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Your Ref:

Our Ref: SDW3620/24
WYP13135/21

Enquiries: Rabin Khad Thakuri
Tel: (03) 8754 4999

23 October 2024

Spiire Australia Pty Ltd
L 6 414 La Trobe St
MELBOURNE VIC 3000

Dear Rafe Wilson

RE: HARLOW STAGE 5 - CONSTRUCTION PLAN APPROVAL

Please be advised that the road and drainage construction plans submitted to Council for Harlow Stage 5 are approved subject to the following conditions:-

1. Prior to the placement of concrete kerb and channel, all constructed drainage lines, including easement drains and AG drains, must undergo inspection by an independent testing organisation using closed circuit television (CCTV). Report must be provided to Council as per Wyndham City Council's Technical Specification Section 701 – Underground Stormwater Drains.
2. **Prior to commencement of works, an on-site pre-commencement meeting must be held between Council, the Engineering Consultant and the Contractor. Please contact Robert Troiano from Council on 0407802834 to book a precommencement meeting.**
3. **Prior to installation of any Tactile Ground Surface Indicators, the proposed product must be inspected and approved by Council. Please notify Councils construction supervisor to book an inspection prior to installation.**
4. **Prior to commencement of works, the Plan of Subdivision must be certified by Council.**
5. **Prior to commencement of approved works within ANY existing road reserves, the consultant/contractor MUST apply for consent to work within the road reserves from Council or any other relevant responsible authorities. The Contractor will be responsible for maintain all existing assets within the limit of works as demonstrated on the approved plans.**
6. **A free-flowing drainage outlet must be established and maintained throughout the entirety of construction works. No road boxing works are to commence in the absence of a free-flowing drainage outlet.**
7. Prior to commencement of works, the consultant/contractor shall provide to Council the following information:-
 - source of quarry material; and
 - optimum moisture content and maximum modified dry density of the F.C.R to be used (from N.A.T.A. approved laboratory).

If the source of the quarry material is changed during the course of the works, new test results shall be provided.

8. Please provide a Site Environment Management Plan (SEMP) to Council for approval. To submit a SEMP, complete Wyndham Council's online form after following the instructions on the website.
9. Construction is to commence within twelve (12) months of approval, otherwise construction plans and specifications are to comply with design standards current at the time of re-submission.
10. Filled allotments shall be compacted in 150mm maximum layers, with compaction tests being taken at not more than 300mm lift on all allotments and filled areas. The test results and location of the tests on each allotment shall be forwarded to Council.
11. Wyndham City Council Specifications and standard details shall be read in conjunction with the approved plans.
12. Prior to Council issuing a Statement of Compliance, pursuant to the Subdivision Act 1988, your firm shall provide to Council the following:
 - Payment of construction supervision fees amounting to 2.5% of the total cost of road and drainage works;
 - Payment of a maintenance bond amounting to 5% of the total cost of road and drainage works;
 - An electronic copy of all as constructed drawings and relevant files in both AutoCad DWG and Adobe PDF file formats, to either subdiveng@wyndham.vic.gov.au or via Objective Connect. Please note that the minimum resolution of PDF files required is 300dpi;
 - An electronic copy of drainage catchment plans and detailed computations in Adobe PDF file format to either subdiveng@wyndham.vic.gov.au or via Objective Connect;
 - As constructed asset information for drainage and related assets in digital format in accordance with "D-Spec" to either subdiveng@wyndham.vic.gov.au or via Objective Connect; and
 - As-constructed asset information for assets within the road reserve in digital format in accordance with "R-Spec" to either subdiveng@wyndham.vic.gov.au or via Objective Connect; and
 - The A.H.D levels and M.G.A co-ordinates of the high stability P.S.Ms.
 - For further information please see: <https://www.wyndham.vic.gov.au/subdivisionguidelines>
13. Easements are to be created to cover all services which cross any part of private allotments.
14. During construction of works under this permit, access to and egress from the subject land must be via a route designed and approved by the Council. Where practical this access should be remote from established residential areas.
15. Provide Landscaping Plan for approval by Council. Please contact subdivlud@wyndham.vic.gov.au to arrange a pre-application meeting prior to the submission of landscape plans for municipal reserves and/or public open space.
16. WorkSafe Victoria is to be advised via E-mail (construction@workcover.vic.gov.au) of these Subdivisional works with the following details:
 - Name of the principal contractor
 - Name and phone contact of relevant Engineering Consultants supervisor dealing with the works
 - Brief description of the works
 - Locality/address of the works
 - Estimated commencement date of the works, and
 - Expected completion date of the works.

17. In undertaking the construction works, the developer shall ensure all works are undertaken in accordance with the OH & S Act, Regulation and Codes, and shall maintain a safe workplace for Council's staff undertaking inspections. The supervision of works by Council staff only extends to the quality of Council's future infrastructure and does not include ensuring that the works are undertaken safely.

Please find a set of stamped approved plans attached.

Yours sincerely,



STAN PESKA

ENGINEERING SUBDIVISIONS CO-ORDINATOR

Encl: (1) Stamped approved plans

HARLOW ESTATE STAGE 5

GENERAL NOTES:

SURVEY

- ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM AND ALL COORDINATES ARE TO MAP GRID OF AUSTRALIA (MGA) 2020, ZONE 55
- ALL EXISTING SURFACE LEVELS SHOWN ON THE ENGINEERING DRAWINGS HAVE BEEN INTERPOLATED FROM A DIGITAL TERRAIN MODEL. THESE LEVELS HAVE BEEN USED AS THE BASIS FOR ALL ENGINEERING DESIGN AND DETERMINATION OF QUANTITIES AND ARE ACCURATE TO WITHIN $\pm 0.05\text{m}$.
- ROAD CHAINAGES REFER TO ROAD CENTRELINES. CHAINAGES FOR INTERSECTIONS AND CUL-DE-SACS REFER TO THE LIP OF KERB

