THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CONSTRUCTION DOCUMENTATION | Job No. 7197 | FEBRUARY 2026

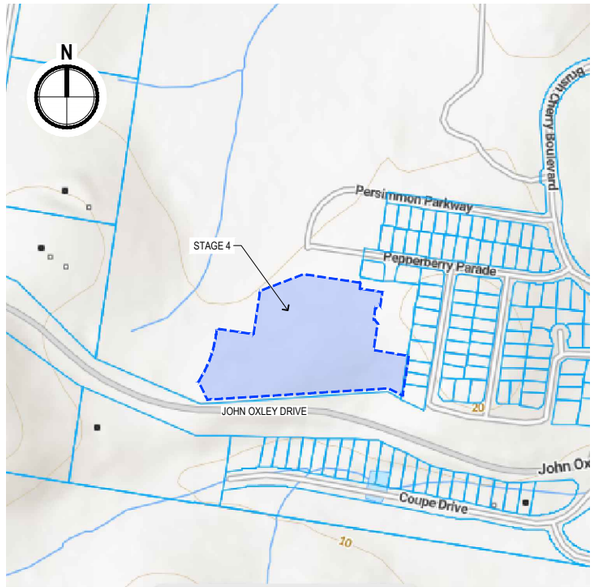
DA 2014-114

DRAWING SCHEDULE

NO.	DRAWING TITLE	REVISION
00	COVER SHEET	A
01	ENGINEERING NOTES	A
02	SITE ESTABLISHMENT & TREE MANAGEMENT PLAN	A
03	EARTHWORKS, EROSION & SEDIMENT CONTROL PLAN	A
04	GENERAL LAYOUT & DRAINAGE PLAN	A
05	SEWER & WATER PLAN	A
06	RETAINING WALL PLAN	A
07	PAVEMENT PLAN	A
08	ROAD 05 LONGITUDINAL SECTION & TYPICAL SECTION	A
09	ROAD 05 CROSS SECTIONS CH 125.85 TO 190.00	A
10	ROAD 05 CROSS SECTIONS CH 200.00 TO 246.06	A
11	ROAD 05 CROSS SECTIONS CH 260.32 TO 310.00	A
12	ROAD 05 CROSS SECTIONS CH 320.00 TO 370.00	A
13	ROAD 05 CROSS SECTIONS CH 380.00 TO 385.75	A
14	ROAD 06 LONGITUDINAL SECTION & TYPICAL SECTION	A
15	ROAD 06 CROSS SECTIONS CH 10.99 TO 60.00	A
16	ROAD 06 CROSS SECTIONS CH 73.50 TO 120.00	A
17	ROAD 06 CROSS SECTIONS CH 130.00 TO 185.16	A
18	ROAD 06 INTERSECTION DETAIL PLAN - KR 01 & 02	A
19	STORMWATER CATCHMENT PLAN	A
20	STORMWATER LONGITUDINAL SECTION - LINE 02 TO 06	A
21	STORMWATER LONGITUDINAL SECTION - LINE 06 TO 29	A
22	STORMWATER RESULTS - MINOR 20% AND MAJOR 1% AEP	A
23	SEWER LONGITUDINAL SECTION - LINE F & G	A
24	SEWER LONGITUDINAL SECTION - LINE G TO J	A
25	STREET LANDSCAPE PLAN	A
26	LANDSCAPE DETAILS SHEET 01	A
27	LANDSCAPE DETAILS SHEET 02	A
28	LANDSCAPING NOTES	A

SCHEDULE OF ROAD NAMES

ROAD No.	ROAD NAME
05	LEMON MYRTLE LOOP
06	MUSKHEART MEWS



LOCALITY PLAN

SCALE 1: 4000 @ A1 (0 40 80 120 160 200)

NOT TO BE USED FOR CONSTRUCTION UNLESS CONSTRUCTION CERTIFICATE ISSUED FOR THE WORKS

prepared for

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K:\C-REF_O:\7197_The Sanctuary\22_Engineering\Stage 4\1. STG 4 SWC\7197E_Stage 4_SWC_Plan.dwg - A1\LU-COVER, 25- Feb- 2026, brianc

CAUTION

1. UNDERGROUND SERVICES HAVE BEEN LOCATED TO A QUALITY OF CLASS C ONLY IN ACCORDANCE WITH AS5488.1-2019. THE CONTRACTOR IS RESPONSIBLE FOR INCREASING THE QUALITY TO CLASS A PRIOR TO CONSTRUCTION.

2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN CURRENT INFORMATION WITH REGARD TO ALL UNDERGROUND SERVICES & TO LOCATE THEM PRIOR TO COMMENCEMENT OF CONSTRUCTION.

3. WHERE LOCATION IS CRITICAL TO THE DESIGN IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND LEVEL THE APPROPRIATE SERVICE PRIOR TO CONSTRUCTION

4. ANY DIFFERENCES WITH SERVICES SHOWN ON THE DESIGN ARE TO BE REFERRED TO THE SUPERINTENDENT.

GENERAL NOTES

1. ALL WORK TO BE CARRIED OUT TO THE REQUIREMENTS AND SPECIFICATIONS OF AUS-SPEC DESIGN AND CONSTRUCTION GUIDELINES - PORT MACQUARIE HASTINGS COUNCIL VERSION.

2. SUBSOIL DRAINAGE SHALL BE PROVIDED AS SHOWN ON THE PLAN, AS DIRECTED BY THE SUPERINTENDENTS REPRESENTATIVE AND OTHERWISE GENERALLY WHERE THE SUBGRADE LEVEL IS MORE THAN 400mm BELOW NATURAL SURFACE LEVELS, AS PER D4.05 & ASD 305.

3. PROVIDE TURFING TO A MINIMUM OF 900mm BEHIND KERB WHERE NOT SPECIFIED ON LANDSCAPING PLANS.

4. ALL LANDSCAPING IS TO BE TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT.

5. ALL TRENCHING & CONDUIT WORK FOR ESSENTIAL ENERGY IS TO BE IN ACCORDANCE WITH THE ESSENTIAL ENERGY MANUAL FOR NON-ELECTRICAL WORKS REQUIREMENTS.

6. PUBLIC LIGHTING TO BE IN ACCORDANCE WITH AS1158 - PUBLIC LIGHTING CODE.

7. TRAFFIC CONTROL PLAN (IN ACCORDANCE WITH AS1742.3) TO BE PREPARED, SUBMITTED AND APPROVED BY COUNCIL PRIOR TO CONSTRUCTION.

8. PROVIDE TACTILE INDICATORS ON FOOTPATHS ABOVE PRAM RAMPS IN ACCORDANCE WITH AS 1428.4.2002 AND AS SHOWN ON THIS PAGE.

9. EXISTING ACCESS TO BE MAINTAINED DURING CONSTRUCTION.

10. PERMISSION TO ENTER PROPERTIES TO BE SOUGHT FROM OWNERS BEFORE CONSTRUCTION WORK BEGINS.

STANDARD DOCUMENTS

MANAGING URBAN STORMWATER - SOILS & CONSTRUCTION VOL. 1.

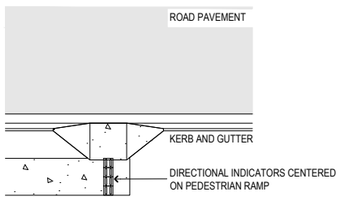
AUS-SPEC - DESIGN & CONSTRUCTION PORT MACQUARIE HASTINGS COUNCIL VERSION.

PORT MACQUARIE HASTINGS COUNCIL STANDARD DRAWINGS.

APPLICABLE AUSTRALIAN STANDARDS AS MENTIONED IN THIS DRAWING SET.

WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011

GRAVITY SEWERAGE CODE OF AUSTRALIA WSA 02-2014



01 **PEDESTRIAN RAMP DIRECTIONAL INDICATORS** PLAN NTS

SITE REGRADING NOTES

1. ALL SITE REGRADING IS TO BE CARRIED OUT IN ACCORDANCE WITH AUS-SPEC DESIGN SPEC D6.

2. TOPSOIL TO BE STRIPPED, STOCKPILED AND TO BE USED ON SITE AS DIRECTED. NO TOPSOIL TO BE REMOVED FROM SITE.

3. CUT AND FILL SITE, COMPACT FILL TO ACHIEVE A RELATIVE DENSITY IN ACCORDANCE WITH AS3798 GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS.

4. ENSURE EROSION CONTROL AND FILTER FENCES MAINTAINED AT ALL TIMES.

5. SUBSOIL DRAINAGE REQUIREMENTS ARE TO BE VERIFIED WITH THE GEOTECHNICAL ENGINEER PRIOR TO FILLING WORK COMMENCING.

6. NO WORK TO COMMENCE UNTIL CONTRACTOR HAS DISCUSSED REQUIREMENTS WITH APPOINTED GEOTECHNICAL ENGINEER.

TREE PROTECTION NOTES

1.ALL TREES RETAINED TO BE ADEQUATELY PROTECTED BY APPROPRIATE BARRIER FENCING CONSTRUCTED FROM STAR PICKETS AND FLUORESCENT FENCING AT ALL TIMES DURING CONSTRUCTION. THE BARRIER FENCING SHOULD EXTEND TO THE EXTENT OF THE DRIP LINE OF THE TREE WHERE PRACTICABLE.

2.WHERE PRACTICABLE NO COMPACTION OF THE ROOTS IS TO BE PERMITTED DURING THE COURSE OF CONSTRUCTION.

3.THE EXISTING LEVEL AT THE BASE OF THE TRUNK OF ALL THE LISTED TREES IS TO BE MAINTAINED FOR AT LEAST 1.5m FROM THE BASE OF THE TREES.

4.THE REMOVAL OF ANY TREE IS TO FOLLOW THE RECOMMENDATIONS CONTAINED WITHIN THE ECOLOGICAL REPORT AND ASSOCIATED REVIEW OF ENVIRONMENTAL FACTORS. OFFSET PLANTING TO BE UNDERTAKEN IN ACCORDANCE WITH THE ECOLOGICAL REPORT.

5.PRIOR TO ANY TREE REMOVAL PRE-CLEARING CHECKS ARE TO BE UNDERTAKEN BY A SUITABILITY QUALIFIED ECOLOGIST.

ABORIGINAL HERITAGE NOTES

1. IF ABORIGINAL OBJECTS ARE UNCOVERED DURING GROUND SURFACE WORKS, ALL WORKS MUST CEASE AND HERITAGE NSW SHOULD BE CONTACTED TO DETERMINE A COURSE OF ACTION.

2. IF SUSPECTED HUMAN REMAINS ARE FOUND, ALL WORK MUST CEASE, THE SITE SHOULD BE SECURED AND THE NSW POLICE NOTIFIED. NO FURTHER WORKS CAN BE UNDERTAKEN UNTIL THE NSW POLICE PROVIDE WRITTEN ADVICE. IF THE REMAINS ARE DEEMED TO REQUIRE ARCHAEOLOGICAL INVESTIGATION BY THE NSW POLICE OR NSW CORONER, THEN THE NSW HERITAGE AND THE RELEVANT ABORIGINAL PARTIES MUST BE NOTIFIED.

3. AS PART OF ANY SITE INDUCTION, THE CONTACT TELEPHONE NUMBERS OF HERITAGE NSW REGIONAL ARCHAEOLOGIST AND ENVIROLINE 131 555 SHOULD BE GIVEN TO ALL SITE WORKERS AND PERSONNEL, IN CASE UNKNOWN OBJECTS OR ITEMS ARE UNCOVERED DURING EXCAVATION.

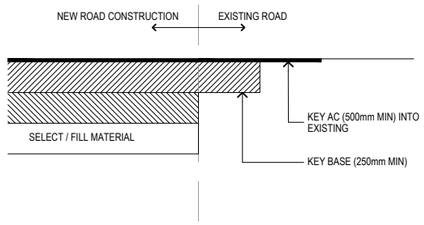
GENERAL INFORMATION

THE NATIONAL PARKS AND WILDLIFE ACT 1974 (NPW ACT) PROTECTS ABORIGINAL OBJECTS AND ABORIGINAL PLACES IN NSW. IT HAS BEEN AMENDED BY THE NATIONAL PARKS AND WILDLIFE REGULATION 2009 (NPW REGULATION). UNDER THE NPW ACT, THE FOLLOWING ARE OFFENCES UNLESS AN EXEMPTION OR DEFENCE IS PROVIDED FOR UNDER THE ACT:

- A PERSON MUST NOT KNOWINGLY HARM OR DESECRATE AN ABORIGINAL OBJECT (KNOWING OFFENCE)
- A PERSON MUST NOT HARM OR DESECRATE AN ABORIGINAL OBJECT OR ABORIGINAL PLACE (STRICT LIABILITY OFFENCE)

HARM INCLUDES ACTS OR OMISSIONS THAT "DESTROY, DEFACE OR DAMAGE" AN ABORIGINAL OBJECT OR ABORIGINAL PLACE, AND IN RELATION TO AN OBJECT, MOVE THE OBJECT FROM THE LAND ON WHICH IT HAS BEEN SITUATED.

SECTION 91 OF THE ACT ALSO OBLIGES ANY PERSON WHO DISCOVERS AN ABORIGINAL OBJECT TO REPORT IT TO THE HERITAGE NSW FOR IT TO BE ENTERED ON THE ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEMS (AHIMS).



ROAD PAVEMENT TIE IN DETAIL NTS

SURVEY AND PRESERVATION OF SURVEY MARKS

1. THE UNAUTHORISED REMOVAL, DISTURBANCE OR DESTRUCTION OF STATE SURVEY MARKS (PM, SSM, TS) OR BOUNDARY REFERENCE MARKS IS COSTLY TO THE COMMUNITY.

2. SECTION 24(1) OF THE SURVEYING AND SPATIAL INFORMATION ACT 2020 STATES THAT A PERSON MUST NOT REMOVE, DAMAGE, DESTROY, DISPLACE, OBLITERATE OR DEFACE ANY SURVEY MARK UNLESS AUTHORISED TO DO SO BY THE SURVEYOR GENERAL. THERE ARE SIGNIFICANT PENALTIES IF MARKS ARE REMOVED WITHOUT APPROVAL.

3. THERE ARE PROCEDURES IN PLACE IF A SURVEY MARK HAS TO BE REMOVED AND REPLACED. THE SURVEYOR GENERAL HAS GUIDELINES FOR THE REPLACEMENT OF SURVEY MARKS (SURVEYOR GENERAL'S DIRECTIONS NO. 11 PRESERVATION OF SURVEY INFRASTRUCTURE).

4. THE CONTRACTOR SHALL CHECK SUSTAINABILITY OF THE STATED COORDINATES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION

5. ONLY ESTABLISHED STATE SURVEY MARKS ARE TO BE USED TO ESTABLISH HORIZONTAL AND HEIGHT CONTROL UNLESS THE MARK HAS BEEN APPROVED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION

WATER MAIN NOTES

1. DESIGN AND CONSTRUCTION WORK TO BE CARRIED OUT IN ACCORDANCE WITH AUSPEC DEVELOPMENT DESIGN SPECIFICATION D11 - WATER RETICULATION AND DEVELOPMENT CONSTRUCTION SPECIFICATION C401 - WATER RETICULATION.

2. PIPES ARE TO BE PVC-U, PVC-O OR PVC-M CLASS 12 TO AS 4020, AS 1477 SERIES 2, AS 4765 & AS 4441 AS APPROPRIATE, UNLESS SHOWN OTHERWISE ON PLANS - REFER TO ASD 402.

3. ALL MAINS ARE TO BE LAID 1.0 METRE BEHIND THE KERB UNLESS OTHERWISE SHOWN ON THE PLANS.

4. LOT CORNERS ARE TO BE MARKED BY THE SUPERVISING CONSULTANT TO ENSURE CORRECT LOCATION OF SERVICES.

5. MINIMUM COVER IN FOOTPATH AREAS IS 450mm AND UNDER ROAD PAVEMENT AREAS AND IN EASEMENTS IS TO BE 600mm.

6. ALL PIPES ARE TO BE LAID WITH CONTINUOUS 200mm PLASTIC MESH WITH COPPER OR STAINLESS STEEL TRACE WIRE FOR RADIO LOCATION.

7. ALL FITTINGS ARE TO BE FBE COATED DUCTILE IRON TO AS2280 WITH FBE LINING.

8. ALL BENDS, TEES, END CAPS, TAPERS AND VALVES ARE TO BE ANCHORED WITH THRUST BLOCKS - REFER TO ASD 432.

9. HYDRANT FITTINGS CONSIST OF A HYDRANT TEE WITH SPRING HYDRANT TO AS 3952 AND SPACERS AS APPROPRIATE. HYDRANT FITTINGS ARE TO HAVE AN APPROVED THERMAL BONDED COATING - REFER TO ASD 440.

10. STOP VALVES ARE TO BE RESILIENT SEATED AND HAVE AN APPROVED THERMAL BONDED COATING AND MANUFACTURED TO AS 2638. STOP VALVES SHALL BE CLOCKWISE CLOSING - REFER TO ASD 441.

12. VALVE AND HYDRANT COVERS ARE TO IN ACCORDANCE WITH ASD 440 AND 441.

13. MARKINGS ARE TO BE IN ACCORDANCE WITH ASD 460, ASD 461 & ASD 462.

14. SERVICE CONNECTIONS ARE TO BE IN ACCORDANCE WITH ASD 450, ASD 451 & ASD 452.

15. WHEREVER THERE IS A PAVEMENT OVER A WATER MAIN SERVICE TAPPING, A CAST IRON BOX (OR APPROVED EQUIVALENT) WILL BE REQUIRED.

16. CONNECTION TO, ADJUSTMENT OF, OR RELOCATION OF EXISTING MAINS ARE TO BE ARRANGED WITH COUNCIL AT CONTRACTOR'S COST.

17. WATER MAINS ARE TO BE DISINFECTED IN ACCORDANCE WITH DPW&S STANDARD PROCEDURES PRIOR TO BEING COMMISIONED.

18. THE CONTRACTOR MUST PLACE BENDS IN THE POSITIONS GENERALLY AS SHOWN ON THE PLANS AND NOT TO DELETE A BEND WITHOUT EXPRESS APPROVAL OF COUNCIL'S DEVELOPMENT SUPERVISOR.

SEWER NOTES

1. ALL WORK TO BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF AUS-SPEC #1 SERIES NO. D12 & C402. REFER ALSO TO ASD 500 SERIES (COUNCIL STD DWGS) AND GRAVITY SEWERAGE CODE OF AUSTRALIA WSA 02-2014.

2. MANHOLE NUMBERS TO BE PAINTED ON LIDS.

3. JUNCTION PEGS 0.6M LONG MARKED "J" TO BE PLACED AT EACH JUNCTION CONSTRUCTED. REFER TO ASD 502.

4. CONCRETE PROTECTION OTHER THAN SHOWN ON SECTIONS MAY BE REQUIRED FOR PROTECTION FROM TREE ROOTS, SHALLOW TRENCHES, STEEP GRADES, SCOURING, ETC AS DIRECTED BY THE SUPERVISING CONSULTANT.

5. ALL PIPES ARE TO BE SEWERPRO, uPVC TYPE SN8 OR AS SPECIFIED ON PLANS AND SECTIONS.

6. BOUNDARY CUT CHAINAGES ARE TO BE OBTAINED BY THE CONTRACTOR FROM THE SUPERVISING CONSULTANTS TO ENSURE CORRECT LOCATION OF HOUSE SERVICE JUNCTIONS.

7. MANHOLE LIDS TO BE CONSTRUCTED TO A LEVEL ABOVE THE FINISHED SURFACE LEVEL IN ACCORDANCE WITH ASD 504 UNLESS OTHERWISE NOTED (75MM FOR NEW SUBDIVISION) AND GRADED PARALLEL TO SLOPE OF LAND AND INSTALLED IN ACCORDANCE WITH ASD 504.

8. STEP IRONS ARE TO BE PROVIDED IN ALL MANHOLES DEEPER THAN 1.2M (MEASURED FROM THE TOP OF BENCHING TO GROUND LEVEL).

9. WHERE MULTIPLE INVERT LEVELS ARE SHOWN AT MANHOLES THEY REFER TO INLET AND/OR OUTLET LEVELS RESPECTIVELY AT THE WALL OF THE MANHOLE.

10. TRENCH STOPS ARE TO BE PROVIDED ON GRADES IN EXCESS OF 10%. REFER TO ASD 510.

11. ALL CONCRETE TO BE MANUFACTURED FROM TYPE D CEMENT.

12. ALL TRENCHES UNDER ROADWAYS TO BE FILLED WITH SAND.

13. ALL JUNCTIONS ARE TO BE BROUGHT TO WITHIN 1.5 METRES FROM FINISHED SURFACE.

14. SIDE LINES ARE TO BE 150mm EXTENSIONS CONSTRUCTED OFF AND AT THE LEVEL OF THE SEWER MAIN. WHERE RISERS ARE REQUIRED, THEY ARE TO BE LOCATED WITHIN THE PROPERTY SERVED. REFER TO ASD 501 & 502.

15. CONNECTION TO COUNCIL'S SEWER IS TO BE CARRIED OUT UNDER COUNCIL SUPERVISION.

16. GRADE IS CALCULATED FROM INSIDE FACE OF MANHOLES. DEPTH TO INVERT IS CALCULATED FROM TOP OF MANHOLE (75mm ABOVE FINISHED SURFACE R.L.) ENSURE MANHOLES ARE CONSTRUCTED TO LEVELS AS SHOWN.

17. A CCTV INSPECTION OF ALL NEW AND MODIFIED SEWER INFRASTRUCTURE IS TO BE UNDERTAKEN IN ACCORDANCE WITH CONDUIT INSPECTION REPORTING CODE OF AUSTRALIA (WSA05) BY SUITABLY QUALIFIED PERSON.

STORMWATER NOTES

1. ALL STORMWATER PITS ARE TO INCLUDE 3m OF SUBSOIL DRAINAGE TO BE INSTALLED ON THE UPSTREAM SIDE OF ALL DRAINAGE PITS WITH AN UPSTREAM PIPE. THE UPSTREAM PIPE IS TO BE SEALED AND ENCLOSED IN A SEAMLESS TUBULAR FILTER FABRIC IN ACCORDANCE WITH "AUSPEC".

2. PIT SIZES ARE TO BE AS SET OUT IN THE SCHEDULE AND ARE TO BE IN ACCORDANCE WITH AS 3500 AND "AUSPEC".

3. PIT GRATES ARE TO BE SUITABLE FOR TRAFFIC LOADING WHERE APPLICABLE & TO CONFORM TO SURFACE CROSSFALLS.

4. MAIN STORMWATER LINES ARE TO BE AS SHOWN ON THE LONGITUDINAL SECTIONS.

5. FOR STORMWATER PIPE SIZE & CLASS SEE STORMWATER LONGITUDINAL SECTIONS. STORMWATER MAIN LINES PIPE TO BE STORMPRO OR EQUIVALENT CONCRETE PIPE. STORMWATER INTERALLOTMENT AND PROPERTY CONNECTIONS TO BE uPVC OR STORMPRO.

6. CHANNELISE THE BASE OF PITS CONTAINING PIPES 525mm OR GREATER.

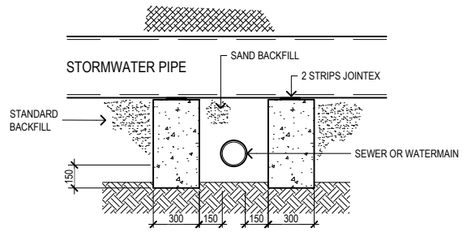
7. ALL HEADWALLS TO HAVE RIPRAP OUTLET PROTECTION TO ASD 306/307

STORMWATER SUPPORT DETAIL

- FOR CLEARANCES LESS THAN 1m BETWEEN A SEWER / WATER PIPE UNDER A 375mm STORMWATER PIPE OR GREATER, BRIDGING IS REQUIRED

- THE BRIDGED SEWER / WATER PIPE IS TO BE WRAPPED IN COMPRESSIBLE MEMBRANE WITH SUPPORTS

- CONCRETE PIERS LENGTH TO BE 250mm BEYOND EACH SIDE OF PIPE BEING SUPPORTED (IE PIPE O.D. + 500mm)



02 **STORMWATER SUPPORT** DETAIL SECTION NTS

WORK AS EXECUTED INFORMATION

THIS INFORMATION IS TO BE FORWARDED TO KING & CAMPBELL PTY LTD UPON COMPLETION OF SEWER & DRAINAGE WORKS.

SEWER

1. A MARKER IS TO BE PLACED DIRECTLY ABOVE ALL SEWER DEAD ENDS (AT GROUND LEVEL), WITH A DISTANCE DOWN TO THE INVERT OF THE PIPE.

2. THE DISTANCE FROM THE DOWNSTREAM MANHOLE, A DEPTH BELOW FINISHED SURFACE AND A LENGTH OF PIPE FOR ALL SEWER SIDELINES AND JUNCTIONS IS TO BE WRITTEN ON A COPY OF THE FINAL ENGINEERING PLANS. IT SHOULD ALSO BE INDICATED WHETHER THE SIDELINE IS AT 45° OR 90° TO THE MAIN SEWER LINE.

3. IT MUST BE INDICATED IF A RISER HAS BEEN USED.

INTERLOT DRAINAGE

1. A MARKER IS TO BE PLACED DIRECTLY ABOVE ALL INTERLOT DRAINAGE DEAD ENDS (AT GROUND LEVEL), WITH A DISTANCE DOWN TO THE INVERT OF THE PIPE.

2. THE DISTANCE FROM THE DOWNSTREAM PIT AND A DEPTH BELOW FINISHED SURFACE OF ALL INTERLOT DRAINAGE JUNCTIONS IS TO BE WRITTEN ON A COPY OF THE FINAL ENGINEERING PLANS. IT SHOULD ALSO BE INDICATED WHETHER THE JUNCTION IS AT 45° OR 90° TO THE MAIN DRAINAGE LINE.

STORMWATER

1. A CCTV INSPECTION OF ALL NEW AND MODIFIED STORMWATER INFRASTRUCTURE IS TO BE UNDERTAKEN IN ACCORDANCE WITH CONDUIT INSPECTION REPORTING CODE OF AUSTRALIA (WSA05) BY SUITABLY QUALIFIED PERSON.

2. INSPECTION TO BE PROVIDED TO COUNCIL PRIOR TO ACCEPTANCE OF WORKS INTO THE NOMINATED 'INTO MAINTENANCE PERIOD'.

NOT TO BE USED FOR CONSTRUCTION UNLESS SUBDIVISION WORKS CERTIFICATE ISSUED FOR THE WORKS

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THIS DRAWING INCLUDES INFORMATION IN COLOUR. IF YOU HAVE A BLACK AND WHITE COPY YOU DON'T HAVE ALL THE INFORMATION. THIS NOTE IS COLOURED RED.

