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COMPLEX PROBLEMS
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Unit 1, 3 Teamster Close,
Tuggerah NSW 2259

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1300 874 294

PROVISION OF CONSULTING ENGINEERING SERVICES

RESIDENTIAL SUBDIVISION
20 HERITAGE DRIVE
CHISHOLM NSW 2322
STORMWATER MANAGEMENT PLAN REPORT

Prepared for: **Revelop Building and Developments Pty. Ltd.**
Suite 506, Level 5, 55 Phillip Street
PARRAMATTA NSW 2150

Prepared by: **Triaxial Consulting Pty Ltd**
Unit 1
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TUGGERAH NSW 2259

22 DECEMBER 2021

Document Control

Client	**Revelop Building and Developments Pty. Ltd.**		
Prepared By:	Triaxial Consulting Pty Ltd		
Report Author	Benjamin Koopman		
File Reference:	TX15901.00 SWMP [A] (Subdivision)		
Report Date:	22 December 2021		
Current Revision:	0		
Revision History:	**Report Author**	**Reviewed By**	**Report Date**
0	B.K	B.W	22/12/2021

22 December 2021

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Revelop Building and Developments Pty. Ltd.
Suite 506, Level 5, 55 Phillip Street
PARRAMATTA NSW 2150

Re: Provision of Consulting Engineering Services
Residential Subdivsion 20 Heritage Drive, Chisholm NSW 2322
Stormwater Management Plan Report
Triaxial Reference: TX15901.00 SMPR [A] (Subdivision)

Revelop Building and Developments Pty. Ltd. (The Client) has engaged Triaxial Consulting to complete a conceptual Stormwater Management Plan and Report for the proposed Residential Subdivision development at Lot 1 DP 1224700, 20 Heritage Drive, Chisholm (Subject Site). Triaxial has prepared DA Engineering Drawings which should be referenced during review of this report. The Subject Site is located within the Maitland City Council LGA.

The Client proposes to construct a residential subdivision and associated infrastructure on the subject site as detailed in the architectural plans attached at Appendix A for reference. For developments of this type, Council requires stormwater to be managed both quantitatively and qualitatively prior to discharging into receiving water or receiving drainage infrastructure. This is to be undertaken both during and after construction and involves a number of modelling techniques to determine the measures required to achieve Council's targets outlined in their Manual of Engineering Standards and Development Control Plan.

During construction, implementation of water quality control as defined in the NSW Department of Housing Publication "Soils and Construction" (The Blue Book) is to be adopted to maximise the capture of sediments and minimise erosion of disturbed soils during the construction phase.

This report summarises the modelling techniques employed, the results of the modelling, and provides recommendations of economical methods to achieve Council's design requirements. It will also provide a guideline to allow designers to provide detailed designs in the future.

1. EXISTING SITE

The Subject Site is located on the Eastern alignment of Heritage Drive. It is bounded on the West and East by Heritage Drive and Settlers Boulevard respectively. The site of the subdivision is zoned R1: General Residential and is shown below in figure 1.

Figure 1 - Locality Map for 20 Heritage Drive, Chisholm NSW

(Source: https://maps.six.nsw.gov.au/)

The existing site is currently a vacant lot at shown on the detailed site survey attached at appendix B for reference. The subdivision development is proposed as Lot 12 of the site.

The existing natural ground exhibits a ridge line running North-South towards the eastern side of the lot. Gradients within the Subject Site are typically in the order of 4-6%, with slopes from the ridge line towards both the east and the west. The site contains no watercourses or major overland flows and is not affected by flooding.

2. STORMWATER MANAGEMENT

2.1. Hydraulic Design

Preliminary hydraulic design of the proposed stormwater network was carried out in order to size the various elements of the stormwater system. Generally proposed development sub-catchment areas were determined and catchment flow path lengths were adopted from the proposed subdivision layout.

Piped systems and gutter flows were sized to cater for the design storm being the 10% AEP (Annual Exceedance Probability) storm as per the Maitland Manual of Engineering Standards for residential streets. 1% AEP flows were contained entirely within the roadway.

2.2. On-site Detention

The objectives of council's onsite detention target are to ensure future development does not increase the impact of rainfall events and that the stormwater management design demonstrates a consideration for the existing capacity of the public drainage system.

Stormwater Runoff from the western catchment of the development drains towards the existing stormwater treatment basins catering for the subject site. For the eastern catchment, the permissible site discharge for each prospective Lot was calculated for the minor and major storm (10% AEP and 1% AEP) for which the public drainage system is designed to cater for. Future development of each lot is to ensure that the PSD is not exceeded and thus ensure the adequacy of the public drainage system. PSD calculation is based upon an allowable 60% impervious area for the R1: General Residential site in accordance with the Maitland City Council Manual of Engineering Standards.

The drainage system was modelled using a runoff-routing method; therefore, calculations were performed using the "DRAINS" program. As discussed above, a ridge line in the existing site creates two distinct catchments on the site. Therefore, it was deemed necessary to provide two distinct point of discharges from the site.

In accordance with the manual of engineering standards, the DRAINS model prepared adopts a Soil Type of '3', grassed depression storage of 5mm and a paved depression storage of 1mm. A roughness coefficient (n*) of 0.17 was adopted for pervious (grassed) areas and 0.012 for impervious (paved) areas.

The Triaxial Drawing Set reflects the calculated PSD for each lot and the proposed drainage system. Detailed DRAINS output results for the development site are included within appendix C.

2.3. Stormwater Quality

As outlined above, stormwater runoff from the western catchment of the development drains towards the existing stormwater treatment basins catering for the subject site. Stormwater quality for the eastern catchment was managed in accordance with Council's Manual of Engineering Standards for developments. Stormwater pit litter basket inserts were utilised for the capture of suspended solids and gross pollutants. An end of line GPT was also incorporated into the treatment train to aid in the reduction of Phosphates and Nitrates.

Modelling of the treatment train was conducted using the MUSIC stormwater quality modelling software. The results of the modelling are summarised below in table 2.

Table 1 - MUSIC Model Results

Pollutant	Target	Reduction
Total Suspended Solids (TSS)	80%	84.3%
Total Phosphorus (TP)	45%	77.3%
Total Nitrogen (TN)	45%	52.4%
Gross Pollutants (GP)	70%	100%

2.4. Sediment and Erosion Control

During construction, the implementation of water quality control as defined in the NSW Department of Housing Publication "Soils and Construction" (The Blue Book) is to be adopted, to maximise the capture of sediments and minimise erosion of disturbed soils during the construction phase. Under the Blue Book guidelines, if an area of up to 2,500m^2 of disturbance is proposed, sediment basin calculations are not required to be undertaken. Furthermore, if an area of greater than 2,500m^2 of disturbance can be shown to expect an annual soil loss of less than 150m^3, under the RUSLE method, a sediment basin is also deemed unnecessary. As the total maximum disturbed area of the works exceeds 2,500m^2, detailed RUSLE calculations were performed.

The soil landscape mapping available on the NSW Government eSPADE website was consulted for the subject site. Group C and B soil hydrologic group was adopted for calculations as the site is located in Beresfield (be) soil landscape. The formation contains type D and F sediment types with k-factors ranging from 0.017 to 0.048.

The RUSLE calculations performed result in an expected worst case soil loss of 107 cubic meters per hectare annually (m^3/Ha/yr) for the Eastern catchment, equating to a soil loss class of *'1 – V.LOW'*, a maximum soil loss of 33 (m^3/Ha/yr). Therefore, it was deemed that a sediment basin was not required for the Eastern catchment.

