

SEWER NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT TOWNSVILLE CITY COUNCIL SPECIFICATIONS, STANDARD DRAWINGS AND RELEVANT AUSTRALIAN STANDARDS.
2. uPVC SEWERS SHALL BE CLASS SN10 (Ø100) & SN8 (Ø150/225/300) TO A.S.1260. DICL SEWERS SHALL BE CLASS 'K12' TO A.S. 2280 AND POLYETHYLENE SLEEVED.
3. THE CONSTRUCTION OF SEWERAGE WORK SHOWN ON THIS DRAWING SHALL BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ/NER REGISTRATION. SEWERAGE WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO THE LOCAL AUTHORITY'S SEWERAGE SYSTEM.
4. EACH ALLOTMENT SHALL BE SERVED BY A Ø100mm PROPERTY CONNECTION.
5. OBLIQUE JUNCTION BRANCHES SHALL BE LOCATED 1.5m FROM THE DOWNSTREAM PROPERTY ALIGNMENT. IF THIS IS NOT POSSIBLE, OBLIQUE JUNCTION BRANCHES SHALL NOT BE GREATER THAN 3.5m FROM THE DOWNSTREAM PROPERTY ALIGNMENT.
6. PROPERTY CONNECTION BRANCHES SHALL EXTEND INTO THE ADJACENT PROPERTY A MINIMUM OF 1.0m. REFER MRC STD DWG A3-04203.
7. WHERE PIPES ARE LAID IN FILL, THE FILLING SHALL BE CARRIED OUT IN LAYERS NOT EXCEEDING 150mm (COMPACTED) IN DEPTH AND SHALL BE COMPACTED UNTIL THE COMPACTION IS NOT LESS THAN 95% OF THE MATERIALS COMPACTION WHEN TESTED IN ACCORDANCE WITH A.S. 1289 (MODIFIED COMPACTION). TESTING SHALL BE CARRIED OUT AFTER EACH ALTERNATE LAYER.
8. IN ALL SUCH CASES, APPROVAL OF CONSTRUCTED SEWERS WILL NOT BE ISSUED BY THE LOCAL AUTHORITY UNLESS CERTIFICATES ARE PRODUCED CERTIFYING THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.
9. WHERE SEWERS HAVE A GRADE OF 1 IN 6 OR STEEPER, BULKHEADS SHALL BE CONSTRUCTED. REFER TO TOWNSVILLE CITY COUNCIL STD DRG SEW-1206-1.
10. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE WORKS COMMENCE.
11. FINISHED SURFACE LEVELS SHOWN ON LONGITUDINAL SECTIONS ARE INDICATIVE ONLY AND MAINTENANCE HOLE LIDS SHALL BE FINISHED TO THE HEIGHTS ABOVE FSL AS SHOWN ON TOWNSVILLE CITY COUNCIL STD DWG SEW-1308-1.
12. ALL IN-SITU MAINTENANCE HOLES MUST BE CONSTRUCTED USING INNER & OUTER FORMWORK. MAINTENANCE HOLES NOT BUILT TO THIS REQUIREMENT WILL BE REJECTED.
13. CONTRACTOR SHALL VERIFY FINISHED SURFACE LEVELS ON SITE BEFORE CONSTRUCTION OF SEWERS AND PROPERTY CONNECTION BRANCHES.
14. INSTALLATION AND COMPACTION OF TRENCH BACKFILL IS TO BE CARRIED OUT STRICTLY IN ACCORDANCE WITH THE PROJECT SPECIFICATION
15. PROPERTY CONNECTIONS CROSSING UNDERGROUND ELECTRICITY ALLOCATION TO HAVE A MINIMUM OF 1.0m COVER.
16. BACKFILL ROAD CROSSINGS WITH CRUSHER DUST COMPACTED TO NOT LESS THAN 95% OF THE STANDARD MAX. DRY DENSITY TO A.S. 1289, INCLUDING FUTURE ROAD CROSSINGS.
17. SEWER STRUCTURES ARE LOCATED 1.5m FROM THE PROPERTY BOUNDARIES UNLESS NOTED OTHERWISE.
18. PIPE EMBEDMENT SHALL BE IN ACCORDANCE WITH 'TYPE C' AS DETAILED ON TCC STD DWG SEW-1201-1.
19. MANHOLE COVERS SHALL BE EITHER TYPE B OR TYPE D IN ACCORDANCE WITH TOWNSVILLE CITY COUNCIL STANDARD DRAWINGS.



NOTE: LOCATION AND LEVELS OF ALL EXISTING SERVICES AND PROPOSED STORMWATER OUTLETS TO BE CONFIRMED ON SITE BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A 'BEFORE YOU DIG' SEARCH AND CARRY OUT ALL INVESTIGATIONS REQUIRED TO SATISFY THEMSELVES OF THE LOCATION OF EXISTING SERVICES. ANY POTENTIAL CONFLICTS SHALL BE REPORTED TO THE SUPERINTENDENT.

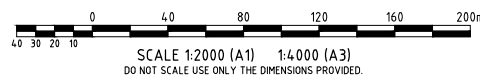
WH&S NOTE:

ALL CONSTRUCTION WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE QUEENSLAND WORK HEALTH AND SAFETY ACT 2011. CONTACT THE DIVISION OF WORKPLACE HEALTH AND SAFETY QUEENSLAND FOR INFORMATION.