K<-REF: O:\7197_The Sanctuary\Z2_Engineering\Stage 4\1. STG 4 SWC\7197E_Stage 4_SWC_Plan.dwg, A1(LANDSCAPE), 25 February 2026, Jvanc

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REV.	DATE	DESCRIPTION	
A	25.02.2026	ISSUED FOR APPROVAL	JSC

DATUM: SCALE:

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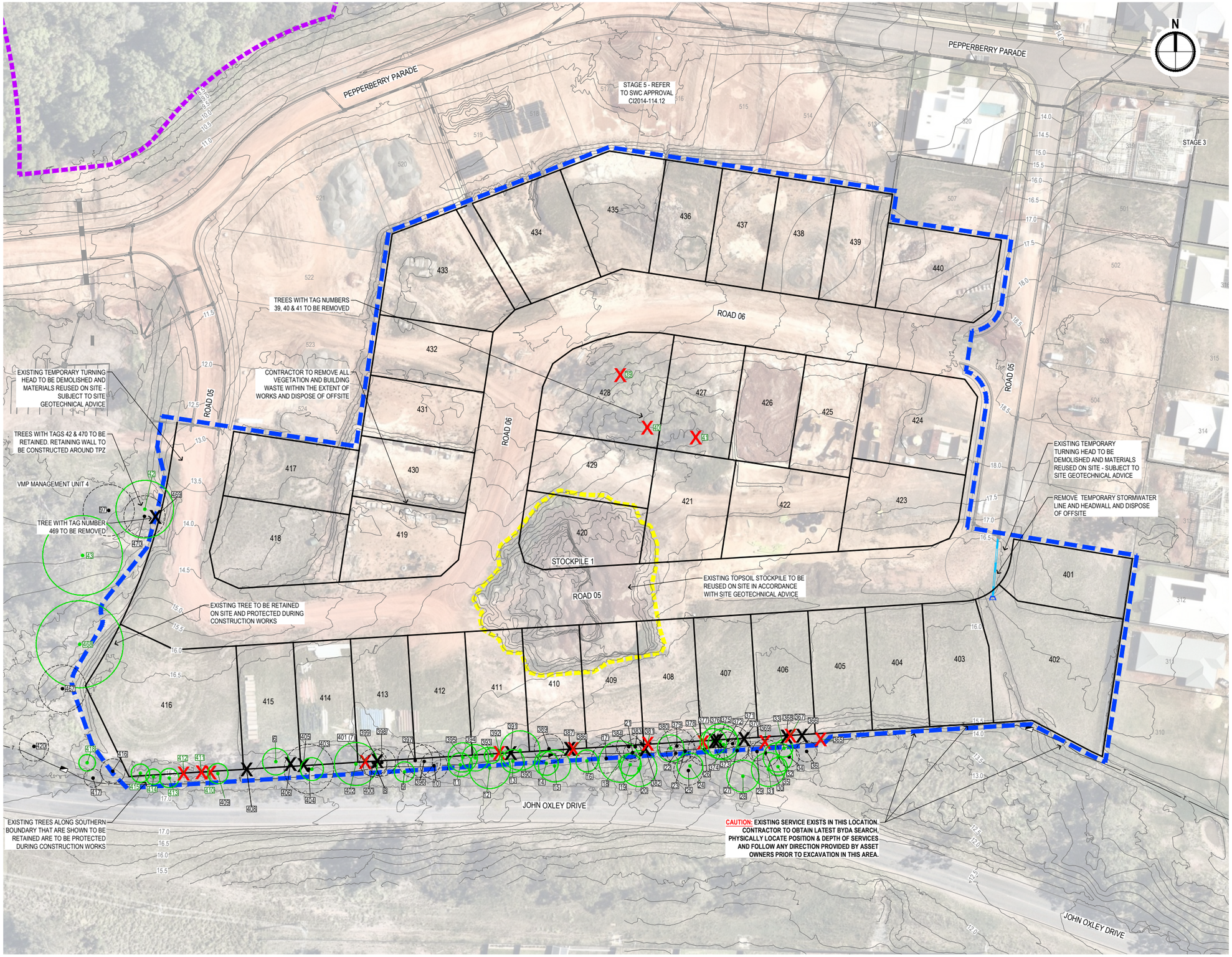
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: ENGINEERING NOTES **A1**

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	01 OF 28	A



LEGEND

- EXISTING BOUNDARY
- PROPOSED STAGE 4 BOUNDARY
- STAGE 4 EXTENT OF WORKS
- EXISTING BIODIVERSITY CERTIFICATION BOUNDARY (PLOTTED FROM PDF)
- EXISTING SURFACE CONTOURS (0.5m INTERVALS)
- EXISTING GRAVITY SEWER LINE WITH MANHOLE
- EXISTING STORMWATER LINE WITH PIT & HEADWALL
- EXISTING TELSTRA (K&C SURVEY APRIL 2025)
- APPROXIMATE EXISTING STOCKPILE EXTENTS
- KOALA FOOD TREE (TPZ) WITH TAG (K&C SURVEY JANUARY TO MARCH 2025)
- NON KOALA FOOD TREE (TPZ) WITH TAG (K&C SURVEY JANUARY TO MARCH 2025)
- KOALA FOOD TREE TO BE REMOVED AS PART OF STAGE 4 WORKS
- NON KOALA FOOD TREE TO BE REMOVED AS PART OF STAGE 4 WORKS

NOTES

1. TAG NUMBERS OF TREES TO BE REMOVED AS PART OF STAGE 4 WORKS:
   - 39, 40, 41, 355, 366, 367, 368, 369, 370, 375, 376, 378, 381, 382, 386, 387, 391, 392, 399, 401, 404, 406, 408, 410, 411, 412, 469
2. ALL EXISTING CONSTRUCTION DEBRIS AND BUILDING MATERIALS STORED ON SITE TO BE REMOVED AND DISPOSED OF OFFSITE AT CONTRACTORS EXPENSE.

NOT TO BE USED FOR CONSTRUCTION UNLESS SUBDIVISION WORKS CERTIFICATE ISSUED FOR THE WORKS

Look up and live
For safety tips visit essentialenergy.com.au/safety or in an emergency call 13 20 80
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ORIGIN OF LEVELS: PM 74301 RL 10.845 AHD UAV DATED AUGUST 2025 & ELVIS (ELEVATION & DEPTH FOUNDATION SPATIAL DATA), BACKGROUND IMAGERY FROM NEARMAP DATED 31 JANUARY 2026

K:\C REF CI\7197_The Sanctuary\22_Engineering\Stage 4\1. STG 4 SWC\7197E_Stage 4_SWC_Plan.dwg, A1(L)-ESTABLISH, 25 February 2026, bclanc

KING + CAMPBELL

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REV.	DATE	DESCRIPTION	BY
A	25.02.2026	ISSUED FOR APPROVAL	JSC

DATUM: AHD SCALE: 1:500 @ A1 (1:1000 @ A3)

0 25

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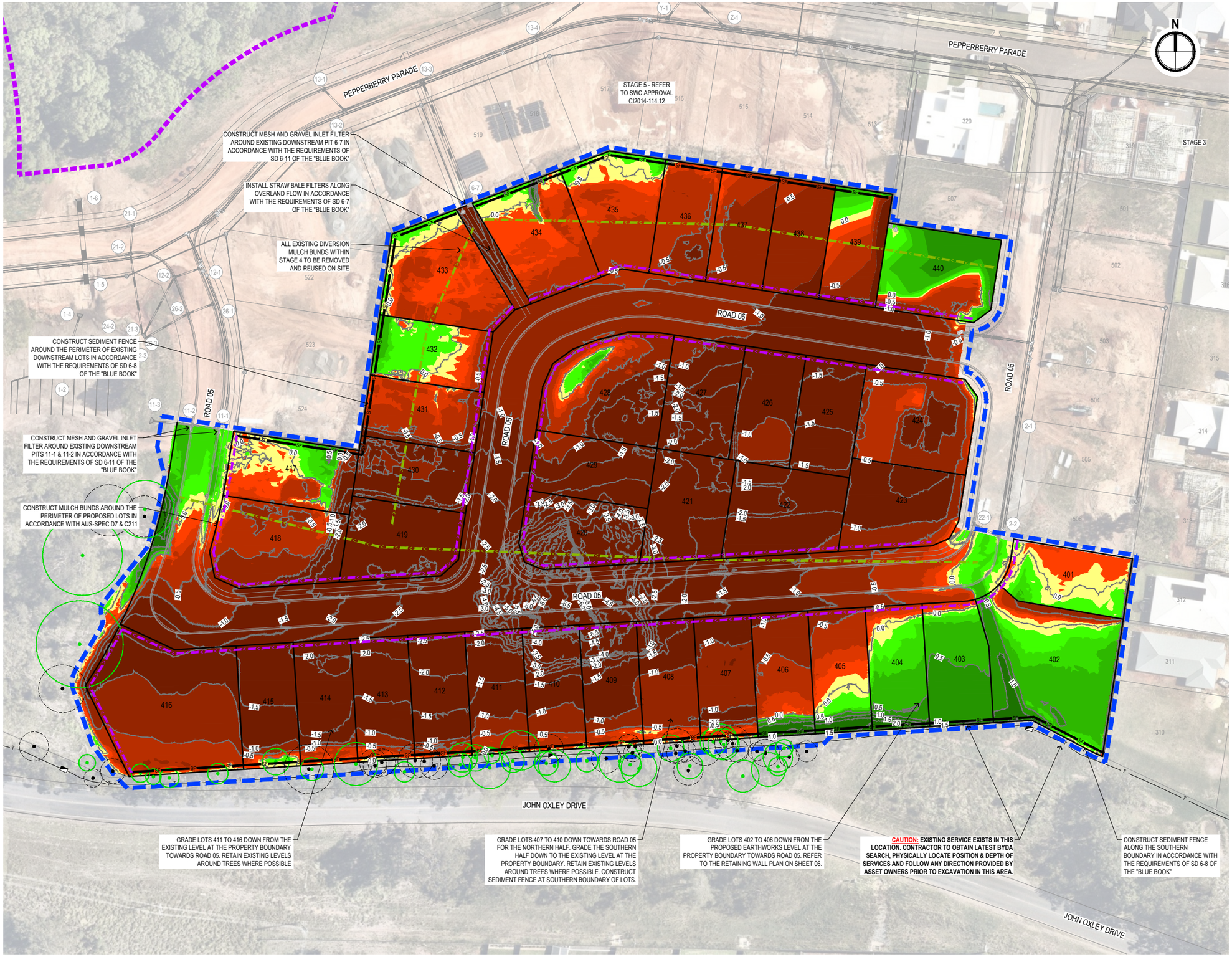
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: SITE ESTABLISHMENT & TREE MANAGEMENT PLAN — A1

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	02 OF 28	A



LEGEND

- EXISTING BOUNDARY
- PROPOSED STAGE 4 BOUNDARY
- STAGE 4 EXTENT OF WORKS & SITE EXCLUSION FENCING
- EXISTING BIODIVERSITY CERTIFICATION BOUNDARY (PLOTTED FROM PDF)
- CUT & FILL CONTOURS (0.5m INTERVALS)
- EXISTING & PROPOSED STORMWATER LINE WITH PIT & HEADWALL
- EXISTING GRAVITY SEWER LINE WITH MANHOLE
- EXISTING / PROPOSED WATER HYDRANT, STOP VALVE, BEND AND TEE
- EXISTING TELSTRA (K&C SURVEY APRIL 2025)
- EXISTING CONCRETE SLEEPER RETAINING WALL
- EXISTING MULCH BUND IN ACCORDANCE WITH AUS-SPEC D7 & C211
- PROPOSED MULCH BUND IN ACCORDANCE WITH AUS-SPEC D7 & C211
- PROPOSED SEDIMENT FENCE IN ACCORDANCE WITH SD 6-8 OF THE "BLUE BOOK"
- KOALA FOOD TREE (TPZ) (K&C SURVEY JANUARY TO MARCH 2025)
- NON KOALA FOOD TREE (TPZ)(K&C SURVEY JANUARY TO MARCH 2025)

NOTES

1. STRIP TOPSOIL WITHIN DEVELOPMENT FOOTPRINT, STOCKPILE AND RESPREAD FOLLOWING EARTHWORKS TO DESIGN LEVELS.
2. ENSURE THAT ANY IMPORTED FILL IS EITHER VIRGIN EXCAVATED NATURAL MATERIAL (VENM) OR EXCAVATED NATURAL MATERIAL (ENM). CERTIFICATION IS TO BE PROVIDED TO COUNCIL.
3. SEDIMENT FENCING & MULCH BUNDS ARE TO BE MAINTAINED UNTIL GROUND COVER IS RE-ESTABLISHED.

CUT AND FILL LEGEND

From	To	Colour	
-10	-1	acad 028	CUT
-1	-0.5	acad 026	CUT
-0.5	-0.25	acad 024	CUT
-0.25	-0.15	acad 022	CUT
-0.15	-0.05	020 RED	CUT
-0.05	0.05	051 YELLOW	
0.05	0.15	080 GREEN	FILL
0.15	0.25	acad 082	FILL
0.25	0.5	acad 084	FILL
0.5	1	acad 086	FILL
1	10	acad 088	FILL

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ORIGIN OF LEVELS: PM 74301 RL 10.845 AHD & ELVIS (ELEVATION & DEPTH FOUNDATION SPATIAL DATA)

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DATUM: AHD SCALE: 1:500 @ A1 (1:1000 @ A3)

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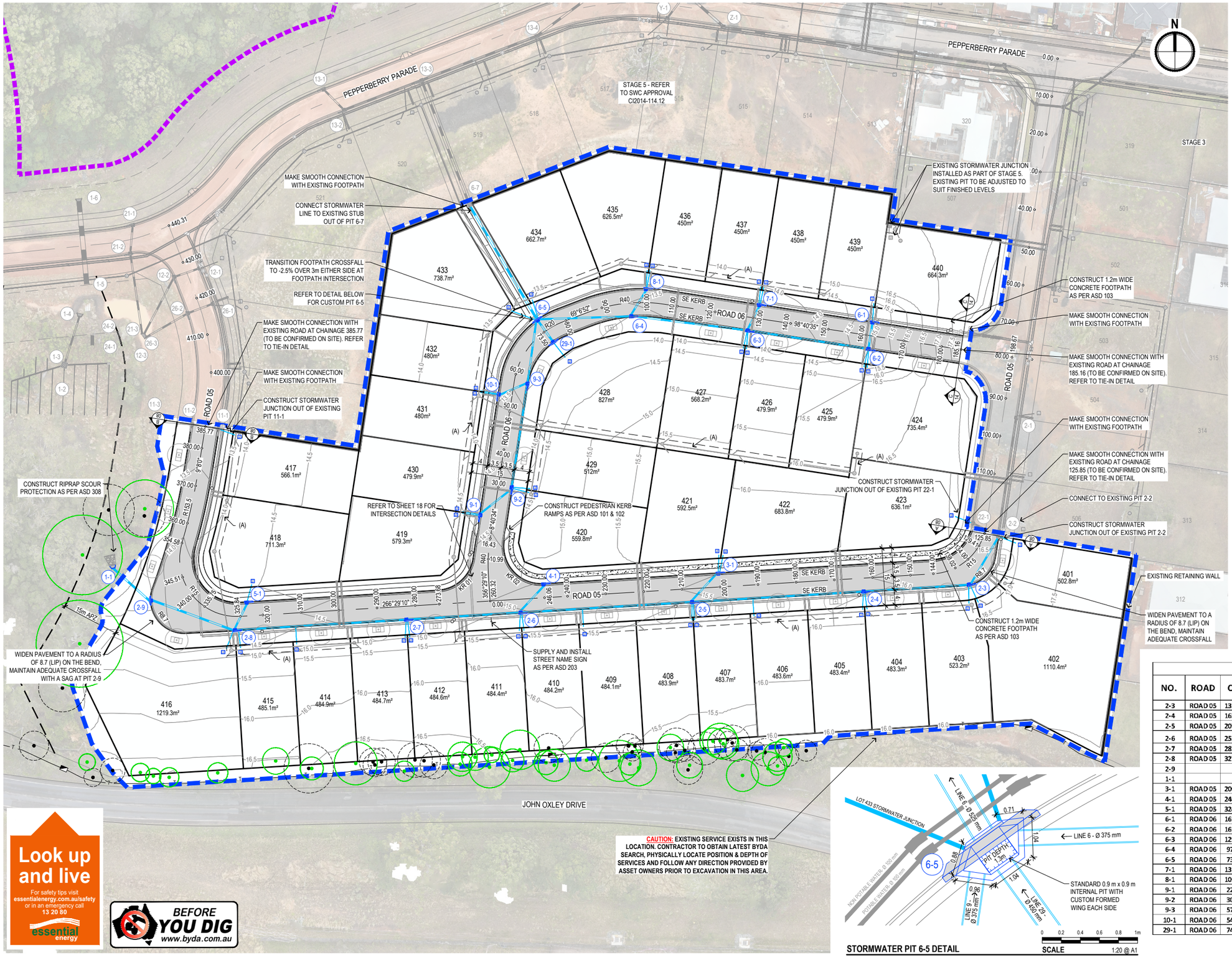
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: EARTHWORKS, EROSION & SEDIMENT CONTROL PLAN — A1

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	03 OF 28	A



STORMWATER PIT 6-5 DETAIL

LEGEND

- EXISTING BOUNDARY
- PROPOSED STAGE 4 BOUNDARY
- STAGE 4 EXTENT OF WORKS
- EXISTING BIODIVERSITY CERTIFICATION BOUNDARY (PLOTTED FROM PDF)
- ASSET PROTECTION ZONE BOUNDARY
- DESIGN SURFACE CONTOURS (0.5m INTERVALS)
- PROPOSED STORMWATER LINE WITH PIT, JUNCTION & HEADWALL
- PROPOSED STORMWATER PIT LABELS
- EXISTING / PROPOSED GRAVITY SEWER LINE WITH MANHOLE & INSPECTION SHAFT
- EXISTING / PROPOSED WATER HYDRANT, STOP VALVE, BEND AND TEE
- EXISTING TELSTRA (K&C SURVEY APRIL 2025)
- EXISTING CONCRETE SLEEPER RETAINING WALL
- PROPOSED ROAD
- PROPOSED FOOTPATH
- PROPOSED ROCK RIPRAP SCOUR PROTECTION TO ASD 308
- KOALA FOOD TREE (TPZ) (K&C SURVEY JANUARY TO MARCH 2025)
- NON KOALA FOOD TREE (TPZ) (K&C SURVEY JANUARY TO MARCH 2025)
- PROPOSED STREET TREE - REFER TO SHEET 26 FOR DETAILS
- PROPOSED STREET NAME SIGN

STAGE 4 EASEMENTS

(A) PROPOSED EASEMENT TO DRAIN SEWAGE MINIMUM 2.5m WIDE

NOTES

1. REFER TO SHEET 04 FOR CONSTRUCTION NOTES.
2. REFER TO SHEET 25 FOR FENCING AND LANDSCAPING DETAILS.
3. ROAD SUBSOIL DRAINAGE TO BE INSTALLED IN ACCORDANCE WITH ASD 307 BEHIND ALL KERBS EXCEPT IN LOCATIONS WHERE STORMWATER PIPELINE IS PROPOSED.
4. REFER TO SHEETS 20 TO 21 FOR STORMWATER LONGITUDINAL SECTIONS.
5. REFER TO SHEET 19 FOR STORMWATER CATCHMENT PLAN.
6. REFER TO THE SANCTUARY STAGE 5 PLANS FOR DETAILS ON THE DOWNSTREAM BASINS.

STORMWATER PIT SCHEDULE

NO.	ROAD	CH.	TYPE	MINIMUM INTERNAL SIZE	REFERENCE	NOTES
2-3	ROAD 05	135.06	Grated Gully Pit 1.8m Lintel	900 x 900	AS 3500.3	
2-4	ROAD 05	162.50	Grated Gully Pit 1.8m Lintel	900 x 900	AS 3500.3	
2-5	ROAD 05	207.49	Grated Gully Pit 1.8m Lintel	900 x 900	AS 3500.3	
2-6	ROAD 05	252.49	Grated Gully Pit 1.8m Lintel	900 x 900	AS 3500.3	
2-7	ROAD 05	282.50	Grated Gully Pit 1.8m Lintel	900 x 900	AS 3500.3	
2-8	ROAD 05	327.18	Grated Gully Pit 1.8m Lintel	900 x 900	AS 3500.3	
2-9			Grated Gully Pit 1.8m Lintel	900 x 900	AS 3500.3	SAG
1-1			Headwall			525mm Pipe
3-1	ROAD 05	200.20	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
4-1	ROAD 05	246.06	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
5-1	ROAD 05	324.00	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
6-1	ROAD 06	161.16	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
6-2	ROAD 06	161.16	Grated Gully Pit 1.8m Lintel	900 x 900	AS 3500.3	
6-3	ROAD 06	129.16	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
6-4	ROAD 06	97.61	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
6-5	ROAD 06	73.96	Grated Gully Pit 2.4m Lintel	900 x 900	AS 3500.3	SAG
7-1	ROAD 06	131.16	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
8-1	ROAD 06	101.59	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
9-1	ROAD 06	22.10	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
9-2	ROAD 06	30.48	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
9-3	ROAD 06	57.95	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
10-1	ROAD 06	54.10	Grated Gully Pit 1.8m Lintel	750 x 900	ASD 301	
29-1	ROAD 06	74.00	Grated Gully Pit 2.4m Lintel	750 x 900	ASD 301	SAG

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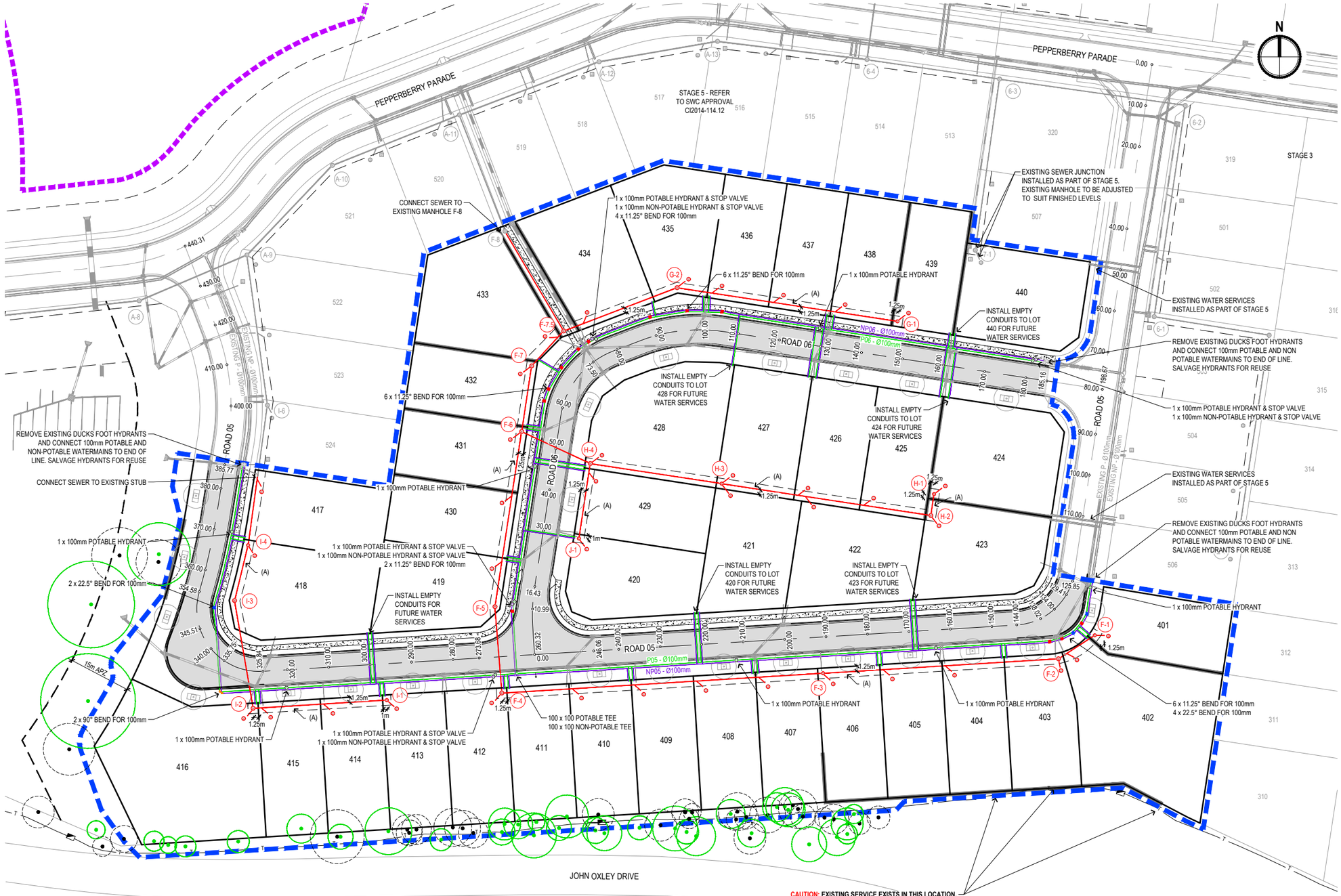
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: GENERAL LAYOUT & DRAINAGE PLAN — A1

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	04 OF 28	A



LEGEND

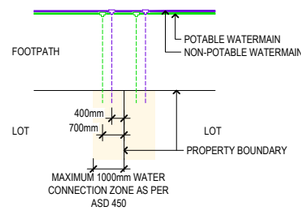
- EXISTING BOUNDARY
- PROPOSED STAGE 8 BOUNDARY
- STAGE 4 EXTENT OF WORKS
- EXISTING BIODIVERSITY CERTIFICATION BOUNDARY (PLOTTED FROM PDF)
- ASSET PROTECTION ZONE BOUNDARY
- EXISTING SEWER LINE WITH MANHOLE & JUNCTION
- EXISTING POTABLE WATER MAIN WITH HYDRANT & STOP VALVE
- EXISTING NON-POTABLE WATER MAIN WITH HYDRANT & STOP VALVE
- PROPOSED SEWER LINE WITH MANHOLE, MAINTENANCE SHAFT & JUNCTION
- PROPOSED, EXISTING SEWER MANHOLE LABEL
- PROPOSED POTABLE WATER HYDRANT, STOP VALVE & TEE
- PROPOSED NON-POTABLE WATER HYDRANT, STOP VALVE & TEE
- PROPOSED WATER MAIN WITH BENDS 11.25°, 22.5°, 45° & 90°
- 20mm WATER PROPERTY SERVICE UNLESS NOTED OTHERWISE (POTABLE & NON POTABLE) INC TAPPING BANDS AND PROVISION FOR FUTURE METERS. TO BE IN 100mm CONDUIT WHERE UNDER ROAD PAVEMENT
- PROPOSED CONCRETE SLEEPER RETAINING WALL
- PROPOSED STREET TREE - REFER TO SHEET 26 FOR DETAILS

NOTES

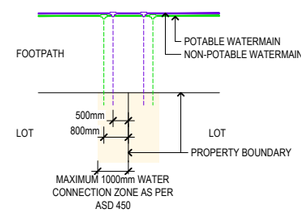
1. SEE SHEET 01 FOR WATER MAIN AND SEWER NOTES
2. WATERMAINS UNDER ROAD PAVEMENTS ARE TO BE CLASS 16/PN16, SERIES II, RRJ mPVC TO AS/NZS 4765 OR OPVC TO AS/NZS 4441 OR HDPE PE100 PN16. PIPES TO BE LIGHT BLUE IN COLOUR OR BLUE STRIPE FOR HDPE.
3. THE CONTRACTOR MUST PLACE BENDS IN THE POSITIONS GENERALLY AS SHOWN ON THE PLANS AND ARE NOT TO DELETE A BEND WITHOUT EXPRESS APPROVAL OF COUNCIL'S DEVELOPMENT SUPERVISOR.
4. ENSURE MINIMUM CLEARANCE OF WATERMAINS HORIZONTAL - 300 mm BETWEEN PIPES, VERTICAL - 150 mm BETWEEN PIPES IN ACCORDANCE WITH ASD 406.
5. TRENCH STOPS TO BE INSTALLED IN WATERMAIN TRENCHES WHERE GRADE EXCEEDS 10 % IN ACCORDANCE WITH ASD 431
6. WATER MAIN THRUST BLOCKS TO BE INSTALLED IN ACCORDANCE WITH ASD 433.
7. ALL SEWER MANHOLES TO BE POSITIONED TO ACHIEVE 1 m MINIMUM CLEARANCE TO ADJACENT PROPERTY BOUNDARIES.
8. ALL FITTINGS TO BE 100 mm SIZE UNLESS OTHERWISE NOTED.