For the Western catchment a worst-case soil loss of 319 cubic meters/Ha/yr was calculated using the RUSLE method, with a corresponding soil loss class of *'4 –MOD'*, a soil loss of 443 m^3/Ha/yr and a minimum sediment basin storage volume of 75m^3. A settling zone volume of 84m^3 was calculated for the Western sediment basin, therefore the sediment basin servicing the Western catchment of the site is to have a total volume of 159m^3. Detailed sediment basin calculations are detailed on the conceptual erosion and sediment control plans within the drawing set.

The Blue Book's standard details for Type D and F sediment basins (Drawing SD6-4, p. 6-19) show than the type *"Earth Basin – Wet"* is required, as shown on the RGH Drawing Set. This type of sediment basin does not require a riser outlet and any maintenance procedures should be undertaken as follows:

- Regular flocculation and pumped removal of the sediment basin stored water to discharge as clean water into the existing watercourses adjacent to the ponds.
- Flocculation and pumping to occur after each storm event.
- After pumping, siltation and gross litter build up to be mechanically removed in preparation for the next storm and disposed of appropriately and accordingly.

Standard Blue Book details and provisions have been provided within the Triaxial Drawing Set and are specified to be installed during the construction phase of the project. It is considered that the sediment and erosion control measures detailed on the drawing set will adequately capture siltation and control sedimentation carried by stormwater to acceptable standards during the construction period.

2.5. Stormwater System Maintenance

The stormwater drainage system will need to be inspected and maintained at regular intervals. Public drainage infrastructure is to be maintained by council in accordance with the existing MCC maintenance procedures for the area.

3. CONCLUSIONS AND RECOMMENDATIONS

Revelop Building and Developments Pty. Ltd. has engaged Triaxial Consulting to complete a conceptual Stormwater Management Plan and Report for the proposed Subdivision development at the subject site. Triaxial has prepared DA Engineering Drawings which should be referenced during review of this report. The Subject Site is located within the Maitland City Council LGA.

Management of stormwater is to occur both during and after construction. During construction, implementation of water quality control as defined in the NSW Department of Housing Publication "*Soils and Construction*" (The Blue Book) is to be adopted to maximise the capture of sediments and minimise erosion of disturbed soils during the construction phase. Water quality improvement devices are needed to treat stormwater runoff from the eastern catchment to acceptable levels before discharging to the receiving drainage infrastructure.

The water quantity control is to be managed by the provision of On-Site Detention (OSD) systems to lots 10, 11 and 12 to reduce the rate of stormwater to the permissible site discharge levels denoted on the drawings. This is to be provided at the development stage of each prospective lot.

This report has summarised the modelling techniques employed, the results of the modelling, and subsequently presented economical methods to achieve Council's design requirements. Therefore, it is the recommendation of Triaxial that the stormwater management measures suggested and described within this report and upon the Triaxial Drawing Set be implemented in order to satisfy Council's requirements for the development. We trust this report meets your current requirements and should you wish to discuss the matter further please do not hesitate to contact the undersigned.

Yours faithfully,

TRIAXIAL CONSULTING

Reviewed,

Benjamin Koopman
Civil Engineer
B.Eng.(Civil)(Hons) | GradIEAust.

Ben Williams
Civil Team Leader
BE (Hons) | MIEAust.

4. REFERENCES

NSW Department of Housing, ***"Soils and Construction"***, Vol.1, 4th Edition, 2004.

Pilgrim, D.H., ***"Australian Rainfall and Runoff"***, Engineers Australia, 2019.

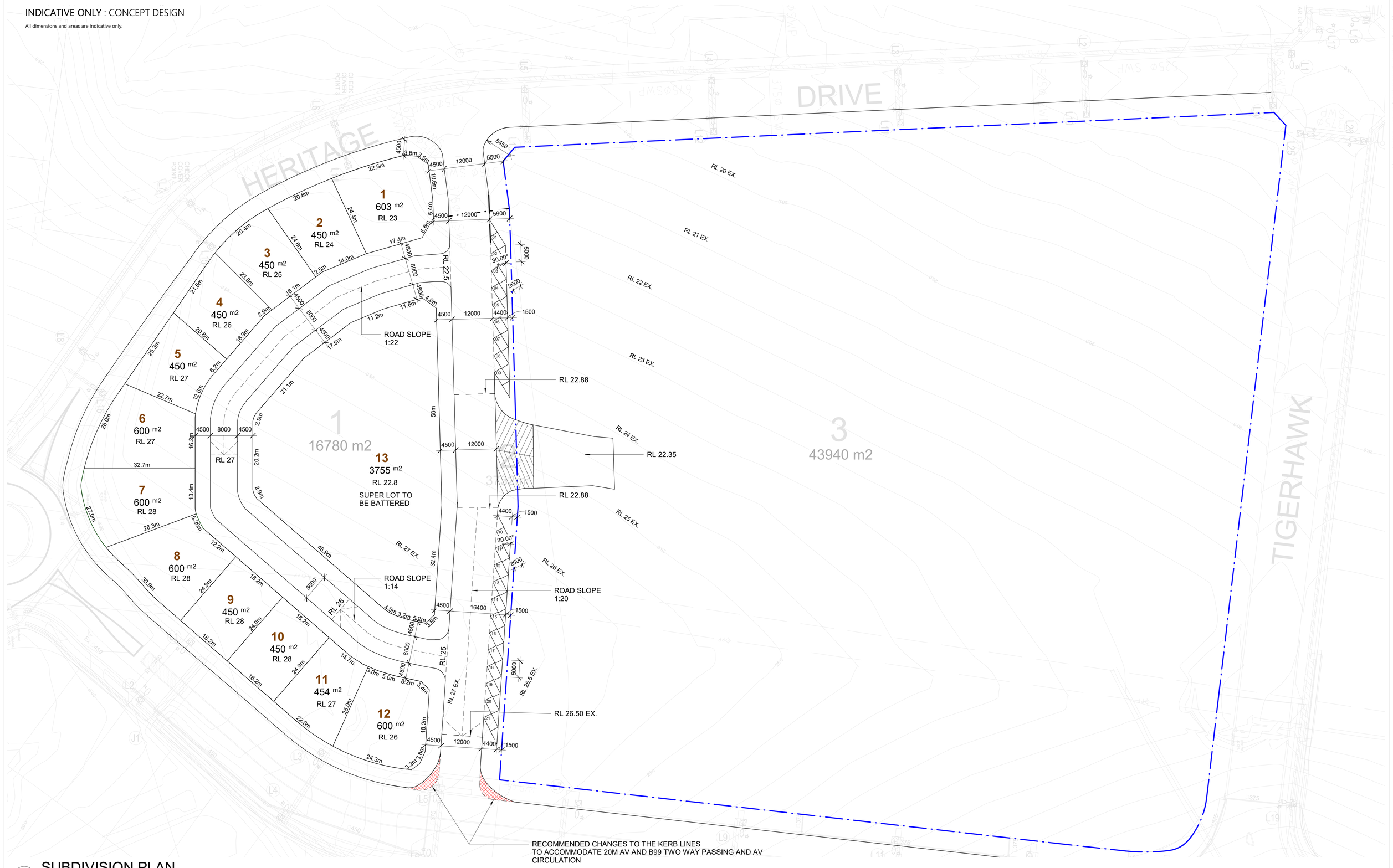
Standards Australia, ***"AS3500.3 – Plumbing and Drainage"***, 2018.

Maitland City Council, ***"Manual of Engineering Standards"***

APPENDIX A – ARCHITECTURAL PLANS (BN ARCHITECTURE)

INDICATIVE ONLY : CONCEPT DESIGN

All dimensions and areas are indicative only.



