	2.050
121	1.230
122	0.140
123	0.610
124	0.170
125	0.090
127	0.190
128	1.820
132	1.760
150	0.100
221	0.100
223	0.110
A	0.040
CITIMARK	0.225
MIRVAC	0.763

NOTE: CATCHMENT AREAS BASED ON PREVIOUSLY APPROVED SKM DRAWING GC5201

NOTE: DRAWINGS ARE PRELIMINARY ONLY AND ARE SUBJECT TO SURVEY, FURTHER COORDINATION AND ADVICE FROM SERVICING AUTHORITIES.

PRELIMINARY

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES

SCALES

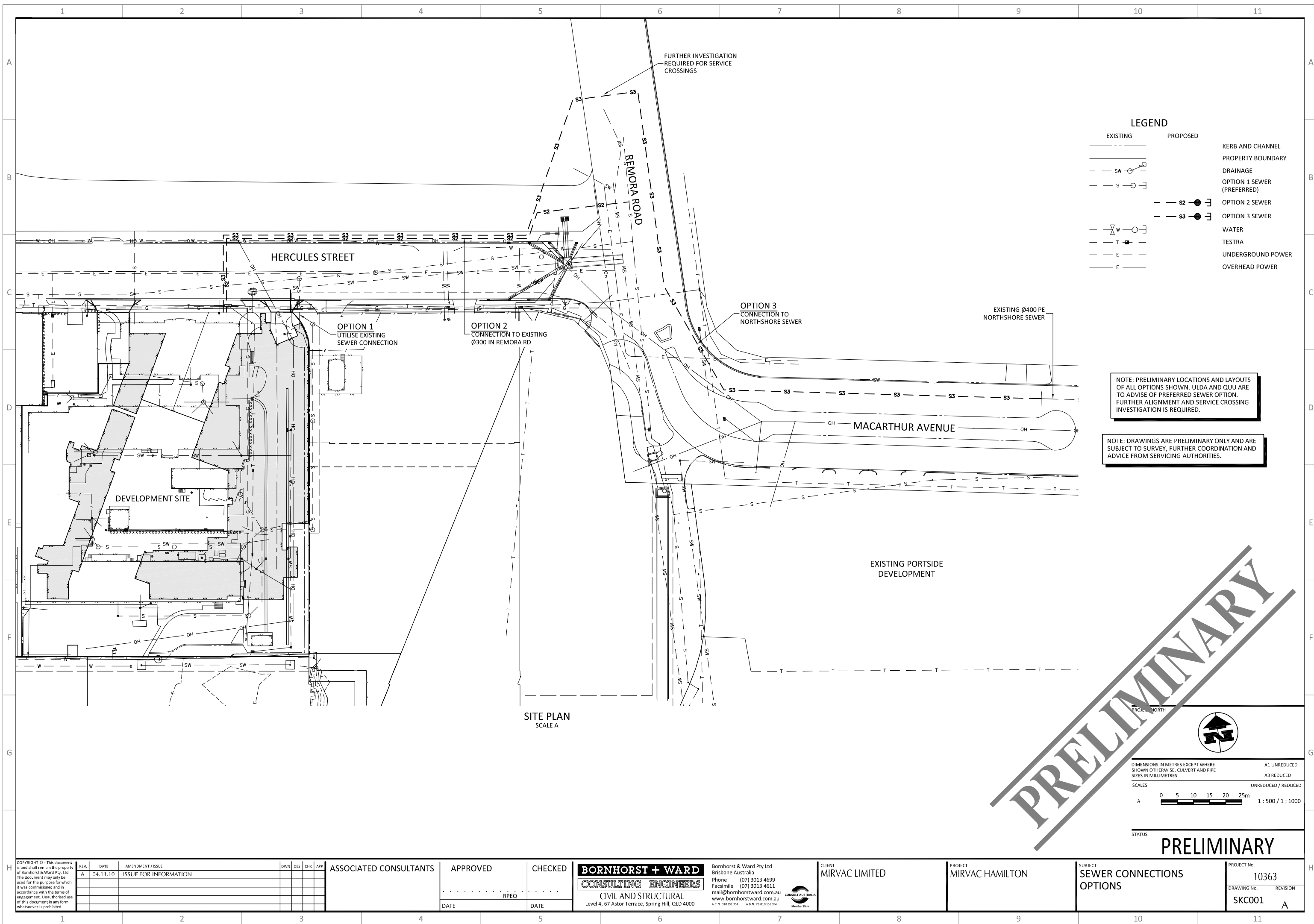
0 10 20 30 40 50m

1 : 1000 / 1 : 2000

STATUS

PRELIMINARY

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--	--	--	-----------------	--	--	-------------------	--	--	-----------------	--	--	------------------------	--	--	----------	--	--	---------	--	--	---	--	--	---	--	--	-----------------------	--	--	-------------------------	--	--	--	--	--	---	--	--



APPENDIX B

HYDRAULIC CALCULATIONS

INITIAL PEAK FLOW CALCULATIONS

Based on QUDM 4.00 'Catchment Hydrology'

Written by BB 31/10/08

Job Number: **10363**
 Job Name: **Mirvac Hamilton**

IFD : Brisbane

Designed: **KR**
 Checked: **NR**

Please note:
 User Data to be placed in the
 Green Cells only

BORNHORST + WARD

CONSULTING ENGINEERS

CIVIL AND STRUCTURAL

TOTAL RUNOFF COEFF.						
		Sub Catchment Area (Ha)		Runoff Coefficients		Calculated C10
No.	Existing	Proposed	Existing	Proposed	Existing	Proposed
A	0.7637	0.7637	0.88	0.9		