STAGE 4 EASEMENTS

(A) PROPOSED EASEMENT TO DRAIN SEWAGE MINIMUM 2.5m WIDE



WATER CONNECTION
CLEAR OF ELECTRICAL AND COMMUNICATIONS
NTS



WATER CONNECTION
OBSTRUCTED BY ELECTRICAL AND COMMUNICATIONS
NTS

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PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: SEWER & WATER PLAN — A1

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	05 OF 28	A



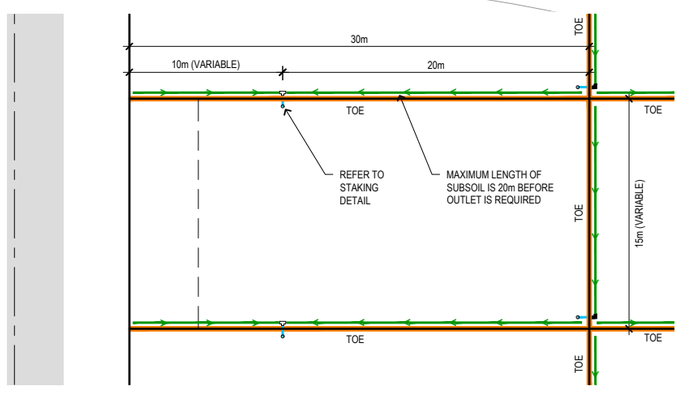
LEGEND

- EXISTING BOUNDARY
- PROPOSED STAGE 4 BOUNDARY
- STAGE 4 EXTENT OF WORKS
- EXISTING BIODIVERSITY CERTIFICATION BOUNDARY (PLOTTED FROM PDF)
- ASSET PROTECTION ZONE BOUNDARY
- EXISTING CONCRETE SLEEPER RETAINING WALL
- PROPOSED CONCRETE SLEEPER RETAINING WALL
- PROPOSED EARTHWORKS BATTER (0.2m HIGH, 25% MAXIMUM)
- 8.5 DESIGN SURFACE CONTOURS (0.5m INTERVALS)
- LOT PAD EXTENTS
- 10.11 LOT PAD LEVELS
- 2.1% LOT PAD GRADES
- EXISTING / PROPOSED STORMWATER LINE WITH PIT & HEADWALL
- EXISTING / PROPOSED GRAVITY SEWER LINE WITH MANHOLE
- EXISTING / PROPOSED WATER HYDRANT, STOP VALVE, BEND AND TEE
- EXISTING TELSTRA (K&C SURVEY APRIL 2025)
- PROPOSED ROAD
- PROPOSED FOOTPATH
- KOALA FOOD TREE (TPZ) (K&C SURVEY JANUARY TO MARCH 2025)
- NON KOALA FOOD TREE (TPZ) (K&C SURVEY JANUARY TO MARCH 2025)
- PROPOSED STREET TREE - REFER TO SHEET 26 FOR DETAILS

NOTES

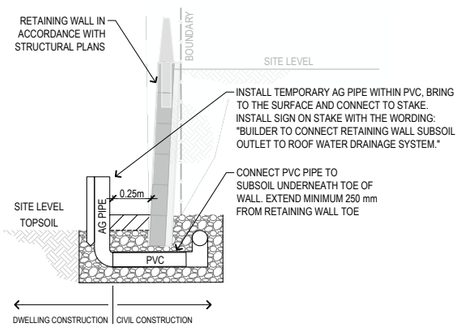
1. CONCRETE SLEEPER RETAINING WALLS TO BE GREY WITH THE TIMBER TEXTURE TO MATCH ADJACENT SUBDIVISION WORKS.
2. RETAINING WALLS TO CONTINUE BEYOND THE EARTHWORKS PAD EXTENT TOWARD THE ROADWAY TO A LENGTH THAT ALLOWS GRADES EITHER SIDE TO BE < 25%.
3. RETAINING WALL DESIGN AND CERTIFICATION TO BE COMPLETED BY A SUITABLY QUALIFIED STRUCTURAL ENGINEER IN ACCORDANCE WITH PORT MACQUARIE HASTINGS COUNCIL AUSPEC. DESIGN TO BE PROVIDED AND APPROVED BY THE PRINCIPAL PRIOR TO CONSTRUCTION COMMENCING. STRUCTURAL ENGINEER TO PROVIDE AS BUILT CERTIFICATION ON COMPLETION OF THE WORKS.
4. ALL AREAS WITHIN APZ ZONE ARE TO BE GRADED SUCH THAT THE SURFACE IS SUITABLE FOR MOWING AND MAINTENANCE.

RETAINING WALL SUBSOIL OUTLET LOCATIONS AND SPACING TO BE IN ACCORDANCE WITH RETAINING WALL STRUCTURAL ENGINEERING DESIGN DRAWINGS AND SUBSOIL DETAILS PROVIDED ON THIS SHEET.

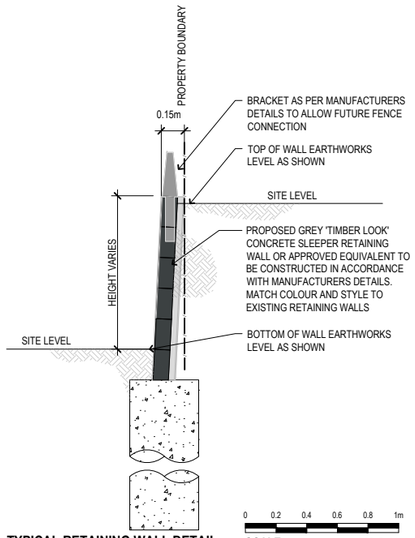


TYPICAL RETAINING WALL SUBSOIL OUTLET LOCATION DETAIL

SCALE 1:200 @ A1



TYPICAL RETAINING WALL SUBSOIL STAKE DETAIL



TYPICAL RETAINING WALL DETAIL

SCALE 1:20 @ A1

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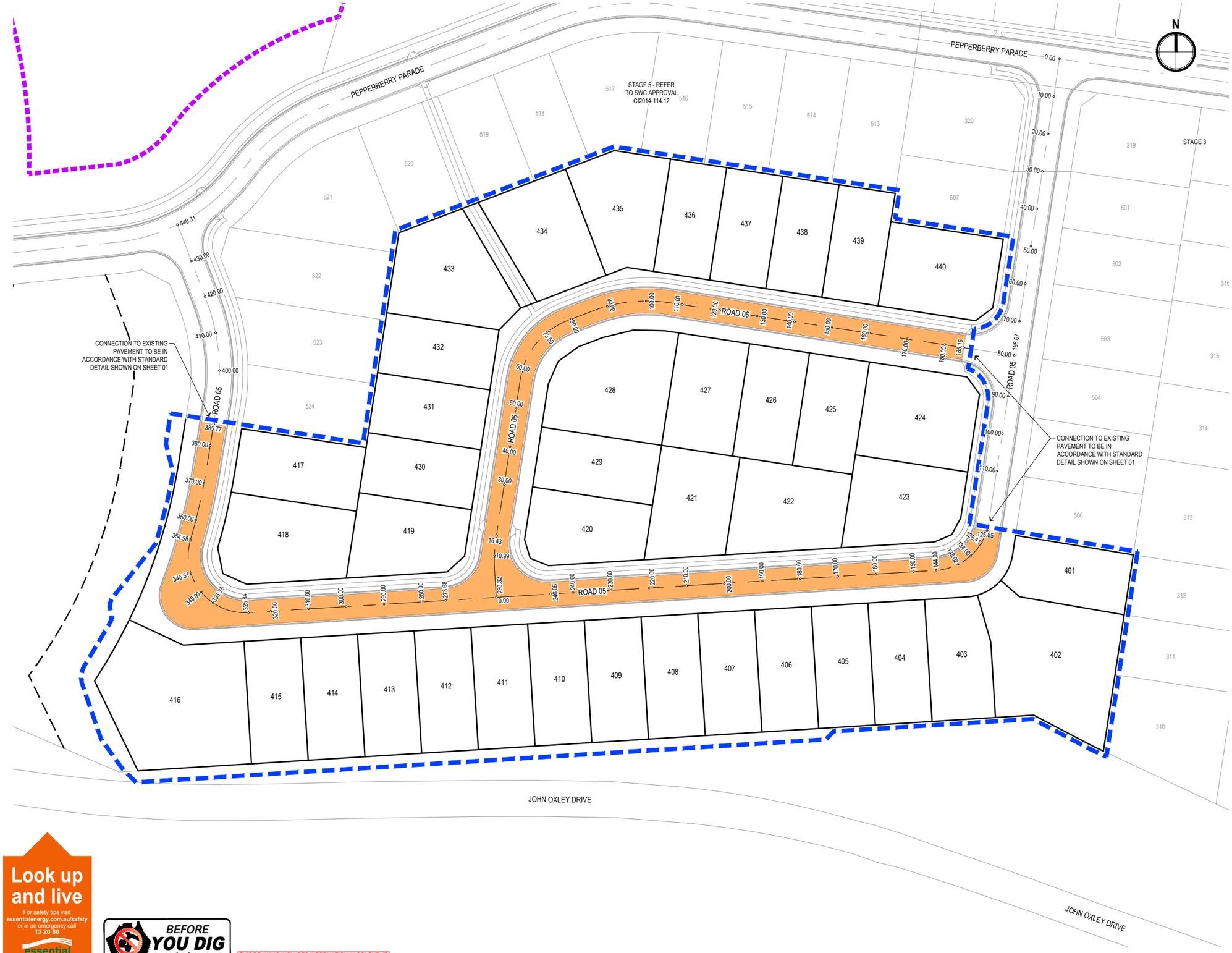
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: RETAINING WALL PLAN **A1**

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	06 OF 28	A



LEGEND

- EXISTING BOUNDARY
- PROPOSED STAGE 4 BOUNDARY
- STAGE 4 EXTENT OF WORKS
- EXISTING BIODIVERSITY CERTIFICATION BOUNDARY (PLOTTED FROM PDF)
- ROAD 05 & 06 PAVEMENT

PAVEMENT TYPE SUMMARY

PAVEMENT LAYER	ROAD 05 & 06
WEARING COURSE (AC10) (mm)	30
BASE COURSE (DGB20) (mm)	140
SUB BASE (DGS40) (mm)	280
SELECT FILL (mm)	-
TOTAL ACTUAL THICKNESS (mm)	450

PAVEMENT DESIGN BY REGIONAL GEOTECHNICAL SOLUTIONS
REF: RGS21087.1-AX TABLE 4

NOTES

1. REFER TO RGS GEOTECHNICAL ASSESSMENT REPORT NUMBER RGS21087.1-AX FOR CONSTRUCTION METHODOLOGY TO BE FOLLOWED INCLUDING SUBGRADE PREPARATION AND ASSESSMENT.
2. ASPHALT DENSITY TESTING TO BE UNDERTAKEN IN ACCORDANCE WITH AUS-SPEC SPECIFICATIONS.
3. MATERIAL SPECIFICATIONS AND REQUIRED COMPACTIONS ARE INCLUDED IN RGS21087.1-AX APPENDIX C.
4. IN AREAS WHERE WIDENING IS PROPOSED OR NEW ALIGNMENTS, ALL TOPSOIL, ROOT AFFECTED OR DELETERIOUS MATERIAL SHOULD BE STRIPPED BACK TO REVEAL A SUITABLE FOUNDATION PRIOR TO PROOF ROLL. WHERE SUBGRADE FAILS SEEK GEOTECHNICAL ADVICE.
5. AREAS OF SUBGRADE INDICATING SIGNS OF MOVEMENT SHOULD BE REFERRED TO THE SUPERINTENDENT FOR PROOF ROLL AND FURTHER GEOTECHNICAL ADVICE.
6. ALL FILLING OF LOTS OVER 300 mm DEPTH (EXCLUDING TOPSOIL) IS TO BE UNDERTAKEN UNDER LEVEL 1 SUPERVISION.

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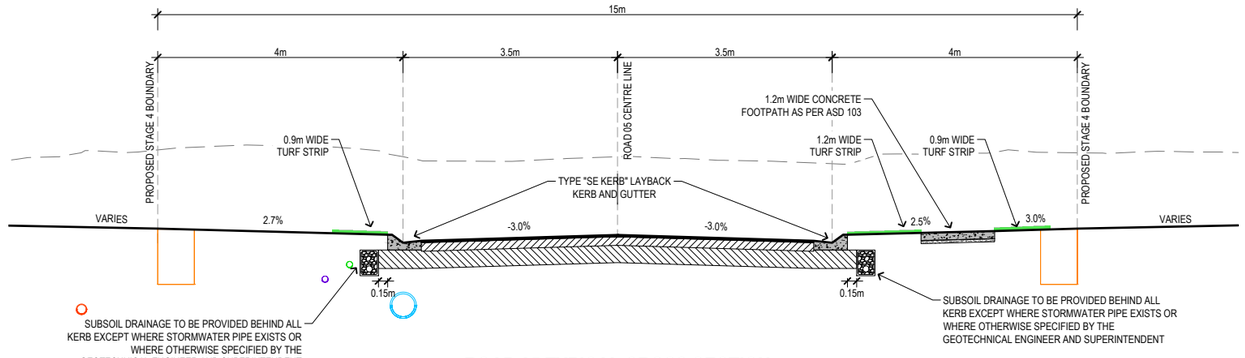
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: PAVEMENT PLAN — **A1**

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	07 OF 28	A



ROAD 05 TYPICAL CROSS SECTION

0 0.5 1 1.5 2 2.5m
HORIZONTAL SCALE 1:50 @ A1

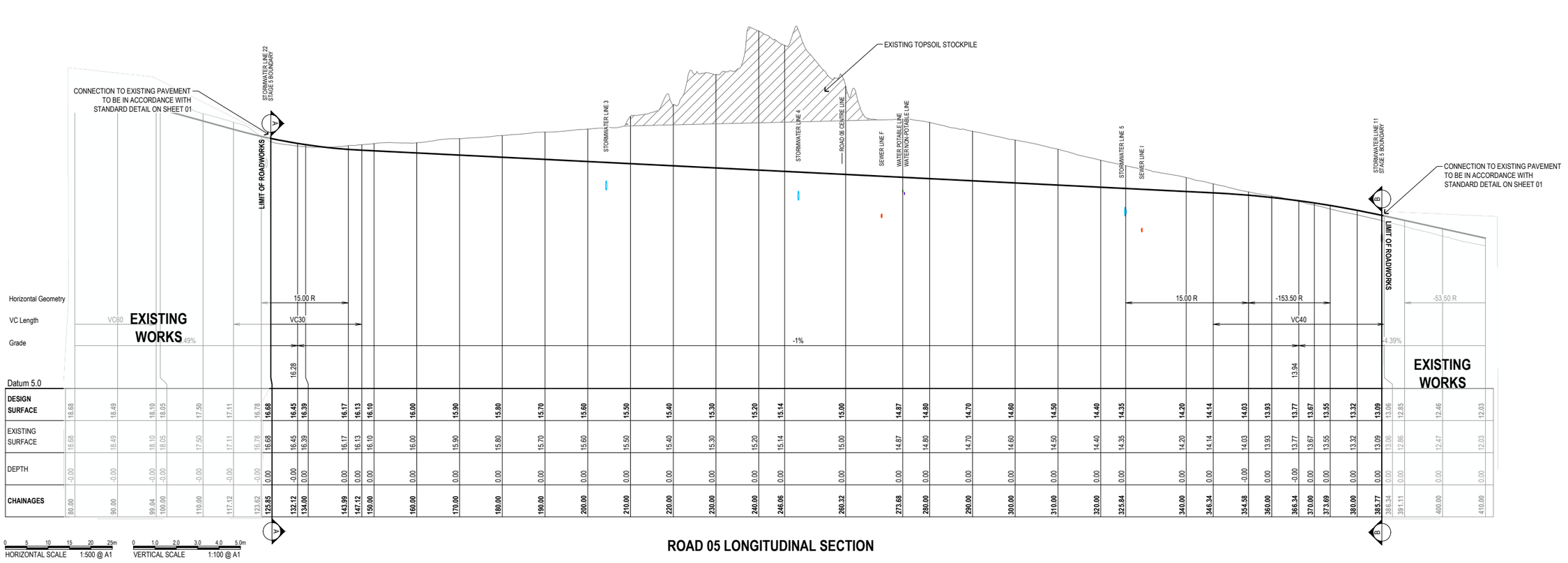
0 0.5 1 1.5 2 2.5m
VERTICAL SCALE 1:50 @ A1

ROAD 05

WEARING COURSE: 30 mm ASPHALTIC CONCRETE (UNDERLAIN BY 10 mm PRIMER SEAL)
BASE: 140 mm DGB20
SUBBASE: 280 mm DGS40

PAVEMENT TO BE IN ACCORDANCE WITH REGIONAL GEOTECHNICAL SOLUTIONS REPORT RGS21087.1-AX FOR FURTHER DETAILS.

PAVEMENT TO BE VERIFIED FOLLOWING STRIPPING TO SUBGRADE LEVEL AND ASSESSMENT BY GEOTECHNICAL ENGINEER.



CHAINAGES	80.00	90.00	99.04	100.00	110.00	117.12	123.62	125.85	132.12	134.00	143.99	147.12	150.00	160.00	170.00	180.00	190.00	200.00	210.00	220.00	230.00	240.00	246.06	260.32	273.68	280.00	290.00	300.00	310.00	320.00	325.84	340.00	346.34	354.58	360.00	366.34	370.00	373.69	380.00	385.77	386.34	391.11	400.00	410.00
DESIGN SURFACE	18.68	18.49	18.10	18.05	17.50	17.11	16.78	16.68	16.45	16.39	16.17	16.13	16.10	16.00	15.90	15.80	15.70	15.60	15.50	15.40	15.30	15.20	15.14	15.00	14.87	14.80	14.70	14.60	14.50	14.40	14.35	14.20	14.14	14.03	13.93	13.77	13.67	13.55	13.32	13.09	13.06	12.85	12.46	12.03
EXISTING SURFACE	18.68	18.49	18.10	18.05	17.50	17.11	16.78	16.68	16.45	16.39	16.17	16.13	16.10	16.00	15.90	15.80	15.70	15.60	15.50	15.40	15.30	15.20	15.14	15.00	14.87	14.80	14.70	14.60	14.50	14.40	14.35	14.20	14.14	14.03	13.93	13.77	13.67	13.55	13.32	13.09	13.06	12.96	12.47	12.03
DEPTH	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DESIGN SURFACE	18.68	18.49	18.10	18.05	17.50	17.11	16.78	16.68	16.45	16.39	16.17	16.13	16.10	16.00	15.90	15.80	15.70	15.60	15.50	15.40	15.30	15.20	15.14	15.00	14.87	14.80	14.70	14.60	14.50	14.40	14.35	14.20	14.14	14.03	13.93	13.77	13.67	13.55	13.32	13.09	13.06	12.85	12.46	12.03

0 5 10 15 20 25m
HORIZONTAL SCALE 1:500 @ A1

0 1.0 2.0 3.0 4.0 5.0m
VERTICAL SCALE 1:100 @ A1

ROAD 05 LONGITUDINAL SECTION

NOT TO BE USED FOR CONSTRUCTION UNLESS SUBDIVISION WORKS CERTIFICATE ISSUED FOR THE WORKS

K:\C-REF\ O 7197_The Sanctuary\Y22_Engineering\Stage 4\01 STG 4 SWC\7197E_Stage 4_SWC_Sections.dwg- A1(L).RD(L).LS 01, 25 February 2026, bnanic

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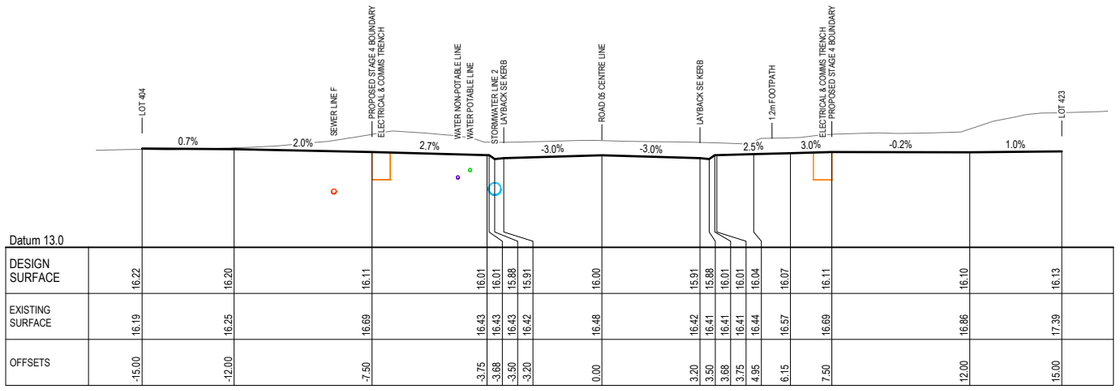
REV.	DATE	DESCRIPTION	
A	XX.02.2026	ISSUED FOR APPROVAL	JSC

DATUM: AHD SCALE: AS SHOWN @ A1

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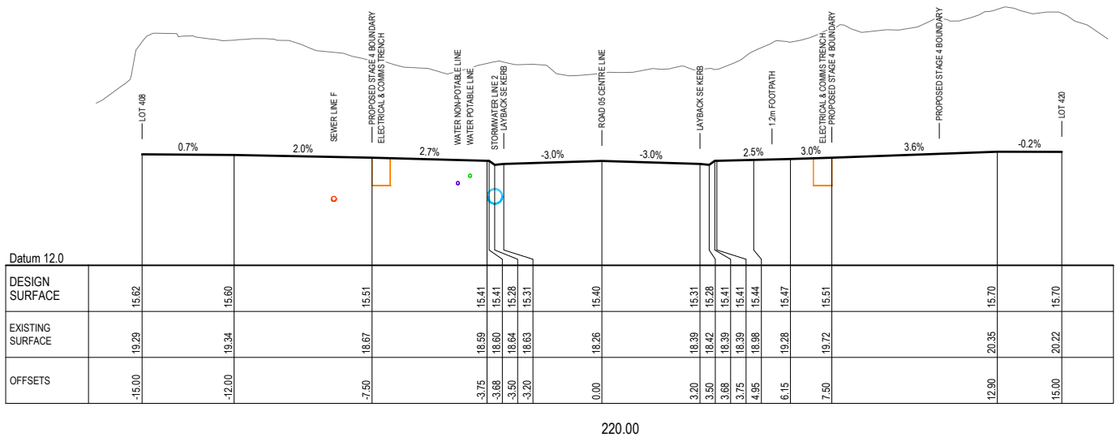
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE:	ROAD 05 LONGITUDINAL SECTION & TYPICAL SECTION			A1
PROJECT:	THE SANCTUARY STAGE 4 LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER			
CLIENT:	BIRD IN THE HAND 2 PTY LTD.	DRAWING NO:	SHEET:	REVISION:
		7197E_Stage 4_SWC_Sections	08 OF 28	A


LOT 404
0.7%
2.0%
SEWER LINE F
PROPOSED STAGE 4 BOUNDARY
ELECTRICAL & COMMS TRENCH
2.7%
WATER NON-POTABLE LINE
WATER POTABLE LINE
STORMWATER LINE 2
LAYBACK SE KERB
-3.0%
ROAD 05 CENTRE LINE
-3.0%
LAYBACK SE KERB
2.5%
1.2m FOOTPATH
3.0%
ELECTRICAL & COMMS TRENCH
PROPOSED STAGE 4 BOUNDARY
-0.2%
1.0%
LOT 423

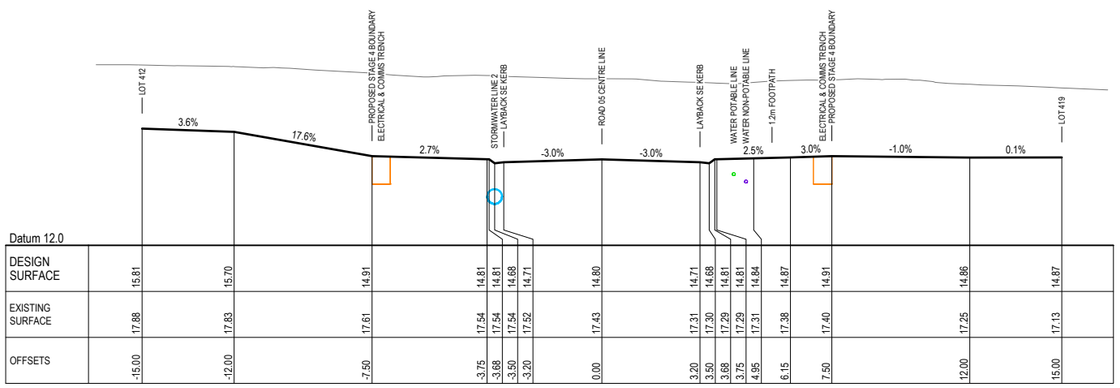
Datum 13.0

| | | |


LOT 408
SEWER LINE F
PROPOSED STAGE 4 BOUNDARY
ELECTRICAL & COMMS TRENCH
WATER NON-POTABLE LINE
WATER POTABLE LINE
STORMWATER LINE 2
LAYBACK SE KERB
ROAD 05 CENTRE LINE
LAYBACK SE KERB
1.2m FOOTPATH
ELECTRICAL & COMMS TRENCH
PROPOSED STAGE 4 BOUNDARY
PROPOSED STAGE 4 BOUNDARY
LOT 420
0.7%
2.0%
2.7%
-3.0%
-3.0%
2.5%
3.0%
3.6%
-0.2%