TEL: 1300 362 128 WEB: www.worksafe.qld.gov.au

HOUSE CONNECTION TYPES

	TYPE A DIRECT CONN. (<0.5m)
	TYPE B SLOPE-UP (>0.46m)
	TYPE D JUMP-UP (>0.46m)
	TYPE V DIRECT CONN. MH (<200mm)
	TYPE W DIRECT CONN. MH (200-460mm)
	TYPE X INTERNAL DROP (>600mm)
	TYPE XD INTERNAL DROP & EXT. JUMP UP



NOTE - LIVE CONNECTIONS

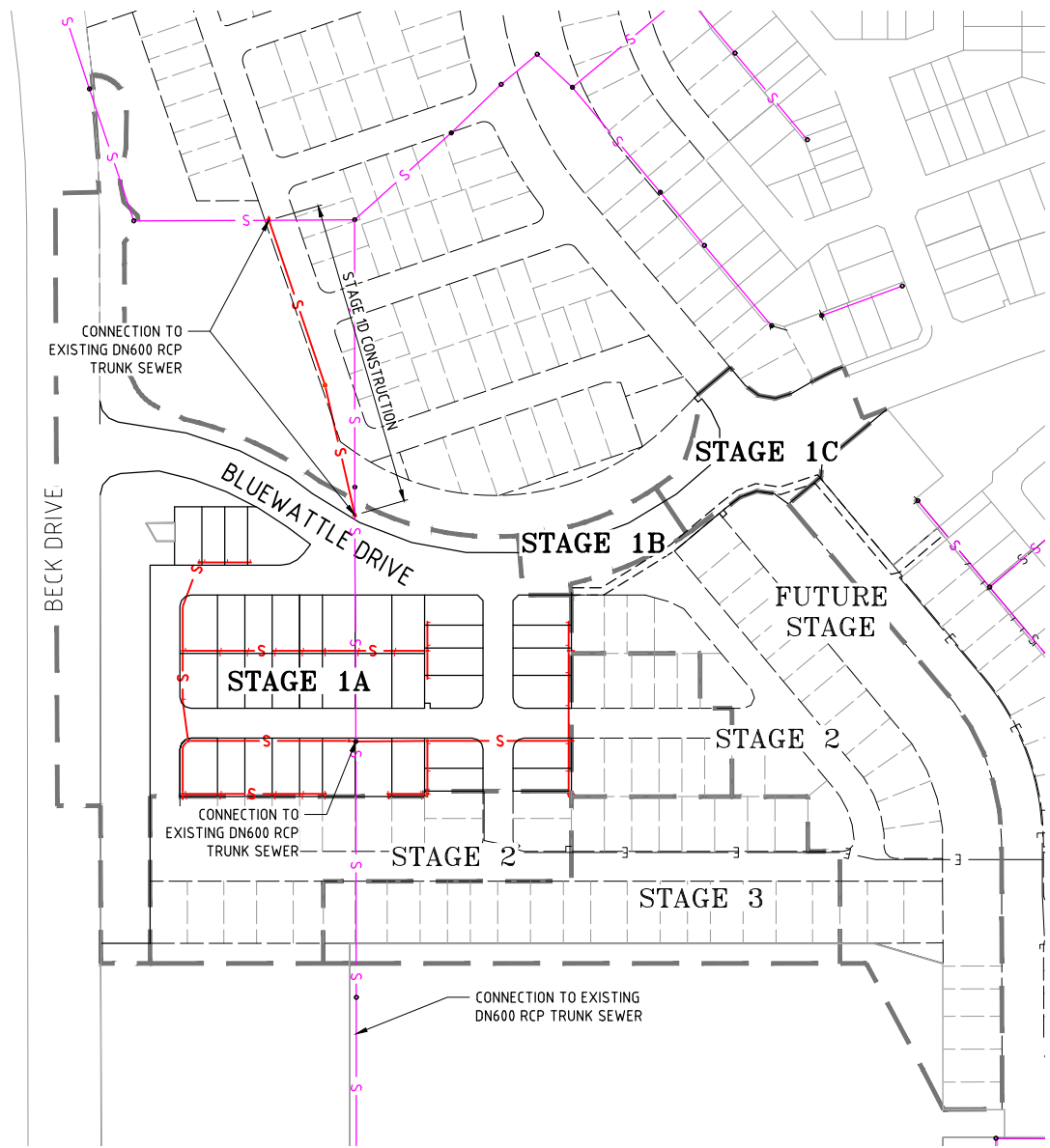
ALL 'LIVE' CONNECTION WORKS FOR SEWER SHALL BE COMPLETED BY TOWNSVILLE CITY COUNCIL AT THE DEVELOPER'S EXPENSE.

PROPERTY CONNECTIONS HAVE BEEN DESIGNED TO CONTROL THE REQUIRED SERVICE AREA OF EACH LOT AT A GRADE OF 1:60 AND A MAXIMUM DEPTH OF PROPERTY CONNECTION AT 1.0m. UNLESS OTHERWISE NOTED.

MAXIMUM DEPTH OF POINT OF CONNECTION FOR VERTICAL (JUMP UP) IS 1500mm FROM EXISTING SURFACE LEVEL.

PROPERTY CONNECTION POINTS AT THE ENDS OF PROPERTY CONNECTION SEWERS SHALL BE MARKED WITH A 50mm x 40mm x 200mm YELLOW PAINTED PEG LOCATED ABOVE THE PROPERTY CONNECTION END CAP WITH THE TOP OF THE MARKER PEG 50mm ABOVE THE FINISH SURFACE LEVEL. AN APPROVED BROWN PLASTIC TAPE 50mm WIDE SHALL BE ATTACHED TO THE END CAP AND BROUGHT VERTICALLY TO THE SURFACE AND STAPLED TO THE MARKER PEG.