1 SUBDIVISION PLAN

1 : 500

0 10 20 50m

ISSUE	DATE	DESCRIPTION
E	12.10.2021	CONCEPT PLAN
D	22.09.2021	CONCEPT PLAN
C	21.09.2021	CONCEPT PLAN
B	05.05.2021	CONCEPT PLAN
A	03.05.2021	CONCEPT PLAN

CHISHOLM

20 HERITAGE DRIVE CHISHOLM

SUBDIVISION PLAN

A101 - E

1 : 500 @ A1

@ A3

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BN Architecture Urban Design Masterplanning Graphics Interiors

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J:\S2117_Chisholm Mixed-Use Centre\Production\Design\Revit\S2117_CC_R20.rvt

INDICATIVE ONLY : CONCEPT DESIGN

All dimensions and areas are indicative only.

LEGEND

- BUIDLING FOOTPRINT - MEDIUM DENSITY UNITS
- BUIDLING FOOTPRINT - SEMI DETACHED UNITS
- BUIDLING FOOTPRINT - TERRACE HOUSES
- INDICATIVE GARAGE LOCATION
- INDICATIVE DRIVEWAY LOCATION
- INDICATIVE WALKWAY & ENTRY
- INDICATIVE PRIVATE OPEN SPACE

1 BUILDING ENVELOPE PLAN

1 : 500

0 10 20 50m

ISSUE	DATE	DESCRIPTION
A	12.10.2021	CONCEPT PLAN

CHISHOLM

20 HERITAGE DRIVE CHISHOLM

BUILDING ENVELOPE PLAN

A102 - A

As indicated @ A1

@ A3

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J:\S2117_Chisholm Mixed-Use Centre\Production\Design\Revit\S2117_CC_R20.rvt

APPENDIX B – DETAILED SITE SURVEY PLAN (LDS)

LEGEND

- BOUNDARY LINE
- ADJACENT BOUNDARY
- EASEMENT
- FENCE LINE
- S — SEWERMAIN
- W — WATERMAIN
- OHP — OVERHEAD ELECTRICITY
- UGP — UNDERGROUND ELECTRICITY
- T — TELECOMMUNICATIONS LINE
- OPT — OPTIC FIBRE LINE
- GAS — GAS LINE
- MAJOR COUNTOUR LINE
- MINOR CONTOUR LINE
- TOP & TOE OF BANKS
- RETAINING WALLS
- BENCH MARK
- SIP — SEWER INSPECTION POINT
- SMH — SEWER MANHOLE
- SV — STOP VALVE
- HYD — HYDRANT
- WM — WATER METER
- GRATED PIT
- PP — POWER POLE
- LP — LIGHT POLE
- ET — ELECTRICAL TURRENT
- GAS METER
- TELECOMMUNICATIONS PIT
- TRAFFIC SIGNAL
- (5) — DENOTES PHOTO LOCATION
- STREET SIGN
- TRS/0.6/8 — DENOTES TREE, HEIGHT/DIAMETER/SPREAD
- H 6.12 / S 5.12 — DENOTES WINDOW GROUND FLOOR HOOD RL / SILL RL
- H 16.12 / S 15.12 — DENOTES WINDOW UPPER FLOOR HOOD RL / SILL RL

NOTE:-

1. BOUNDARIES HAVE BEEN DETERMINED BY PLAN DIMENSIONS ONLY, AND HAVE NOT BEEN SURVEYED.
2. SERVICES HAVE BEEN LOCATED ONLY WHERE VISIBLE, PRIOR TO EXCAVATION OR CONSTRUCTION ALL SERVICES ARE TO BE LOCATED BY RELEVANT AUTHORITY.
3. SPOT LEVELS AND CONTOURS SHOWN HEREON ARE FOR DESIGN PURPOSES ONLY AND ARE TO BE CONFIRMED ON SITE PRIOR TO EXCAVATION OR CONSTRUCTION.
4. APPROXIMATE SITE AREA IS AS SHOWN ON PLAN
5. DETAILS OF SURVEY ARE CORRECT TO THE DATE SHOWN. (14/10/2021)

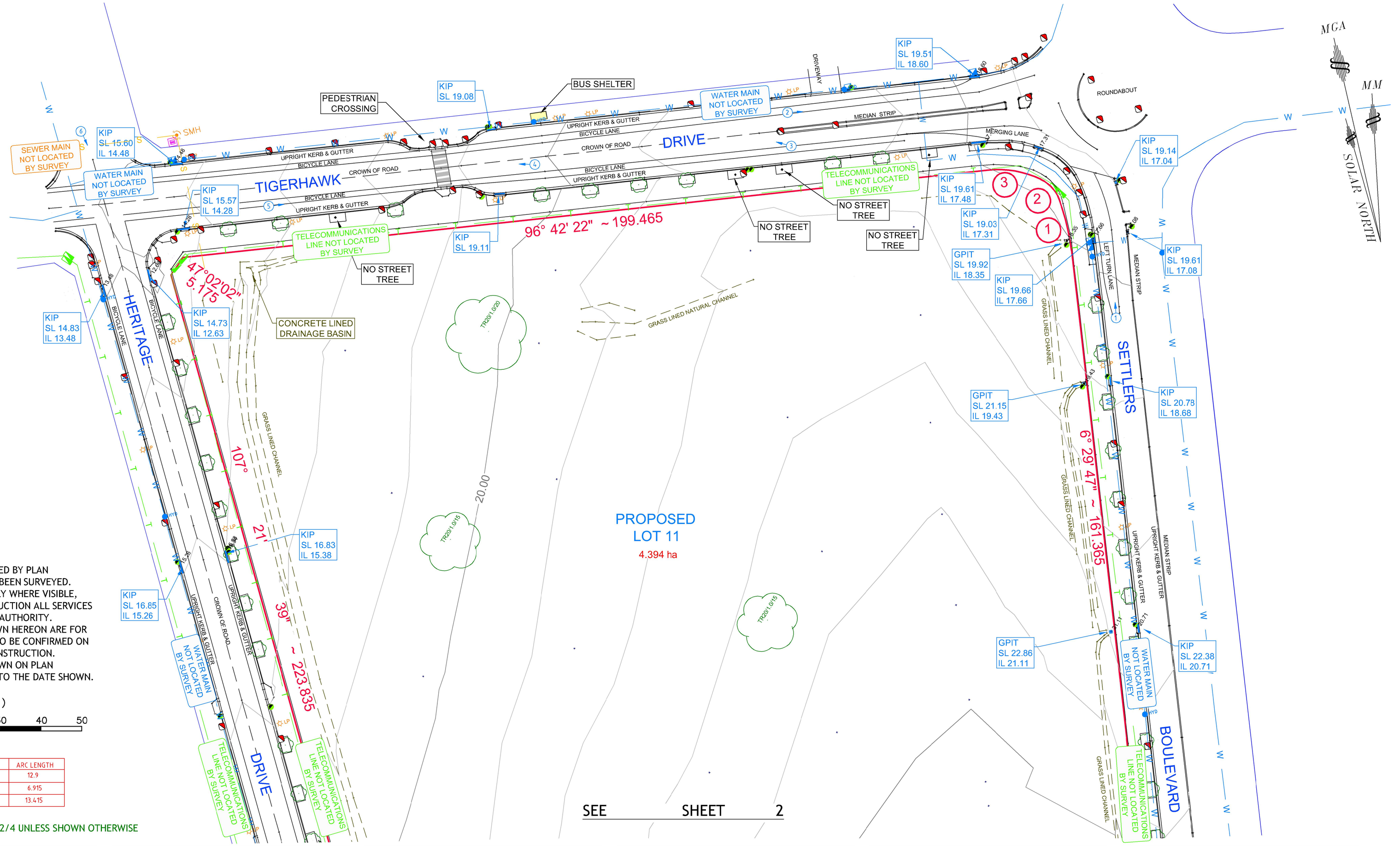
SCALE 1:500 (A1)

10 0 10 20 30 40 50

SHORT LINE TABLE

LINE	BEARING	DISTANCE	RADIUS	ARC LENGTH
1	179°16'07"	12.87	54.05	12.9
2	150°32'47"	6.745	9.05	6.915
3	112°41'00"	13.24	24.05	13.415

ALL STREET TREES ARE A NOMINAL 4/0.2/4 UNLESS SHOWN OTHERWISE



SEE SHEET 2

PHOTOGRAPH 1

PHOTOGRAPH 2

PHOTOGRAPH 3

PHOTOGRAPH 4

PHOTOGRAPH 5

PHOTOGRAPH 6

Ed.	Details of Revisions	Date
A	INITIAL ISSUE	21/10/21

Client / Council Development Consent Number

Scale: 1:500 (A1),1:1000 (A3)
Origin: SSM171234
Surveyor: S.N.
Checked: S.C.
Job Number: 6636
Datum: AHD
Contour Int: 1.0
Drawn: S.F.
Approved: J.H.
Drawing File: 6636-DET
Registered Surveyor: .....