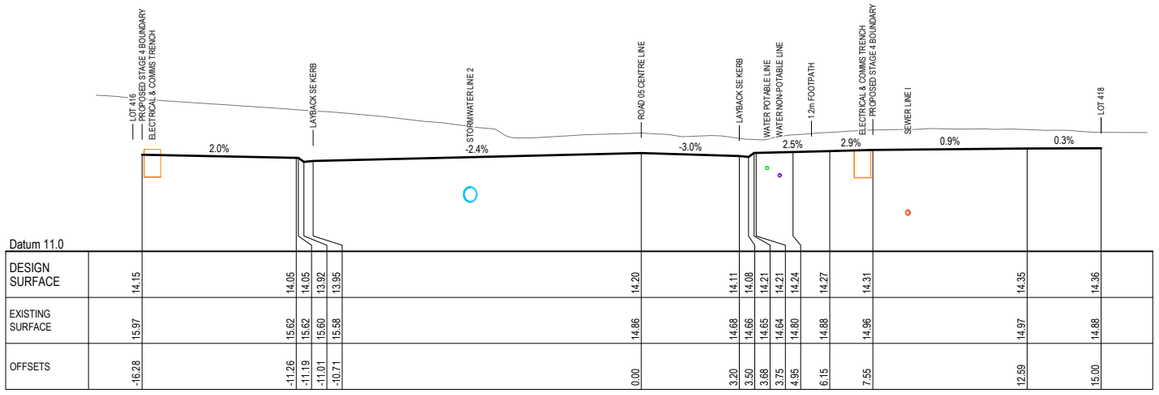
Datum 12.0

| | | |


LOT 412
3.6%
17.6%
PROPOSED STAGE 4 BOUNDARY
ELECTRICAL & COMMS TRENCH
2.7%
STORMWATER LINE 2
LAYBACK SE KERB
-3.0%
ROAD 05 CENTRE LINE
-3.0%
LAYBACK SE KERB
WATER POTABLE LINE
WATER NON-POTABLE LINE
2.5%
1.2m FOOTPATH
3.0%
ELECTRICAL & COMMS TRENCH
PROPOSED STAGE 4 BOUNDARY
-1.0%
0.1%
LOT 419

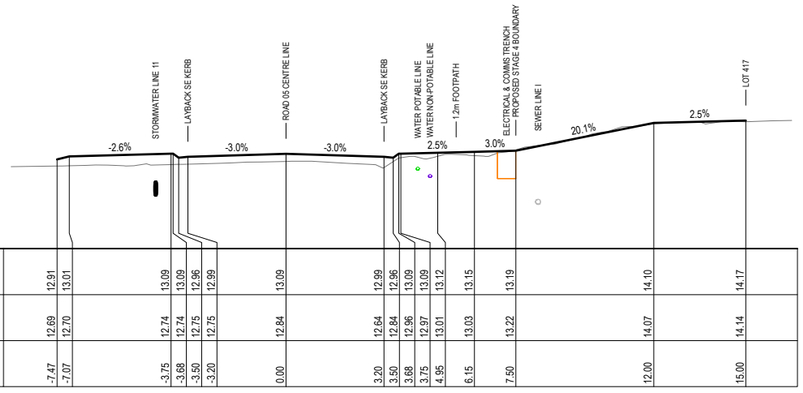
Datum 12.0

| | | |


LOT 416
PROPOSED STAGE 4 BOUNDARY
ELECTRICAL & COMMS TRENCH
LAYBACK SE KERB
STORMWATER LINE 2
ROAD 05 CENTRE LINE
LAYBACK SE KERB
WATER POTABLE LINE
WATER NON-POTABLE LINE
1.2m FOOTPATH
ELECTRICAL & COMMS TRENCH
PROPOSED STAGE 4 BOUNDARY
SEWER LINE I
LOT 418
2.0%
-2.4%
-3.0%
2.5%
2.9%
0.9%
0.3%

Datum 11.0

| | | |



Datum 10.0

DESIGN SURFACE	12.91	13.01			13.09	13.09	12.96	12.99			13.09			12.99	12.96	13.09	13.09	13.12	13.15	13.19			14.10	14.17
EXISTING SURFACE	12.69	12.70			12.74	12.74	12.75	12.75			12.84			12.64	12.84	12.96	12.97	13.01	13.03	13.22			14.07	14.14
OFFSETS	-7.47	-7.07			-3.75	-3.68	-3.50	-3.20			0.00			3.20	3.50	3.68	3.75	4.95	6.15	7.50			12.00	15.00

385.75



Datum 10.0

DESIGN SURFACE	13.12	13.25			13.33	13.33	13.20	13.23			13.32			13.23	13.20	13.33	13.33	13.36	13.39	13.43			14.10	14.17
EXISTING SURFACE	12.99	13.00			12.96	12.96	12.97	12.98			13.11			13.02	13.05	13.06	13.06	13.21	13.28	13.45			14.07	14.18
OFFSETS	-8.03	-7.07			-3.75	-3.68	-3.50	-3.20			0.00			3.20	3.50	3.68	3.75	4.95	6.15	7.50			12.00	15.00

380.00

0 1.0 2.0 3.0 4.0 5.0m
HORIZONTAL SCALE 1:100 @ A1

0 1.0 2.0 3.0 4.0 5.0m
VERTICAL SCALE 1:100 @ A1

NOT TO BE USED FOR CONSTRUCTION UNLESS SUBDIVISION WORKS CERTIFICATE ISSUED FOR THE WORKS

K:\C-REF C:\7197_The Sanctuary\02_Engineering\Stage 4\1. STG 4 SWC\7197E_Stage4_SWC_Sections.dwg, A1(L)-RD 05:05, 25 February 2026, bvanc

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REV.	DATE	DESCRIPTION	
A	XX.02.2026	ISSUED FOR APPROVAL	JSC

DATUM: AHD SCALE: AS SHOWN @ A1

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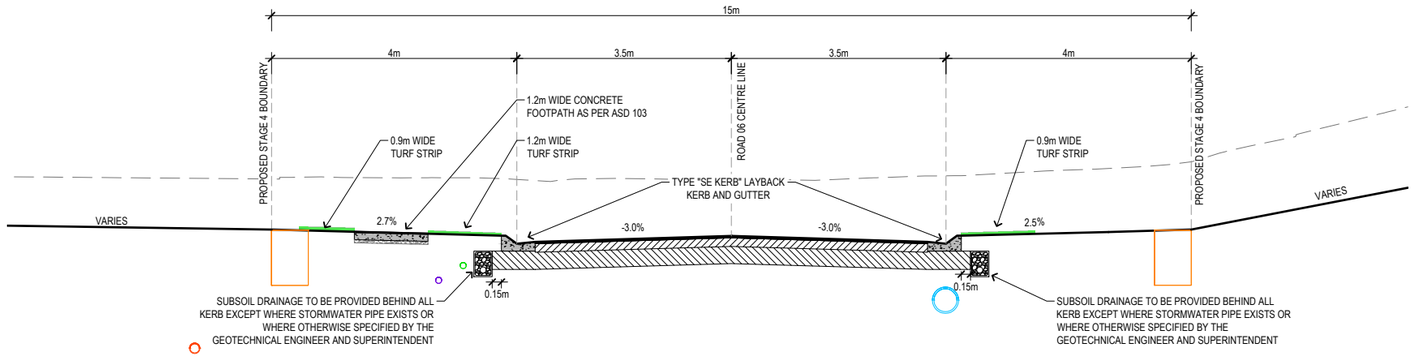
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: ROAD 05 CROSS SECTIONS CH 380.00 TO 385.75 **A1**

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Sections	13 OF 28	A



ROAD 06 TYPICAL CROSS SECTION

0 0.5 1 1.5 2 2.5m
HORIZONTAL SCALE 1:50 @ A1

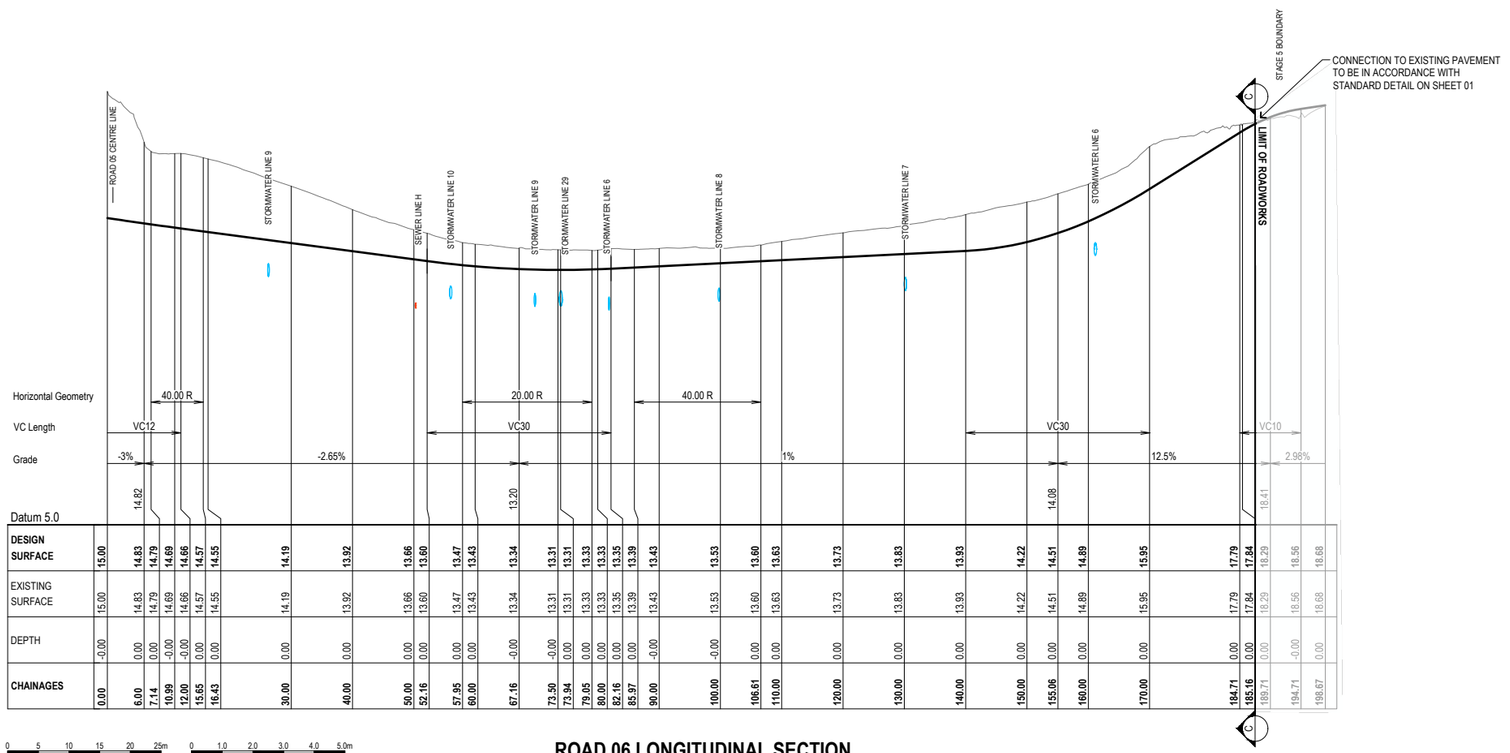
0 0.5 1 1.5 2 2.5m
VERTICAL SCALE 1:50 @ A1

ROAD 06

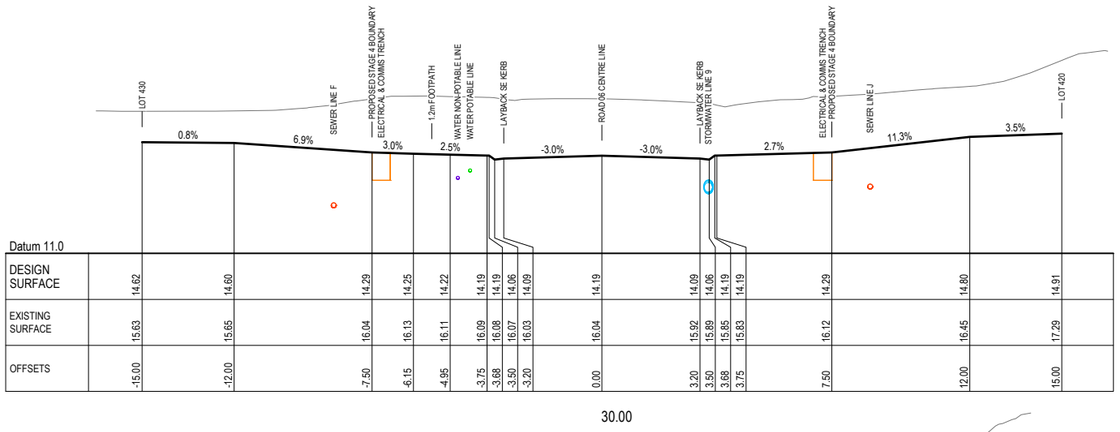
WEARING COURSE: 30 mm ASPHALTIC CONCRETE (UNDERLAIN BY 10 mm PRIMER SEAL)
BASE: 140 mm DGB20
SUBBASE: 280 mm DGS40

PAVEMENT TO BE IN ACCORDANCE WITH REGIONAL GEOTECHNICAL SOLUTIONS REPORT RGS21087.1-AX FOR FURTHER DETAILS.

PAVEMENT TO BE VERIFIED FOLLOWING STRIPPING TO SUBGRADE LEVEL AND ASSESSMENT BY GEOTECHNICAL ENGINEER.

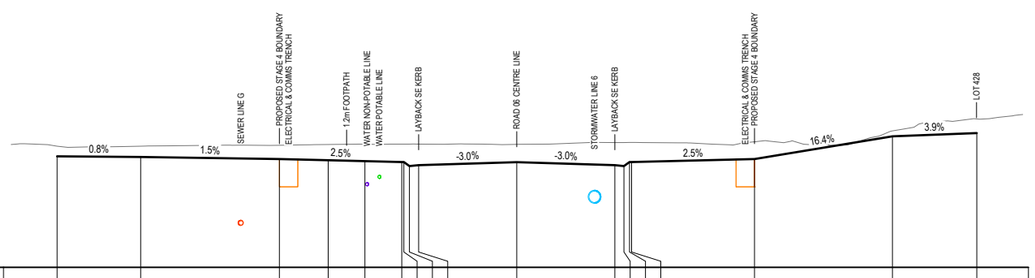


| | | |


LOT 430
0.8%
6.9%
SEWER LINE F
3.0%
PROPOSED STAGE 4 BOUNDARY
ELECTRICAL & COMMS TRENCH
2.5%
1.2m FOOTPATH
WATER NON-POTABLE LINE
WATER POTABLE LINE
LAYBACK SE KERB
-3.0%
ROAD 06 CENTRE LINE
-3.0%
LAYBACK SE KERB
STORMWATER LINE 9
2.7%
ELECTRICAL & COMMS TRENCH
PROPOSED STAGE 4 BOUNDARY
SEWER LINE J
11.3%
3.5%
LOT 420

Datum 11.0

| | | |



Datum 10.0

DESIGN SURFACE	13.62	13.60	13.53	13.49	13.46	13.43	13.43	13.30	13.33	13.43	13.33	13.30	13.43	13.53	14.27	14.38
EXISTING SURFACE	13.95	13.95	13.98	14.01	14.01	14.02	14.02	14.02	14.02	14.01	14.07	14.07	14.07	14.09	14.45	14.84
OFFSETS	-14.99	-12.26	-7.74	-6.15	-4.95	-3.75	-3.68	-3.50	-3.20	0.00	3.20	3.50	3.68	3.75	7.76	12.26	15.01

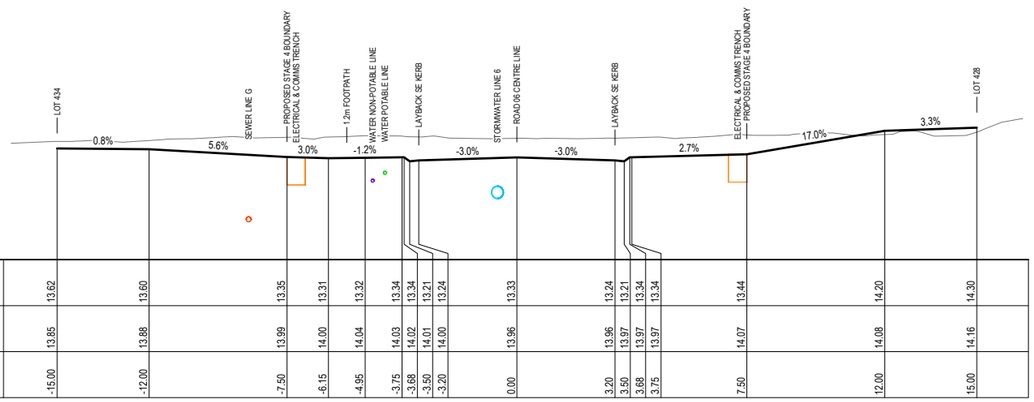
90.00



Datum 10.0

DESIGN SURFACE	14.02	14.00	13.83	13.79	13.76	13.73	13.73	13.60	13.63	13.73	13.63	13.60	13.83	14.60	14.73
EXISTING SURFACE	14.53	14.48	14.51	14.48	14.47	14.45	14.45	14.45	14.44	14.52	14.64	14.64	14.86	15.69	16.13
OFFSETS	-15.00	-12.00	-7.50	-6.15	-4.95	-3.75	-3.68	-3.50	-3.20	0.00	3.20	3.50	3.68	3.75	7.50	12.00	15.00

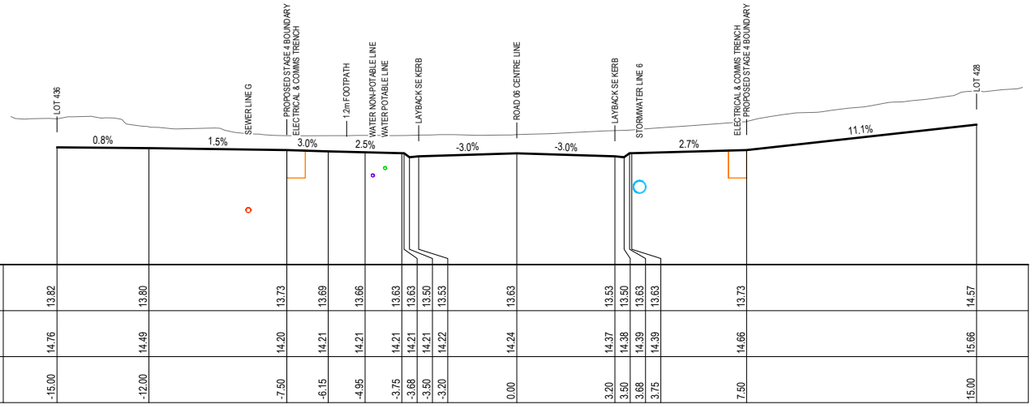
120.00



Datum 10.0

DESIGN SURFACE	13.62	13.60	13.35	13.31	13.32	13.34	13.34	13.21	13.24	13.33	13.24	13.21	13.34	13.44	14.20	14.30
EXISTING SURFACE	13.85	13.88	13.99	14.00	14.04	14.03	14.02	14.01	14.00	13.96	13.96	13.97	13.97	14.07	14.08	14.16
OFFSETS	-15.00	-12.00	-7.50	-6.15	-4.95	-3.75	-3.68	-3.50	-3.20	0.00	3.20	3.50	3.68	3.75	7.50	12.00	15.00

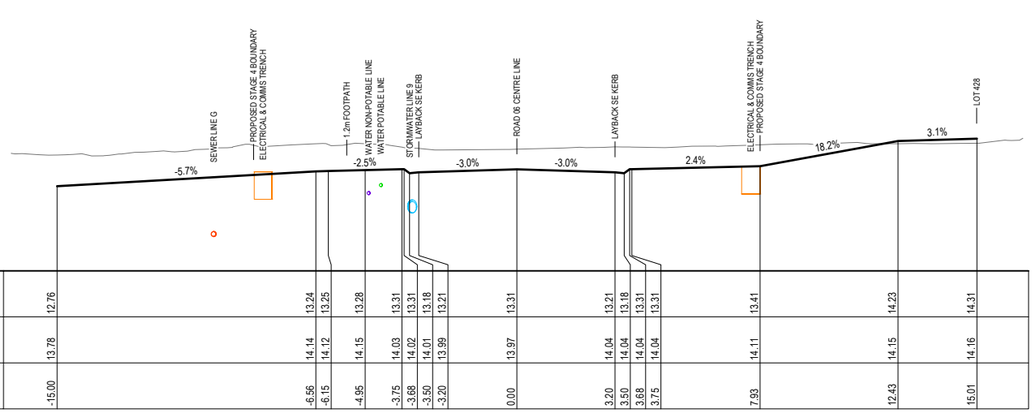
80.00



Datum 10.0

DESIGN SURFACE	13.82	13.80	13.73	13.69	13.66	13.63	13.63	13.50	13.53	13.63	13.53	13.50	13.63	13.73	14.57
EXISTING SURFACE	14.76	14.49	14.20	14.21	14.21	14.21	14.21	14.21	14.22	14.24	14.37	14.38	14.39	14.66	15.66
OFFSETS	-15.00	-12.00	-7.50	-6.15	-4.95	-3.75	-3.68	-3.50	-3.20	0.00	3.20	3.50	3.68	3.75	7.50	15.00

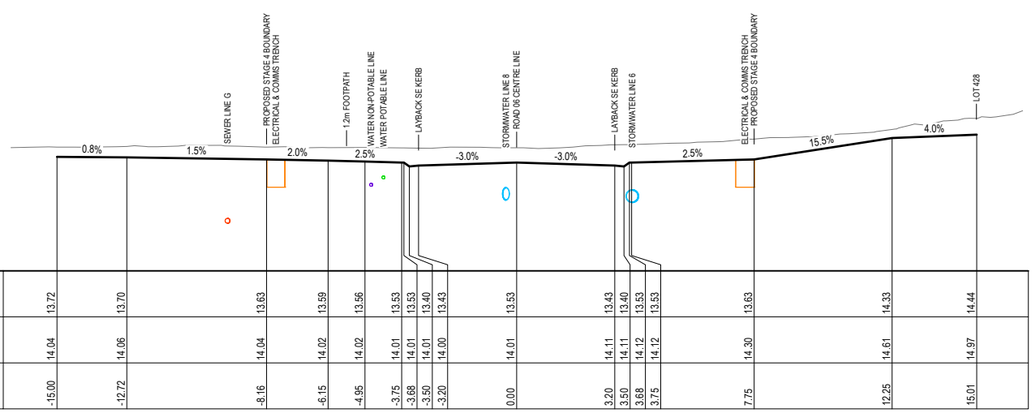
110.00



Datum 10.0

DESIGN SURFACE	12.76	13.24	13.25	13.28	13.31	13.31	13.18	13.21	13.31	13.21	13.18	13.31	13.31	13.41	14.23	14.31
EXISTING SURFACE	13.78	14.14	14.12	14.15	14.03	14.02	14.01	13.99	13.97	14.04	14.04	14.04	14.04	14.11	14.15	14.16
OFFSETS	-15.00	-6.56	-6.15	-4.95	-3.75	-3.68	-3.50	-3.20	0.00	3.20	3.50	3.68	3.75	7.93	12.43	15.01

73.50



Datum 10.0

DESIGN SURFACE	13.72	13.70	13.63	13.59	13.56	13.53	13.53	13.40	13.43	13.53	13.43	13.40	13.53	13.63	14.33	14.44
EXISTING SURFACE	14.04	14.06	14.04	14.02	14.02	14.01	14.01	14.00	14.01	14.11	14.11	14.12	14.12	14.30	14.61	14.97
OFFSETS	-15.00	-12.72	-8.16	-6.15	-4.95	-3.75	-3.68	-3.50	-3.20	0.00	3.20	3.50	3.68	3.75	7.75	12.25	15.01

100.00

HORIZONTAL SCALE 1:100 @ A1 (0 1.0 2.0 3.0 4.0 5.0m)

VERTICAL SCALE 1:100 @ A1 (0 1.0 2.0 3.0 4.0 5.0m)

NOT TO BE USED FOR CONSTRUCTION UNLESS SUBDIVISION WORKS CERTIFICATE ISSUED FOR THE WORKS

K:\C REF D:\7197_The Sanctuary\22_Engineering\Stage 4\01. STG 4 SWC\7197E_Stage 4_SWC_Sections.dwg A1 (L) RD XS 07, 25 February 2026, brianc

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REV.	DATE	DESCRIPTION	
A	XX.02.2026	ISSUED FOR APPROVAL	JSC

DATUM: AHD

SCALE: AS SHOWN @ A1

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PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

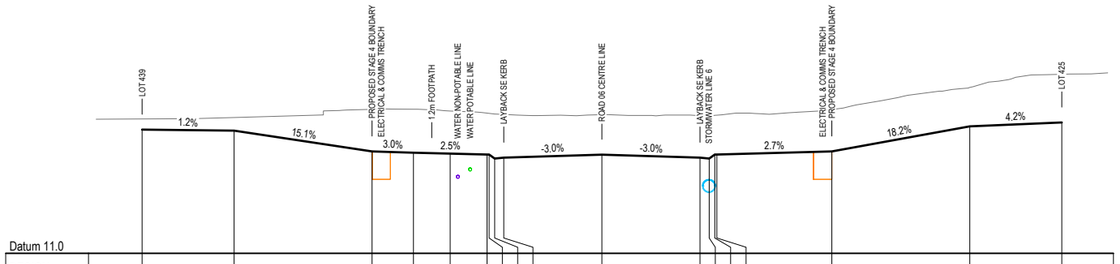
DRAWING TITLE: ROAD 06 CROSS SECTIONS CH 73.50 TO 120.00