Townsville City Council
Accepted Subject to Conditions
OPW23/0029
24/07/2023



LOCALITY PLAN
SCALE 1:2000

User: ETHAN SCHAFER File Name: C:\Users\ethan\Documents\212514_CIVIL-DIGS\12 CURRENT\OPW\STAGE 1\B0530-SEW.CAD Date: 4/07/2023 2:24:27 PM

								<i>Matthew Beggs</i>	
C	SUB-STAGING 1A, 1B AND 1C	MC	LW	OR	MKB	03/01/23	Registered Engineer	4/7/2023	5555
B	ISSUED FOR TENDER	LW	LW	WS			Date	Register	
A	ORIGINAL ISSUE	LW	LW	WS	MKB	20/03/23	ENGINEERING CERTIFICATION		
No.	Amendments	Drawn	Design	Design Chk	Appd	Date	This drawing cannot be copied or reproduced in any form or used for any purpose other than that originally intended without the written permission of Empower Engineers and Project Managers ©COPYRIGHT 2022		



Client	URBEX PTY LTD	Datum	AHD	
Project	BLUEWATTLE ESTATE - STAGE 1	PSM	114264	
Title	SEWERAGE RETICULATION LOCALITY PLAN AND NOTES	RL	19.281	
		TRUN.	MGA	
		NOT FOR CONSTRUCTION		
		Project No.	Drawing No.	Rev
		B00530-CS001		C

LEGEND

- STAGE BOUNDARY
- LOT BOUNDARY
- BARRIER TYPE KERB AND CHANNEL
- MOUNTABLE TYPE KERB AND CHANNEL
- PROPOSED SEWER RETICULATION
- MAINTENANCE HOLE/SHAFT
- PROPOSED SEWER HOUSE CONNECTION
- EXISTING SEWER RETICULATION
- STORMWATER DRAINAGE
- ELECTRICAL CONDUIT
- WATER RETICULATION MAIN

LIVE CONNECTION 'A'
 LIVE CONNECTION BY TOWNSVILLE CITY COUNCIL. AT DEVELOPER EXPENSE. CONNECT TO EXISTING STUBS FROM 34/W.T. DN600 SEWER DIVERSION TO BE CO-ORDINATED AND APPROVED BY TOWNSVILLE CITY COUNCIL PRIOR TO WORKS COMMENCING.

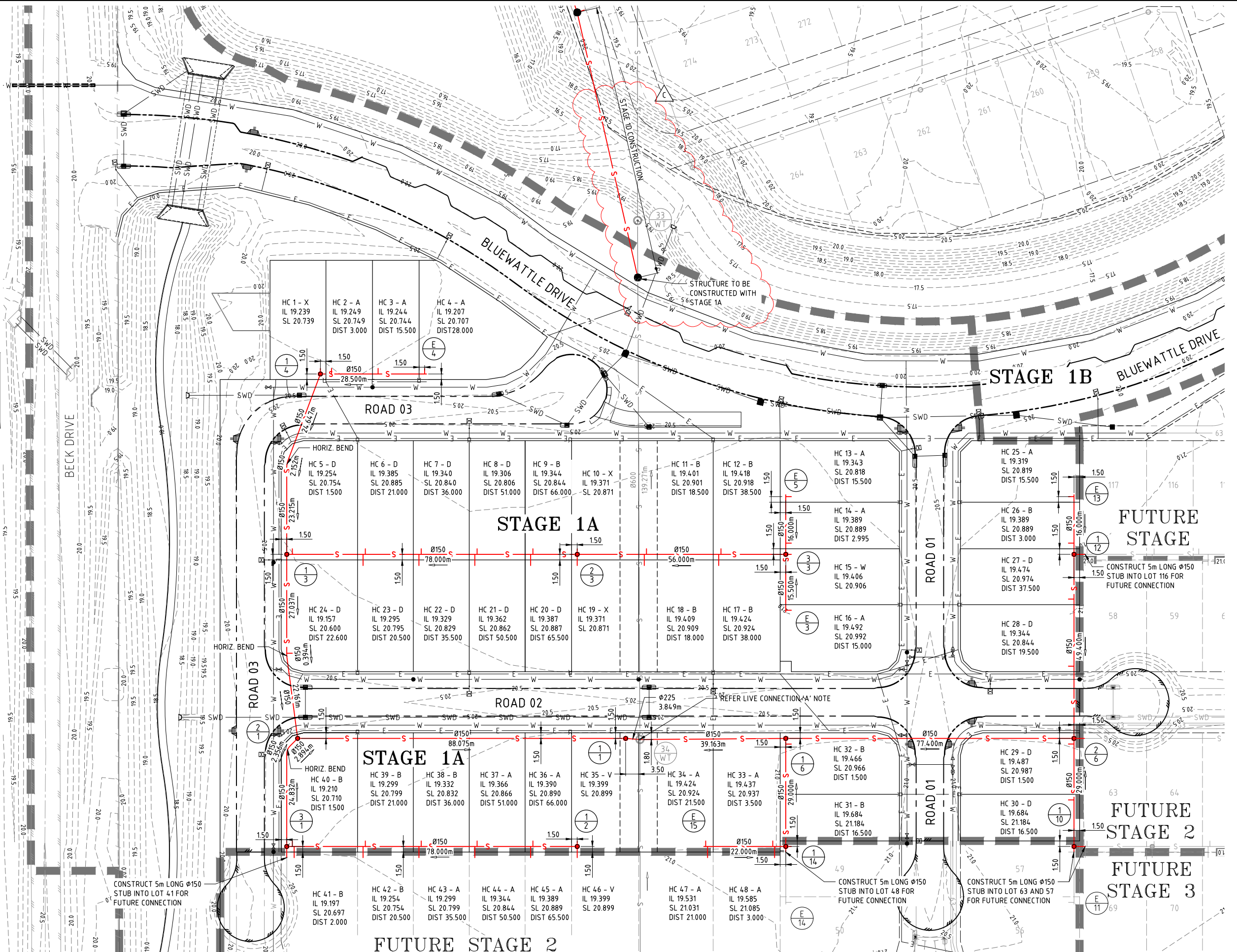
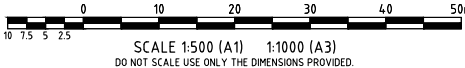
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 OPW23/0029
 24/07/2023

NOTE:
 1. HOUSE CONNECTIONS HAVE BEEN DESIGNED TO CONTROL THE REQUIRED SERVICE AREA OF EACH LOT AT A MINIMUM GRADE OF 1:60, A MINIMUM COVER OF 0.6m, AND A MAXIMUM DEPTH OF PROPERTY CONNECTION AT 1.5m UNLESS STATED OTHERWISE.