EARTHWORKS

- THE LOCATION OF EXISTING SERVICES SHOULD BE DETERMINED BY THE CONTRACTOR PRIOR TO COMMENCING ANY EXCAVATION BY CONTACTING ALL LOCAL SERVICE AUTHORITIES. ANY EXISTING SERVICES SHOWN ON THESE DRAWINGS ARE OFFERED AS A GUIDE ONLY AND ARE NOT GUARANTEED AS CORRECT.
- WHERE REQUIRED ANY BUILDINGS, TROUGHS, FENCES AND OTHER STRUCTURES ON SITE ARE TO BE REMOVED AS DIRECTED BY THE ENGINEER. THE COST OF REMOVAL IS TO BE INCLUDED IN THE OVERALL EARTHWORKS FIGURE UNLESS A SPECIFIC ITEM FOR REMOVAL IS DENOTED IN THE SCHEDULE.
- ALL EXCAVATED ROCK AND SURPLUS SPOIL TO BE REMOVED AND DISPOSED OFF SITE UNLESS NOTED OTHERWISE.
- ALL FILLING ON LOTS AND WITHIN ROAD RESERVES GREATER THAN 200mm IS TO BE UNDERTAKEN USING LEVEL 1 SUPERVISION AND BE COMPLETED IN ACCORDANCE WITH AS 3798-2007. FILL AREAS ARE TO BE STRIPPED OF TOPSOIL, FILLED AND REPLACED WITH TOPSOIL (WHERE REQUIRED) TO OBTAIN THE FINAL LEVELS SHOWN ON THE DRAWINGS.
- FILLING MATERIAL IS TO BE IN ACCORDANCE WITH THE SPECIFICATION, AS 3798-2007 & TO THE SATISFACTION OF COUNCIL AND THE SUPERINTENDENT.
- ALL BATTERS SHALL BE 1 IN 6, UNLESS OTHERWISE SHOWN.
- NO FILL OR STOCKPILING OF MATERIAL IS TO BE PLACED ON ANY RESERVE FOR PUBLIC OPEN SPACE UNLESS OTHERWISE DIRECTED OR APPROVED BY THE SUPERINTENDENT.
- TBM'S TO BE RE-ESTABLISHED BY THE LICENSED SURVEYOR IF FOUND TO BE MISSING AT THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR CARE AND MAINTENANCE OF TBM'S THEREAFTER.
- AT LEAST 3 DAYS PRIOR TO COMMENCING WORK ON EXCAVATIONS IN EXCESS OF 150m DEEP, A NOTIFICATION FORM MUST BE SENT TO WORKSAFE. THE CONTRACTOR IS TO COMPLY WITH WORKSAFE, THE MINES (TRENCHES) REGULATION 1982, THE MINES ACT 1958 AND OCCUPATIONAL HEALTH AND SAFETY ACT 1985, 2004.
- ALL SERVICE TRENCHES UNDER DRIVEWAYS, FOOTPATHS AND PARKING BAYS TO BE BACKFILLED WITH CLASS 2 CRUSHED ROCK. SERVICE TRENCHES LESS THAN 750mm BEHIND KERB AND CHANNEL OR PAVED TRAFFIC AREAS ARE ALSO TO BE BACKFILLED WITH COMPACTED CLASS 2 CRUSHED ROCK.
- WHERE REQUIRED, ALL EXISTING DAMS, DEPRESSIONS AND DRAINS ARE TO BE BREACHED, DRAINED, DESLUGGED AND SHALL BE EXCAVATED TO A CLEAN FIRM BASE. THE SURFACE SHALL BE INSPECTED, APPROVED AND LEVELED BY THE ENGINEER PRIOR TO COMMENCEMENT OF FILLING. THE FILL SHALL BE APPROVED SELECTED ON SITE MATERIAL OR APPROVED IMPORTED MATERIAL. THE FILL SHALL BE PLACED UNDER CONTROLLED MOISTURE CONDITIONS IN ACCORDANCE WITH THE SPECIFICATION.

SERVICES

- GAS AND WATER CONDUITS ARE TO BE:
Ø50mm CLASS 12 P.V.C. - SINGLE SERVICE
Ø100mm CLASS 12 P.V.C. - DUAL SERVICE (DRINKING AND NON DRINKING WATER)

WITH THE FOLLOWING MINIMUM COVER TO FINISHED SURFACE LEVELS:
ROAD PAVEMENT - 0.80m
VERGE, FOOTPATHS - 0.45m
- ALL SERVICE CONDUIT TRENCHES UNDER ROAD PAVEMENTS TO BE BACKFILLED IN ACCORDANCE WITH RELEVANT MUNICIPALITY OR ROAD AUTHORITY SPECIFICATION.
- WATER TAPPINGS TO BE LOCATED IN CENTRE OF ALLOTMENTS UNLESS OTHERWISE SHOWN.
- TELSTRA ARE TO BE NOTIFIED 7 DAYS PRIOR TO PLACEMENT OF CONCRETE WORKS.
- STORM WATER DRAINAGE**
- AG/SUBSOIL DRAIN TO BE LAID BEHIND KERB WHERE REQUIRED IN ACCORDANCE WITH THE COUNCIL STANDARD DRAWINGS AND CONNECTED TO UNDERGROUND DRAINAGE.
- ALL STORMWATER DRAINS ARE TO BE CLASS '2' R.C. PIPES UNLESS OTHERWISE SHOWN. ALL R.C. JOINTS ARE TO BE RUBBER RING JOINTED (R.R.J.).
- CENTRELINES OF ALL EASEMENT DRAINS ARE OFFSET 10m OR 2.2m (WHERE OUTSIDE OF SEWER) FROM THE PROPERTY LINE UNLESS SHOWN OTHERWISE.
- WHERE CURVED PIPES ARE SHOWN ON THE FACE PLANS THEY ARE TO BE LAID PARALLEL TO THE BACK OF KERB, EXCEPT WHERE A RADIUS HAS BEEN SPECIFICALLY

- NOMINATED CURVED PIPES ARE TO BE APPROVED BY COUNCIL AND IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.