	0.76	0.76			0.88	0.90

EXISTING TIME OF CONCENTRATION		
SHEET FLOW CHANNEL/PIPE FLOW	Std Inlet Time	5
	Site Slope (%)	
	Flow Length (m)	
	Horton's "n"	
	Travel Time (min)	
	Travel Length (m)	
	Fall (m)	
	Travel Time (min)	
	Multiplier	
	Travel Time (min)	
Total Time (Tc)		5.0

DEVELOPED TIME OF CONCENTRATION		
SHEET FLOW CHANNEL/PIPE FLOW	Std Inlet Time	5
	Site Slope (%)	
	Flow Length (m)	
	Horton's "n"	
	Travel Time (min)	
	Travel Length (m)	
	Fall (m)	
	Travel Time (min)	
	Multiplier	
	Travel Time (min)	
Total Time (Tc)		5.0

PEAK RUNOFF CALCULATIONS						
ARI Event yr	Rainfall Intensity (mm/hr)		Coefficient of Runoff		Peak Runoff Rates (m ³ /s)	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
1	117	117	0.70	0.72	0.175	0.179
2	151	151	0.75	0.77	0.240	0.245
5	191	191	0.84	0.86	0.339	0.346
10	215	215	0.88	0.90	0.401	0.410
20	248	248	0.92	0.95	0.486	0.497
50	291	291	1.00	1.00	0.617	0.617
100	325	325	1.00	1.00	0.689	0.689

PEAK FLOWS FOR FREQUENT EVENTS			
ARI Event yr	% of Q1	Peak discharge (m ³ /s)	
		Existing	Proposed
1mth	25%	0.044	0.045
2mth	40%	0.070	0.071
3mth	50%	0.087	0.089
4mth	60%	0.105	0.107
6mth	75%	0.131	0.134
9mth	90%	0.157	0.161
12mth	100%	0.175	0.179

APPENDIX C

ADDITIONAL INFORMATION



**NOT
TO SCALE**

EXISTING BYPASS FLOWS FROM
EXISTING SYSTEM = 0.794m³/sec EACH
SIDE OF THE ROAD. ROAD CAPACITIES
BASED ON EXISTING KERB ALIGNMENTS.