A1

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

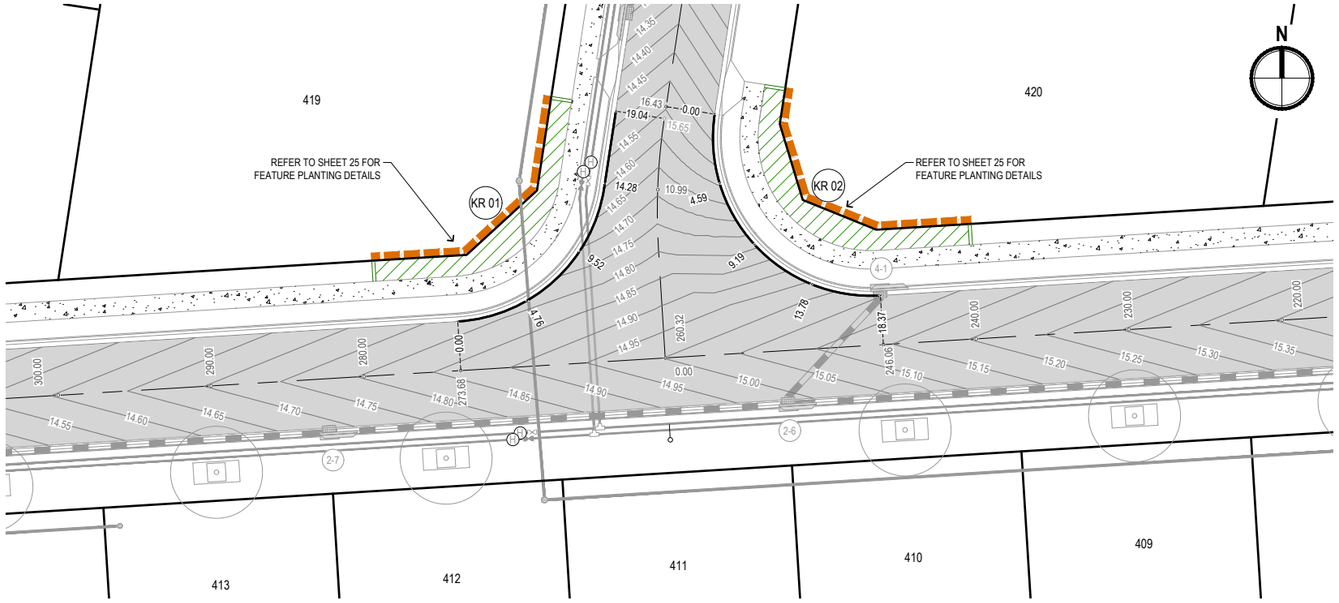
CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Sections	16 OF 28	A


LOT 439
1.2%
15.1%
PROPOSED STAGE 4 BOUNDARY
ELECTRICAL & COMMS TRENCH
3.0%
1.2m FOOTPATH
2.5%
WATER NON-POTABLE LINE
WATER POTABLE LINE
LAYBACK SE KERB
-3.0%
ROAD 06 CENTRE LINE
-3.0%
LAYBACK SE KERB
STORMWATER LINE 6
2.7%
ELECTRICAL & COMMS TRENCH
PROPOSED STAGE 4 BOUNDARY
18.2%
4.2%
LOT 425

Datum 11.0

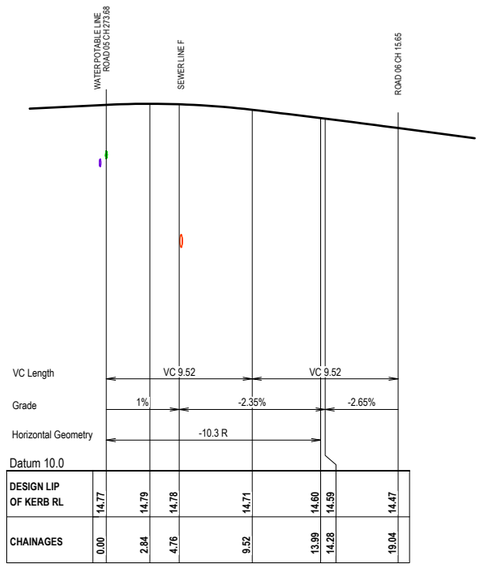
| | | |



PLAN SCALE

0 1.0 2.0 3.0 4.0 5.0m

SCALE 1:100 @ A1



KERB RETURN KR 01

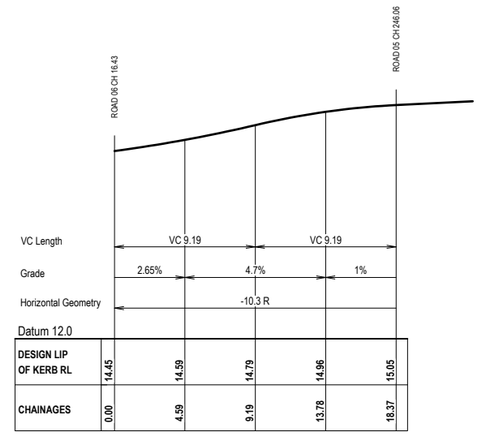
LONG SECTION SCALES

0 2 4 6 8 10m

HORIZONTAL SCALE 1:200 @ A1

0 0.4 0.8 1.2 1.6 2.0m

VERTICAL SCALE 1:40 @ A1



KERB RETURN KR 02

LEGEND

- EXISTING BOUNDARY
- PROPOSED STAGE 4 BOUNDARY
- DESIGN SURFACE CONTOURS (0.05m INTERVALS)
- PROPOSED STORMWATER LINE WITH PIT & HEADWALL
- EXISTING / PROPOSED GRAVITY SEWER LINE WITH MANHOLE
- PROPOSED WATER HYDRANT, STOP VALVE, BEND AND TEE
- PROPOSED ROAD
- PROPOSED FOOTPATH
- PROPOSED STREET TREE - REFER TO SHEET 26 FOR DETAILS
- PROPOSED STREET NAME SIGN
- KERB RETURN NUMBER
- PROPOSED STORMWATER PIT LABELS
- FEATURE WALL (REFER DETAIL SHEET 27)

NOT TO BE USED FOR CONSTRUCTION UNLESS SUBDIVISION WORKS CERTIFICATE ISSUED FOR THE WORKS

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K:\C REF - O:\7197_The Sanctuary\23_Engineering\Stage 4\1_STG 4 SWC\7197E_Stage 4_SWC_Plan.dwg A1(L)-KR1, 25 February 2026, bolanc

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REV.	DATE	DESCRIPTION	BY
A	XX.02.2026	ISSUED FOR APPROVAL	JSC

DATUM: AHD SCALE: 1:200 @ A1 (1:400 @ A3)

0 10

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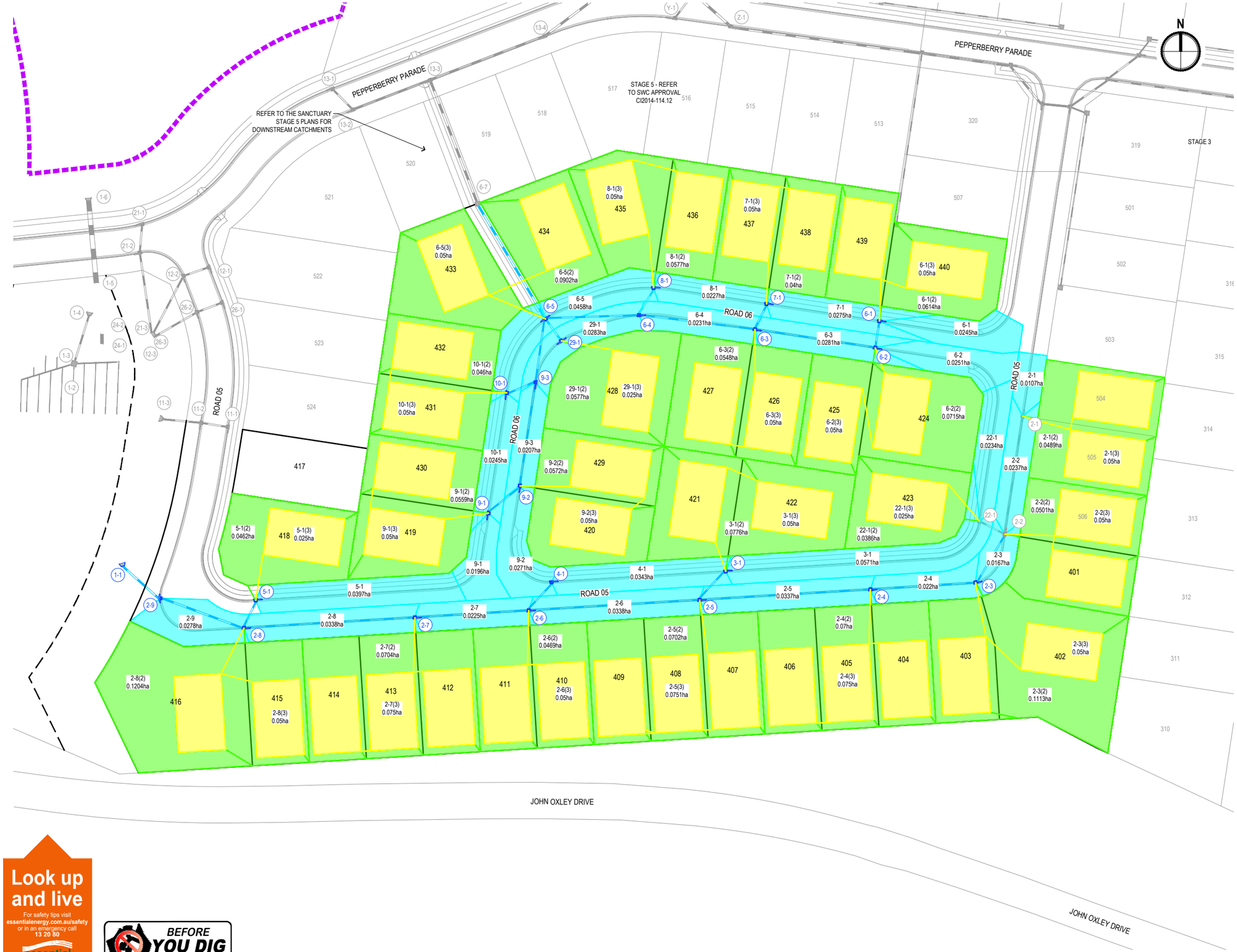
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: ROAD 06 INTERSECTION DETAIL PLAN - KR 01 & 02 **A1**

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	18 OF 28	A



LEGEND

- EXISTING BOUNDARY
- PROPOSED STAGE 4 BOUNDARY
- STORMWATER CATCHMENT SET 1 (75% IMPERVIOUS)
- STORMWATER CATCHMENT SET 2 (20% IMPERVIOUS)
- STORMWATER CATCHMENT SET 3 (100% IMPERVIOUS)
- 03-1 0.2192ha — STORMWATER CATCHMENT LABEL & AREA
- EXISTING STORMWATER LINE WITH PIT & HEADWALL
- PROPOSED STORMWATER LINE WITH PIT & HEADWALL
- (14-1) EXISTING STORMWATER PIT LABELS
- 14-1 PROPOSED STORMWATER PIT LABELS

NOTES

1. REFER TO SHEET 04 FOR DRAINAGE PLAN & PIT SCHEDULE.
2. REFER TO SHEETS 20 TO 21 FOR STORMWATER LONGITUDINAL SECTIONS.
3. REFER TO SHEETS 22 FOR STORMWATER CALCULATION SHEETS.

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Look up and live
For safety tips visit essentialenergy.com.au/safety or in an emergency call 13 20 80
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K:\C-REF\ O7197_The Sanctuary\02_Engineering\Stage 4\1_STG 4 SWC\7197E_Stage 4_SWC_Plan.dwg, A1(L)-CATCHMENT, 25 February 2026, bvanc

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REV.	DATE	DESCRIPTION	BY
A	XX.02.2026	ISSUED FOR APPROVAL	JSC

DATUM: AHD SCALE: 1:500 @ A1 (1:1000 @ A3)

0 25

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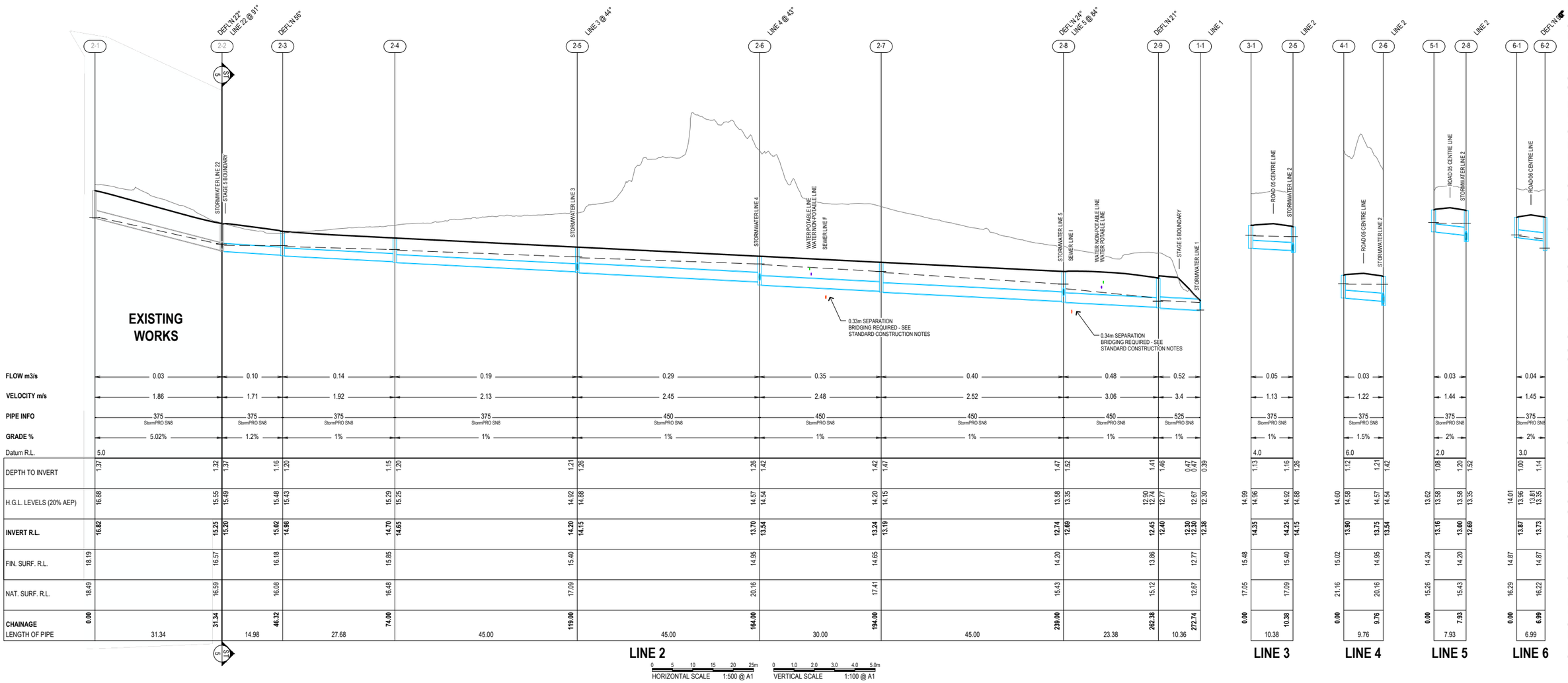
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: STORMWATER CATCHMENT PLAN — A1

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	19 OF 28	A



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K:\C-REF\ D:7197_The Sanctuary\22_Engineering\Stage 4\1. STG 4 SWC\7197E_Stage 4_SWC_Sections.dwg- A1 (L) SW_LS 01, 25 February 2026, brianc

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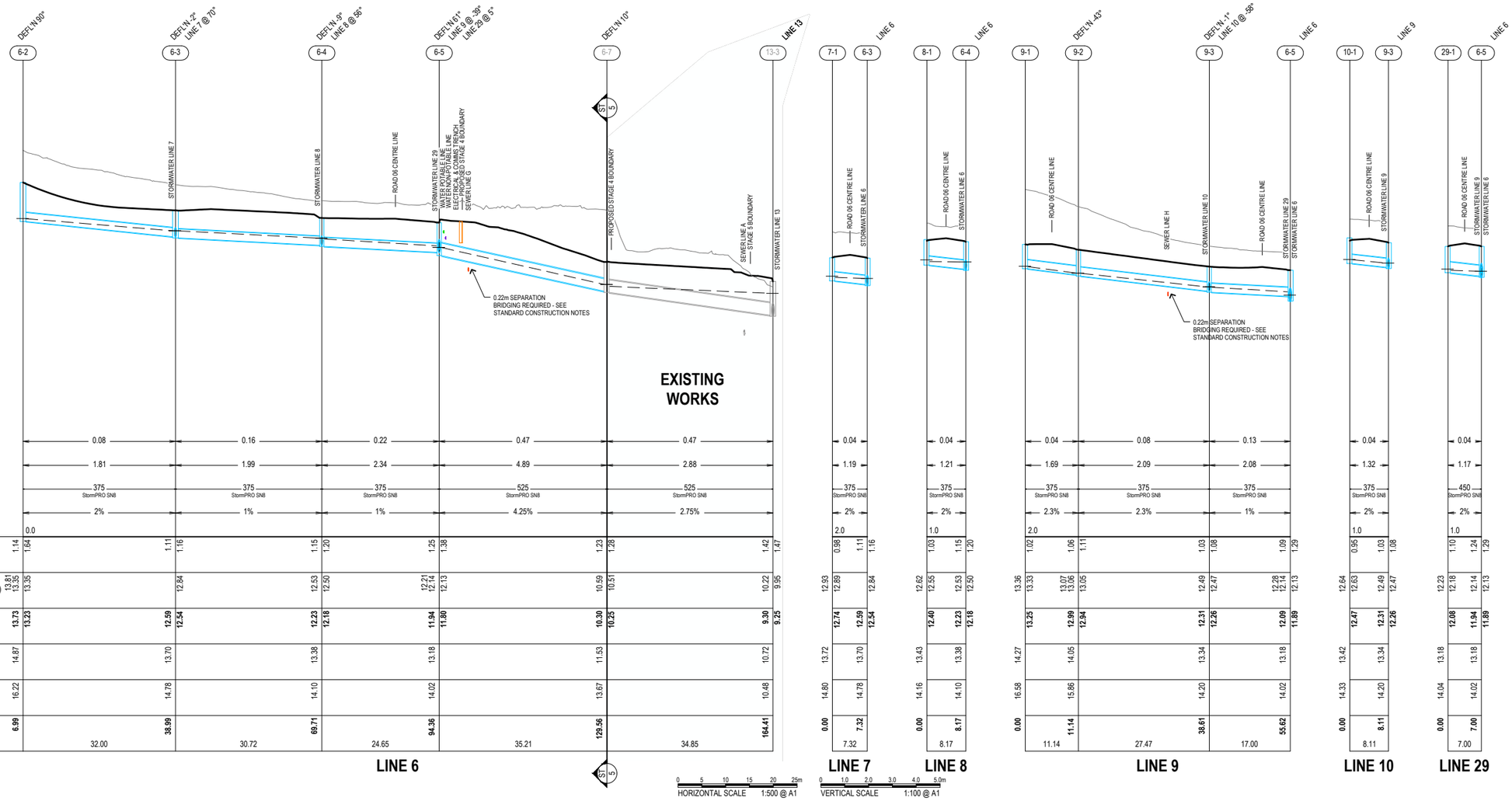
REV.	DATE	DESCRIPTION	
A	XX.02.2026	ISSUED FOR APPROVAL	JSC

DATUM: AHD SCALE: AS SHOWN @ A1

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PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE:	STORMWATER LONGITUDINAL SECTION - LINE 02 TO 06			A1
PROJECT:	THE SANCTUARY STAGE 4 LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER			
CLIENT:	BIRD IN THE HAND 2 PTY LTD.	DRAWING NO:	SHEET:	REVISION:
		7197E_Stage 4_SWC_Sections	20 OF 28	A


DEFL'N 90°
DEFL'N -2°
LINE 7 @ 70°
DEFL'N -9°
LINE 8 @ 56°
DEFL'N 61°
LINE 9 @ -39°
LINE 29 @ 5°
DEFL'N 10°
LINE 13
DEFL'N -43°
DEFL'N -1°
LINE 10 @ -58°
6-2
6-3
6-4
6-5
6-7
13-3
7-1
8-1
9-1
9-2
9-3
10-1
29-1
STORMWATER LINE 7
STORMWATER LINE 8
ROAD 06 CENTRE LINE
STORMWATER LINE 29
WATER POTABLE LINE
WATER RECYCLED LINE
ELECTRICAL & COMMS TRENCH
PROPOSED STAGE 4 BOUNDARY
SEWER LINE G
PROPOSED STAGE 4 BOUNDARY
SEWER LINE A
STAGE 5 BOUNDARY
STORMWATER LINE 13
0.22m SEPARATION
BRIDGING REQUIRED - SEE
STANDARD CONSTRUCTION NOTES
EXISTING
WORKS
ROAD 06 CENTRE LINE
STORMWATER LINE 6
LINE 6
SEWER LINE H
STORMWATER LINE 10
STORMWATER LINE 29
STORMWATER LINE 9
STORMWATER LINE 6
LINE 9
LINE 10
LINE 29

| | | |

12d Dynamic Drainage Hydrology & Hydraulics Results

RUNOFF METHOD	ILSAX 2							0.34492	
RETURN PERIOD	20								
AEP/ARI	AEP								
EVENT	MINOR								
STORM DURATIONS RUN	90	60	45	30	25	20	15	10	
NOTES	All Results are maximums and Flows are in L/s								
	Negative Flow Values Indicate Reverse Flows								

NODE		CATCHMENTS (ha)			% IMPERVIOUS			Tc (min)						CATCHMENT FLOW (L/s)			APPROACH FLOW (L/s)	INLET CAPTURED FLOW (L/s)	EFFICIENCIES				UNCAPTURED FLOW (L/s)	BYPASS NODE	BYPASS FLOW (L/s)	BYPASS HGL (m)	MID CH DEPTH (m)	NODE				LOST FLOW (L/s)	LINK HGL		Ku (AT MAX HEADLOSS)	Ku HEADLOSS
NAME	TYPE	AREA 1	AREA 2	AREA 3	AREA 1	AREA 2	AREA 3	IMPERV 1	PERV 1	IMPERV 2	PERV 2	IMPERV 3	PERV 3	SET 1	SET 2	SET 3			MINOR SAG (%)	MINOR ONGRADE (%)	MAJOR SAG (%)	MAJOR ONGRADE (%)						HGL (m)	GRADE LEVEL (m)	INVERT LEVEL (m)	DEPTH (m)		UPTREAM (m)	DOWNSTREAM (m)		
2-3	Grated Gully Pit 1.8m Lintel	0.0167	0.1113	0.05	75	20	100	6	6	6	6	6	6	6	39	19	72	51	80	90	80	90	21	2-4	21	16.243	0.063	15.479	16.18	14.975	1.204		15.432	15.286		2.1
2-4	Grated Gully Pit 1.8m Lintel	0.022	0.07	0.075	75	20	100	6	6	6	6	6	6	8	23	29	80	55	80	90	80	90	25	2-5	24	15.921	0.067	15.286	15.854	14.649	1.205		15.253	14.923		1.5
2-5	Grated Gully Pit 1.8m Lintel	0.0337	0.0702	0.0751	75	20	100	6	6	6	6	6	6	12	23	29	87	58	80	90	80	90	29	2-6	27	15.474	0.069	14.923	15.404	14.149	1.256		14.883	14.575		1.2
2-6	Grated Gully Pit 1.8m Lintel	0.0338	0.0469	0.05	75	20	100	6	6	6	6	6	6	12	16	19	72	50	80	90	80	90	21	2-7	20	15.018	0.063	14.575	14.954	13.537	1.417		14.544	14.204		1
2-7	Grated Gully Pit 1.8m Lintel	0.0225	0.0704	0.075			100	6	6	6	6	6	6	8	23	29	78	54	80	90	80	90	24	2-8	22	14.719	0.066	14.204	14.654	13.187	1.466		14.15	13.582		0.9
2-8	Grated Gully Pit 1.8m Lintel	0.0338	0.1205	0.05			100	6	6	6	6	6	6	12	39	19	92	60	80	90	80	90	31	2-9	30	14.273	0.07	13.582	14.203	12.687	1.516		13.351	12.902		0.9
2-9	Grated Gully Pit 1.8m Lintel	0.0278					100	6	6					10			40	40	80	90	80	90	3	1-1	0	13.928	0.067	12.739	13.861	12.404	1.457		12.774	12.671		0.1
1-1	Headwall						100										0	0	100	100	100	100	0			12.823	0	12.3	12.823	12.383	0.523					
3-1	Grated Gully Pit 1.8m Lintel	0.0571	0.0776	0.05			100	6	6	6	6	6	6	21	25	19	68	49	80	90	80	90	20	4-1	18	15.544	0.062	14.992	15.482	14.353	1.13		14.959	14.923		9.7
4-1	Grated Gully Pit 1.8m Lintel	0.0343			75	20	100	6	6					12			30	25	80	90	80	90	5	9-2	4	15.052	0.034	14.597	15.018	13.895	1.123		14.577	14.575		9.7
5-1	Grated Gully Pit 1.8m Lintel	0.0397	0.0462	0.025	75	20	100	6	6	6	6	6	6	14	15	10	38	31	80	90	80	90	7	11-1	7	14.28	0.042	13.619	14.239	13.157	1.081		13.583	13.582		9.7
6-1	Grated Gully Pit 1.8m Lintel	0.0245	0.0614	0.05	75	20	100	6	6	6	6	6	6	9	21	19	47	37	80	90	80	90	10	7-1	10	14.911	0.043	14.008	14.868	13.87	0.998		13.959	13.812		9.7
6-2	Grated Gully Pit 1.8m Lintel	0.0251	0.0715	0.05	75	20	100	6	6	6	6	6	6	9	25	19	51	39	80	90	80	90	12	6-3	12	14.914	0.045	13.354	14.869	13.23	1.639		13.348	12.84		2.6
6-3	Grated Gully Pit 1.8m Lintel	0.0281	0.0548	0.05	75	20	100	6	6	6	6	6	6	10	18	19	58	43	80	90	80	90	15	6-4	15	13.754	0.058	12.84	13.696	12.54	1.155		12.838	12.531		1.6
6-4	Grated Gully Pit 1.8m Lintel	0.0231			75	20	100	6	6					8			23	20	80	90	80	90	3	29-1	2	13.412	0.032	12.531	13.38	12.183	1.197		12.496	12.208		0.7
6-5	Grated Gully Pit 2.4m Lintel	0.0458	0.0902	0.05	75	20	100	6	6	6	6	6	6	17	30	19	89	80	80	90	80	90	21	6-7	0	13.272	0.088	12.142	13.184	11.889	1.295		12.132	10.59		1.4
7-1	Grated Gully Pit 1.8m Lintel	0.0275	0.04	0.05	75	20	100	6	6	6	6	6	6	10	13	19	51	39	80	90	80	90	12	8-1	11	13.765	0.056	12.934	13.709	12.737	0.973		12.885	12.84		9.7
8-1	Grated Gully Pit 1.8m Lintel	0.0227	0.0577	0.05	75	20	100	6	6	6	6	6	6	8	19	19	57	42	80	90	80	90	14	6-5	13	13.528	0.057	12.621	13.471	12.397	1.074		12.551	12.531		9.7
9-1	Grated Gully Pit 1.8m Lintel	0.0196	0.0559	0.05	75	20	100	6	6	6	6	6	6	7	19	19	44	35	80	90	80	90	9	10-1	9	14.313	0.045	13.356	14.269	13.247	1.022		13.332	13.067		9.7
9-2	Grated Gully Pit 1.8m Lintel	0.0271	0.0572	0.05	75	20	100	6	6	6	6	6	6	10	19	19	51	39	80	90	80	90	12	9-3	12	14.094	0.048	13.062	14.047	12.941	1.106		13.053	12.487		2.7
9-3	Grated Gully Pit 1.8m Lintel	0.0207			75	20	100	6	6					7			19	17	80	90	80	90	2	29-1	2	13.367	0.028	12.487	13.339	12.259	1.08		12.469	12.28		0.9
10-1	Grated Gully Pit 1.8m Lintel	0.0245	0.046	0.05	75	20	100	6	6	6	6	6	6	9	15	19	51	39	80	90	80	90	12	6-5	12	13.596	0.051	12.636	13.545	12.471	1.074		12.625	12.487		9.5
29-1	Grated Gully Pit 2.4m Lintel	0.0283	0.0577	0.025	75	20	100	6	6	6	6	6	6	10	19	10	42	41	80	90	80	90	1	6-5	0	13.24	0.057	12.23	13.184	12.079	1.105		12.181	12.142		9.7