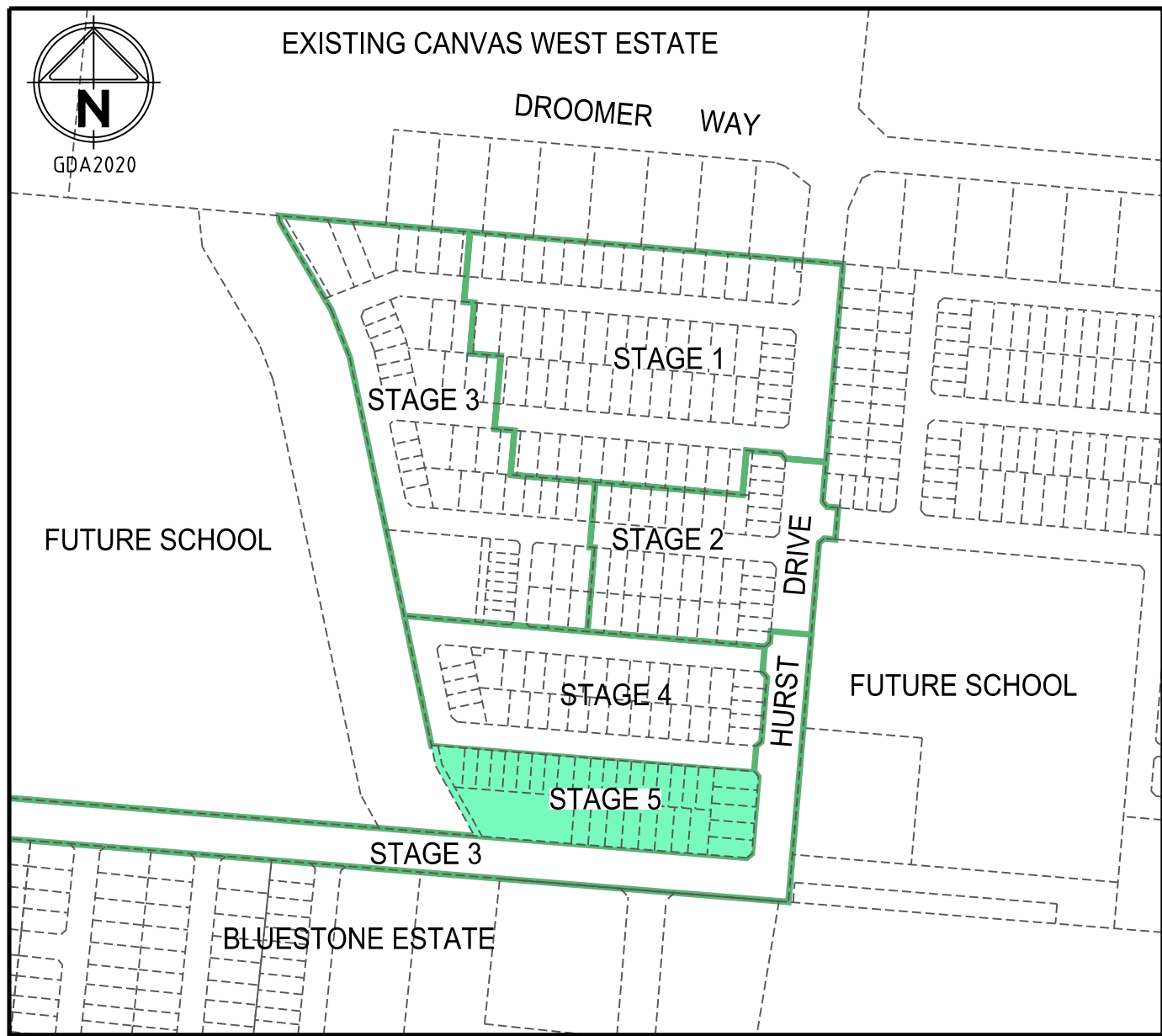
PAVEMENT

- PAVEMENT DEPTHS MAY BE MODIFIED AS DIRECTED BY THE SUPERINTENDENT. PAVEMENT TO BE BOXED OUT TO MINIMUM DEPTH DENOTED, INSPECTED AND IF SUBGRADE IS IN QUESTION, FURTHER TESTING CARRIED OUT TO DETERMINE FINAL PAVEMENT DEPTH.
- WHERE PAVEMENT IS CONSTRUCTED ON FILLING, FILL MATERIAL IS TO BE APPROVED BY THE SUPERINTENDENT AND COUNCIL. FILLING TO BE CONSTRUCTED IN LAYERS 150mm THICK WITH COMPACTION ACHIEVING 95% AUSTRALIAN STANDARD DENSITY.
- WHEN PAVEMENT EXCAVATION IS IN ROCK ALL LOOSE MATERIAL (INCLUDING ROCKS AND CLAY) MUST BE REMOVED. THE SUB-GRADE MUST THEN BE REGULATED WITH COUNCIL APPROVED MATERIAL.

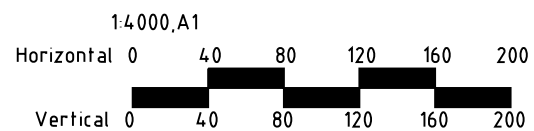
SIGNAGE AND LINEMARKING

- LINEMARKING AND SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH AS 1742 SERIES UNLESS NOTED OTHERWISE. STREET SIGNS ARE TO BE INSTALLED IN ACCORDANCE WITH COUNCIL STANDARDS.
- ALL TEMPORARY WARNING SIGNS USED DURING CONSTRUCTION SHALL BE SUPPLIED AND MAINTAINED IN ACCORDANCE WITH AS 1742-3.
- TACTILE GROUND SURFACE INDICATORS ARE TO BE INSTALLED IN ACCORDANCE WITH THE DISABILITY DISCRIMINATION ACT AND RELEVANT COUNCIL STANDARD DRAWINGS.
- PRAM CROSSINGS TO BE CONSTRUCTED IN ACCORDANCE WITH EDM STANDARD DRAWING No. 403.
- CONTRACTOR TO PROVIDE AN ENVIRONMENTAL MANAGEMENT PLAN INCLUDING SILT AND SEDIMENT RUNOFF PROTECTION ETC. PRIOR TO THE COMMENCEMENT OF WORKS.
- ALL TREES AND SHRUBS ARE TO BE RETAINED UNLESS OTHERWISE SHOWN. IF ROAD AND DRAINAGE CONSTRUCTION NECESSITATES THEIR REMOVAL, WRITTEN PERMISSION MUST BE OBTAINED FROM THE SUPERINTENDENT.
- TREES NOT SPECIFIED FOR REMOVAL ARE TO BE PROTECTED WITH APPROPRIATE EXCLUSION FENCING PRIOR TO COMMENCEMENT OF ANY WORKS.