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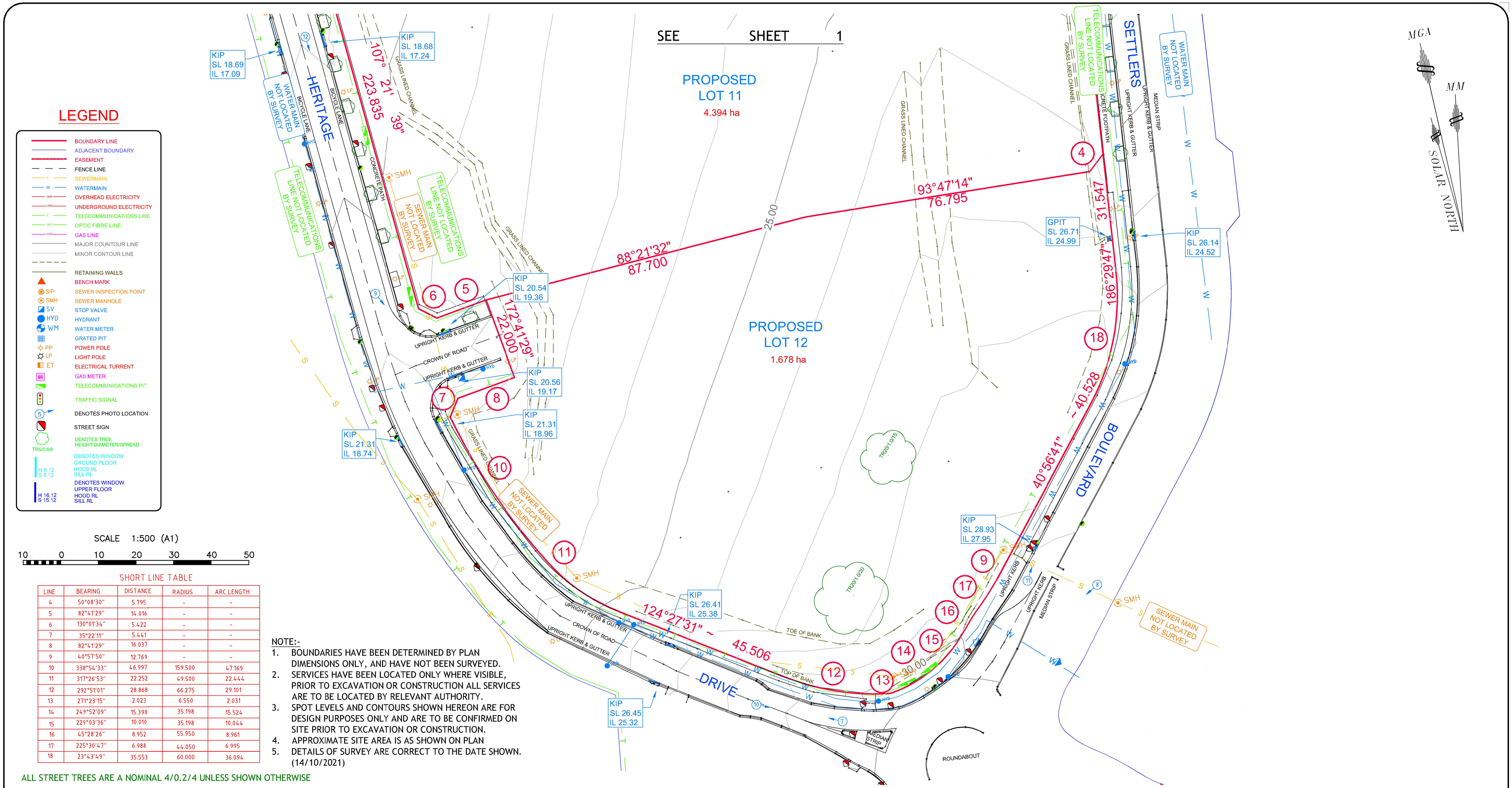
ABN: 42 110 897 928

DETAIL SURVEY OF LOT 11 & 12, UNREGISTERED D.P, BEING SUBDIVIDED LOT 1, D.P. 1224700, CHISHOLM

Drawing Number	Edition
1	A

Sheet. 1.. of.. 2



LEGEND

- BOUNDARY LINE
- ADJACENT BOUNDARY
- EASEMENT
- FENCE LINE
- SEWERMAIN
- WATERMAIN
- OVERHEAD ELECTRICITY
- UNDERGROUND ELECTRICITY
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- H 16.12 S 15.12 DENOTES WINDOW UPPER FLOOR HOOD RL SILL RL

SCALE 1:500 (A1)

10 0 10 20 30 40 50

SHORT LINE TABLE

LINE	BEARING	DISTANCE	RADIUS	ARC LENGTH
4	50°08'30"	5.795	-	-
5	82°41'29"	14.016	-	-
6	130°01'34"	5.422	-	-
7	35°22'11"	5.441	-	-
8	82°41'29"	16.037	-	-
9	40°57'50"	12.769	-	-
10	338°54'33"	46.997	159.500	47.169
11	317°26'53"	22.252	49.500	22.444
12	292°51'01"	28.868	66.275	29.101
13	271°23'15"	2.023	6.550	2.031
14	249°52'09"	15.398	35.198	15.524
15	229°03'36"	10.010	35.198	10.044
16	45°28'26"	8.952	55.950	8.961
17	225°30'47"	6.988	44.050	6.995
18	23°43'49"	35.553	60.000	36.094

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PHOTOGRAPH 7

PHOTOGRAPH 8

PHOTOGRAPH 9

PHOTOGRAPH 10

PHOTOGRAPH 11

PHOTOGRAPH 12

Ed.	Details of Revisions	Date
A	INITIAL ISSUE	21/10/21

Client / Council Development Consent Number

Scale: 1:500 (A1),1:1000 (A3) | Datum: AHD
Origin: SSM171234 | Contour Int: 1.0
Surveyor: S.N. | Drawn: S.F.
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ABN: 42 110 897 928