646
SL 9942

NOTES

- ALL PIPES AND BOX CULVERTS AND STRUCTURES WITH ANY SEGMENT BELOW RL 1.63 TO BE CONSTRUCTED WITH
a) 50MPa CONCRETE
b) EXPOSURE CLASS C
c) PRECAST ELEMENTS REQUIRE REINFORCEMENT TO HAVE 50mm COVER AND ALL OTHER ELEMENTS REQUIRE 50mm COVER.
d) PRECAST ELEMENTS ARE TO BE FORMED WITH VIBRATING STEEL FORMS WITH INTENSE COMPACTION.
- ALL PIPES 600 DIA OR SMALLER TO BE RUBBER RING JOINT.
- ALL STEP IRONS AND LADDERS IN MANHOLES TO BE DESIGNED FOR A MARINE ENVIRONMENT.
- ALL EXISTING REDUNDANT DRAINAGE STRUCTURES ARE TO BE REMOVED

AS CONSTRUCTED DETAILS

I CERTIFY THAT THE 'AS CONSTRUCTED' DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS

SIGNED *Wayne Currey* DATE 28/9/2006
NAME OF SIGNATORY (PRINT) WAYNE CURREY
RPEQ No. 4766
COMPANY NAME SINCLAIR KNIGHT MERZ

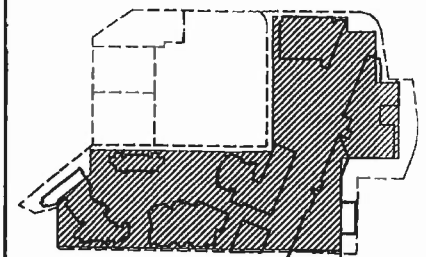
LEGEND

1/10 1/4 MH / STRUCTURE NAME

EXISTING SERVICES LEGEND

EOH OVERHEAD ELECTRICITY
E UNDERGROUND ELECTRICITY
T TELSTRA
W WATER SUPPLY
D SEWER
S STORMWATER DRAINAGE
G GAS SUPPLY

FUTURE INLET BY OTHERS



KEY PLAN

PORTSIDE WHARF

MULTIPLEX

PROJECT

PORTSIDE WHARF

Hercules Street,
Ascot. Q

CLIENT

MULTIPLEX DEVELOPMENTS

Level 24 Waterfront Place
1 Eagle Street
Brisbane. Q

DRAWING NAME

EXTERNAL ROADWORKS
STORMWATER DRAINAGE
LAYOUT PLAN
SHEET 1

WP53937-AC

APPROVED PROJECT DIRECTOR
J.H.

REVIEWED PROJECT MANAGER
J.P.

DESIGNED
E.P.

PROJECT No.
QB50061

A1

SKM

Sinclair Knight Merz Pty Ltd
A.C.N. 001 024 095

389 Ann Street
Brisbane QLD 4000 Australia
Telephone (07) 3244 7100
Facsimile (07) 3244 7300

BUILDING
G

DISCIPLINE
C

DWG No.
521

REV.
4

1:250 0 5 10 15 20 25m
5 4 3 2 1 FULL SIZE ON A1

WARNING
THIS INFORMATION SHOULD BE USED ONLY AS A
GENERAL GUIDE TO STORMWATER DRAINAGE PLANS
The information shown on this sheet has been obtained from
plans available in the Works Design Office at the date of
compilation.
It cannot be inferred that the drainage shown is constructed or
constructed, agrees with the information shown.
No responsibility is taken as to the accuracy or completeness
of this information shown.