BEFORE YOU DIG
 www.byda.com.au

NOTE: LOCATION AND LEVELS OF ALL EXISTING SERVICES AND PROPOSED STORMWATER OUTLETS TO BE CONFIRMED ON SITE BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A 'BEFORE YOU DIG' SEARCH AND CARRY OUT ALL INVESTIGATIONS REQUIRED TO SATISFY THEMSELVES OF THE LOCATION OF EXISTING SERVICES. ANY POTENTIAL CONFLICTS SHALL BE REPORTED TO THE SUPERINTENDENT.

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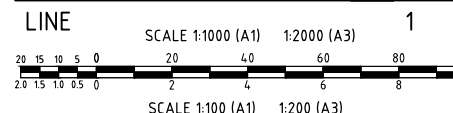
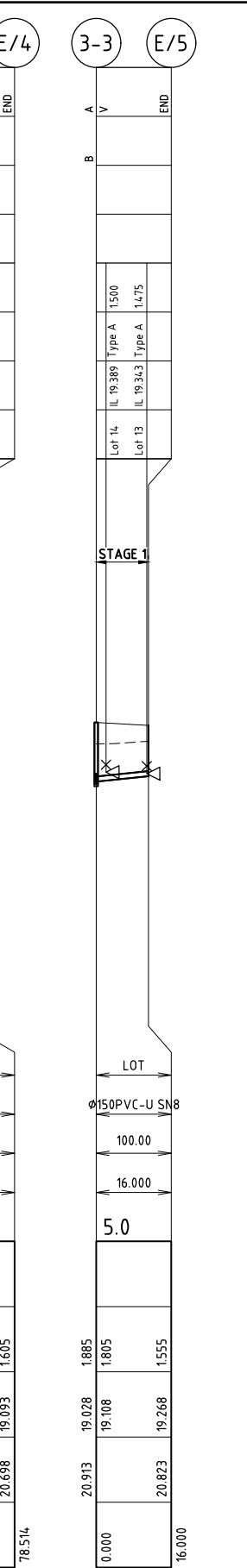
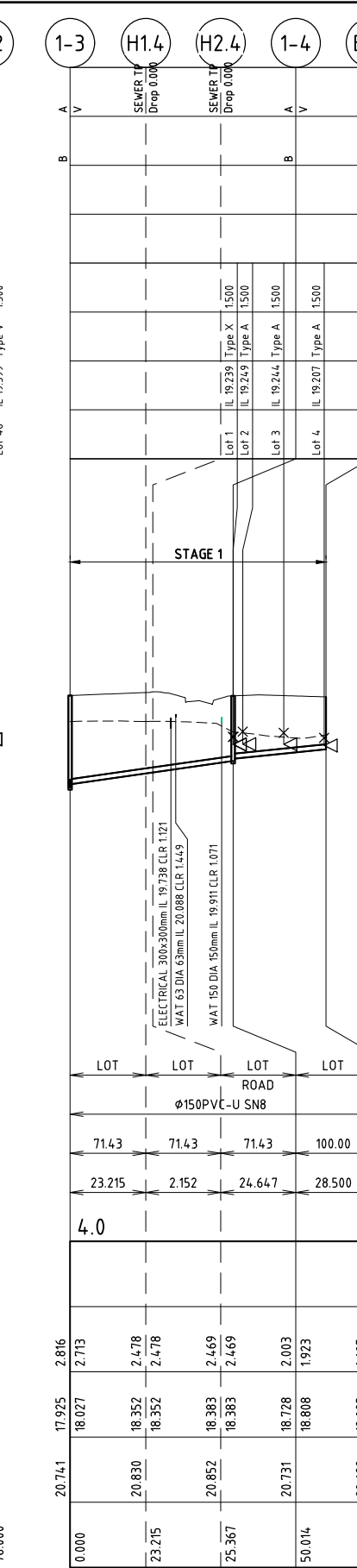
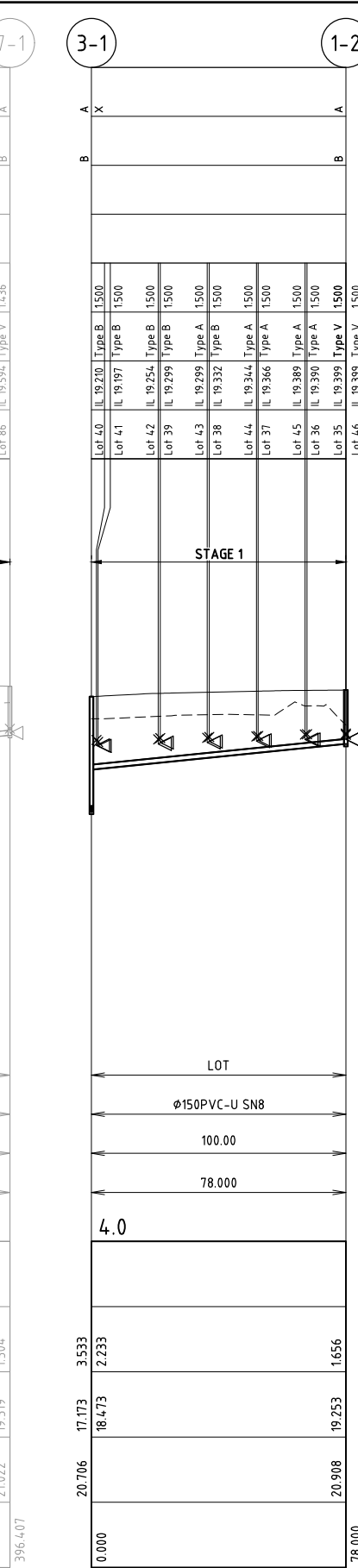
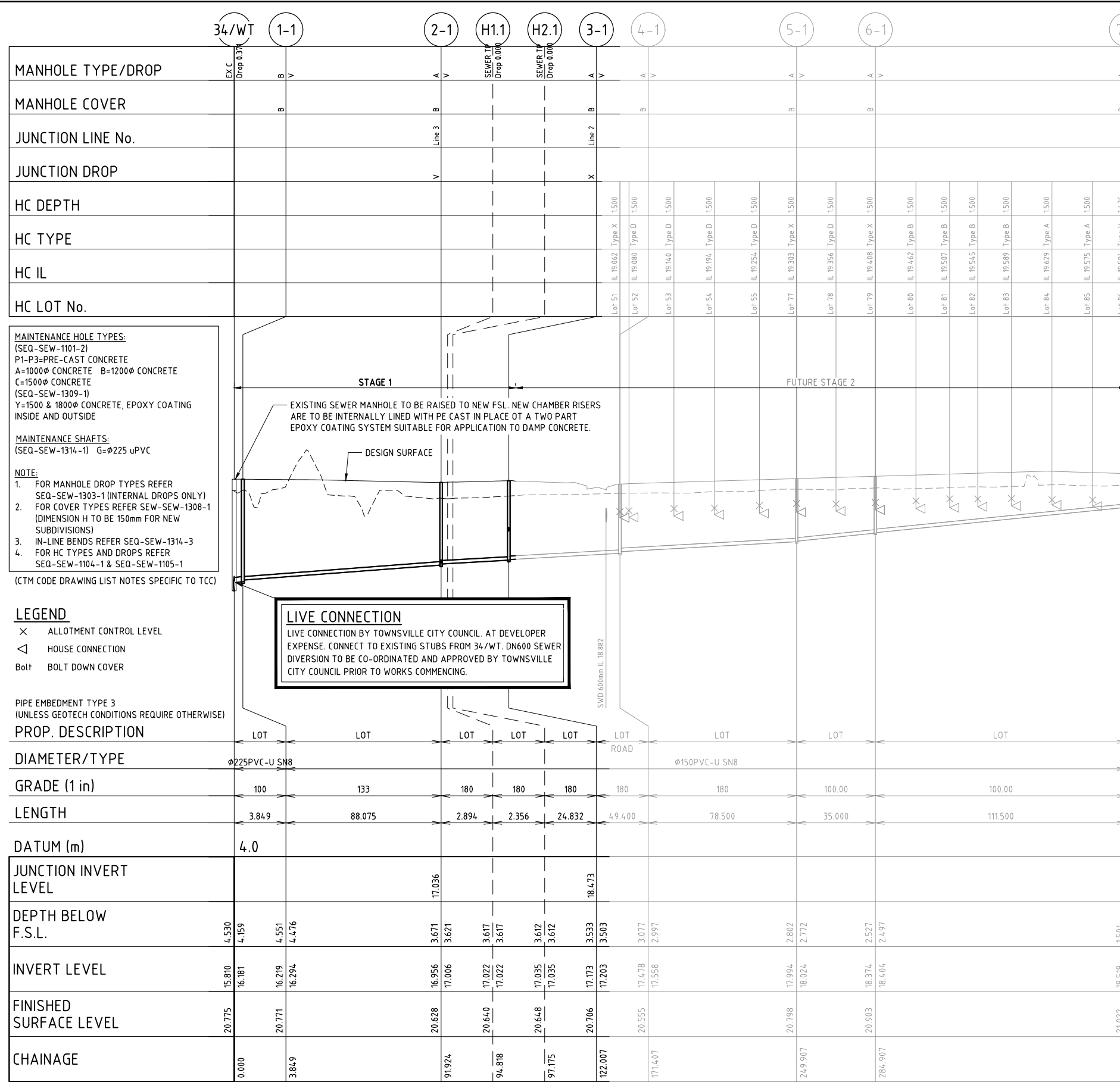
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B	ISSUED FOR TENDER	LW	LW	WS			
A	ORIGINAL ISSUE	ES	ES	WS	MKB	20/03/23	
No.	Amendments	Drawn	Design	Design	Chk	Appd	Date