DETAIL SURVEY OF LOT 11 & 12, UNREGISTERED D.P, BEING SUBDIVIDED LOT 1, D.P. 1224700, CHISHOLM

Drawing Number	Edition
1	A

Sheet. 2.. of.. 2

APPENDIX C – DRAINS MODELLING RESULTS

PIT / NODE DETAILS Version 15

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss	Inflow Hydrograph	Pit is	Internal Width (mm)	Inflow is Misaligned	Minor Safe Pond Depth (m)	Major Safe Pond Depth (m)
PRE-DEV W	Node							0		371977.7	6374680		8		No					
PRE-DEV E/	Node							0		372211.3	6374776		9		No					
LOT PSD	Node					28.6		0		372123	6374667		211921		No					
PIT E1/4	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	26.3		0	0	372135.2	6374690	No	211927	1 x Ku	No	New				
PIT E1/3	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	25.544		0	0	372143.5	6374700	No	211915	1 x Ku	No	New				
E1/2	Sag	Hornsby Cc	Hornsby 1.	6	1.5	25.42	0.15	0	0	372160.9	6374699	No	211909	1 x Ku	No	New			0.15	
PIT E1/1	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	25.42		0	0	372162.1	6374710	No	211977	1 x Ku	No	New				
PIT E1/0	OnGrade	Junction Pi	Junction Pit or Manhol		1.5	25.3		0	0	372176.3	6374722	No	211981	1 x Ku	No	New				
Ex. Pit	Node					22.38		0		372182	6374771		211907		No					
POST-DEV I	Node							0		372183.7	6374786		211966		No					
POST-DEV '	Node							0		371964.8	6374693		6840376		No					
PIT W2/1	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	21.2		0	0	372005.4	6374713	No	6840394	1 x Ku	No	New				
PIT W1/0	OnGrade	Hornsby Cc	Hornsby 2.4 m lintel		1.5	21.1		0	0	372007.3	6374701	No	6840385	1 x Ku	No	New				
EX. KIP 1	Node					20.56		0		371991	6374701		211940		No					
PIT W4/1	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	22.4		0	0	372023.6	6374691	No	6840401	1 x Ku	No	New				
PIT W3/1	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	22.4		0	0	372016.1	6374690	No	6840399	1 x Ku	No	New				
PIT W1/4	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	26.2		0	0	372127.5	6374690	No	6840404	1 x Ku	No	New				
PIT W1/3	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	25.4		0	0	372120.3	6374701	No	6840405	1 x Ku	No	New				
PIT W1/2	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	23.8		0	0	372085.7	6374704	No	6840406	1 x Ku	No	New				
PIT W1/1	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	21.9		0	0	372030.5	6374702	No	6840400	1 x Ku	No	New				
PIT W5/1	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	24.2		0	0	372092	6374716	No	6840407	1 x Ku	No	New				
PIT W3/4	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	26.6		0	0	372052.9	6374645	No	6840476	1 x Ku	No	New				
PIT W3/3	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	26.6		0	0	372048.6	6374639	No	6840403	1 x Ku	No	New				
PIT W3/2	OnGrade	Hornsby Cc	Hornsby 1.8 m lintel		1.5	24.8		0	0	372025.3	6374663	No	6840402	1 x Ku	No	New				
LOT 5-9 PSI	Node					28.6		0.131		372080.4	6374631		9587540		No					
LOT 3,4 PSI	Node					28.6		0		372017.9	6374654		9587632		No					
LOT 1,2 PSI	Node					28.6		0		372005.6	6374678		9587724		No					
LOT 13 PSD	Node					28.6		0		372038.2	6374693		9587816		No					

DETENTION BASIN DETAILS

Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Lengt	id

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	Paved Area %	Grass Area %	Supp Area %	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Paved Slope(%) %	Grass Slope %	Supp Slope %	Paved Rough	Grass Rough	Supp Rough	Lag Time or Factor	Gutter Length (m)	Gutter Slope %	Gutter FlowFactor	Rainfall Multiplier
WEST CAT	PRE-DEV W	1.3883	60	40	0	0	0	0	156	156	-1	6	6	-1	0.012	0.17	-1	0				1
EAST CAT P	PRE-DEV E/	0.3082	60	40	0	0	0	0	105	105	-1	3	3	-1	0.012	0.17	-1	0				1
CAT E1/4	PIT E1/4	0.0392	75	25	0	0	0	0	50	50	-1	5	5	-1	0.012	0.17	-1	0				1
CAT E1/3	PIT E1/3	0.0213	75	25	0	0	0	0	10	10	-1	10	10	-1	0.012	0.17	-1	0				1
CAT E1/2	E1/2	0.0365	75	25	0	0	0	0	20	20	-1	3	3	-1	0.012	0.17	-1	0				1
CAT E1/1	PIT E1/1	0.0522	90	10	0	0	0	0	25	25	-1	5	5	-1	0.012	0.17	-1	0				1
CAT W2/1	PIT W2/1	0.1057	90	10	0	0	0	0	90	90	-1	3	3	-1	0.012	0.17	-1	0				1
CAT W1/0	PIT W1/0	0.0465	80	20	0	0	0	0	25	25	-1	3	3	-1	0.012	0.17	-1	0				1
CAT W4/1	PIT W4/1	0.0453	70	30	0	0	0	0	60	60	-1	3	3	-1	0.012	0.17	-1	0				1
CAT W3/1	PIT W3/1	0.0229	70	30	0	0	0	0	30	30	-1	3	3	-1	0.012	0.17	-1	0				1
CAT W1/4	PIT W1/4	0.0365	70	30	0	0	0	0	45	45	-1	8	8	-1	0.012	0.17	-1	0				1
CAT W1/3	PIT W1/3	0.0224	70	30	0	0	0	0	25	25	-1	5	5	-1	0.012	0.17	-1	0				1
CAT W1/2	PIT W1/2	0.0295	70	30	0	0	0	0	30	30	-1	5	5	-1	0.012	0.17	-1	0				1
CAT W1/1	PIT W1/1	0.0627	70	30	0	0	0	0	60	60	-1	3	3	-1	0.012	0.17	-1	0				1
CAT W5/1	PIT W5/1	0.0452	100	0	0	0	0	0	40	40	-1	3	3	-1	0.012	0.17	-1	0				1
CAT W3/4	PIT W3/4	0.0422	70	30	0	0	0	0	60	60	-1	4	4	-1	0.012	0.17	-1	0				1
CAT W3/3	PIT W3/3	0.0549	70	30	0	0	0	0	60	60	-1	4	4	-1	0.012	0.17	-1	0				1
CAT W3/2	PIT W3/2	0.0282	70	30	0	0	0	0	35	35	-1	5	5	-1	0.012	0.17	-1	0				1

PIPE DETAILS

Name	From	To	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Type	Dia (mm)	I.D. (mm)	Rough	Pipe Is	No. Pipes	Chg From	At Chg	Chg (m)	Rl (m)	Chg (m)	RL (m)	etc (m)
PIPE E1/4	PIT E1/4	PIT E1/3	12.7	25.425	24.669	5.95	Concrete, u	375	375	0.013	New	1	PIT E1/4	0					
PIPE E1/3	PIT E1/3	E1/2	12	24.639	24.519	1	Concrete, u	375	375	0.013	New	1	PIT E1/3	0					
PIPE E1/2	E1/2	PIT E1/1	11.3	24.489	24.376	1	Concrete, u	375	375	0.013	New	1	E1/2	0					
PIPE E1/1	PIT E1/1	PIT E1/0	20.6	24.346	24.14	1	Concrete, u	375	375	0.013	New	1	PIT E1/1	0					
PIPE E1/0	PIT E1/0	Ex. Pit	84.7	24.11	21.58	2.99	Concrete, u	375	375	0.013	New	1	PIT E1/0	0					
PIPE W2/1	PIT W2/1	PIT W1/0	11.1	20.4	20.3	0.9	Concrete, u	375	375	0.013	New	1	PIT W2/1	0					
PIPE W1/0	PIT W1/0	EX. KIP 1	14.8	20.27	19.76	3.45	Concrete, u	525	525	0.013	New	1	PIT W1/0	0					
PIPE W4/1	PIT W4/1	PIT W3/1	6.7	21.697	21.63	1	Concrete, u	375	375	0.013	New	1	PIT W4/1	0					
PIPE W3/1	PIT W3/1	PIT W1/0	15.1	21.6	20.3	8.61	Concrete, u	375	375	0.013	New	1	PIT W3/1	0					
PIPE W1/4	PIT W1/4	PIT W1/3	13.8	25.4	24.63	5.58	Concrete, u	375	375	0.013	New	1	PIT W1/4	0					
PIPE W1/3	PIT W1/3	PIT W1/2	12	24.6	23.03	13.08	Concrete, u	375	375	0.013	New	1	PIT W1/3	0					
PIPE W1/2	PIT W1/2	PIT W1/1	55.4	23	21.13	3.38	Concrete, u	375	375	0.013	New	1	PIT W1/2	0					
PIPE W1/1	PIT W1/1	PIT W1/0	24.1	21.1	20.3	3.32	Concrete, u	450	450	0.013	New	1	PIT W1/1	0					
PIPE W5/1	PIT W5/1	PIT W1/2	12.2	23.152	23.03	1	Concrete, u	375	375	0.013	New	1	PIT W5/1	0					
PIPE W3/4	PIT W3/4	PIT W3/3	6.5	25.895	25.83	1	Concrete, u	375	375	0.013	New	1	PIT W3/4	0					
PIPE W3/3	PIT W3/3	PIT W3/2	33.3	25.8	24.03	5.32	Concrete, u	375	375	0.013	New	1	PIT W3/3	0					
PIPE W3/2	PIT W3/2	PIT W3/1	27.1	24	21.63	8.75	Concrete, u	375	375	0.013	New	1	PIT W3/2	0					