STRUCTURE NAME
STRUCTURE DESCRIPTION

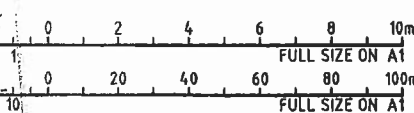
PIPE SIZEmm (Class)	600(2)	1200(2)	1800(2)	1950(2)	1500(2) x 2	1950(2)	1950(2)	2700 x 2100 (RCBC)	2700 x 2100 (RCBC)	2700 x 2100 (RCBC)	1200 x 600 (RCBC)	600(2)	600(2)	1200(2)	2 / 1200 x 900 (RCBC)	600(2)	600(2)	450(2)
PIPE GRADE %	0.58%	1.18%	0.30%	0.14%	0.11%	0.11%	0.10%	0.10%	0.10%	0.10%	0.35%	0.79%	1.24%	3.53%	0.30%	3.97%	0.66%	0.66%
PIPE SLOPE 1 in X	173.60	84.88	335.14	733.95	911.85	902.66	1000.00	1000.00	1000.00	1000.00	287.50	126.60	80.42	28.37	331.60	25.21	150.93	151.22
FULL PIPE FLOW VELOCITY (m/s)	1.03	1.05	0.72	1.21	1.04	1.21	1.70	0.93	0.93	1.01	0.34	0.79	1.57	0.15	0.91	0.81	1.60	0.50
PART FULL FLOW VELOCITY (m/s)																		
WATER LEVEL IN STRUCTURE																		
HYDRAULIC GRADE LEVEL																		
PIPE FLOW (Cumecs)	0.300	1.227	1.897	3.784	3.784	3.784	5.299	5.299	5.299	5.707	0.245	0.232	0.460	0.171	1.958	0.236	0.468	0.080
DEPTH TO INVERT	1.980	2.105	2.480	2.710	3.030	3.244	3.260	3.332	3.334	3.301	3.602	1.800	1.840	2.650	2.842	1.570	1.510	1.343
INVERT LEVEL OF DRAIN	1.050	0.975	0.600	0.440	0.120	0.056	0.040	0.003	0.001	-0.006	-0.453	1.180	1.130	0.650	0.408	1.250	1.108	1.290
DESIGN SURFACE LEVEL	3.030	3.080	3.150	3.300	3.335	3.295	2.800	2.800	2.800	3.263	3.143	2.970	3.050	3.050	3.300	2.790	3.050	2.800
EASTINGS NORTHINGS	1433.856 100.747	1437.825 100.347	1433.924 107.339	1433.684 103.892	1433.967 103.967	1434.053 103.956	1434.623 99.147	1434.680 99.147	1434.680 99.147	1434.680 99.147	1437.283 99.066	1433.907 100.081	1436.429 100.418	1436.429 100.418	1436.429 100.418	1436.429 100.418	1436.429 100.418	1436.429 100.418
RUNNING CHAINAGE	0.000	13.020	13.580	26.600	21.449	48.049	27.156	75.205	6.383	81.588	187.579	6.330	16.084	12.538	17.243	6.302	21.432	7.561

DATE: 28.09.2006@13:21:11 LOGIN NAME: rried
XREF: A1 sheet
LOCATION: I:\BAP\Projects\QB50061_Cruise Ship\CAD\DWG\CIVIL\50061-G-C-522.dwg

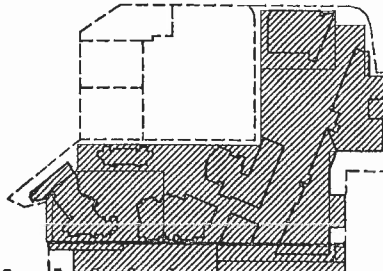
SERVICE CONFLICT
THE LOCATION OF SERVICES ON THIS PLAN HAVE BEEN APPROXIMATED FROM SURVEYED POSITIONS OF VALVES, MANHOLES ETC. AND UTILITY SERVICES PLANS SUPPLIED BY VARIOUS SERVICE AUTHORITIES. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. NO WORK IS TO BE DONE WITHIN 3 METRES OF THE SERVICE ALIGNMENT WITHOUT CONSULTING THE SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF THE WORK. DEPTHS OF SERVICES AT POSSIBLE CONFLICT POINTS ARE TO BE PICKED UP ON SITE BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
NOTE: NOT ALL CONFLICTS HAVE NECESSARILY BEEN SHOWN.