ENVIRONMENTAL



LOCALITY PLAN



DRAWING SCHEDULE

DRAWING	DESCRIPTION	SHEET No.	REVISION
309441R01	FACE SHEET	1	B
309441R02	ROAD & DRAINAGE FACE PLAN	2	B

**Planning and Environment Act 1987
Wyndham Planning Scheme**

**Approved Plan As Required
under Condition 50
Permit No WYP13135/21
Date 23/10/2024**

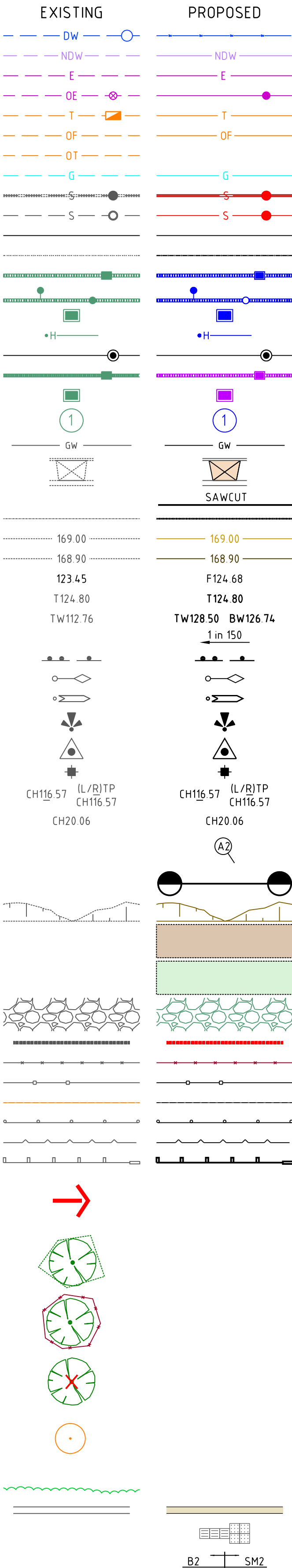


WARNING
BEWARE OF UNDERGROUND/OVERHEAD SERVICES
THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. SPECIAL CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTION PROCEDURES UNDER OVERHEAD ELECTRICITY TRANSMISSION LINES.

LEGEND

DESCRIPTION

- WATER MAIN, VALVE AND HYDRANT
- WATER RECYCLED
- UNDERGROUND ELECTRICITY
- OVERHEAD ELECTRICITY & POLE
- TELECOMMUNICATIONS & SERVICE PIT
- OPTIC FIBRE
- OVERHEAD TELECOMMUNICATIONS
- GAS MAIN
- BRANCH SEWER & MAINTENANCE STRUCTURE
- SEWER & MAINTENANCE STRUCTURE
- SEWER RISING MAIN
- CENTRAL INVERT
- COUNCIL STORMWATER DRAIN AND PIT
- STORM WATER DRAINAGE PROPERTY INLETS
- COUNCIL STORM WATER PITS
- HOUSE DRAIN
- AG DRAIN AND FLUSHER
- MWC STORM WATER DRAIN & PIT
- MWC STORM WATER PITS
- STORM WATER DRAINAGE PIT NUMBER
- GAS & WATER CONDUITS
- CONCRETE VEHICLE CROSSING
- PAVEMENT SAWCUT LINE
- RIDGE / CHANGE OF GRADE LINE
- SURFACE CONTOUR MINOR
- SURFACE CONTOUR MAJOR
- SURFACE LEVEL
- BATTER LEVEL (TOP / TOE)
- RETAINING WALL LEVEL (TOP/BOTTOM)
- EARTHWORKS GRADE
- SIGN AND POST
- LIGHT & POLE (BY OTHERS)
- STREET SIGN
- PERMANENT SURVEY MARK
- TEMPORARY BENCH MARK
- BOLLARD
- ROAD CHAINAGES
- LOT CHAINAGES
- SETOUT POINT
- LIMIT OF WORKS
- BATTER
- EXCAVATION GREATER THAN 0.20m
- FILLING GREATER THAN 0.20m
- ROCK BEACHING
- RETAINING WALL
- FENCE - TREE PROTECTION
- FENCE - VEHICLE EXCLUSION
- FENCES
- GUARD RAIL
- OVERLAND FLOW PATH
- TREE (& SURVEYED CANOPY) TO BE RETAINED
- TREE TO BE PROTECTED
- TREE TO BE REMOVED
- STREET TREE CLEARANCE ZONE
- VEGETATION LINE
- FOOTPATH
- TACTILE GROUND SURFACE INDICATOR
- KERB TRANSITION



Rev	Amendments	Approved	Date
B	ISSUED TO COUNCIL	M.R	23/08/24
A	ISSUED TO COUNCIL	M.R	04/07/24



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Harlow
T A R N E I T

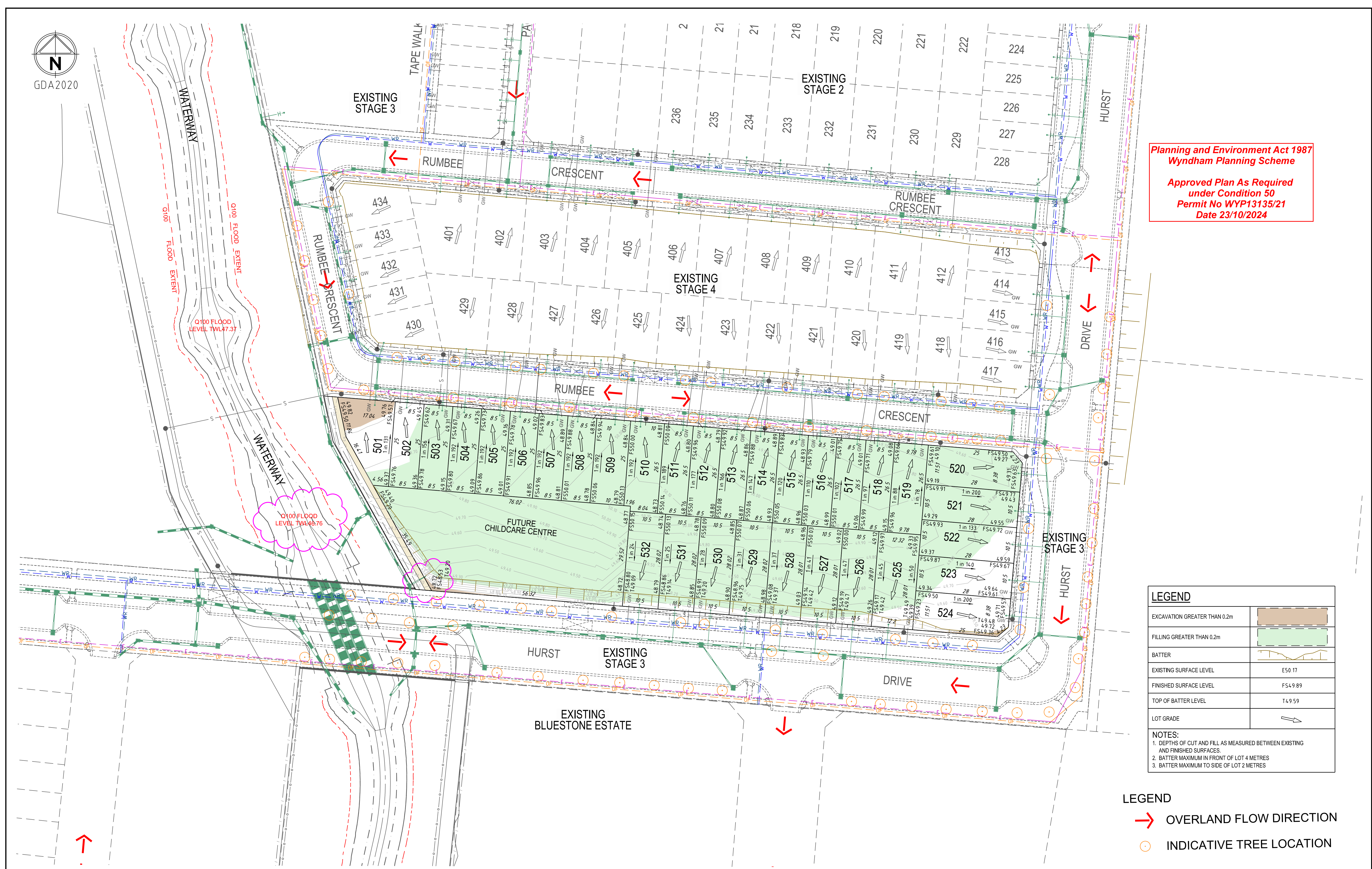
Designed
R. WEINBER
Authorised
M. READMAN
Checked
R. WILSON
Date
04/07/24