DETAILS of SERVICES CROSSING PIPES

Pipe	Chg (m)	Bottom Elev (m)	Height of S (m)	Chg (m)	Bottom Elev (m)	Height of S (m)	Chg (m)	Bottom Elev (m)	Height of S (m)	etc etc

CHANNEL DETAILS

Name	From	To	Type	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Base Width (m)	L.B. Slope (1:?)	R.B. Slope (1:?)	Manning n	Depth (m)	Roofed

OVERFLOW ROUTE DETAILS

Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Stor (m)	SafeDepth Minor Stor (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %	id	
OF E1/5	LOT PSD	PIT E1/4	0.3				7.5 m road	0.3	0.15	0.4	10	100	211928	50
OF E1/4	PIT E1/4	PIT E1/3	0.1				7.5 m road	0.3	0.15	0.4	6	100	212069	13
OF E1/3	PIT E1/3	E1/2	0.1				7.5 m road	0.3	0.15	0.4	3	100	211917	13
OF E1/2	E1/2	PIT E1/1	0.2				Overflow a	0.05	0	0.6	1	0	212046	10
OF E1/1	PIT E1/1	Ex. Pit	0.2				7.5 m road	0.3	0.15	0.4	1	0	211972	20
EAST CALC	Ex. Pit	POST-DEV I	0.1				4 m wide p	0.3	0.15	0.4	1	0	211965	1
OF W2/1	PIT W2/1	EX. KIP 1	0.2				Overflow a	0.05	0	0.6	5	0	6840659	20
OF W1/0	PIT W1/0	EX. KIP 1	0.1				7.5 m road	0.3	0.15	0.4	3	100	6840387	15
WEST CALC	EX. KIP 1	POST-DEV '	0.1				4 m wide p	0.3	0.15	0.4	1	0	6840375	1
OF W4/1	PIT W4/1	PIT W1/0	0.4				Overflow a	0.05	0	0.6	3	0	6840654	30
OF W3/1	PIT W3/1	PIT W1/0	0.1				7.5 m road	0.3	0.15	0.4	9	100	6840655	17
OF W1/4	PIT W1/4	PIT W1/3	0.1				7.5 m road	0.3	0.15	0.4	10	100	6840663	16
OF W1/3	PIT W1/3	PIT W1/2	0.2				7.5 m road	0.3	0.15	0.4	6	100	6840662	30
OF W1/2	PIT W1/2	PIT W1/1	0.4				7.5 m road	0.3	0.15	0.4	4	100	6840661	56
OF W1/1	PIT W1/1	PIT W1/0	0.2				Channel se	0.12	0.05	1	3	0	6840660	25
OF W5/1	PIT W5/1	PIT W2/1	0.8				Channel se	0.12	0.05	1	3	100	6840466	90
OF W3/4	PIT W3/4	PIT W4/1	0.3				7.5 m road	0.3	0.15	0.4	7	100	6840649	60
OF W3/3	PIT W3/3	PIT W3/2	0.2				7.5 m road	0.3	0.15	0.4	6	100	6840650	32
OF W3/2	PIT W3/2	PIT W3/1	0.1				7.5 m road	0.3	0.15	0.4	9	100	6840653	27
OF W3/3B	LOT 5-9 PSI	PIT W3/3	0.1				7.5 m road	0.3	0.15	0.4	4	100	9587924	10
LOT 3-4	LOT 3,4 PSI	PIT W3/2	0.1				4 m wide p	0.3	0.15	0.4	1	0	9587913	10
LOT 1,2	LOT 1,2 PSI	PIT W3/1	0.1				4 m wide p	0.3	0.15	0.4	1	0	9587912	10
LOT 13	LOT 13 PSC	PIT W1/1	0.1				4 m wide p	0.3	0.15	0.4	1	0	9587910	10

PIPE COVER DETAILS

Name	Type	Dia (mm)	Safe Cover	Cover (m)	
PIPE E1/4	Concrete, u	375	0.6	0.46	Unsafe
PIPE E1/3	Concrete, u	375	0.6	0.49	Unsafe
PIPE E1/2	Concrete, u	375	0.6	0.52	Unsafe
PIPE E1/1	Concrete, u	375	0.6	0.66	
PIPE E1/0	Concrete, u	375	0.6	0.39	Unsafe
PIPE W2/1	Concrete, u	375	0.6	0.39	Unsafe
PIPE W1/0	Concrete, u	525	0.6	0.23	Unsafe
PIPE W4/1	Concrete, u	375	0.6	0.29	Unsafe
PIPE W3/1	Concrete, u	375	0.6	0.39	Unsafe
PIPE W1/4	Concrete, u	375	0.6	0.36	Unsafe
PIPE W1/3	Concrete, u	375	0.6	0.36	Unsafe
PIPE W1/2	Concrete, u	375	0.6	0.36	Unsafe
PIPE W1/1	Concrete, u	450	0.6	0.31	Unsafe
PIPE W5/1	Concrete, u	375	0.6	0.36	Unsafe
PIPE W3/4	Concrete, u	375	0.6	0.29	Unsafe
PIPE W3/3	Concrete, u	375	0.6	0.36	Unsafe
PIPE W3/2	Concrete, u	375	0.6	0.36	Unsafe

This model has no pipes with non-return valves

DRAINS results prepared from Version 2021.02

PIT / NODE DETAILS Version 8

Name	Max HGL	Max Pond HGL	Max Surfac Flow Arrivi (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
PIT E1/4	25.52		0.019		0.78	0	None
PIT E1/3	24.76		0.011		0.78	0	None
E1/2	24.64	25.45	0.018	0.6	0.78	0	Inlet Capacity
PIT E1/1	24.53		0.027		0.89	0	Inlet Capacity
PIT E1/0	24.3		0		1		None
Ex. Pit	22.23		0.001				
PIT W2/1	20.74		0.054		0.46	0.007	Inlet Capacity
PIT W1/0	20.72		0.025		0.38	0	None
EX. KIP 1	20.41		0.01				
PIT W4/1	21.98		0.02		0.42	0	None
PIT W3/1	21.98		0.024		0.42	0	None
PIT W1/4	25.48		0.017		0.72	0	None
PIT W1/3	24.71		0.011		0.69	0	None
PIT W1/2	23.17		0.014		0.63	0	None
PIT W1/1	21.3		0.028		0.6	0	Inlet Capacity
PIT W5/1	23.27		0.024		0.93	0	Inlet Capacity
PIT W3/4	26.08		0.019		0.52	0	None
PIT W3/3	26.08		0.156		0.52	0.049	Inlet Capacity
PIT W3/2	24.34		0.066		0.46	0.012	Inlet Capacity