Matthew Beggs
 Registered Engineer
 4/7/2023
 Date Register
 ENGINEERING CERTIFICATION



Client **URBEX PTY LTD**
 Project **BLUEWATTLE ESTATE - STAGE 1**
 Title **SEWERAGE RETICULATION PLAN LAYOUT PLAN SHEET 1 OF 2**

Da'um
 AHD
 PSM 114264
 RL 19.281
 TRUN. MGA
NOT FOR CONSTRUCTION
 Project No. Drawing No. Rev
B00530-CS002 C



No.	Amendments	Drawn	Design	Design Chk	Appd	Date	
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B	ISSUED FOR TENDER	LW	LW	WS			Date Register
A	ORIGINAL ISSUE	ES	ES	WS	MKB	20/03/23	ENGINEERING CERTIFICATION

Townsville City Council
Accepted Subject to Conditions

OPW23/0029
24/07/2023

EMPLOYERS & PROJECT MANAGERS

ABN 23 010 743 692

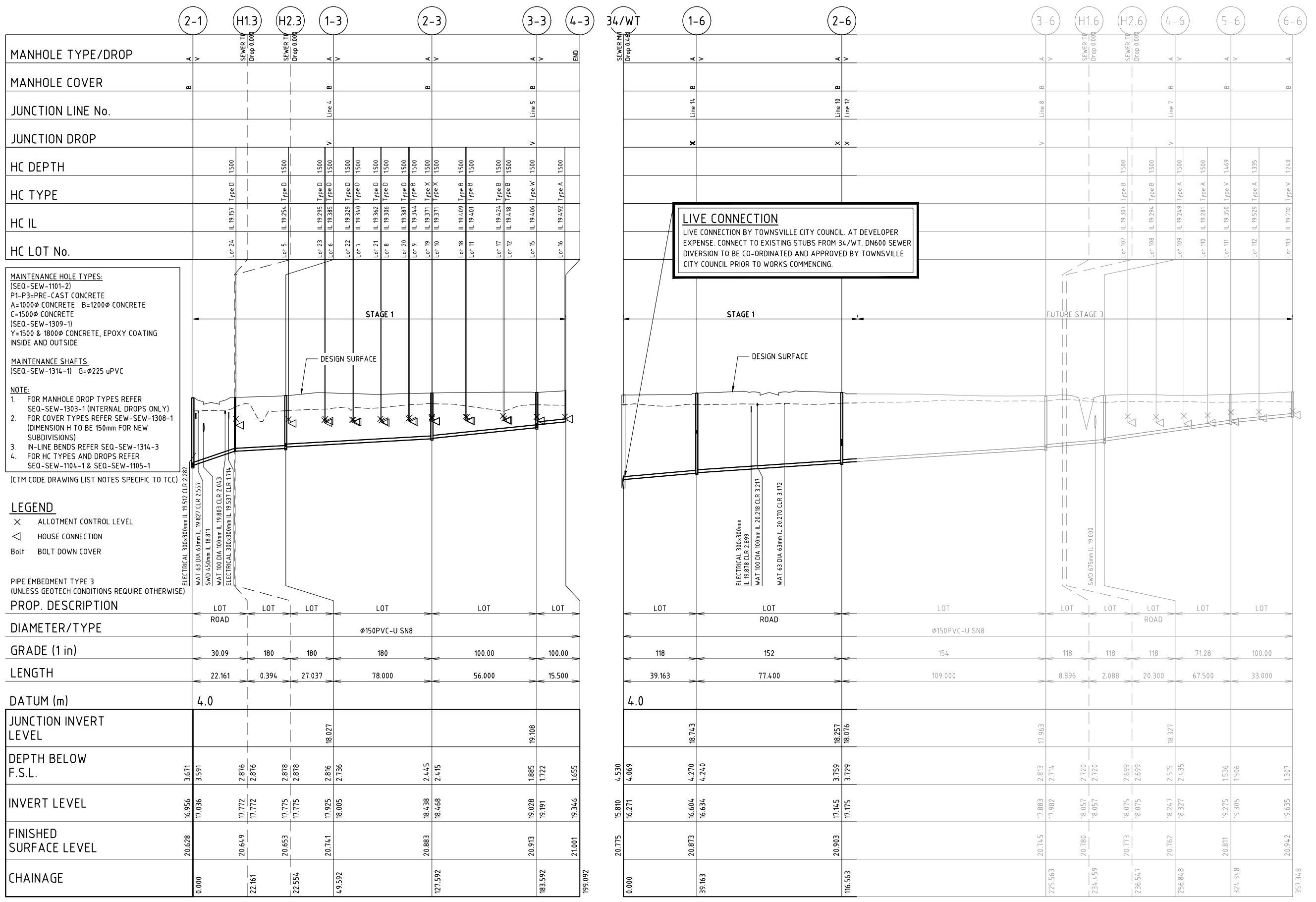
Client	URBEX PTY LTD
Project	BLUEWATTLE ESTATE - STAGE 1
Title	SEWERAGE RETICULATION LONGITUDINAL SECTION SHEET 1 OF 3

Datum	AHD
PSM	114264
RL	19.281
TRUN.	MGA

NOT FOR CONSTRUCTION

Project No.	Drawing No.	Rev
B00530-CS003		C

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MAINTENANCE HOLE TYPES:
 (SEQ-SEW-1101-2)
 P1-P3=PRE-CAST CONCRETE
 A=1000 ϕ CONCRETE B=1200 ϕ CONCRETE
 C=1500 ϕ CONCRETE
 (SEQ-SEW-1309-1)
 Y=1500 & 1800 ϕ CONCRETE, EPOXY COATING
 INSIDE AND OUTSIDE

MAINTENANCE SHAFTS:
 (SEQ-SEW-1314-1) G= $\phi 225$ uPVC

NOTE:

- FOR MANHOLE DROP TYPES REFER SEQ-SEW-1303-1 (INTERNAL DROPS ONLY)
- FOR COVER TYPES REFER SEQ-SEW-1308-1 (DIMENSION H TO BE 150mm FOR NEW SUBDIVISIONS)
- IN-LINE BENDS REFER SEQ-SEW-1314-3
- FOR HC TYPES AND DROPS REFER SEQ-SEW-1104-1 & SEQ-SEW-1105-1

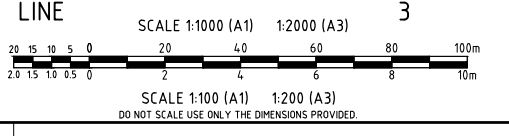
(CTM CODE DRAWING LIST NOTES SPECIFIC TO CTC)

LEGEND

- ✕ ALLOTMENT CONTROL LEVEL
- △ HOUSE CONNECTION
- Bolt BOLT DOWN COVER

PIPE EMBEDMENT TYPE 3
 (UNLESS GEOTECH CONDITIONS REQUIRE OTHERWISE)

PROP. DESCRIPTION	LOT	LOT	LOT	LOT	LOT	LOT
DIAMETER/TYPE	$\phi 150\text{PVC-U SN8}$					
GRADE (1 in)	30.09	180	180	180	100.00	100.00
LENGTH	22.161	0.394	27.037	78.000	56.000	15.500
DATUM (m)	4.0					
JUNCTION INVERT LEVEL			18.027		19.108	
DEPTH BELOW F.S.L.	3.671	3.591	2.876	2.878	2.878	2.816
INVERT LEVEL	16.956	17.036	17.712	17.715	17.715	18.005
FINISHED SURFACE LEVEL	20.628	20.649	20.653	20.741	20.883	20.913
CHAINAGE	0.000	22.161	22.554	49.592	127.592	183.592
						199.092