**HARLOW ESTATE
STAGE 5
FACE SHEET**
SIG GROUP
WYNDHAM CITY COUNCIL

PRELIMINARY

Drg No
309441R01

Rev
B



Planning and Environment Act 1987
Wyndham Planning Scheme

Approved Plan As Required
under Condition 50
Permit No WYP13135/21
Date 23/10/2024

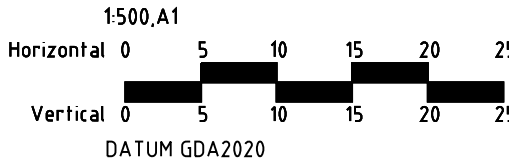
LEGEND	
EXCAVATION GREATER THAN 0.2m	
FILLING GREATER THAN 0.2m	
BATTER	
EXISTING SURFACE LEVEL	E50.17
FINISHED SURFACE LEVEL	FS49.89
TOP OF BATTER LEVEL	T49.59
LOT GRADE	
NOTES: 1. DEPTHS OF CUT AND FILL AS MEASURED BETWEEN EXISTING AND FINISHED SURFACES. 2. BATTER MAXIMUM IN FRONT OF LOT 4 METRES 3. BATTER MAXIMUM TO SIDE OF LOT 2 METRES	

LEGEND

→ OVERLAND FLOW DIRECTION

○ INDICATIVE TREE LOCATION

B	FUTURE CHILDCARE CENTRE DRAINAGE LPD. WATERWAY TWL ADDED	M.R	23/08/24
	FS LEVELS UPDATED		
A	FIRST ISSUE	M.R	04/07/24
Rev	Amendments	Approved	Date



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Designed R. WEINBER	Checked R. WILSON
Authorised M. READMAN	Date 04/07/24

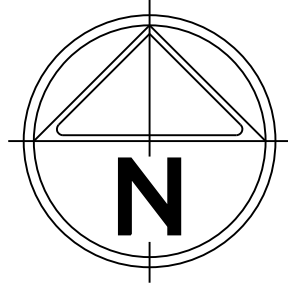
**HARLOW ESTATE
STAGE 5
ROAD & DRAINAGE FACE PLAN**

SIG GROUP
WYNDHAM CITY COUNCIL

PRELIMINARY

Drg No
309441R02

Rev
B



100YR OVERLAND FLOW COMPUTATIONS

Project: Harlow Estate - Stage 5
Project Number: 309441

Version: P1

Road Name	Hurst Drive	Hurst Drive	Hurst Drive	Hurst Drive
Section:	Section AA	Section XX	Section YY	Section ZZ
Catchment Areas:				
Lots (ha)	0.35	0.44	0.64	0.97
Road Reserves (ha)	0.13	0.17	0.45	1.06
Reserves (ha)	0.00	0.00	0.00	0.00
Totals (ha)	0.48	0.61	1.09	2.03
Minor Flow (5 Year):				
Equivalent Area (ha)	0.32	0.41	0.71	1.29
Time of Concentration (min)	6.67	6.92	7.56	9.33
Intensity (mm/hr)	75.06	73.95	71.30	65.16
Design Flow (m3/s)	0.07	0.08	0.14	0.23
Major Flow (100 Year):				
Equivalent Area (ha)	0.41	0.52	0.90	1.64
Time of Concentration (min)	7.33	7.83	9.12	12.65
Intensity (ha)	157.68	153.12	142.79	121.60
Design Flow (m3/s)	0.18	0.22	0.36	0.55
Overland Flow:				
Qgap (Q100-Q5 Estimate)	0.11	0.14	0.22	0.32