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
WEST CAT	0.432	0.392	0.04	3.02	14.81	0	10% AEP, 5 min burst, Storm 1
EAST CAT P	0.096	0.087	0.009	2.93	14.38	0	10% AEP, 5 min burst, Storm 1
CAT E1/4	0.015	0.014	0.001	1.61	7.91	0	10% AEP, 5 min burst, Storm 1
CAT E1/3	0.01	0.008	0.002	0.5	2.44	0	10% AEP, 5 min burst, Storm 1

CAT E1/2	0.015	0.013	0.002	1.08	5.32	0	10% AEP, 5 min burst, Storm 1
CAT E1/1	0.023	0.022	0.001	1.06	5.22	0	10% AEP, 5 min burst, Storm 1
CAT W2/1	0.046	0.045	0.001	2.67	13.11	0	10% AEP, 5 min burst, Storm 1
CAT W1/0	0.019	0.017	0.002	1.24	6.08	0	10% AEP, 5 min burst, Storm 1
CAT W4/1	0.016	0.015	0.001	2.1	10.28	0	10% AEP, 5 min burst, Storm 1
CAT W3/1	0.009	0.008	0.001	1.38	6.78	0	10% AEP, 5 min burst, Storm 1
CAT W1/4	0.014	0.012	0.002	1.31	6.45	0	10% AEP, 5 min burst, Storm 1
CAT W1/3	0.009	0.007	0.001	1.06	5.22	0	10% AEP, 5 min burst, Storm 1
CAT W1/2	0.011	0.01	0.002	1.19	5.82	0	10% AEP, 5 min burst, Storm 1
CAT W1/1	0.023	0.021	0.002	2.1	10.28	0	10% AEP, 5 min burst, Storm 1
CAT W5/1	0.021	0.021	0	1.64	8.06	0	10% AEP, 5 min burst, Storm 1
CAT W3/4	0.015	0.014	0.001	1.92	9.43	0	10% AEP, 5 min burst, Storm 1
CAT W3/3	0.02	0.018	0.002	1.92	9.43	0	10% AEP, 5 min burst, Storm 1
CAT W3/2	0.011	0.009	0.001	1.3	6.38	0	10% AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
PIPE E1/4	0.017	0.81	25.515	24.762	10% AEP, 5 min burst, Storm 1
PIPE E1/3	0.025	0.82	24.762	24.641	10% AEP, 5 min burst, Storm 1
PIPE E1/2	0.039	0.94	24.641	24.527	10% AEP, 5 min burst, Storm 1
PIPE E1/1	0.061	1.3	24.527	24.305	10% AEP, 5 min burst, Storm 1
PIPE E1/0	0.06	1.16	24.288	22.23	10% AEP, 5 min burst, Storm 1
PIPE W2/1	0.039	0.38	20.727	20.721	10% AEP, 5 min burst, Storm 1
PIPE W1/0	0.332	1.93	20.658	20.41	10% AEP, 5 min burst, Storm 1
PIPE W4/1	0.017	0.2	21.978	21.976	10% AEP, 5 min burst, Storm 1
PIPE W3/1	0.213	2.09	21.926	20.721	10% AEP, 5 min burst, Storm 1
PIPE W1/4	0.016	0.97	25.481	24.707	10% AEP, 5 min burst, Storm 1
PIPE W1/3	0.023	0.87	24.707	23.171	10% AEP, 5 min burst, Storm 1
PIPE W1/2	0.057	1.17	23.171	21.301	10% AEP, 5 min burst, Storm 1
PIPE W1/1	0.073	1.07	21.301	20.721	10% AEP, 5 min burst, Storm 1
PIPE W5/1	0.021	0.67	23.274	23.171	10% AEP, 5 min burst, Storm 1
PIPE W3/4	0.015	0.28	26.082	26.075	10% AEP, 5 min burst, Storm 1

PIPE W3/3	0.117	1.49	26.05	24.335	10% AEP, 5 min burst, Storm 1
PIPE W3/2	0.165	1.75	24.298	21.976	10% AEP, 15 min burst, Storm 7

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF E1/5	0	0.015	0.76	0.032	0.05	0.73	1.64	10% AEP, 5 min burst, Storm 1
OF E1/4	0	0.01	0.635	0.036	0.05	0.41	1.31	10% AEP, 5 min burst, Storm 1
OF E1/3	0	0.015	0.532	0.046	0.05	0.67	1.15	10% AEP, 5 min burst, Storm 1
OF E1/2	0	0	0	0	0	0	0	
OF E1/1	0	0	0.307	0	0	0	0	
EAST CALC	0.06	0.06	0.908	0.041	0.02	4	0.58	10% AEP, 5 min burst, Storm 1
OF W2/1	0.007	0.007	0	0.007	0	4.41	0.41	10% AEP, 5 min burst, Storm 1
OF W1/0	0	0	0.532	0	0	0	0	
WEST CALC	0.339	0.339	0.908	0.089	0.1	4	1.14	10% AEP, 5 min burst, Storm 1
OF W4/1	0	0	0	0	0	0	0	
OF W3/1	0	0.019	0.783	0.035	0.06	0.84	1.63	10% AEP, 5 min burst, Storm 1
OF W1/4	0	0.009	0.76	0.026	0.04	0.54	1.5	10% AEP, 5 min burst, Storm 1
OF W1/3	0	0.011	0.635	0.038	0.05	0.44	1.37	10% AEP, 5 min burst, Storm 1
OF W1/2	0	0.023	0.614	0.051	0.07	0.82	1.4	10% AEP, 5 min burst, Storm 1
OF W1/1	0	0	0.031	0	0	0	0	
OF W5/1	0	0.046	0.031	0.057	0.06	2.15	1.05	10% AEP, 5 min burst, Storm 1
OF W3/4	0	0.016	0.867	0.034	0.05	0.83	1.44	10% AEP, 5 min burst, Storm 1
OF W3/3	0.049	0.06	0.904	0.055	0.09	1.56	1.68	10% AEP, 5 min burst, Storm 1
OF W3/2	0.012	0.021	0.783	0.036	0.06	0.88	1.62	10% AEP, 5 min burst, Storm 1
OF W3/3B	0.131	0.151	0.907	0.081	0.14	2.5	1.71	10% AEP, 5 min burst, Storm 1
LOT 3-4	0	0	0.908	0	0	0	0	
LOT 1,2	0	0	0.908	0	0	0	0	
LOT 13	0	0	0.908	0	0	0	0	

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level

Run Log for TX15901.00_DRAINS MODEL run at 11:35:05 on 22/12/2021 using version 2021.02
No water upwelling from any pit. Freeboard was adequate at all pits.
The maximum flow in these overflow routes is unsafe: OF W2/1, OF W5/1

DRAINS results prepared from Version 2021.02

PIT / NODE DETAILS Version 8

Name	Max HGL	Max Pond HGL	Max Surfac Flow Arrivi (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
PIT E1/4	25.54		0.034		0.76	0.001	Inlet Capacity
PIT E1/3	24.82		0.023		0.73	0	None
E1/2	24.72	25.46	0.033	0.9	0.7	0	Inlet Capacity
PIT E1/1	24.61		0.048		0.81	0.005	Inlet Capacity
PIT E1/0	24.38		0		0.92		None
Ex. Pit	22.38		0.007				
PIT W2/1	21.13		0.099		0.07	0.019	Inlet Capacity
PIT W1/0	21.09		0.062		0.01	0.016	Inlet Capacity
EX. KIP 1	20.56		0.123				
PIT W4/1	22.04		0.04		0.36	0.002	Inlet Capacity
PIT W3/1	22.03		0.045		0.37	0.003	Inlet Capacity
PIT W1/4	25.52		0.032		0.68	0.001	Inlet Capacity
PIT W1/3	24.75		0.023		0.65	0	None
PIT W1/2	23.24		0.026		0.56	0	Inlet Capacity
PIT W1/1	21.37		0.052		0.53	0.005	Inlet Capacity
PIT W5/1	23.3		0.042		0.9	0.004	Inlet Capacity
PIT W3/4	26.11		0.035		0.49	0.001	Inlet Capacity
PIT W3/3	26.1		0.176		0.5	0.062	Inlet Capacity
PIT W3/2	24.38		0.096		0.42	0.019	Inlet Capacity