AS CONSTRUCTED DETAILS
I CERTIFY THAT THE 'AS CONSTRUCTED' DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS
SIGNED: *[Signature]* DATE: 28/9/2006
NAME OF SIGNATORY (PRINT): *WYNE CUNNEY*
RPEQ No.: *47106*
COMPANY NAME: *SINCLAIR KNIGHT MERZ*

WARNING
THIS INFORMATION SHOULD BE USED ONLY AS A GENERAL GUIDE TO STORMWATER DRAINAGE PLANS. The information shown on this sheet has been obtained from plans available in the Works Design Office at the date of compilation.
It cannot be inferred that the drainage shown is constructed or that, if constructed, agrees with the information shown.
Therefore no warranty is given as to the accuracy or completeness of the information shown.



REV	DATE	ISSUE	DRAWN	CHECKED
A	02.03.05	ISSUED FOR APPROVAL	HJO	RLR
B	22.07.05	COUNCIL APPROVAL	HJO	RLR
C	17.08.05	SEWER NOTE	KAC	RLR
D	13.10.05	SERVICE CLEARANCE ADDED	KAC	RLR
E	26.10.05	AMEND TO AVOID UG ELEC	PJN	RLR
0	31.10.05	CONSTRUCTION ISSUE	HJO	RLR
1	08.12.05	LINE 20 TO CLEAR HV	RLR	KAC
2	12.12.05	MODIFIED TO SUIT BCC	GS	RLR
3	08.02.06	RCBC TO CLEAR SERVICES	RLR	RLR
4	31.08.06	AS CONSTRUCTED		



PORTSIDE WHARF

MULTIPLEX

PROJECT
PORTSIDE WHARF
Hercules Street, Ascot, Q.
CLIENT
MULTIPLEX DEVELOPMENTS
Level 24 Waterfront Place
1 Eagle Street
Brisbane, Q.

DRAWING NAME
EXTERNAL ROADWORKS
STORMWATER DRAINAGE
LONGITUDINAL SECTIONS
SHEET 1
WP53937-AC

APPROVED PROJECT DIRECTOR: *[Signature]*
REVIEWED PROJECT MANAGER: *[Signature]*
DESIGNED: *[Signature]*
DESIGN REVIEW: *[Signature]*

SKM PROJECT No. QB50061

SKM Sinclair Knight Merz Pty Ltd
A.C.N. 001 024 095
369 Ann Street
Brisbane QLD 4000 Australia
Telephone (07) 3244 7100
Facsimile (07) 3244 7300