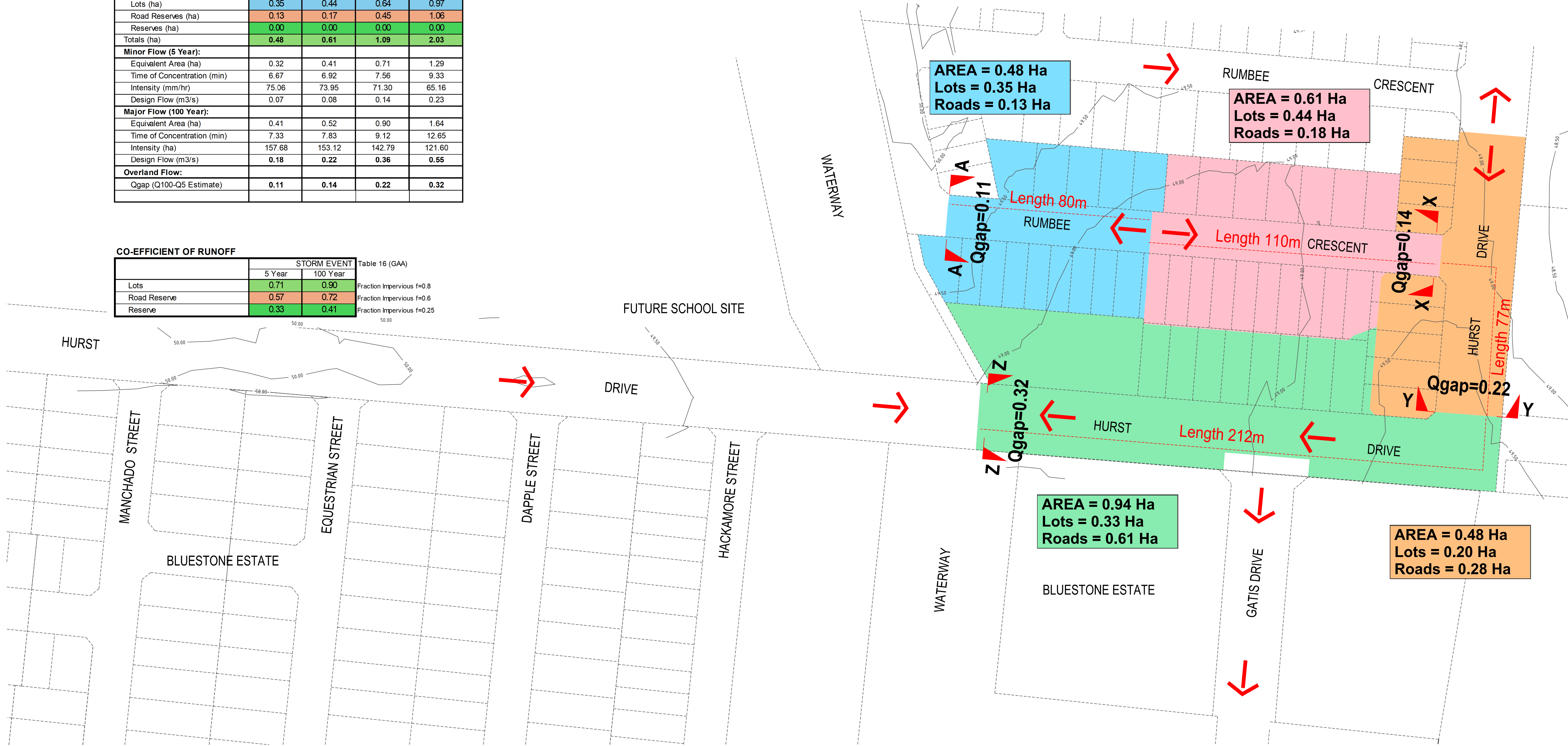
CO-EFFICIENT OF RUNOFF			Table 16 (GAA)
	STORM EVENT		
	5 Year	100 Year	
Lots	0.71	0.90	Fraction Impervious f=0.8
Road Reserve	0.57	0.72	Fraction Impervious f=0.6
Reserve	0.33	0.41	Fraction Impervious f=0.25

Time Pipe

	Flow Length (m)	Velocity (m/s)	Tinitial (min)	Tc (mins)
Section AA	80	2	6	6.67
Section XX	110	2	6	6.92
Section YY	187	2	6	7.56
Section ZZ	399	2	6	9.33

Time Overland

	Flow Length (m)	Velocity (m/s)	Tinitial (min)	Tc (mins)
Section AA	80	1	6	7.33
Section XX	110	1	6	7.83
Section YY	187	1	6	9.12
Section ZZ	399	1	6	12.65



A	ISSUE TO COUNCIL	M.R	23/08/24
Rev	Amendments	Approved	Date

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Harlow
T A R N E I T

Designed
R. WEINBER

Authorised
M. READMAN

Checked
R. WILSON

Date
23-08-2024

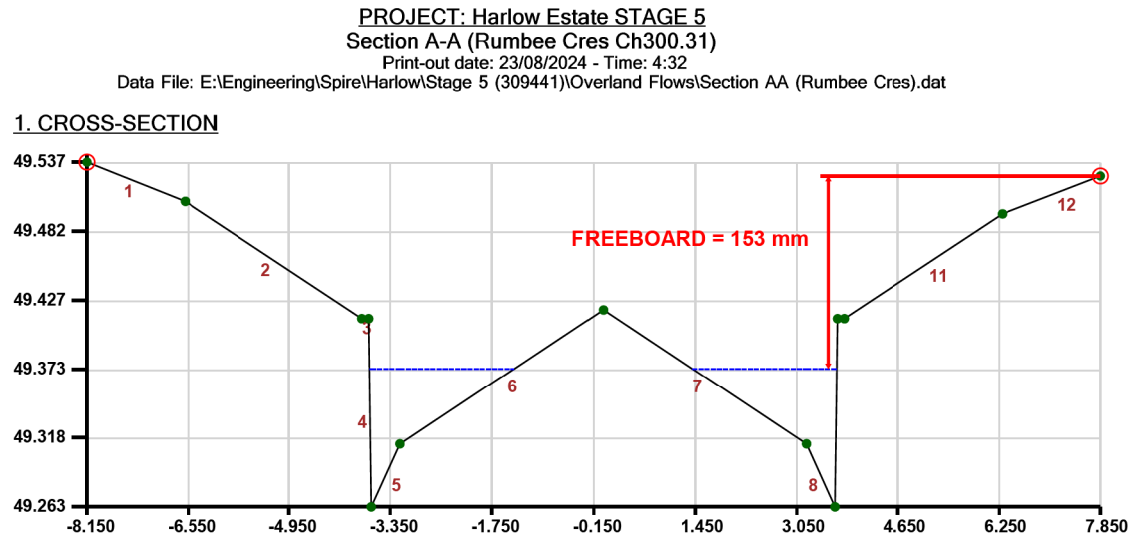
HARLOW ESTATE
STAGE 5
Q100 OVERLAND FLOW PLAN

SIG GROUP
WYNDHAM CITY COUNCIL

PRELIMINARY

Drg No
309449D01

Rev
A



2. DISCHARGE INFORMATION

1% AEP storm event
Design discharge after construction of retarding basin

Required overland / channel / watercourse discharge = 0.11 cumecs (the cross-section cannot carry this discharge)

