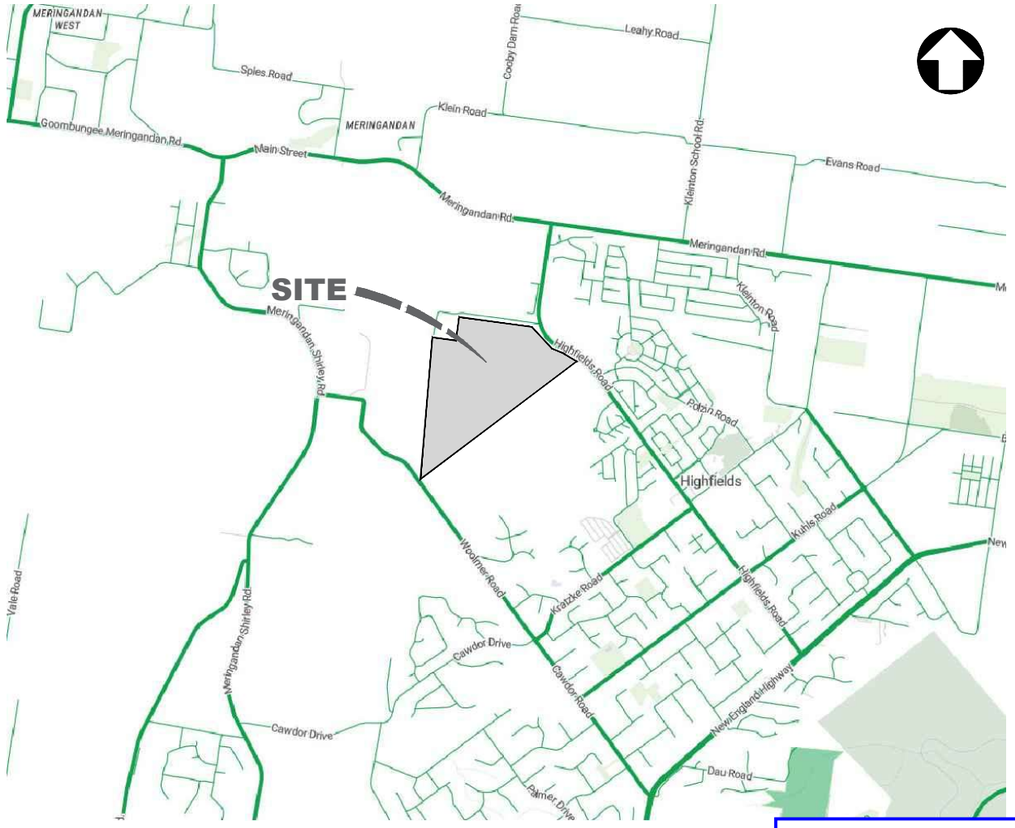
BIRD IN HAND 3 PTY LTD
BOTANIC HIGHFIELDS
STAGE 5

RECEIVED
12/02/2025
TOOWOOMBA
REGIONAL COUNCIL

BROWNE ROAD, HIGHFIELDS



LOCALITY PLAN
SCALE N.T.S.

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TOOWOOMBA REGIONAL COUNCIL
APPROVED PLAN
referred to in Council's Decision Notice dated
5 March 2025
This plan is subject to conditions of Approval Number
OW/2024/8232
Assessment Manager

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

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CLIENT			
BIRD IN HAND 3 PTY LTD			
PROJECT: BOTANIC HIGHFIELDS STAGE 5			
DRAWN: B ENRIGHT	CHECKED: D TAYLOR	ENGINEER: B LUSK	SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE: LOCALITY PLAN AND DRAWING INDEX