20% AEP STORM EVENT CHECKS

12d Dynamic Drainage Hydrology & Hydraulics Results

RUNOFF METHOD	ILSAX 2
RETURN PERIOD	20
AEP/ARI	AEP
EVENT	MINOR

NODE	OUTLET PIPE														PIT		
NAME	NAME	DIAMETER (mm)	NUMBER OF PIPES	SEPARATION (m)	TYPE	LENGTH (m)	MIN COVER (M)	FLOW (L/s)	CAPACITY DEPTH RATIO	VELOCITY (m/s)	PIT FREEBOARD (m)	BYPASS FLOW (L/s)	U/S WIDTH (m)	D/S WIDTH (m)	U/S Vd RATIO	D/S Vd RATIO	FLOW DEPTH (m)
2-3	2-3 to 2-4	375	1	0.1	StormPRO SN8	27.68	0.76	145	0.58	1.79	0.7	21	1.5	1.64	0.04	0.03	0.06
2-4	2-4 to 2-5	375	1	0.1	StormPRO SN8	45	0.8	192	0.76	2.01	0.57	24	1.64	1.71	0.04	0.04	0.07
2-5	2-5 to 2-6	450	1	0.1	StormPRO SN8	45	0.77	286	0.7	2.41	0.48	27	1.71	1.71	0.04	0.04	0.07
2-6	2-6 to 2-7	450	1	0.1	StormPRO SN8	30	0.93	347	0.85	2.32	0.38	20	1.5	1.58	0.03	0.03	0.06
2-7	2-7 to 2-8	450	1	0.1	StormPRO SN8	45	0.98	397	0.98	2.52	0.45	22	1.58	1.71	0.04	0.03	0.07
2-8	2-8 to 2-9	450	1	0.1	StormPRO SN8	23.38	0.96	483	1.19	3.07	0.62	30	1.71	1.71	0.05	0.05	0.07
2-9	2-9 to 1-1	525	1	0.1	StormPRO SN8	10.36		523	0.85	3.4	1.12	0	0	0	0	0	0.07
1-1											0.52						0
3-1	3-1 to 2-5	375	1	0.1	StormPRO SN8	10.38	0.72	50	0.2	0.95	0.49	18	1.44	1.44	0.03	0.03	0.06
4-1	4-1 to 2-6	375	1	0.1	StormPRO SN8	9.76	0.76	31	0.1	1.13	0.42	4	0.48	0.95	0.02	0.01	0.03
5-1	5-1 to 2-8	375	1	0.1	StormPRO SN8	7.93	0.71	33	0.09	1.4	0.62	7	0.75	0.98	0.03	0.02	0.04
6-1	6-1 to 6-2	375	1	0.1	StormPRO SN8	6.99	0.63	37	0.1	1.42	0.86	10	0.79	1.26	0.03	0.02	0.04
6-2	6-2 to 6-3	375	1	0.1	StormPRO SN8	32	0.58	77	0.22	1.75	1.51	12	0.87	1.32	0.04	0.03	0.05
6-3	6-3 to 6-4	375	1	0.1	StormPRO SN8	30.72	0.75	158	0.63	1.88	0.86	15	1.32	1.32	0.03	0.03	0.06
6-4	6-4 to 6-5	375	1	0.1	StormPRO SN8	24.65	0.79	220	0.87	2.28	0.85	2	0.4	1.27	0.01	0.01	0.03
6-5	6-5 to 6-6	525	1	0.1	StormPRO SN8	35.21	0.67	472	0.36	4.8	1.04	0	0	0	0	0	0.09
7-1	7-1 to 6-3	375	1	0.1	StormPRO SN8	7.32	0.61	39	0.11	0.87	0.77	11	1.26	1.3	0.02	0.02	0.06
8-1	8-1 to 6-4	375	1	0.1	StormPRO SN8	8.17	0.66	42	0.12	0.8	0.85	13	1.3	2.37	0.03	0.01	0.06
9-1	9-1 to 9-2	375	1	0.1	StormPRO SN8	11.14	0.61	35	0.09	1.66	0.91	9	0.84	1.07	0.03	0.02	0.05
9-2	9-2 to 9-3	375	1	0.1	StormPRO SN8	27.47	0.63	75	0.2	2.08	0.99	12	0.96	0.96	0.03	0.03	0.05
9-3	9-3 to 6-5	375	1	0.1	StormPRO SN8	17	0.67	131	0.52	2.07	0.85	2	0.32	1.28	0.01	0.01	0.03
10-1	10-1 to 9-3	375	1	0.1	StormPRO SN8	8.11	0.59	39	0.11	1.13	0.91	12	1.07	2.35	0.03	0.01	0.05
29-1	29-1 to 6-5	450	1	0.1	StormPRO SN8	7	0.66	41	0.07	0.87	0.95	0	0	0	0	0	0.06

1% AEP STORM EVENT CHECKS

12d Dynamic Drainage Hydrology & Hydraulics Results

RUNOFF METHOD	ILSAX 2
RETURN PERIOD	1
AEP/ARI	AEP
EVENT	MAJOR

NODE	OUTLET PIPE														PIT		
NAME	NAME	DIAMETER (mm)	NUMBER OF PIPES	SEPARATION (m)	TYPE	LENGTH (m)	MIN COVER (M)	FLOW (L/s)	CAPACITY DEPTH RATIO	VELOCITY (m/s)	PIT FREEBOARD (m)	BYPASS FLOW (L/s)	U/S WIDTH (m)	D/S WIDTH (m)	U/S Vd RATIO	D/S Vd RATIO	FLOW DEPTH (m)
2-3	2-3 to 2-4	375	1	0.1	StormPRO SN8	27.68	0.76	174	0.69	1.58	-0.11	149	3.27	4.07	0.11	0.09	0.11
2-4	2-4 to 2-5	375	1	0.1	StormPRO SN8	45	0.8	208	0.83	2.1	-0.14	250	4.07	4.43	0.14	0.13	0.14
2-5	2-5 to 2-6	450	1	0.1	StormPRO SN8	45	0.77	320	0.79	2.05	-0.15	306	4.43	4.97	0.16	0.14	0.15
2-6	2-6 to 2-7	450	1	0.1	StormPRO SN8	30	0.93	396	0.97	2.46	-0.16	404	4.97	5.2	0.18	0.18	0.16
2-7	2-7 to 2-8	450	1	0.1	StormPRO SN8	45	0.98	454	1.11	2.88	-0.17	451	5.2	5.2	0.19	0.19	0.17
2-8	2-8 to 2-9	450	1	0.1	StormPRO SN8	23.38	0.96	575	1.41	3.65	-0.15	379	4.6	7	0.19	0.12	0.15
2-9	2-9 to 1-1	525	1	0.1	StormPRO SN8	10.36		738	1.2	3.44	0.71	194	2.37	2.37	0.21	0.21	0.22
1-1											0.52						0
3-1	3-1 to 2-5	375	1	0.1	StormPRO SN8	10.38	0.72	62	0.25	0.57	-0.1	88	2.8	2.79	0.08	0.08	0.1
4-1	4-1 to 2-6	375	1	0.1	StormPRO SN8	9.76	0.76	-53	-0.17	0.5	-0.1	139	2.61	2.61	0.13	0.12	0.1
5-1	5-1 to 2-8	375	1	0.1	StormPRO SN8	7.93	0.71	50	0.14	0.46	-0.07	43	1.57	1.8	0.05	0.06	0.06
6-1	6-1 to 6-2	375	1	0.1	StormPRO SN8	6.99	0.63	60	0.17	1.37	0.69	31	1.38	2.77	0.06	0.04	0.06
6-2	6-2 to 6-3	375	1	0.1	StormPRO SN8	32	0.58	124	0.35	1.28	0.88	35	1.46	2.84	0.06	0.04	0.06
6-3	6-3 to 6-4	375	1	0.1	StormPRO SN8	30.72	0.75	234	0.91	2.13	-0.1	97	2.84	3.47	0.08	0.08	0.1
6-4	6-4 to 6-5	375	1	0.1	StormPRO SN8	24.65	0.79	322	1.28	2.93	-0.12	116	3.47	6.55	0.1	0.06	0.12
6-5	6-5 to 6-6	525	1	0.1	StormPRO SN8	35.21	0.67	840	0.64	3.91	0.06	198	1.56	1.89	0.16	0.13	0.2
7-1	7-1 to 6-3	375	1	0.1	StormPRO SN8	7.32	0.61	70	0.2	0.69	-0.1	82	2.77	2.77	0.07	0.07	0.1
8-1	8-1 to 6-4	375	1	0.1	StormPRO SN8	8.17	0.66	85	0.24	0.77	-0.1	99	2.75	5.34	0.08	0.04	0.1
9-1	9-1 to 9-2	375	1	0.1	StormPRO SN8	11.14	0.61	60	0.16	1.62	0.38	27	1.45	1.84	0.05	0.04	0.06
9-2	9-2 to 9-3	375	1	0.1	StormPRO SN8	27.47	0.63	167	0.44	1.71	0.25	116	2.55	3.4	0.11	0.1	0.09
9-3	9-3 to 6-5	375	1	0.1	StormPRO SN8	17	0.67	261	1.04	2.37	-0.11	166	2.99	5.37	0.09	0.06	0.12
10-1	10-1 to 9-3	375	1	0.1	StormPRO SN8	8.11	0.59	68	0.19	0.73	-0.07	40	1.84	6.5	0.06	0.02	0.07
29-1	29-1 to 6-5	450	1	0.1	StormPRO SN8	7	0.66	193	0.34	1.23	-0.2	311	22.7	42.21	0.02	0.01	0.2

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K:\C REF O7197_The Sanctuary\02_Engineering\Stage 4\1. ST G 4 SWC\7197E_Stage 4_SWC_Stormwater Calcs.dwg, A1(L)-MINOR CALCS, 3 May 2022, jamiec

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A	31.10.2025	ISSUED FOR APPROVAL	JSC

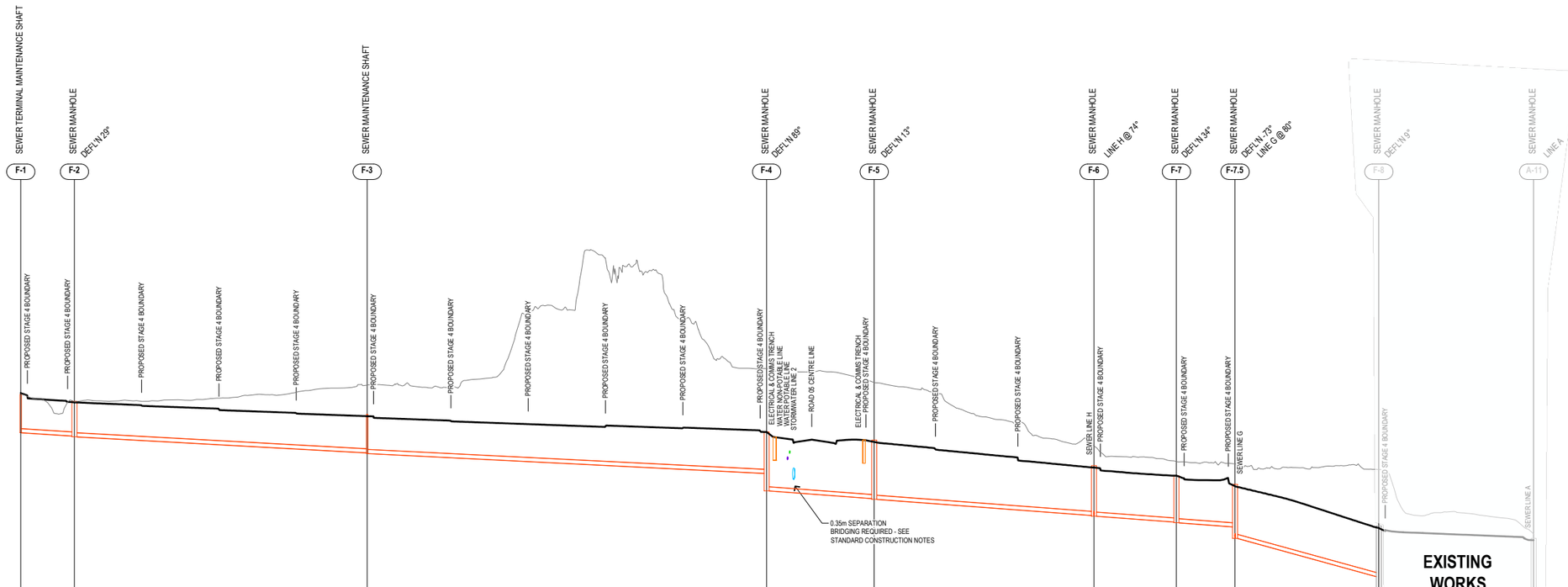
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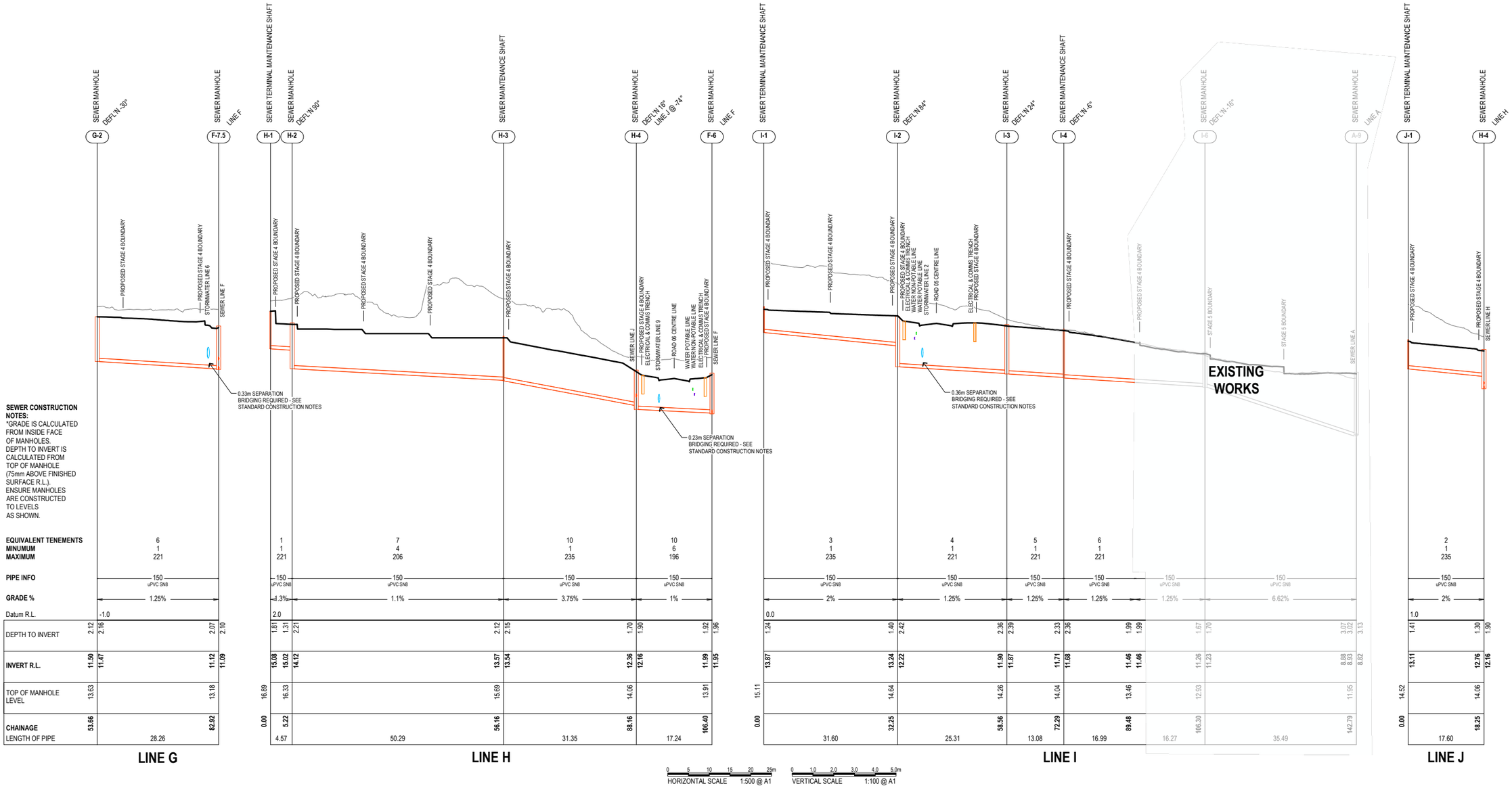
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE:	STORMWATER RESULTS - MINOR 20% AND MAJOR 1% AEP		**A1**
PROJECT:	THE SANCTUARY STAGE 4 LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER		
CLIENT:	BIRD IN THE HAND 2 PTY LTD.	DRAWING NO: 7197E_Stage 4_SWC_Stormwater Calcs	SHEET: 22 OF 28 / REVISION: A



SEWER CONSTRUCTION NOTES:
*GRADE IS CALCULATED FROM INSIDE FACE OF MANHOLES.
DEPTH TO INVERT IS CALCULATED FROM TOP OF MANHOLE (75mm ABOVE FINISHED SURFACE R.L.).
ENSURE MANHOLES ARE CONSTRUCTED TO LEVELS AS SHOWN.

| | | |



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K:\C-FILE\ O:\7197_The Sanctuary\02_Engineering\Stage 4\1. ST04 SWC\7197E_Stage4_SWC_Sections.dwg, A1 LI-SEW LS 02, 23 February 2026, brianc

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DATUM: AHD SCALE: AS SHOWN @ A1

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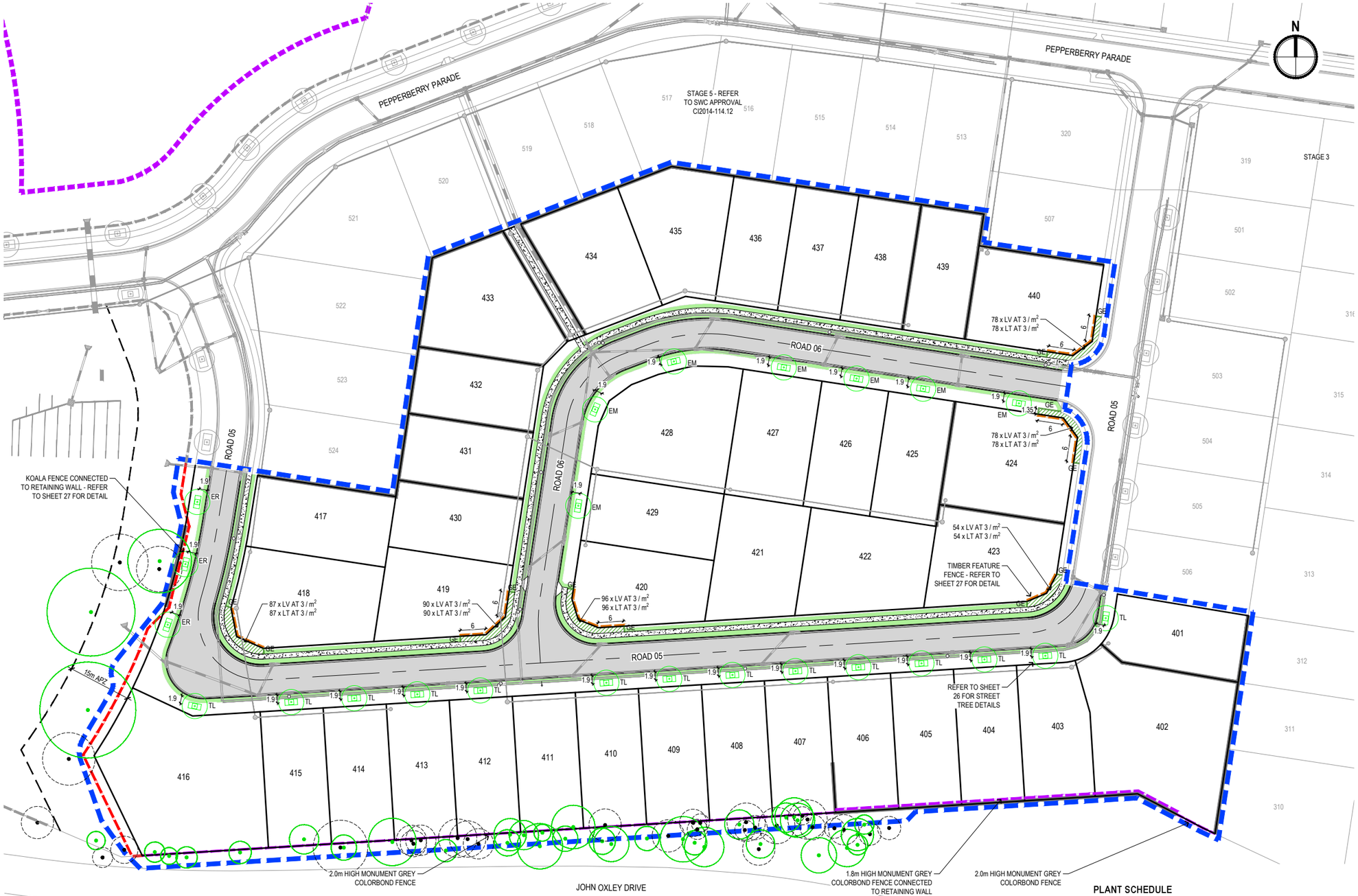
PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: SEWER LONGITUDINAL SECTION - LINE G TO J **A1**

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Sections	24 OF 28	-



LEGEND

- EXISTING BOUNDARY
- PROPOSED STAGE 4 BOUNDARY
- STAGE 4 EXTENT OF WORKS
- EXISTING BIODIVERSITY CERTIFICATION BOUNDARY (PLOTTED FROM PDF)
- ASSET PROTECTION ZONE BOUNDARY
- PROPOSED TIMBER FEATURE FENCE LOCATED WITHIN LOT - REFER TO SHEET 27 FOR DETAIL
- EXISTING KOALA FENCE
- PROPOSED KOALA FENCE - REFER TO SHEET 27 FOR DETAIL
- PROPOSED MONUMENT GREY COLORBEND FENCE
- PROPOSED / EXISTING CONCRETE SLEEPER RETAINING WALL
- PROPOSED ROAD
- PROPOSED CONCRETE FOOTPATH
- PROPOSED FEATURE WALL GARDEN BED PLANTING - REFER TO SHEET 27 FOR DETAIL
- PROPOSED TURF - REFER TO SHEET 27 FOR DETAIL
- GE — PROPOSED TIMBER GARDEN EDGE - REFER TO SHEET 27 FOR DETAIL
- KOALA FOOD TREE (TPZ) (K&C SURVEY JANUARY TO MARCH 2025)
- NON KOALA FOOD TREE (TPZ) (K&C SURVEY JANUARY TO MARCH 2025)
- PROPOSED STREET TREE - REFER TO SHEET 26 FOR DETAIL
- EM — TALLOWOOD (EUCALYPTUS MICROCORYS)
- ER — SWAMP MAHOGANY (EUCALYPTUS ROBUSTA)
- TL — WATER GUM (TRISTANIOPSIS 'LUCIOUS')

NOTES

1. PROVIDE TURFING:
   - MINIMUM OF 900 mm BEHIND KERB WITH NO FOOTPATH;
   - MINIMUM OF 1200 mm BEHIND KERB WITH FOOTPATH (FILL GAP BETWEEN KERB AND FOOTPATH);
   - MINIMUM 1 ROLL OF TURF BEHIND FOOTPATH (BETWEEN FOOTPATH AND LOT BOUNDARY).

   TURF TO BE KIKUYU (OR ALTERNATIVE TYPE APPROVED BY COUNCIL).
2. REFER TO SHEETS 26 & 27 FOR LANDSCAPING DETAILS AND SHEET 28 FOR NOTES.