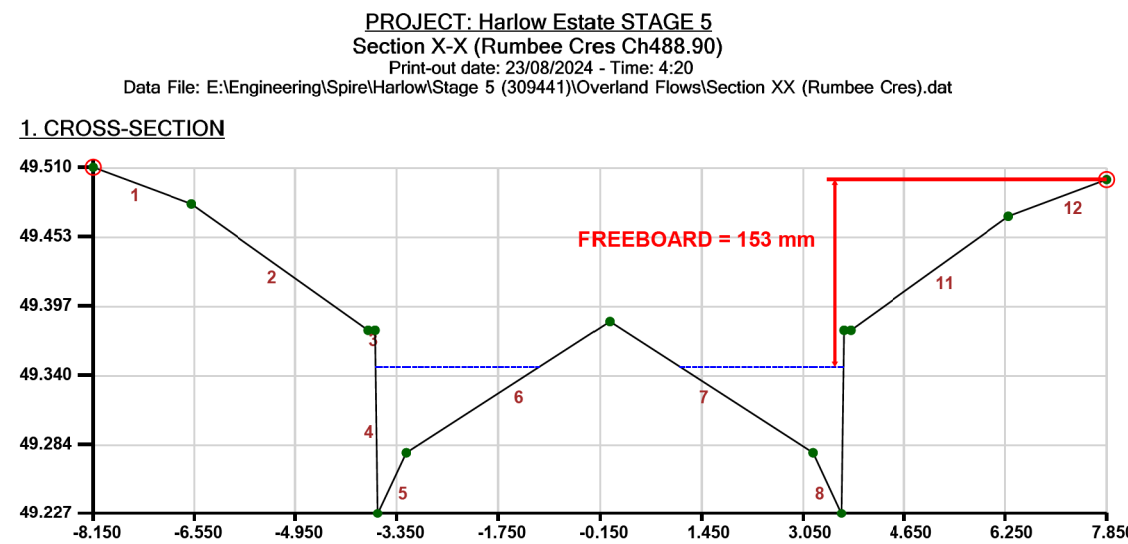
3. RESULTS Water surface elevation = 49.373 m

High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.000	0.106	0.000	0.106
D(Max) = Max. Depth (m):	0.000	0.110	0.000	0.110
D(Ave) = Ave. Depth (m):	0.000	0.041	0.000	0.041
V = Ave. Velocity (m/s):	0.000	0.565	0.000	0.565
D(Max) x V (cumecs/m):	0.000	0.062	0.000	0.062
D(Ave) x V (cumecs/m):	0.000	0.023	0.000	0.023
Froude Number:	0.000	0.889	0.000	N/A
Area (m²):	0.000	0.187	0.000	0.187
Wetted Perimeter (m):	0.000	4.724	0.000	4.724
Flow Width (m):	0.000	4.548	0.000	4.548
Hydraulic Radius (m):	0.000	0.040	0.000	0.040
Composite Manning's n:	0.000	0.015	0.000	N/A
Split Flow?	-	-	-	Yes

4. CROSS-SECTION DATA

SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-8.150	49.537	-6.600	49.506	0.013
2	-6.600	49.506	-3.800	49.413	0.035
3	-3.800	49.413	-3.690	49.413	0.013
4	-3.690	49.413	-3.650	49.263	0.013
5	-3.650	49.263	-3.200	49.313	0.013
6	-3.200	49.313	0.000	49.420	0.015
7	0.000	49.420	3.200	49.313	0.015
8	3.200	49.313	3.650	49.263	0.013
9	3.650	49.263	3.690	49.413	0.013
10	3.690	49.413	3.800	49.413	0.013
11	3.800	49.413	6.300	49.496	0.035
12	6.300	49.496	7.850	49.526	0.013



2. DISCHARGE INFORMATION

1% AEP storm event
Design discharge after construction of retarding basin

Required overland / channel / watercourse discharge = 0.14 cumecs

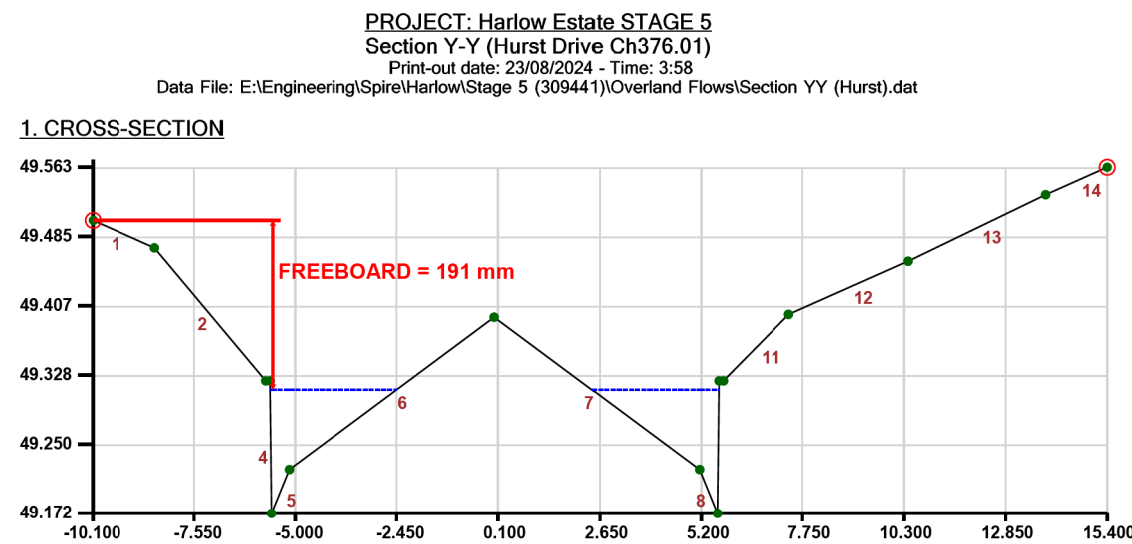
3. RESULTS Water surface elevation = 49.347 m

High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.000	0.143	0.000	0.143
D(Max) = Max. Depth (m):	0.000	0.120	0.000	0.120
D(Ave) = Ave. Depth (m):	0.000	0.046	0.000	0.046
V = Ave. Velocity (m/s):	0.000	0.605	0.000	0.605
D(Max) x V (cumecs/m):	0.000	0.073	0.000	0.073
D(Ave) x V (cumecs/m):	0.000	0.028	0.000	0.028
Froude Number:	0.000	0.963	0.000	N/A
Area (m²):	0.000	0.236	0.000	0.236
Wetted Perimeter (m):	0.000	5.343	0.000	5.343
Flow Width (m):	0.000	5.151	0.000	5.151
Hydraulic Radius (m):	0.000	0.044	0.000	0.044
Composite Manning's n:	0.000	0.015	0.000	N/A
Split Flow?	-	-	-	Yes

4. CROSS-SECTION DATA

SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-8.150	49.510	-6.600	49.480	0.013
2	-6.600	49.480	-3.800	49.377	0.035
3	-3.800	49.377	-3.690	49.377	0.013
4	-3.690	49.377	-3.650	49.227	0.013
5	-3.650	49.227	-3.200	49.277	0.013
6	-3.200	49.277	0.000	49.384	0.015
7	0.000	49.384	3.200	49.277	0.015
8	3.200	49.277	3.650	49.227	0.013
9	3.650	49.227	3.690	49.377	0.013
10	3.690	49.377	3.800	49.377	0.013
11	3.800	49.377	6.300	49.470	0.035
12	6.300	49.470	7.850	49.500	0.013