SHEET	SCALE	JOB No	SHEET No	
A1	AS SHOWN	GS562-05	001	B

GENERAL NOTES

1. ALL DIMENSIONS AND SETOUT ARE TO BE CHECKED ON-SITE BEFORE WORK COMMENCES.
2. CONSTRUCTION CONTRACTOR TO CONFIRM THE LEVELS AND POSITION OF ALL SURVEY MARKS PRIOR TO CONSTRUCTION.
3. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING FROM THE DRAWINGS.
4. DRAWINGS SHALL BE PLOTTED IN COLOUR SO ALL DESIGN ELEMENTS ARE SHOWN.
5. THE CONTRACTOR SHALL LIAISE WITH ALL RELEVANT UTILITY AUTHORITIES AND THEIR AGENTS TO LOCATE ALL EXISTING SERVICES, CO-ORDINATE PROTECTION OF AND/OR RELOCATION OF ANY EXISTING SERVICES WITHIN THE CONSTRUCTION AREA FOOTPRINT AS REQUIRED.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY SERVICES DAMAGED AS A RESULT OF THE WORKS.
7. OVERHEAD POWER MAY EXIST IN THIS AREA. ALL CONSTRUCTION WITHIN 3m OF OVERHEAD POWER LINES TO BE IN ACCORDANCE WITH SAFETY ADVICE FROM ERGON ENERGY.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL RELEVANT AUTHORITIES AND PAYING ALL FEES NECESSARY BEFORE COMMENCING WORK.
9. ALL NEW SURFACES TO MATCH NEATLY TO EXISTING SURFACES IN LEVEL AND FINISH. CONCRETE SHALL BE SAW CUT AND REINSTATED TO MATCHING FINISH.
10. CONSTRUCTION CONTRACTOR TO ARRANGE ALL NECESSARY PERMITS AND APPROVALS FOR THE CLEARING OF ANY TREES PROPOSED UNDER THIS DESIGN.
11. DURING CONSTRUCTION TRAFFIC BARRIERS, LIGHTS & SIGNS SHALL BE MAINTAINED TO ENSURE SAFE PASSAGE OF TRAFFIC AND PEDESTRIANS IN ACCORDANCE WITH THE REQUIREMENTS OF TOOWOOMBA REGIONAL COUNCIL AND THE DEPARTMENT OF TRANSPORT AND MAIN ROADS.
12. DURING CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF SEDIMENT & EROSION CONTROL DEVICES TO COMPLY WITH REQUIREMENTS OF TOOWOOMBA REGIONAL COUNCIL, DEPARTMENT OF TRANSPORT AND MAIN ROADS, AND IECA.
13. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH S.A.A CODES, BY-LAWS AND ORDINANCES OF THE TOOWOOMBA REGIONAL COUNCIL AND WORKPLACE HEALTH AND SAFETY REQUIREMENTS.
14. PRIOR TO CONSTRUCCTION, A REGISTERED SURVEYOR SHOULD STAKE R.P. BOUNDARIES, SETOUT AND CHECK CONSTRUCTION EXTENTS, LINES AND LEVELS OF ALL PROPOSED WORKS.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SURVEY MARK PEGS DURING THE COURSE OF THE CONTRACT.
16. ANY ROADS, FOOTPATHS AND PRIVATE PROPERTY DAMAGED DURING CONSTRUCTION SHALL BE REINSTATED TO THEIR ORIGINAL CONDITION TO THE SATISFACTION OF THE SUPERINTENDENT.
17. THE CONTRACTORS ATTENTION IS DRAWN TO THE REQUIREMENTS OF THE CURRENT WORKPLACE HEALTH AND SAFETY ACT. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THIS ACT AND IN PARTICULAR THE CONTRACTOR IS TO ENSURE THE REQUIREMENTS OF THIS SPECIFICATION WITH REGARD TO " NOTIFICATION IN RELATION TO A NOTIFIABLE PROJECT" ARE FULFILLED.
18. ANY CONFLICTING INFORMATION IN THE DRAWINGS AND SPECIFICATION MUST BE REFERRED TO THE SUPERINTENDENT FOR RESOLUTION PRIOR TO PROCEEDING.
19. ALL WORKS ARE TO BE GRADED TO PROVIDE ADEQUATE DRAINAGE DURING CONSTRUCTION.
20. ALL VEHICLES LEAVING THE WORK SITE TO COMPLY WITH ENVIRONMENTAL MANAGEMENT PLAN AND ENSURE NO MATERIAL IS DEPOSITED ON ROADWAYS.
21. ELECTRICAL ALIGNMENT SHOWN IS INDICATIVE ONLY FOR THE PURPOSES OF SETTING OUT OTHER CIVIL SERVICES AND IS BASED ON STANDARD OFFSETS. REFER PLANS BY ROBIN RUSSELL FOR DESIGN AND FURTHER DETAILS.

DESIGN NOTES

1. DESIGN IS BASED ON SURVEY DATA SUPPLIED BY PARKINSON SURVEYORS. THE DESIGNER TAKES NO RESPONSIBILITY FOR ERRORS OR OMISSIONS IN THE SURVEY DATA AND THE DESIGN DECISIONS MADE ON THE BASIS OF SURVEY INFORMATION.
2. ALL PROPRIETARY ITEMS SPECIFIED IN THIS DESIGN SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS GUIDELINES.
3. AHD DERIVED FROM TOPNET ALLDAY RTK STN 1, MGA 2020 (ZONE 56) VIDE GNSS, PLANE PROJECTION SCALED FROM STN 1.