PLANT SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING/RATE	QUANTITIES	NOTE
STREET TREE PLANTING						
EM	*Eucalyptus microcorys*	TALLOWOOD	100L	AS SHOWN	7	TREES TO BE SUPPLIED AND CERTIFIED TO AS 2303:2018 - TREE STOCK FOR LANDSCAPE USE
ER	*Eucalyptus robusta*	SWAMP MAHOGANY	100L	AS SHOWN	3	
TL	*Tristaniopsis laurina 'Luscious'*	WATER GUM	100L	AS SHOWN	14	
FEATURE WALL GARDEN BED PLANTING						
LV	*Lomandra longifolia 'Verday'*	MAT-RUSH	150mm	3 / m²	483	
LT	*Lomandra longifolia 'Tanika'*	MAT-RUSH	150mm	3 / m²	483	

Look up and live
For safety tips visit essentialenergy.com.au/safety or in an emergency call 13 20 80
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DATUM: AHD SCALE: 1:500 @ A1 (1:1000 @ A3)

0 25

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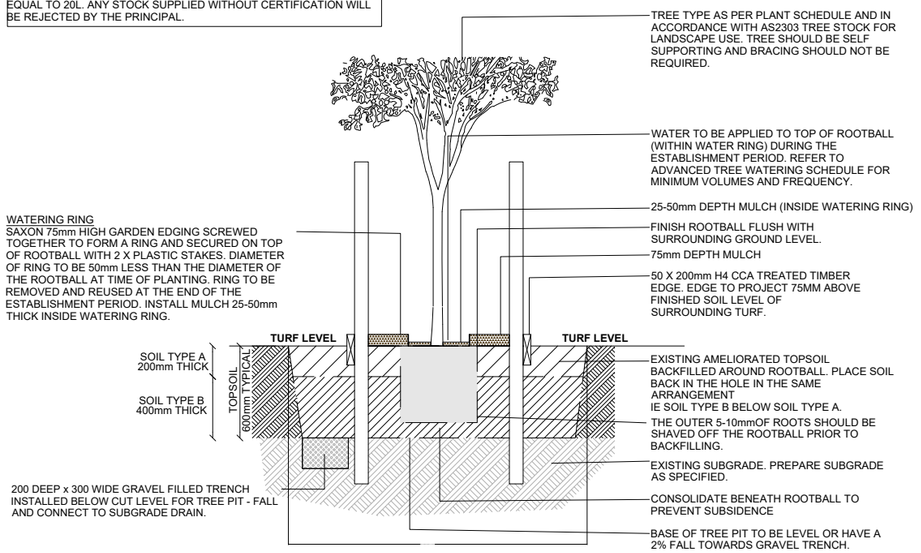
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PROJECT NO:	7197
DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE:	STREET LANDSCAPE PLAN			A1
PROJECT:	THE SANCTUARY STAGE 4 LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER			
CLIENT:	BIRD IN THE HAND 2 PTY LTD.	DRAWING NO:	SHEET:	REVISION:
		7197E_Stage 4_SWC_Plan	25 OF 28	A

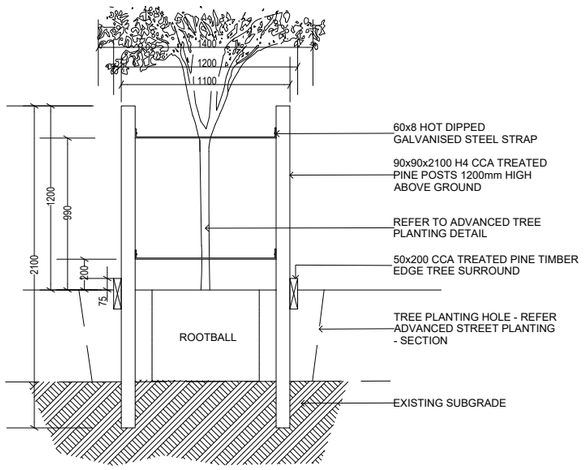
K:\CREF 07\197- The Sanctuary\02_Engineering\Stage 4\1. STG 4 SWC\7197E_Stage 4_SWC_Plan.dwg, A1(L), JSC, 25 February 2026, bviano

NOTE:
CERTIFICATION DEMONSTRATING COMPLIANCE WITH AS 2303:2015 TREE STOCK FOR LANDSCAPE USE, SHALL BE PROVIDED WITH TREE STOCK SUPPLIED TO SITE IN CONTAINERS GREATER THAN OR EQUAL TO 20L. ANY STOCK SUPPLIED WITHOUT CERTIFICATION WILL BE REJECTED BY THE PRINCIPAL.



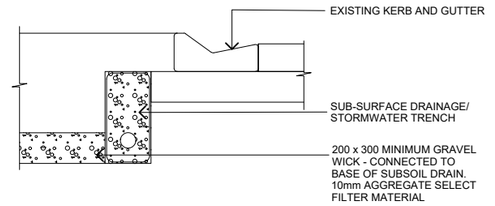
STREET TREE - SECTION DETAIL (75-200L CONTAINER SIZE)

1:20 @ A1



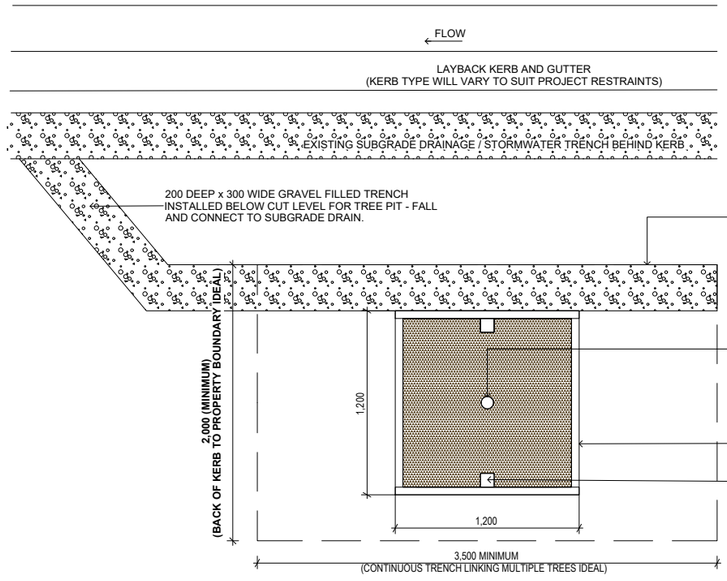
ADVANCED STREET PLANTING GUARD - SECTION DETAIL

1:20 @ A1



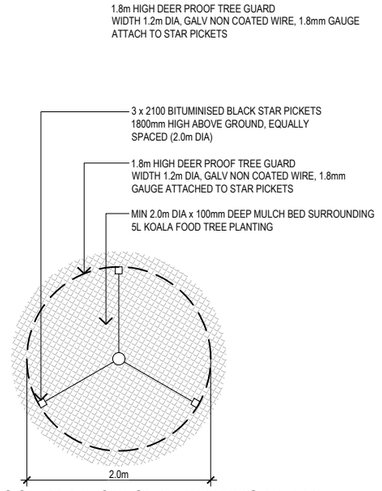
DRAINAGE WICK & SUBGRADE DRAIN CONNECTION DETAIL

1:20 @ A1



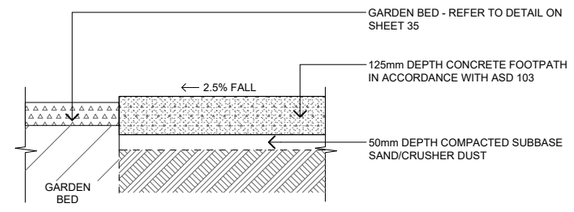
STREET TREE PLAN DETAIL (75-200L CONTAINER SIZE)

1:20 @ A1



KOALA FOOD TREE OFFSET PLANTING DETAIL

1:20 @ A1



CONCRETE FOOTPATH DETAIL (125mm DEPTH)

1:10 @ A1

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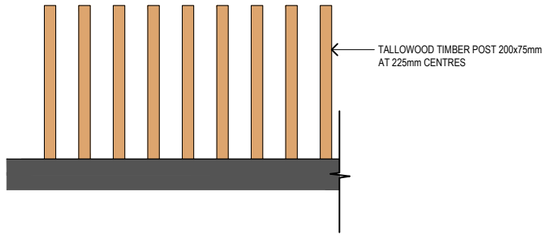
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DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
DATE CREATED:	JULY 2025

DRAWING TITLE: LANDSCAPE DETAILS SHEET 01 **A1**

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

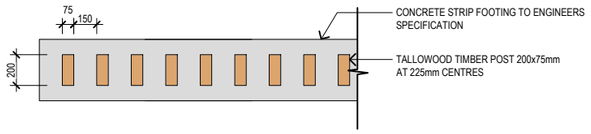
CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	26 OF 28	A



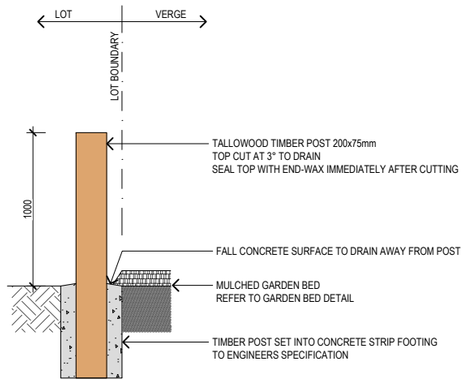
TIMBER FEATURE FENCE ELEVATION DETAIL

1:20 @A1



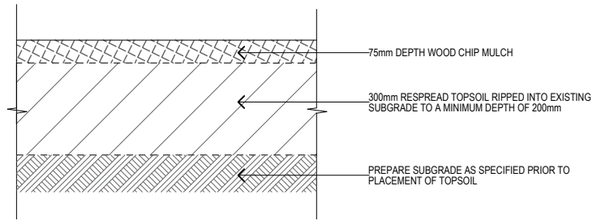
TIMBER FEATURE FENCE PLAN DETAIL

1:20 @A1



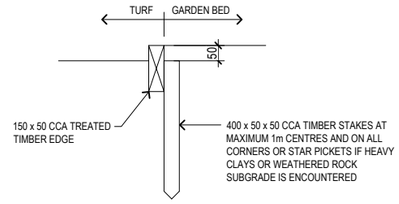
TIMBER FEATURE FENCE SECTION DETAIL

1:20 @ A1



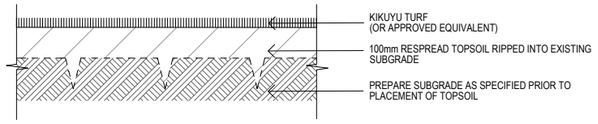
GARDEN BED DETAIL

1:10 @ A1



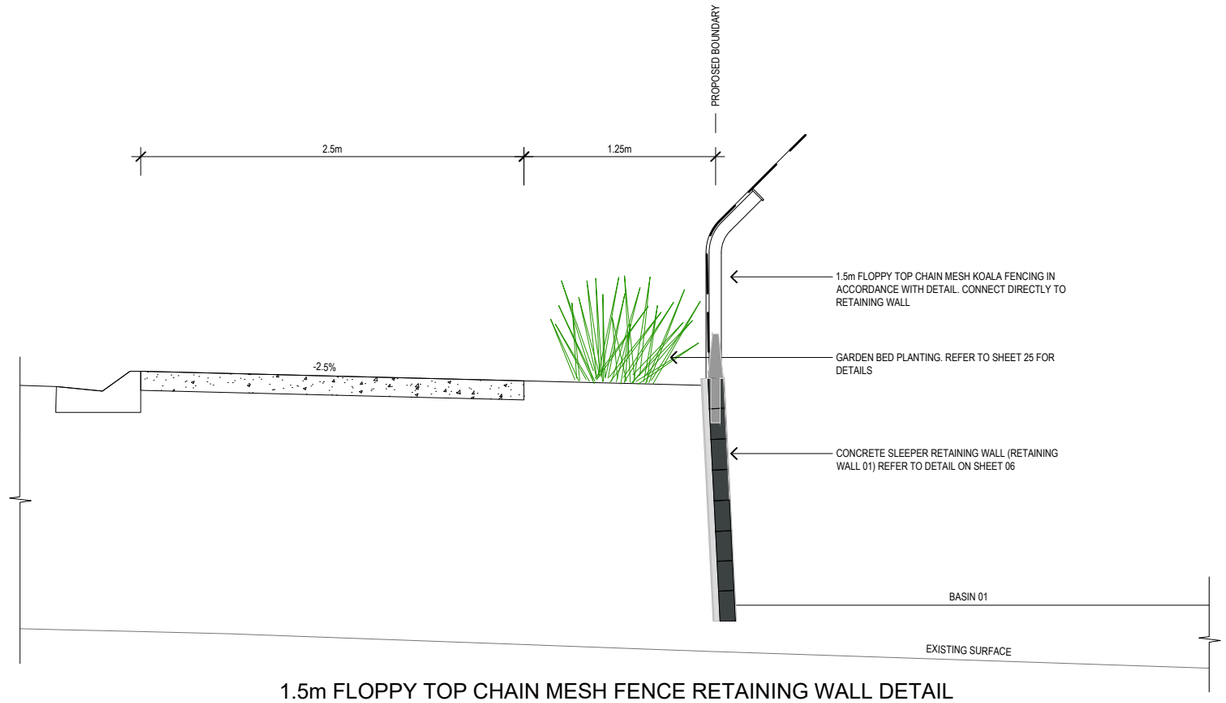
TIMBER EDGING DETAIL

1:10 @ A1



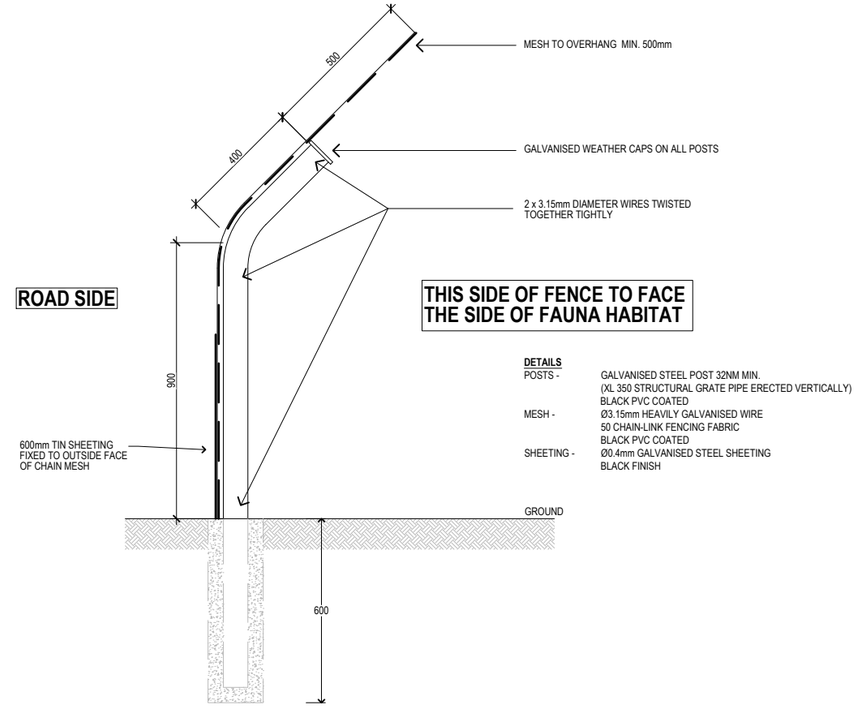
ORNAMENTAL TURF DETAIL

1:10 @ A1



1.5m FLOPPY TOP CHAIN MESH FENCE RETAINING WALL DETAIL

1:20 @ A1



DETAILS

POSTS - GALVANISED STEEL POST 32NM MIN.
(XL 350 STRUCTURAL GRATE PIPE ERECTED VERTICALLY)
BLACK PVC COATED

MESH - Ø3.15mm HEAVILY GALVANISED WIRE
50 CHAIN-LINK FENCING FABRIC
BLACK PVC COATED

SHEETING - Ø0.4mm GALVANISED STEEL SHEETING
BLACK FINISH

1.5m FLOPPY TOP CHAIN MESH FENCE DETAIL

1:10 @ A1

NOT TO BE USED FOR CONSTRUCTION UNLESS SUBDIVISION WORKS CERTIFICATE ISSUED FOR THE WORKS

THIS DRAWING INCLUDES INFORMATION IN COLOUR. IF YOU HAVE A BLACK AND WHITE COPY YOU DON'T HAVE ALL THE INFORMATION. THIS NOTE IS COLOURED RED.

K:\C-REF O:\7197_The Sanctuary\02_Engineering\Stage 4\1. STG 4 SWC\7197E_Stage 4_SWC_Plan.dwg, A1(L)-LSCDETAILS (2), 25 February 2026, brianc

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REV.	DATE	DESCRIPTION	BY
A	XX.02.2026	ISSUED FOR APPROVAL	JSC

DATUM: SCALE: AS SHOWN

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DA NO.:	2014-114
DESIGNED BY:	JSC/BC
DRAWN BY:	JSC
CHECKED BY:	BC
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DRAWING TITLE: LANDSCAPE DETAILS SHEET 02 — **A1**

PROJECT: THE SANCTUARY STAGE 4
LOT 300, DP 1307775 - JOHN OXLEY DRIVE, THRUMSTER

CLIENT: BIRD IN THE HAND 2 PTY LTD.

DRAWING NO:	SHEET:	REVISION:
7197E_Stage 4_SWC_Plan	27 OF 28	A

LANDSCAPE - TECHNICAL SPECIFICATION

1. GENERAL REQUIREMENTS

SCOPE AND EXTENT OF WORK

THE EXTENT OF THE LANDSCAPE WORKS IS INDICATED IN THE DRAWINGS. IT INCLUDES CARRYING OUT ALL ANCILLARY WORK NECESSARY FOR PROPER COMPLETION OF THE WORKS.

WHERE WORKS ARE ADJACENT TO EXISTING WORKS, MAKE THE PROPER JUNCTIONS BETWEEN NEW AND EXISTING WORKS AND MAKE GOOD ANY DAMAGE CAUSED TO ADJOINING EXISTING AND RETAINED WORKS.

SETOUT AND LEVELS

SETOUT AND POINT INFORMATION TO BE PROVIDED IN ELECTRONIC FORMAT UPON REQUEST TO THE CONSTRUCTION SURVEYOR AT THE TIME OF CONSTRUCTION. ALL SETOUT TO BE UNDERTAKEN FROM THE ELECTRONIC FILE.

ENVIRONMENTAL MANAGEMENT

THE IMPACT ON THE ENVIRONMENT SHALL BE MINIMISED. NO VEGETATION SHALL BE REMOVED WITHOUT PRIOR APPROVAL FROM THE PRINCIPAL UNLESS NOTED ON THE DRAWINGS OR SCHEDULED IN THE REVIEW OF ENVIRONMENTAL FACTORS (REF). WORKS SHALL NOT BE UNDERTAKEN WITHOUT CONSIDERATION OF THE REF.
THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE PRINCIPAL (OR PRINCIPALS REPRESENTATIVE) AN ENVIRONMENTAL MANAGEMENT PLAN THAT OUTLINES THE FOLLOWING AS A MINIMUM:

- SEDIMENT INTERCEPTION BY THE PLACEMENT OF TEMPORARY SILT FENCING AND GRAVEL
- FILLED GEOTEXTILE SAUSAGES ACROSS DRAINAGE LINES AND AT INTERCEPTION POINTS FOR BOTH THE CONSTRUCTION AND STOCKPILE AREAS;
- INSTALLATION OF SEDIMENT TRAPS AT GRATED PITS AND KERB INLET PITS;
- METHODS OF MANAGING AND MINIMISING AIR AND NOISE POLLUTION.

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE PRINCIPAL (OR PRINCIPALS REPRESENTATIVE) A TRAFFIC CONTROL PLAN (IN ACCORDANCE WITH AS1742.3), PRIOR TO COMMENCEMENT OF CONSTRUCTION.

WORKMANSHIP AND MATERIAL QUALITY

MATERIALS AND WORKMANSHIP ARE TO CONFORM TO THE CURRENT EDITION OF APPLICABLE AUSTRALIAN STANDARD SPECIFICATIONS AND CODES. ANY WORK OR MATERIALS, WHICH, IN THE OPINION OF THE PRINCIPAL (OR THEIR REPRESENTATIVE), DO NOT MEET APPROPRIATE INDUSTRY STANDARDS OF WORKMANSHIP OR QUALITY, WILL BE REJECTED. REJECTED WORK SHALL BE REMOVED AND REINSTALL TO AN ACCEPTABLE STANDARD AT NO ADDITIONAL COST TO THE PRINCIPAL.

WORKMANSHIP & INSTALLATION SAMPLES

WHERE SPECIFIED, PROVIDE SAMPLES OF FINISHED INSTALLED WORKS FOR APPROVAL BY THE PRINCIPAL (OR THEIR REPRESENTATIVE) PRIOR TO PROCEEDING. INCLUDE TYPICAL JUNCTIONS, JOINTS, CUTS, FINISHES AND COLOURS OF THE NOMINATED SAMPLE. IF NOT APPROVED, SAMPLES ARE TO BE RECTIFIED OR REMOVED AND REPLACED AS REQUIRED BY THE CONTRACT MANAGER. APPROVED SAMPLES MAY BE RETAINED TO FORM A PART OF THE COMPLETED WORKS. ALL REMAINING WORKS ARE TO MEET AND MATCH THE QUALITY OF THE APPROVED SAMPLE.

2. CLEARING, DEMOLITION AND SITE PREPARATION

STRIPPING AND STOCKPILING TOPSOIL

STRIPPING OF TOPSOIL SHOULD OCCUR IMMEDIATELY BEFORE BULK EARTHWORKS AND DONE IN SUCH A MANNER AS TO MINIMISE EROSION AND SEDIMENT LOSS FROM SITE. SOIL MOISTURE CONTENT SHOULD BE MONITORED TO ENSURE THE SOIL STRUCTURE IS NOT ADVERSELY IMPACTED THROUGH EXCAVATION DURING EXTREMELY WET OR DRY CONDITIONS. AVOID THE INCLUSION OF SUBSOIL IN THE TOPSOIL STRIPPING. STRIP TOPSOIL TO A DEPTH RECOMMENDED BASED ON SOIL TESTING RESULTS.

STOCKPILES SHOULD BE NO HIGHER THAN 2m IN DEPTH AND LOCATED 5M OR MORE FROM CONCENTRATED WATER FLOWS. PROTECT STOCKPILE UPSLOPE USING DIVERSION DRAINS. DOWNSLOPE SEDIMENT LOSS SHOULD BE MINIMISED THOUGH THE USE OF SILT FENCING OR OTHER APPROVED METHODS. LABEL STOCKPILE WITH ORIGIN AND DATE. IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 3 MONTHS, SOW WITH A SEASONALLY APPROPRIATE ANNUAL COVER CROP.

FINE TRIMMING AND GRADING

GRADE AND TRIM BULK SUBGRADE SURFACES TO A DEPTH BELOW FINISHED SURFACE LEVELS AS DETERMINED BY THE SPECIFIED DEPTHS OF COVERING MATERIALS. BERMS, SWALES AND BATTERS MAY REQUIRE FINE GRADING AND SHAPING TO THE LANDSCAPE ARCHITECT'S DIRECTION. SHAPING SHALL BE CARRIED OUT BY AN EXPERIENCED MACHINE OPERATOR OR SHAPER.
SUCH WORK SHALL INCLUDE:

- ROUNDING OF RIDGE LINE PROFILES;
- GRADUATING RIDGE LINES AND FORMATION OF TRANSITION CURVES AT TOP AND BOTTOM OF BATTERS;
- TRIMMING TO REDUCE BULK EXCAVATION SLOPE STEEPNESS;
- GRADUAL TAPERING TO INTERSECTIONS WITH WALLS AND PAVEMENTS;
- GRADING TRANSITIONS TO FENCE LINES;
- GRADING TRANSITIONS TO MEET BACK OF ROAD EDGES AND KERBS.

UNLESS OTHERWISE NOTED FINAL GRADING SHALL ACHIEVE 1 IN 100 MINIMUM FALLS TO DRAINAGE.

SITE SUBGRADE PREPARATION

BEFORE LAYING TOPSOIL, THE FOLLOWING SUBGRADE TREATMENT MUST BE APPLIED TO ALL FINISHED SUBGRADE AREAS:

- REMOVE ROCKS >100mm DIAMETER;
- REMOVE RUBBISH SUCH AS CONSTRUCTION GENERATED WASTE, PLASTICS, METALS AND GLASS;
- APPLY ADDITIVES TO AMELIORATE THE SUBGRADE IN ACCORDANCE WITH THE RECOMMENDATIONS FROM THE SOIL TEST REPORT;
- CHISEL, DISC PLOUGH OR USE AN EXCAVATOR WITH A TYNE ATTACHMENT TO LOOSEN THE SUBGRADE AND MIX THE AMELIORANTS TO 200mm DEPTH TO INCORPORATE;
- HARROW TO BREAK UP CLODS BUT DO NOT SMOOTH (LEAVE THE SURFACE 'KEYED' TO ACCEPT THE TOPSOIL);
- PROTECT SUBGRADE FROM TRAFFICKING, COMPACTION AND CRUST FORMATION UNTIL THE TOPSOIL/ PLANTING SOIL SPREAD IS SPREAD.

SUBSOIL DRAINAGE

PROVIDE SUBSOIL DRAINAGE IN ACCORDANCE WITH THE DRAWINGS AND DETAILS, WITH SUITABLE FALLS AND CONNECTION TO BIO-RETENTION AREA, STORMWATER PITS OR OTHER APPROVED RECEIVING DRAINAGE DEVICE.

3. HARDSCAPE

PAVEMENT FINISHES GENERALLY

PAVEMENTS ARE TO BE CONSTRUCTED TRUE TO THE DOCUMENTED LINE AND LEVELS WITHOUT LOCAL IRREGULARITIES. FOR PAVEMENTS:-

- CURVED EDGES ARE TO HAVE SMOOTH TRANSITIONS FREE FROM KINKS;
- LEVEL DIFFERENCE LESS THAN 3mm BETWEEN DIFFERENT PAVING SURFACES OR PAVERS (UNLESS SPECIFICALLY INDICATED ON GRADING PLAN);
- MAXIMUM DEVIATION FROM A 3m STRAIGHT EDGE PLACED ANYWHERE ON SURFACE OF 12mm;
- LESS THAN 10mm DEPTH OF WATER PONDING (15 MINUTES AFTER RAIN HAS STOPPED);
- NO MOVEMENT OR HOLLOW SOUND WHEN WALKED UPON.

PAVING UNITS AND EXPANSION JOINTS, CRACK CONTROL JOINTS ARE TO BE LAID OUT AS INDICATED ON THE DRAWINGS. UNLESS OTHERWISE DOCUMENTED, CUTS ARE TO BE CARRIED OUT TO ACHIEVE A GAP OF NO MORE THAN 3mm BETWEEN ADJOINING PAVING UNITS OR OTHER ADJOINING SURFACES OR STRUCTURES. ENSURE POSITIVE DRAINAGE TO THE ADJOINING GARDENS, KERB AND DRAINAGE INLET GRATES TO PREVENT PONDING.

EACH DIFFERENT PAVEMENT TYPE IS TO HAVE A UNIFORM FINISH AND COLOUR. UNLESS OTHERWISE DOCUMENTED STEPS ARE TO HAVE A CONSTANT TREAD & RISER HEIGHT FOR EACH SET/FLIGHT.

SLIP RESISTANCE

UNLESS OTHERWISE SPECIFIED, ALL LANDSCAPE PATHWAYS AND PAVING (& POTENTIALLY ACCESSIBLE WALL COPINGS) SHALL COMPLY WITH THE FOLLOWING MINIMUM SLIP RESISTANCE RATINGS IN ACCORDANCE WITH AS/NZS 4586:2013. (APPENDIX A -WET PENDULUM TEST)

GENERAL PATHWAYS AND PEDESTRIAN PAVEMENTS (TYPICALLY SLOPES LESS THAN 1:50)
WET PENDULUM TEST = P3, P4 OR P5 (CLASS X,W OR V-UNDER 2003 VERSION)
OIL-WET RAMP TEST = R11, R12 OR R13

GENERAL PATHWAYS AND PEDESTRIAN PAVEMENTS (TYPICALLY UP TO SLOPES OF 1:20)
WET PENDULUM TEST = P4 OR P5 (CLASS W OR V-UNDER 2003 VERSION)
OIL-WET RAMP TEST = R12 OR R13

GENERAL PATHWAYS AND PEDESTRIAN PAVEMENTS (FOR SLOPES BETWEEN 1:20 AND 1:14, OR ABOVE)
WET PENDULUM TEST = P5 (CLASS V- UNDER 2003 VERSION)
OIL-WET RAMP TEST = R13

INFORMATIONAL NOTE: WOOD FLOAT OR BROOM FINISHED INSITU CONCRETE WILL TYPICALLY PROVIDE A CLASS P5 RATING USING WET PENDULUM TEST AND CLASS C FOR WET BARE FOOT TEST AND R13.