2. DISCHARGE INFORMATION

1% AEP storm event
Design discharge after construction of retarding basin

Required overland / channel / watercourse discharge = 0.22 cumecs

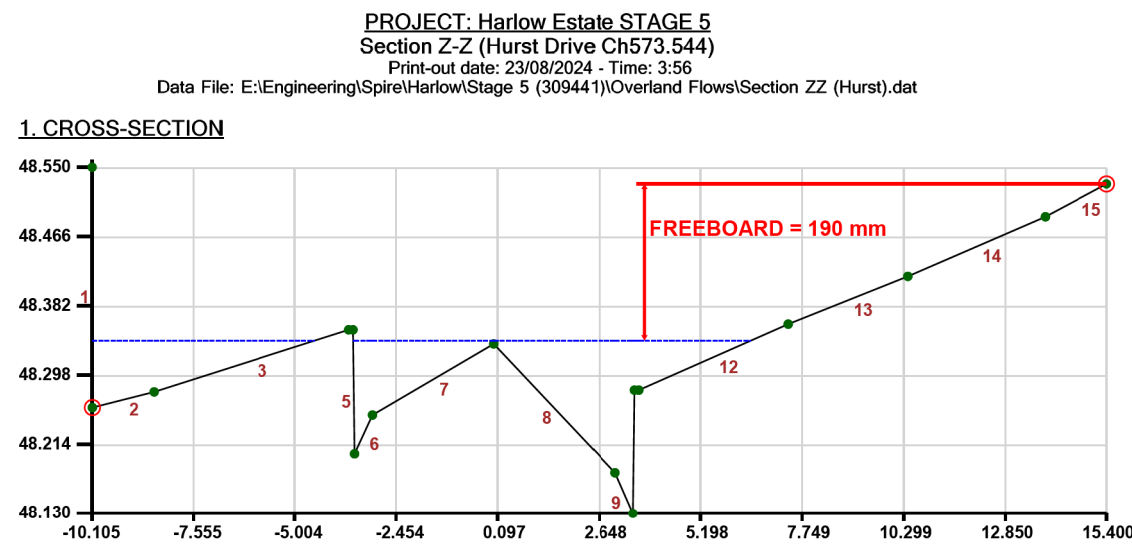
3. RESULTS Water surface elevation = 49.312 m

High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.000	0.240	0.000	0.240
D(Max) = Max. Depth (m):	0.000	0.140	0.000	0.140
D(Ave) = Ave. Depth (m):	0.000	0.055	0.000	0.055
V = Ave. Velocity (m/s):	0.000	0.683	0.000	0.683
D(Max) x V (cumecs/m):	0.000	0.096	0.000	0.096
D(Ave) x V (cumecs/m):	0.000	0.038	0.000	0.038
Froude Number:	0.000	0.929	0.000	N/A
Area (m²):	0.000	0.351	0.000	0.351
Wetted Perimeter (m):	0.000	6.588	0.000	6.588
Flow Width (m):	0.000	6.364	0.000	6.364
Hydraulic Radius (m):	0.000	0.053	0.000	0.053
Composite Manning's n:	0.000	0.015	0.000	N/A
Split Flow?	-	-	-	Yes

4. CROSS-SECTION DATA

SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-10.100	49.503	-8.550	49.472	0.013
2	-8.550	49.472	-5.750	49.322	0.035
3	-5.750	49.322	-5.640	49.322	0.013
4	-5.640	49.322	-5.600	49.172	0.013
5	-5.600	49.172	-5.150	49.222	0.013
6	-5.150	49.222	0.000	49.394	0.015
7	0.000	49.394	5.150	49.222	0.015
8	5.150	49.222	5.600	49.172	0.013
9	5.600	49.172	5.640	49.322	0.013
10	5.640	49.322	5.750	49.322	0.013
11	5.750	49.322	7.400	49.397	0.035
12	7.400	49.397	10.400	49.457	0.013
13	10.400	49.457	13.850	49.532	0.035
14	13.850	49.532	15.400	49.563	0.013



2. DISCHARGE INFORMATION

1% AEP storm event
Design discharge after construction of retarding basin

Required overland / channel / watercourse discharge = 0.32 cumecs

3. RESULTS Water surface elevation = 49.340 m

High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.000	0.345	0.000	0.345
D(Max) = Max. Depth (m):	0.081	0.210	0.000	0.210
D(Ave) = Ave. Depth (m):	0.041	0.055	0.000	0.055
V = Ave. Velocity (m/s):	0.043	0.399	0.000	0.399
D(Max) x V (cumecs/m):	0.003	0.084	0.000	0.084
D(Ave) x V (cumecs/m):	0.002	0.022	0.000	0.022
Froude Number:	0.068	0.542	0.000	N/A
Area (m²):	0.000	0.863	0.000	0.863
Wetted Perimeter (m):	0.081	15.832	0.000	15.913
Flow Width (m):	0.001	15.600	0.000	15.601
Hydraulic Radius (m):	0.001	0.055	0.000	0.054
Composite Manning's n:	0.013	0.025	0.000	N/A
Split Flow?	-	-	-	Yes

4. CROSS-SECTION DATA

SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-10.105	48.550	-10.100	48.259	0.013
2	-10.100	48.259	-8.550	48.278	0.013
3	-8.550	48.278	-3.650	48.353	0.035
4	-3.650	48.353	-3.540	48.353	0.013
5	-3.540	48.353	-3.500	48.203	0.013
6	-3.500	48.203	-3.050	48.250	0.013
7	-3.050	48.250	0.000	48.336	0.015
8	0.000	48.336	3.050	48.180	0.015
9	3.050	48.180	3.500	48.130	0.013
10	3.500	48.130	3.540	48.280	0.013
11	3.540	48.280	3.650	48.280	0.013
12	3.650	48.280	7.400	48.360	0.035
13	7.400	48.360	10.400	48.418	0.013
14	10.400	48.418	13.850	48.490	0.035

A	ISSUE TO COUNCIL	M.R	23/08/24
Rev	Amendments	Approved	Date



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Designed R. WEINBER	Checked R. WILSON
Authorised M. READMAN	Date 10-01-2023

HARLOW ESTATE
STAGE 5
Q100 OVERLAND FLOW CROSS SECTIONS

SIG GROUP
WYNDHAM CITY COUNCIL

PRELIMINARY Drg No
309441D02

Rev
A