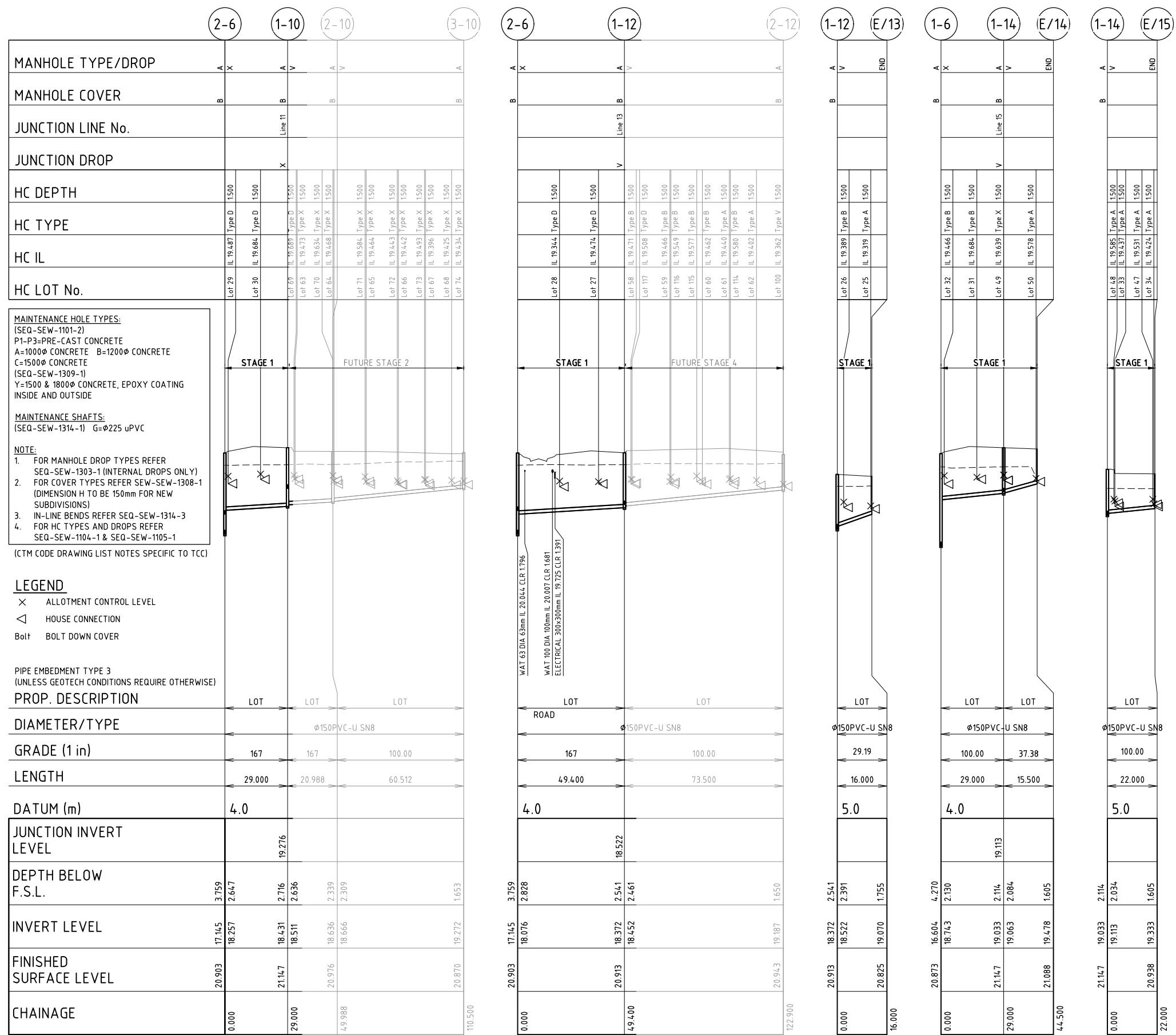
LINE 6

JUNCTION INVERT LEVEL			18.743		18.257	18.076	
DEPTH BELOW F.S.L.	4.530	4.069	4.270	4.240	3.759	3.729	2.813
INVERT LEVEL	15.810	16.271	16.604	16.634	17.145	17.175	17.982
FINISHED SURFACE LEVEL	20.775	20.873	20.873	20.873	20.903	20.915	20.745
CHAINAGE	0.000	39.163	77.400	109.000	209.000	236.563	245.563
							256.563
							266.563
							276.563
							286.563
							296.563
							306.563
							316.563
							326.563
							336.563
							346.563
							356.563
							366.563

<i>Matthew Beggs</i>								
C	SUB-STAGING 1A, 1B AND 1C	MC	LW	OR	MKB	03/07/23	Registered Engineer 4/7/2023	5555
B	ISSUED FOR TENDER	LW	LW	WS			Date	Register
A	ORIGINAL ISSUE	ES	ES	WS	MKB	20/03/23		
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Client	URBEX PTY LTD	Datum	AHD
Project	BLUEWATTLE ESTATE - STAGE 1	PSM	114264
Title	SEWERAGE RETICULATION LONGITUDINAL SECTION SHEET 2 OF 3	RL	19.281
		TRUN.	MGA
		NOT FOR CONSTRUCTION	
Project No.		Drawing No.	
	B00530-CS004		C