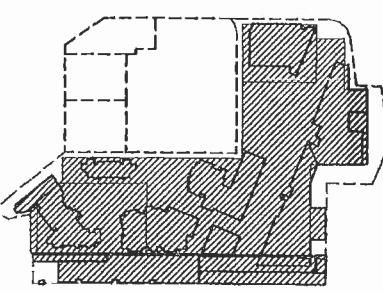
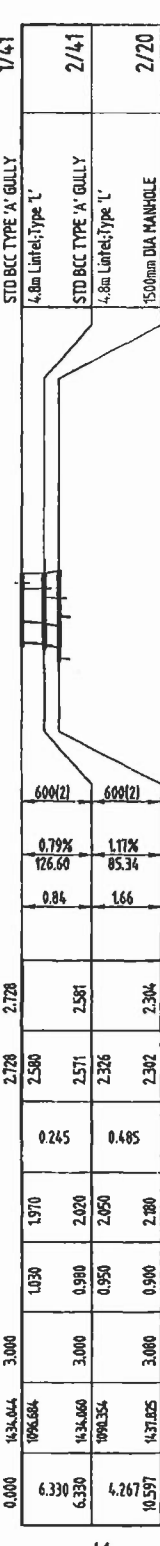
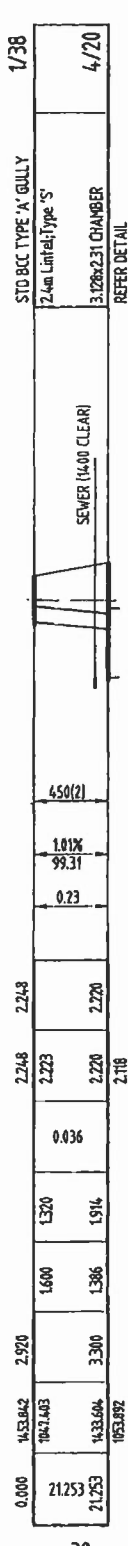
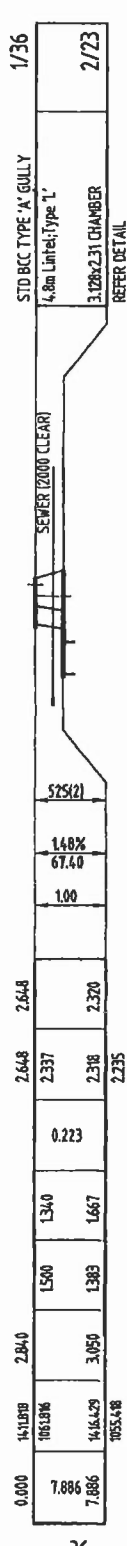
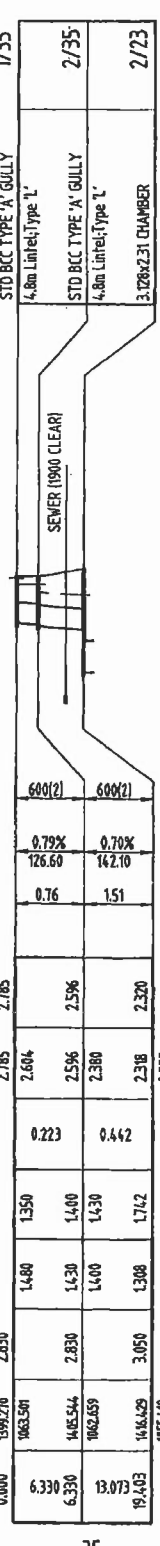
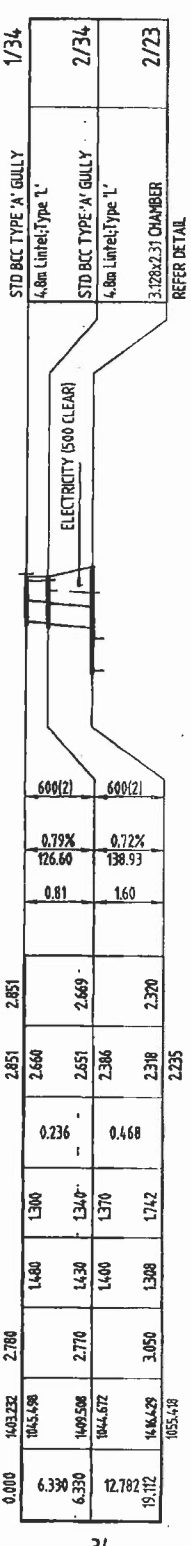
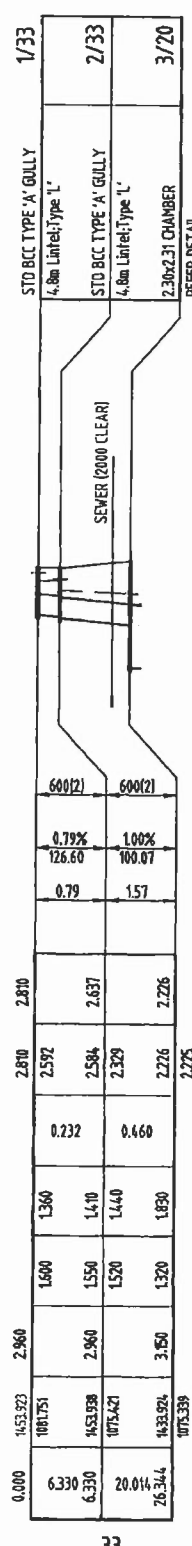
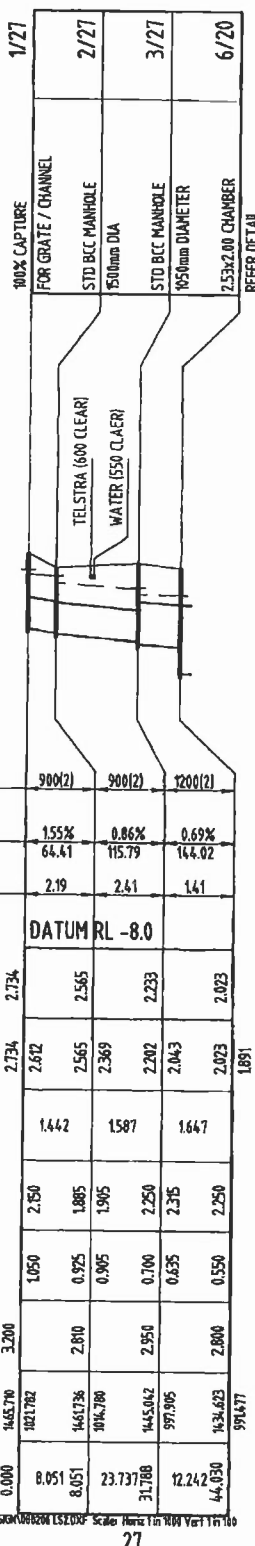
BUILDING: **G** DISCIPLINE: **C** DWG No.: **522** REV.: **4**