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
WEST CAT	0.774	0.653	0.121	2.46	12.08	0	1% AEP, 5 min burst, Storm 1
EAST CAT P	0.172	0.145	0.028	2.39	11.72	0	1% AEP, 5 min burst, Storm 1
CAT E1/4	0.027	0.023	0.004	1.31	6.44	0	1% AEP, 5 min burst, Storm 1
CAT E1/3	0.016	0.013	0.004	0.41	1.99	0	1% AEP, 5 min burst, Storm 1

CAT E1/2	0.027	0.021	0.005	0.88	4.34	0	1% AEP, 5 min burst, Storm 1
CAT E1/1	0.04	0.037	0.003	0.87	4.25	0	1% AEP, 5 min burst, Storm 1
CAT W2/1	0.077	0.075	0.003	2.18	10.69	0	1% AEP, 5 min burst, Storm 1
CAT W1/0	0.034	0.029	0.005	1.01	4.96	0	1% AEP, 5 min burst, Storm 1
CAT W4/1	0.029	0.025	0.004	1.71	8.38	0	1% AEP, 5 min burst, Storm 1
CAT W3/1	0.016	0.013	0.003	1.13	5.53	0	1% AEP, 5 min burst, Storm 1
CAT W1/4	0.025	0.02	0.005	1.07	5.25	0	1% AEP, 5 min burst, Storm 1
CAT W1/3	0.016	0.012	0.004	0.87	4.25	0	1% AEP, 5 min burst, Storm 1
CAT W1/2	0.021	0.016	0.005	0.97	4.74	0	1% AEP, 5 min burst, Storm 1
CAT W1/1	0.04	0.034	0.006	1.71	8.38	0	1% AEP, 5 min burst, Storm 1
CAT W5/1	0.035	0.035	0	1.34	6.57	0	1% AEP, 5 min burst, Storm 1
CAT W3/4	0.027	0.023	0.004	1.57	7.69	0	1% AEP, 5 min burst, Storm 1
CAT W3/3	0.036	0.03	0.006	1.57	7.69	0	1% AEP, 5 min burst, Storm 1
CAT W3/2	0.02	0.015	0.004	1.06	5.2	0	1% AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
PIPE E1/4	0.026	0.86	25.543	24.818	1% AEP, 5 min burst, Storm 1
PIPE E1/3	0.043	0.83	24.818	24.72	1% AEP, 5 min burst, Storm 1
PIPE E1/2	0.07	1.18	24.688	24.607	1% AEP, 5 min burst, Storm 1
PIPE E1/1	0.103	1.42	24.581	24.375	1% AEP, 5 min burst, Storm 1
PIPE E1/0	0.102	1.41	24.344	22.38	1% AEP, 5 min burst, Storm 1
PIPE W2/1	0.061	0.56	21.102	21.088	1% AEP, 5 min burst, Storm 1
PIPE W1/0	0.466	2.31	20.734	20.56	1% AEP, 5 min burst, Storm 1
PIPE W4/1	0.028	0.27	22.035	22.032	1% AEP, 5 min burst, Storm 1
PIPE W3/1	0.252	2.38	21.942	21.088	1% AEP, 5 min burst, Storm 1
PIPE W1/4	0.025	0.85	25.516	24.746	1% AEP, 10 min burst, Storm 2
PIPE W1/3	0.041	1.03	24.746	23.241	1% AEP, 5 min burst, Storm 1
PIPE W1/2	0.096	1.38	23.226	21.371	1% AEP, 5 min burst, Storm 1
PIPE W1/1	0.125	1.41	21.347	21.088	1% AEP, 5 min burst, Storm 1
PIPE W5/1	0.032	0.76	23.304	23.241	1% AEP, 5 min burst, Storm 1
PIPE W3/4	0.026	0.41	26.106	26.097	1% AEP, 5 min burst, Storm 1

PIPE W3/3	0.131	1.57	26.065	24.375	1% AEP, 5 min burst, Storm 1
PIPE W3/2	0.199	1.99	24.32	22.032	1% AEP, 10 min burst, Storm 7

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF E1/5	0	0.027	0.76	0.039	0.07	0.98	1.77	1% AEP, 5 min burst, Storm 1
OF E1/4	0.001	0.018	0.635	0.044	0.07	0.58	1.59	1% AEP, 5 min burst, Storm 1
OF E1/3	0	0.027	0.88	0.056	0.07	1.01	1.26	1% AEP, 5 min burst, Storm 1
OF E1/2	0	0	0.288	0	0	0	0	
OF E1/1	0.005	0.005	1.201	0.039	0.02	0.45	0.57	1% AEP, 5 min burst, Storm 1
EAST CALC	0.107	0.107	1.479	0.052	0.04	4	0.73	1% AEP, 5 min burst, Storm 1
OF W2/1	0.019	0.019	0.644	0.011	0.01	5.51	0.57	1% AEP, 5 min burst, Storm 1
OF W1/0	0.016	0.016	0.88	0.047	0.06	0.71	1.2	1% AEP, 5 min burst, Storm 1
WEST CALC	0.501	0.501	1.479	0.109	0.15	4	1.33	1% AEP, 5 min burst, Storm 1
OF W4/1	0.002	0.002	0.499	0.006	0	3.35	0.23	1% AEP, 5 min burst, Storm 1
OF W3/1	0.003	0.037	0.783	0.043	0.08	1.15	1.83	1% AEP, 5 min burst, Storm 1
OF W1/4	0.001	0.017	0.76	0.033	0.06	0.79	1.66	1% AEP, 5 min burst, Storm 1
OF W1/3	0	0.021	0.635	0.046	0.08	0.67	1.65	1% AEP, 5 min burst, Storm 1
OF W1/2	0	0.04	0.79	0.061	0.09	1.18	1.5	1% AEP, 5 min burst, Storm 1
OF W1/1	0.005	0.005	0.627	0.025	0.02	0.56	0.74	1% AEP, 5 min burst, Storm 1
OF W5/1	0.004	0.081	0.627	0.066	0.08	2.85	1.21	1% AEP, 5 min burst, Storm 1
OF W3/4	0.001	0.03	0.867	0.042	0.07	1.11	1.59	1% AEP, 5 min burst, Storm 1
OF W3/3	0.062	0.081	0.904	0.061	0.11	1.77	1.78	1% AEP, 5 min burst, Storm 1
OF W3/2	0.019	0.035	0.783	0.043	0.08	1.13	1.77	1% AEP, 5 min burst, Storm 1
OF W3/3B	0.131	0.167	1.017	0.084	0.14	2.62	1.73	1% AEP, 5 min burst, Storm 1
LOT 3-4	0	0	1.479	0	0	0	0	
LOT 1,2	0	0	1.479	0	0	0	0	
LOT 13	0	0	1.479	0	0	0	0	

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level

Run Log for TX15901.00_DRAINS MODEL run at 13:52:28 on 22/12/2021 using version 2021.02
No water upwelling from any pit.
Freeboard was less than 0.15m at PIT W2/1, PIT W1/0
Flows were safe in all overflow routes.