UNLESS OTHERWISE SPECIFIED ALL PAVING AROUND SWIMMING POOLS OR WATER PLAY AREAS SHALL COMPLY WITH THE FOLLOWING SLIP RESISTANCE RATINGS IN ACCORDANCE WITH AS/NZS 4586:2004. (WET BAREFOOT RAMP TEST):-
CLASS C FOR WATER PLAY AREAS OR SWIMMING POOL SURROUNDS.

APPLICABLE TEST METHODS

- WET PENDULUM TEST - APPENDIX A AS/NZS 4586:2013 SHALL TYPICALLY BE USED AS THE TEST METHOD FOR PEDESTRIAN PATHWAYS AND RAMPS;
- WET BAREFOOT RAMP TEST - APPENDIX C AS/NZS 4586:2013 SHALL ONLY BE USED AS THE TEST FOR SWIMMING POOL AND WATER PLAY AREA SURROUNDS;
- OIL-WET RAMP TEST - APPENDIX C AS/NZS 4586:2013 SHALL TYPICALLY NOT BE USED FOR LANDSCAPE APPLICATIONS.

CONCRETE PAVING & FOOTINGS

FOUNDATIONS & PREPARATION
FOUNDATIONS FOR CONCRETE STRUCTURES SHALL BE EXCAVATED TO NEAT LINES AND FORMED AT THE REQUIRED DEPTH BELOW THE SURFACE LEVEL. ALL SOFT, YIELDING AND OTHERWISE UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WHERE NECESSARY WITH APPROVED MATERIAL, AND THE FOUNDATIONS SHALL BE THOROUGHLY COMPACTED AND FINISHED TO A FIRM SMOOTH SURFACE OF UNIFORM BEARING VALUE. UNLESS OTHERWISE PERMITTED, EXCAVATED MATERIAL SHALL NOT BE DEPOSITED ON EXISTING GRASSED AREAS. EXCAVATION SHALL BE DEEP ENOUGH TO ALLOW FOR THE TOP SURFACE OF THE SLAB TO FINISH JUST BELOW OR FLUSH WITH THE TOP OF ADJOINING GRASS SURFACES AND PAVEMENT LEVELS (OR 25-50mm BELOW ADJOINING GARDEN LEVELS).

FORMWORK
FORMWORK FOR CONCRETE PAVING SHALL BE FIXED BOARDS OF SEASONED, DRESSED TIMBER PLANKS OR EQUIVALENT. FORMS SHALL BE DESIGNED AND CONSTRUCTED SO THAT THEY CAN BE REMOVED WITHOUT INJURING THE CONCRETE AND SHALL BE BUILT TRUE TO LINE AND BRACED IN A SUBSTANTIAL AND UNYIELDING MANNER. FORMS SHALL BE FREE OF WARPS, KINKS OR BENDS.

REINFORCEMENT - PEDESTRIAN PAVEMENTS
REINFORCEMENT SHALL BE SL62 MESH UNLESS OTHERWISE NOTED. REINFORCEMENT IS TO BE PLACED 30mm BELOW THE TOP SURFACE OF THE PAVEMENT AND NOT CLOSER THAN 40MM TO THE SIDES. REINFORCEMENT SHALL BE SECURED AGAINST DISPLACEMENT ARISING FROM THE FLOW OR WORKING OF THE CONCRETE, AND SHALL BE TIED WITH NO. 16 SWG BLACK IRON WIRE OR TACK WELDED AT ALL CROSSINGS.

STRENGTH
UNLESS OTHERWISE NOTED, CONCRETE SHALL BE A MINIMUM STRENGTH OF 25 MPa AND SHALL BE PROPERLY COMPACTED VIA VIBRATING SCREEDS OR POKERS.

FALLS AND FINISH
UNLESS OTHERWISE DETAILED, FOOTPATHS SHALL BE CONSTRUCTED WITH A MINIMUM 2% (1:50) CROSS FALL, FALLING WITH GENERAL GRADES OF THE AREA. LONGITUDINAL GRADES NORMALLY SHALL BE IN THE RANGE OF 0.5% TO 2.5%. IF COLOURED CONCRETE IS SPECIFIED IT SHALL BE INTEGRALLY AND FULL-THICKNESS COLOURED.

AFTER PLACING AND COMPACTION, CONCRETE SHALL BE FINISHED TO A SMOOTH EVEN SURFACE BY MEANS OF STEEL FLOATS AND OTHER SUITABLE EQUIPMENT. ON COMPLETION OF STEEL FLOATING AND BEFORE INITIAL SET, THE SURFACES OF CONCRETE PATHS SHALL BE EITHER WOOD FLOATED OR BROOMED TO A 'NON-SKID' TEXTURE. THIS SHALL BE ACHIEVED BY DRAWING A MOISTENED NYLON BROOM LIGHTLY ACROSS THE SURFACE AT RIGHT ANGLES TO THE DIRECTION OF THE PATH OR PAVING. EDGES SHALL BE TOOLED TO CREATE A 5m PENCIL ROUND EDGE.

CONTRACTION JOINTS SHALL BE FORMED BY MAKING A CUT 3mm WIDE FOR AT LEAST ONE QUARTER OF THE DEPTH OF THE PAVING. UNLESS OTHERWISE SPECIFIED OR DETAILED, THE SPACING OF CONTRACTION JOINTS SHALL BE APPROXIMATE TO THE WIDTH OF THE PATH WITH MINOR ADJUSTMENTS TO AVOID SHORT CLOSING LENGTHS. JOINT SPACING SHALL NOT TYPICALLY NORMALLY EXCEED THREE (3) METRES.

EXPANSION JOINTS SHALL BE CONSTRUCTED FOR THE FULL DEPTH OF THE PAVING USING 15mm WIDE BITUMINOUS EXPANSION JOINTS. THEY SHALL BE PROVIDED WHEREVER THE PAVING ABUTS FIXED STRUCTURES, SUCH AS BUILDINGS AND MANHOLES, TRANSVERSELY AT MAXIMUM INTERVALS OF 15 METRES ALONG THE LENGTH OF THE PATHWAY AND AT PATH INTERSECTIONS. JOINT ARISES ABUTTING BITUMINOUS EXPANSION JOINTS SHALL BE TOOLED OFF.

PROTECT GREEN CONCRETE FROM RAIN, FLOWING WATER AND, WHERE POSSIBLE, GRAFFITI. PROVIDE PROTECTION AS NECESSARY TO PREVENT CRACKING OF THE CONCRETE DUE TO TEMPERATURE CHANGES DURING THE CURING PERIOD. REINSTATE ADJACENT SURFACES AFTER STRIPPING OF FORMWORK.

EDGING

EDGES ARE TO BE CONSTRUCTED TRUE TO THE DOCUMENTED LINE AND LEVELS WITHOUT LOCAL IRREGULARITIES. FOR EDGES:-

- CURVED EDGES ARE TO HAVE SMOOTH TRANSITIONS FREE FROM KINKS;
- VERTICAL ALIGNMENT CURVES ARE TO HAVE SMOOTH TRANSITIONS FREE FROM KINKS AND SUDDEN CHANGES FOLLOWING THE ADJOINING DESIGNED GRADES AND LEVELS.

FENCING

FENCES ARE TO BE CONSTRUCTED TRUE TO THE DOCUMENTED LINE AND LEVELS AND VERTICAL WITH SUFFICIENT RIGIDITY AND DEPTH OF POST AND FOOTINGS TO WITHSTAND NORMALLY EXPECTED USE AND LATERAL FORCES. UNLESS OTHERWISE SPECIFIED OR DETAILED POSTS SHALL BE MAXIMUM SPACING OF 2.4m AND BE EMBEDDED WITHIN THE GROUND TO AT LEAST ½ THE HEIGHT OF THE FENCE HEIGHT.

WALL FINISHES

WALLS ARE TO BE CONSTRUCTED TRUE TO THE DOCUMENTED LINE AND LEVELS AND VERTICAL (UNLESS OTHERWISE DOCUMENTED). WALLS ARE TO BE LESS THAN 1% FROM VERTICAL. HORIZONTAL WALL MEMBERS AND RUNS ARE TO NOT SAG. CAPPING IS TO BE LEVEL IN BOTH DIRECTIONS. THERE IS TO BE NO MORE THAN 2mm DIFFERENCE IN HEIGHT BETWEEN ADJOINING FACING SEGMENTS OR BETWEEN ADJOINING CAPPING SEGMENTS. EXPANSION JOINTS, FACING AND COPING SEGMENTS ARE TO BE SET OUT AS INDICATED ON THE DRAWINGS AND AS DIRECTED ON SITE BY THE CONTRACT MANAGER. UNLESS OTHERWISE DOCUMENTED, CUTS ARE TO BE CARRIED OUT TO ACHIEVE A GAP OF NO MORE THAN 3MM BETWEEN ADJOINING SEGMENTS OR OTHER ADJOINING SURFACES OR STRUCTURES. SLIP RESISTANCE FOR THE CAPPING IS TO COMPLY WITH AS/NZS 4586:2013 WHERE IT IS REASONABLE TO ANTICIPATE IT BEING ACCESSIBLE TO PEDESTRIANS. SELECT MATERIALS AND INCLUDE ADMIXTURES WITHIN CONCRETES AND MORTARS TO PREVENT THE OCCURRENCE OF EFFLORESCENCE.

4. SOFTSCAPE

MULCH

ANY SOIL CONDITIONERS SHALL COMPLY WITH AS4454-2003 COMPOSTS, SOIL CONDITIONERS AND MULCHES. UNLESS OTHERWISE NOTED MULCH SHALL BE A MINIMUM OF 50mm DEPTH AND A MAXIMUM OF 75mm DEPTH. MULCH TYPES SHALL BE: -

- 15mm GRADED AGED HORTICULTURAL PINE BARK FINES. (ALL AREAS EXCEPT BIOFILTERS/ DETENTION BASINS);
- RECYCLED WOOD WASTE SUCH AS ANL FOREST BLEND OR APPROVED EQUIVALENT. (ALL AREAS EXCEPT BIOFILTERS/ DETENTION BASINS);
- BIOFILTER / DETENTION BASINS SHALL BE ROUNDED 20mm DIAMETER NEPEAN RIVER GRAVEL OR APPROVED EQUIVALENT.

HERBICIDES

GENERAL USE HERBICIDES SHALL BE:-

- A GLYPHOSATE BASED NON-RESIDUAL HERBICIDE SUCH AS "ROUNDUP® BIACTIVE™"

SUBMIT DETAILS OF ANY OTHER PROPOSED HERBICIDES PRIOR TO USE. FOLLOW ALL PUBLISHED SAFETY AND MATERIAL HANDLING DATA AND PROPERLY STORE ALL CHEMICALS USED ON SITE. HERBICIDES SHALL BE DILUTED TO MANUFACTURER'S RECOMMENDATIONS IN CLEAN WATER WITH COLOURED DYE ADDED.

FERTILISERS & WETTING AGENTS

UNLESS OTHERWISE NOTED SPECIFIED FERTILISER SHALL BE A SLOW RELEASE PELLETISED FORM SUITABLE FOR USE WITH AUSTRALIAN NATIVE PLANTS:-

- OSMOCOTE™ PLUS TRACE ELEMENTS - TOTAL ALL PURPOSE SLOW RELEASE FERTILISER OR
- OSMOCOTE® PLUS TRACE ELEMENTS - NATIVE GARDENS SLOW RELEASE FERTILISER FOR PHOSPHOROUS SENSITIVE NATIVE PLANTING.

UNLESS OTHERWISE NOTED, THE APPLICATION RATE FOR THE ABOVE SHALL BE 50g/m^2.

UNLESS OTHERWISE NOTED THE SOIL WETTING AGENT SHALL BE:-

- AMGROW "WETTASOIL" GRANULAR SOIL WETTING AGENT BROADCAST ONTO THE SURFACE OF GARDEN AREAS OR LAWN AREAS PRIOR TO PLANTING.

UNLESS OTHERWISE NOTED, THE APPLICATION RATE FOR THE ABOVE SHALL BE:-

- 30g/m^2 FOR CLAY SOILS;
- 40g/m^2 FOR LOAM AND ORGANIC SOIL BLENDS;
- 50g/m^2 FOR SANDS AND SANDY SOILS.

SOIL CONDITIONERS

UNLESS OTHERWISE NOTED SPECIFIED SOIL CONDITIONERS SHALL BE SUPPLIED BY TERRACOTTEM, PROVIDE GROWTH STIMULANTS, AND INCREASE THE NUTRIENT AND WATER HOLDING CAPACITY OF THE SOIL:-

- TERRACOTTEM ARBOR SHALL BE USED IN ALL GARDEN BEDS AND APPLIED AT A RATE OF 200g PER m^2;
- TERRACOTTEM TURF SHALL BE USED IN ALL TURF AREAS AND APPLIED AT A RATE OF 150g PER m^2.

TREE PLANTING, GARDEN AND LAWN AREA PREPARATION

ENSURE THE INSTALLED, OR NATURAL SUB GRADES, ARE NOT TOXIC TO NORMAL PLANT GROWTH OR UNNATURALLY OVERLY COMPACTED. NOTIFY CONTRACT MANAGER IMMEDIATELY IF THERE ARE ANY CONCERNS WITH REGARD TO THE SUBSOIL CONDITIONS.

SOIL

SITE WON TOPSOIL SHALL BE TESTED BY SESL AUSTRALIA OR AN APPROVED SOIL LABORATORY AND REUSED ONSITE WHERE POSSIBLE. SITE WON SOIL SHOULD BE AMELIORATED IN ACCORDANCE WITH THE LABORATORY RECOMMENDATIONS FOR THE INTENDED PLANT SPECIES MIX AND PLANTING APPLICATION. IMPORTED SOILS SHOULD BE USED WHERE SITE SOILS ARE NOT SUITABLE FOR REUSE OR THE VOLUME REQUIRED IS INSUFFICIENT.

ALL IMPORTED PLANTING SOIL IS TO COMPLY WITH REQUIREMENTS OF AS 4419-2003 SOILS FOR LANDSCAPING AND GARDEN USE. ALL PLANTING SOIL SHALL BE FREE OF MATERIALS, RUBBISH, DEBRIS AND SUBSTANCES THAT ARE TOXIC TO LIVING ORGANISMS, OR WOULD OTHERWISE BE DECLARED CONTAMINATED. ALL IMPORTED GARDEN SOIL SHALL BE FREE OF WEED SEEDS.

ALL PLANTING SOIL TO BE CONSOLIDATED BUT NOT COMPACTED AND HAVE PARTICLE SIZES GREATER THAN THE SUBSOIL.

THE PHYSICAL AND CHEMICAL PROPERTIES OF EACH SOIL TYPE SHALL BE WITHIN THE ACCEPTABLE RANGES SPECIFIED IN THE 'SOIL PROPERTIES SPECIFICATION TABLE' AND SUPPORTED BY COMPREHENSIVE DATA SHEETS AND TEST RESULTS. TEST RESULTS MUST BE SUBMITTED TO THE CONTRACT MANAGER TO DEMONSTRATE COMPLIANCE PRIOR TO USE.

ISOLATED TREE PLANTING PIT EXCAVATION AND SPOIL

UNLESS OTHERWISE SPECIFIED OR DIRECTED, SURPLUS EXCAVATED MATERIAL MUST BE IMMEDIATELY REMOVED FROM THE SITE. THIS INCLUDES DEBRIS RESULTING FROM SITE CLEARANCE AND EXCAVATED MATERIAL NOT RE-USABLE AS TOPSOIL, FILLING, MULCH OR THE LIKE. EXCAVATE TO AN EQUIVALENT DEPTH OF THE NEW TREE ROOTBALL MEASURED FROM THE UNDERSIDE OF ANY CONCRETE BASE SLABS OR PAVEMENT, OR AS SHOWN ON THE DETAILS. DO NOT DISTURB EXISTING SERVICES, AND EXCAVATE BY HAND AROUND ANY EXISTING SERVICES AS REQUIRED. ALLOW ADDITIONAL DEPTH TO ACHIEVE SPECIFIED FALLS FOR SUBSOIL DRAINAGE LINES AND TO SATISFY FINISHED LEVELS.

SAFETY PRECAUTIONS MUST BE IN PLACE TO PREVENT PUBLIC ENTRY TO WORKSITE AREA/ EXCAVATED TREES PITS WHEN IN PUBLIC STREETS.

PLANTS, PLANTING AND FERTILISING

ALL TREES SHALL COMPLY WITH AUSTRALIAN STANDARD 2303:2015 'TREE STOCK FOR LANDSCAPE USE'. INSPECT AND APPROVE ALL PLANTS IMMEDIATELY AFTER BEING UNLOADED TO CHECK FOR QUANTITY, QUALITY, VIGOUR, HEALTH, AND OTHER REQUIREMENTS. TREES SUPPLIED IN CONTAINERS 100L OR GREATER SHALL INDICATE THE NORTHERLY ASPECT DURING GROWING IN THE NURSERY AND ENSURE IT IS CLEARLY MARKED UNTIL IT IS PLACED IN THAT SAME ORIENTATION IN ITS FINAL POSITION IN THE PLANTING HOLE. PREPARE PLANTING AREAS AND INSTALL SOIL AS DETAILED. IF NOT OTHERWISE SHOWN ON DETAILED DRAWINGS, TYPICALLY EXCAVATE THE PLANTING HOLES A MINIMUM OF THREE TIMES THE DIAMETER OF THE CONTAINER ROOT BALL AND FOR 25L TO 75L CONTAINERS 100mm DEEPER THAN THE ROOT BALL UNLESS OTHERWISE DETAILED. BREAK UP AND LOOSEN COMPACTED SIDES OF THE HOLE TO PREVENT CONFINEMENT OF ROOT GROWTH. ALL TREES 100L AND LARGER SHALL HAVE THE OUTER 5-10mm OF ROOTS SHAVED OFF THE ROOTBALL PRIOR TO BACKFILLING.

THOROUGHLY WATER ALL PLANTS IMMEDIATELY AFTER UNLOADING ONSITE AT A RATE OF 50% OF THE ROOTBALL VOLUME EG. 100L FOR 200L TREES TO ENSURE THE ROOTBALL THOROUGHLY WETTED. CONTINUE DAILY WATERING AT THE RATE OF 25% OF ROOTBALL VOLUME UNTIL PLANTED. WHEN THE HOLE IS THE CORRECT SIZE AND NOT BEFORE, REMOVE THE PLANT FROM THE CONTAINER WITH MINIMUM DISTURBANCE TO THE ROOT BALL AND THEN PLACE IT IN ITS FINAL POSITION, AT THE CENTRE OF THE HOLE. ENSURE THAT TOPSOIL IS NOT PLACED OVER THE TOP OF THE ROOT BALL. THE PLANT STEM SHALL REMAIN THE SAME HEIGHT ABOVE GROUND LEVEL AS IT WAS IN THE CONTAINER. SOIL IS TO BE LIGHTLY TAMPED DURING BACKFILLING TO AVOID EXCESSIVE AIR POCKETS FORMING OR LATER SUBSIDENCE. THOROUGHLY WATER AT A RATE OF 50% OF ROOTBALL VOLUME IMMEDIATELY AFTER PLANTING. LIGHTLY RAKE REMAINING GARDEN AREAS TO AN EVEN GRADE SO THAT THE SOIL LEVEL WILL BE 50-75mm BELOW ADJACENT FINISHED LEVELS, TO ACCOMMODATE THE ADDITION OF MULCH AND FORM TEMPORARY WATERING BUNDS AROUND PLANTS, AS DETAILED.

PLACE SLOW RELEASE ORGANIC FERTILISER AROUND THE SOIL SURFACE OF THE PLANTS AT TIME OF PLANTING, PRIOR TO MULCHING AT THE RATE SPECIFIED.

SUSPEND ALL PLANTING DURING UNSATISFACTORY WEATHER CONDITIONS INCLUDING THE FOLLOWING:-

- DURING VERY HIGH WIND CONDITIONS (ESPECIALLY WHEN HOT / DRY);
- IN PERIODS OF EXTREME HEAT (IE. + 35ºC);
- WHEN SOIL IS EXTREMELY WET OR WATERLOGGED; AND
- DURING PERIODS OF EXPECTED FROST.

AFTER PLANTING, REMOVE ALL RUBBISH, PLANT TAGS AND NURSERY STAKES AND CONTAINERS FROM THE SITE.

TEMPORARY STAKING OF TREES

ALL TREES SUPPLIED ARE TO BE SELF SUPPORTING AS SPECIFIED. ALL NURSERY STAKES AND TIES ARE TO BE REMOVED PRIOR TO PLANTING. ONLY STAKE TREES IF IT IS DETAILED OR OTHERWISE SPECIFIED. IF PREVAILING ENVIRONMENTAL FACTORS SUCH AS VERY STRONG WINDS OR POTENTIAL DAMAGE OR VANDALISM DICTATE, THE PLANTS MAY BE STAKED AS PER METHODS DESCRIBED BELOW.

ONLY AT THE DIRECTION OF THE CONTRACT MANAGER, IF ANY PLANTS ARE FOUND TO NOT BE SELF SUPPORTING, AND ARE NOT REJECTED, THE PLANTS SHALL BE STAKED AT THE CONTRACTORS EXPENSE. TREES (100L AND OVER) SHALL BE STAKED WITH TWO 50 X 50 X 1800mm HARDWOOD STAKES SPACED ON EITHER SIDE OF THE TREE. ALL OTHER SMALL TREES (25L - 75L) SHALL BE STAKED USING TWO 38 X 38 X 1500mm HARDWOOD STAKES, OR EQUIVALENT.

TIE EACH PLANT TO THE STAKES IN A LOOSE FIGURE "8" USING A 50mm WIDE HESSIAN STRAP. ENSURE THE TIE IS SLACK TO FACILITATE MOVEMENT OF THE STEM. STAKES ARE NOT TO BE DRIVEN THROUGH THE ROOTBALL AND ARE TO BE LOCATED ON THE WINDWARD SIDE OF THE TREE, IF WINDS HAVE A PREVAILING DIRECTION.

ALL STAKES AND TIES SHALL BE REMOVED PRIOR TO FINAL COMPLETION. IF TREES ARE STILL NOT SELF SUPPORTING AT THIS TIME THEY SHALL BE REPLACED, AT THE CONTRACTORS EXPENSE, WITH SELF SUPPORTING SPECIMENS OF THE SAME SIZE AND SPECIES AS ORIGINALLY SPECIFIED.

TURF PLACEMENT

THE CONTRACTOR SHALL LAY TURF AS INDICATED ON DRAWINGS AND AS SPECIFIED IN THE SCHEDULE. ALL TURF WILL BE LAID AS SOON AS IT ARRIVES ON SITE. PREPARE TURF UNDERLAY, USING THE SPECIFIED SOIL MIX SPREAD AND COMPACTED TO AN EXTENT WHERE EXCESSIVE HEAL PRINTS ARE AVOIDED WHEN IT IS WALKED OVER. FINAL SHAPING AND SMOOTHING OF THE LAWN AREA WILL BE CONDUCTED USING AN APPROPRIATE TOPDRESSING "FLOAT", TO THE FINISHED LEVELS. CARE SHOULD BE TAKEN TO REMOVE ALL SURFACE IMPERFECTIONS AND LARGE SOIL LUMPS.

A HEADER COURSE OF SODS WILL BE LAID PARALLEL AND ADJACENT TO ALL EDGES TO THE TURF AREA. THE TURF SODS SHALL THEN BE PLACED HORIZONTALLY ACROSS THE SLOPE IN A 'STRETCHER' BOND PATTERN, WITH ALL JOINTS BUTTED FIRMLY TOGETHER AND NEATLY CUT IN. ANY DAMAGED OR SUB-STANDARD AREAS SHALL BE CUT OUT AND REPLACED. ANY REMAINING SMALL GAPS BETWEEN TURF SODS ARE TO BE FILLED IN WITH TURF UNDERLAY SOIL. ON STEEP SLOPES, OR DRAINAGE CHANNELS, PEG THE TURF AS NECESSARY TO PREVENT DOWN SLOPE MOVEMENT, AND REMOVE THE PEGS WHEN THE TURF IS ESTABLISHED.

HIGH POINTS OR IMPERFECTIONS MAY BE LIGHTLY TAMPED OUT UPON COMPLETION OF LAYING TO FORM AN EVEN SURFACE. ALL TURF IS TO FINISH FLUSH WITH ADJACENT SURFACES. ALL TURF SHALL BE WATERED THE SAME DAY IT IS LAID. TOPDRESSING OR ROLLING SHALL NOT BE UNDERTAKEN UNTIL LAWN IS ESTABLISHED.

BOARDS, PLANKS OR OTHER MEANS WILL BE EMPLOYED TO AVOID DAMAGE TO THE BASE COURSE SCREED AND NEWLY LAID TURF DURING THE LAYING PROCESS. PROTECTION WILL ALSO BE PROVIDED TEMPORARILY TO PREVENT DAMAGE LIKELY TO BE CAUSED BY PEDESTRIAN OR VEHICULAR MOVEMENT AND ONGOING BUILDING WORKS. THIS WILL NOT BE LEFT IN PLACE LONGER THAN IS NECESSARY TO PREVENT DAMAGE AND WILL BE REMOVED AT THE CONCLUSION OF EACH WORKING DAY.

ALLOW FOR REPLACING ALL AREAS WHERE THE TURF HAS FAILED TO PROVIDE A HEALTHY COVER WITHIN 30 DAYS FROM THE DATE OF LAYING. CONTRACTOR SHALL PROVIDE COMMENT AS TO WHY THE TURF MAY HAVE FAILED SO THAT RECTIFICATION MEASURES CAN BE TAKEN PRIOR TO RE-TURFING. TOPDRESSING, SHOULD IT BE DEEMED NECESSARY BY THE CONTRACT MANAGER, WILL NOT BE CONDUCTED WITHIN 6 WEEKS OF LAYING THE TURF. TOPDRESSING SHALL ONLY BE CONDUCTED TO REMOVE APPARENT SURFACE DEPRESSIONS AND WILL NOT CONSTITUTE AN ADDITION COST. TOPDRESSING SOIL SHALL BE THE SAME SOIL MIX AS THAT USED FOR THE TURF AREA BASE COURSE TO AVOID LAYERING OF THE SOIL PROFILE. TOPDRESSING WILL BE LIGHTLY APPLIED DRY AND LEVELLED AND WORKED INTO THE LAWN USING AN APPROPRIATE TOPDRESSING "FLOAT".

6. ESTABLISHMENT MAINTENANCE

EXTENT & TASKS

THE CONTRACTOR SHALL MONITOR AND MAINTAIN ALL PLANTING AND ASSOCIATED LANDSCAPING WORKS FOR THE DURATION OF THE MAINT