STRUCTURE NAME	STRUCTURE DESCRIPTION
----------------	-----------------------

PIPE SIZEmm (Class)	PIPE GRADE %	PIPE SLOPE 1in X	FULL PIPE FLOW VELOCITY (m/s)	PART FULL FLOW VELOCITY (m/s)
900(2)	1.55%	64.41	2.19	2.41
900(2)	0.86%	115.79	2.41	2.41
1200(2)	0.69%	144.02	1.41	1.41

WATER LEVEL IN STRUCTURE	HYDRAULIC GRADE LEVEL	PIPE FLOW (Cumecs)	DEPTH TO INVERT	INVERT LEVEL OF DRAIN	DESIGN SURFACE LEVEL	EASTINGS NORTHINGS	RUNNING CHAINAGE
--------------------------	-----------------------	--------------------	-----------------	-----------------------	----------------------	--------------------	------------------

LINE 27



KEY PLAN

PORTSIDE WHARF

MULTIPLEX
PROJECT
PORTSIDE WHARF
Hercules Street,
Ascot, Q.

CIENT
MULTIPLEX DEVELOPMENTS
Level 24 Waterfront Place
1 Eagle Street
Brisbane, Q.

DRAWING NAME
EXTERNAL ROADWORKS
STORMWATER DRAINAGE
LONGITUDINAL SECTIONS
SHEET 2

WP53937-AC

APPROVED PROJECT DIRECTOR J.K.
REVIEWED PROJECT MANAGER J.P.
DESIGNED R.E.
DESIGN REVIEW K.C.
SPEC. NO. QB50061
SHEET NO. A1

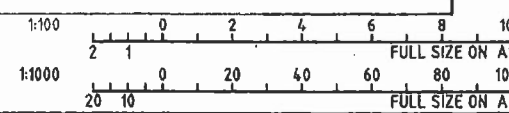
SKM
Sinclair Knight Merz Pty Ltd
A.C.N. 001 024 095
369 Ann Street
Brisbane QLD 4000 Australia
Telephone (07) 3244 7100
Facsimile (07) 3244 7300

BUILDING G DISCIPLINE C DWG NO. 523 REV. 4

SERVICE CONFLICT
THE LOCATION OF SERVICES ON THIS PLAN HAVE BEEN APPROXIMATED FROM SURVEYED POSITIONS OF VALVES, MANHOLES ETC. AND UTILITY SERVICES PLANS SUPPLIED BY VARIOUS SERVICE AUTHORITIES. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. NO WORK IS TO BE DONE WITHIN 3 METRES OF THE SERVICE ALIGNMENT WITHOUT CONSULTING THE SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF THE WORK. DEPTHS OF SERVICES AT POSSIBLE CONFLICT POINTS ARE TO BE PICKED UP ON SITE BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
NOTE: NOT ALL CONFLICTS HAVE NECESSARILY BEEN SHOWN.