MANHOLE TYPE/DROP	MANHOLE COVER	JUNCTION LINE No.	JUNCTION DROP	HC DEPTH	HC TYPE	HC IL	HC LOT No.
A X	B			1500	Type D	IL 19.487	Lot 29
		Line 11	X	1500	Type D	IL 19.684	Lot 30
				1500	Type D	IL 19.288	Lot 69
				1500	Type X	IL 19.473	Lot 63
				1500	Type X	IL 19.634	Lot 70
				1500	Type X	IL 19.468	Lot 64
				1500	Type X	IL 19.584	Lot 71
				1500	Type X	IL 19.464	Lot 65
				1500	Type X	IL 19.443	Lot 72
				1500	Type X	IL 19.442	Lot 66
				1500	Type X	IL 19.493	Lot 73
				1500	Type X	IL 19.396	Lot 67
				1500	Type X	IL 19.425	Lot 68
				1500	Type X	IL 19.434	Lot 74

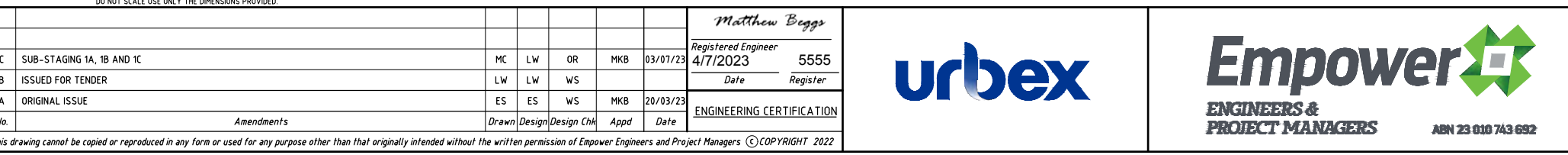
PROP. DESCRIPTION	DIAMETER/TYPE	GRADE (1 in)	LENGTH	DATUM (m)	JUNCTION INVERT LEVEL	DEPTH BELOW F.S.L.	INVERT LEVEL	FINISHED SURFACE LEVEL	CHAINAGE
LOT		167	29.000	4.0		3.759	17.145	20.903	0.000
LOT	Ø150PVC-U SN8	167	20.988		19.276	2.647	18.257	21.147	29.000
LOT		100.00	60.512			2.339	18.636	20.976	4.9.988
						2.309	18.666		110.500

MANHOLE TYPE/DROP	MANHOLE COVER	JUNCTION LINE No.	JUNCTION DROP	HC DEPTH	HC TYPE	HC IL	HC LOT No.
A X	B			1500	Type D	IL 19.344	Lot 28
		Line 13	V	1500	Type D	IL 19.474	Lot 27
				1500	Type B	IL 19.471	Lot 58
				1500	Type D	IL 19.508	Lot 117
				1500	Type B	IL 19.466	Lot 59
				1500	Type B	IL 19.549	Lot 116
				1500	Type B	IL 19.577	Lot 115
				1500	Type B	IL 19.462	Lot 60
				1500	Type A	IL 19.440	Lot 61
				1500	Type B	IL 19.580	Lot 114
				1500	Type A	IL 19.402	Lot 62
				1500	Type V	IL 19.362	Lot 100

PROP. DESCRIPTION	DIAMETER/TYPE	GRADE (1 in)	LENGTH	DATUM (m)	JUNCTION INVERT LEVEL	DEPTH BELOW F.S.L.	INVERT LEVEL	FINISHED SURFACE LEVEL	CHAINAGE
ROAD		167	49.400	4.0		3.759	17.145	20.903	0.000
LOT	Ø150PVC-U SN8	100.00	73.500		18.522	2.541	18.372	20.913	4.9.400
						2.461	18.452		122.900

PROP. DESCRIPTION	DIAMETER/TYPE	GRADE (1 in)	LENGTH	DATUM (m)	JUNCTION INVERT LEVEL	DEPTH BELOW F.S.L.	INVERT LEVEL	FINISHED SURFACE LEVEL	CHAINAGE
LOT		29.19	16.000	5.0		2.541	18.372	20.913	0.000
LOT	Ø150PVC-U SN8	100.00	29.000	4.0		2.130	18.743	20.873	0.000
LOT		37.38	15.500		19.113	2.114	19.033	21.147	29.000
						2.084	19.063		44.500

PROP. DESCRIPTION	DIAMETER/TYPE	GRADE (1 in)	LENGTH	DATUM (m)	JUNCTION INVERT LEVEL	DEPTH BELOW F.S.L.	INVERT LEVEL	FINISHED SURFACE LEVEL	CHAINAGE
LOT		100.00	22.000	5.0		2.114	19.033	21.147	0.000
LOT	Ø150PVC-U SN8	100.00	22.000			2.034	19.113	20.938	0.000
						1.605	19.333		22.000



MANHOLE TYPE/DROP	MANHOLE COVER	JUNCTION LINE No.	JUNCTION DROP	HC DEPTH	HC TYPE	HC IL	HC LOT No.
A X	B			1500	Type A	IL 19.586	Lot 48
				1500	Type A	IL 19.437	Lot 33
				1500	Type A	IL 19.424	Lot 34

PROP. DESCRIPTION	DIAMETER/TYPE	GRADE (1 in)	LENGTH	DATUM (m)	JUNCTION INVERT LEVEL	DEPTH BELOW F.S.L.	INVERT LEVEL	FINISHED SURFACE LEVEL	CHAINAGE
LOT		100.00	22.000	5.0		2.114	19.033	21.147	0.000
LOT	Ø150PVC-U SN8	100.00	22.000			1.605	19.333	20.938	0.000

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Matthew Beggs						
Registered Engineer						
4/7/2023 5555						
Date Register						
ENGINEERING CERTIFICATION						
No.	Amendments	Drawn	Design	Design	Appd	Date

Client	URBEX PTY LTD	Datum	AHD
Project	BLUEWATTLE ESTATE - STAGE 1	PSM	114264
		RL	19.281
		TRUN.	MGA
Title	SEWERAGE RETICULATION LONGITUDINAL SECTION SHEET 3 OF 3	NOT FOR CONSTRUCTION	
		Project No.	B00530-CS005
		Drawing No.	
		Rev	C