WARNING
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AS CONSTRUCTED DETAILS
I CERTIFY THAT THE 'AS CONSTRUCTED' DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS
SIGNED *[Signature]* DATE 28/9/2006
NAME OF SIGNATORY (PRINT) YANKE CURRY
RPEQ No. 4766
COMPANY NAME SINCLAIR KNIGHT MERZ



\\LAP\PROJECTS\105411_Gruba Sept 07_Chris\plan\WAY DESIGN\000422007- Scales Horiz 1 in 800 Vert 1 in 10

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MULTIPLEX

PORTSIDE WHARF
Hercules Street,
Ascot, Q

MULTIPLEX DEVELOPMENTS
Level 24 Waterfront Place
1 Eagle Street
Brisbane, Q

EXTERNAL ROADWORKS
STORMWATER DRAINAGE CALCULATIONS
SHEET 3

AS SHOWN

SKM PROJECT No
QB50061

369 Ann Street
Brisbane QLD 4000 Australia
Telephone (07) 3244 7100
Facsimile (07) 3244 7300

FIG. 10.13 (continued) - A. A² = 0.0002 - B. A² = 0.0004

CALCULATIONS TABLE

THIS INFORMATION SHOULD BE USED ONLY FOR
GENERAL GUIDE TO STORMWATER DRAINAGE PLANS

It shall not be inferred that the drainage shown is constructed or to be constructed, agrees with the information shown.

No warranty is given as to the accuracy or completeness of the information shown.

NOT
TO SCALE

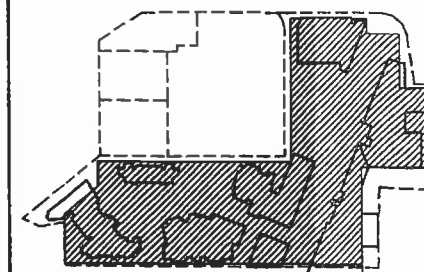
I CERTIFY THAT THE 'AS CONSTRUCTED' DETAILS SHOWN ON THIS
PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS

NAME OF SIGNATORY (PRINT) WAYNE CURREY.

RPEQ No. 476b

COMPANY NAME SINCLAIR KNIGHT MERZ

REV	DATE	ISSUE	DRAWN	CHECKED
A	02.03.05	ISSUED FOR APPROVAL	MJO	RLR
B	22.07.05	COUNCIL APPROVAL	MJO	RLR
0	31.10.05	CONSTRUCTION ISSUE	MJO	RLR
1	12.12.05	CAT 150 ADDED	GS	RLR



KEY PLAN

PORTSIDE WHARF

MULTIPLEX

PROJECT

PORTSIDE WHARF
Hercules Street,
Ascot. Q

CLIENT

MULTIPLEX DEVELOPMENTS
Level 24 Waterfront Place
1 Eagle Street
Brisbane. Q

DRAWING NAME

**EXTERNAL ROADWORKS
STORMWATER DRAINAGE
CATCHMENT PLAN**

APPROVED PROJECT DIRECTOR	REVIEWED PROJECT MANAGER	DESIGNED
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
DATE 4.12.07	SGM PROJECT No QB50061	DESIGN REVIEW

A1

SKM Sinclair Knight Merz Pty Ltd
A.C.N. 001 024 095
368 Ann Street
Brisbane QLD 4000 Australia
Telephone (07) 3244 7100
Facsimile (07) 3244 7300

BUILDING	DISCIPLINE	DWG No.	REV.
G	C	520	1

LEGEND

- 38
0.468ha DRAINAGE CATCHMENT LABEL, AREA
 DRAINAGE CATCHMENT BOUNDARY