ROADWORKS NOTES

1. PAVEMENT & SUBGRADE REPLACEMENT MATERIAL TO BE COMPACTED IN LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS.
2. SUBGRADE TO BE PROOF-ROLLED WITH FULLY LOADED WATER CART. THERE IS TO BE NO VISIBLE DEFORMATION UNDER THE LOAD.
3. PROVIDE COMPACTION TESTING IN ACCORDANCE WITH TRC PLANNING SCHEME POLICY SCHEDULE 6.
4. A HOLD POINT EXISTS FOR RELEASE BY THE SUPERVISING ENGINEER PRIOR TO PLACEMENT OF SUBSEQUENT PAVEMENT LAYERS.
5. BASE AND SUB-BASE MATERIALS TO BE TESTED AND APPROVED PRIOR TO DELIVERY TO SITE. TESTING IS TO BE IN ACCORDANCE WITH THE RELEVANT MRTS, SAA STANDARDS AND TRC PLANNING SCHEME POLICY SCHEDULE 6.
6. SAW CUT EXISTING SEAL TO FORM NEAT EDGE WITH NEW WORKS.
7. DEFECTS IN THE EXISTING PAVEMENT ARE TO BE REPAIRED BY EXCAVATION AND REPLACEMENT, AND SEALED.
8. ALL KERB TYPES SPECIFIED IN THE DRAWINGS TO BE IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING No. RS-080.
9. PAVEMENT MATERIAL TO EXTEND MIN 300 mm BEHIND BACK OF KERB, OR TO SUIT KERBER AT CONTRACTORS EXPENSE

PAVEMENT AND BITUMEN SEAL NOTES

1. ALL COMPACTION TO BE SUBJECTED TO TESTING IN ACCORDANCE WITH THE RELEVANT S.A.A CODE AND TRC PLANNING SCHEME POLICY SCHEDULE 6.
2. MINIMUM DEPTH OF PAVEMENT IS DETAILED ON TYPICAL SECTION. ACTUAL PAVEMENT DEPTHS ARE TO BE DETERMINED FOLLOWING SOAKED CBR TESTS ON SUBGRADE.
3. FOR PAVEMENT DESIGN, REFER TO SHEET 260.
4. BASE COURSE PAVEMENT GRAVELS ARE TO BE COMPACTED AT OPTIMUM MOISTURE CONTENT TO ACHIEVE 100% STANDARD COMPACTION.
5. SUB BASE COURSE PAVEMENT GRAVELS (IF SPECIFIED) ARE TO BE COMPACTED AT OPTIMUM MOISTURE CONTENT TO ACHIEVE 100% STANDARD COMPACTION.
6. SUBGRADE IS TO BE COMPACTED AT OPTIMUM MOISTURE CONTENT TO ACHIEVE 98% STANDARD FOR THE TOP 300mm AND 95% STANDARD BELOW THE TOP 300mm.
7. SEAL DESIGN BASED ON DESIGN ASSUMPTIONS AND THIS IS TO BE VERIFIED FULLY WITH THE DESIGNER BY THE SPRAY CONTRACTOR PRIOR TO APPLICATION.

EARTHWORKS AND FILL MANAGEMENT NOTES

1. ALL WORKS TO BE GENERALLY IN ACCORDANCE WITH AS 3798.
2. ALL WORK TO BE STRICTLY IN ACCORDANCE WITH THE STANDARD EARTHWORKS SPECIFICATION.
3. SURFACE LEVELS OVER THE SITE HAVE BEEN INTERPOLATED THROUGH COMPUTER MODELLING OF FIELD SURVEY DATA. THESE CALCULATED LEVELS MAY VARY FROM THE ACTUAL GROUND LEVEL.
4. ALL DRAINAGE, EROSION AND SEDIMENT CONTROLS TO BE INSTALLED AND FULLY OPERATIONAL BEFORE COMMENCING UP-SLOPE EARTHWORKS.
5. ALL EXISTING UNDERGROUND SERVICES TO BE LOCATED AND MARKED PRIOR TO COMMENCING EARTHWORKS.
6. CLEARING, STRIPPING AND GRUBBING SHOULD BE CARRIED OUT IN AREAS SUBJECT TO EARTHWORKS. ALSO, ALL SOILS CONTAINING ORGANIC MATTER SHOULD BE STRIPPED FROM THE CONSTRUCTION AREA. THIS MATERIAL IS NOT CONSIDERED SUITABLE FOR USE AS STRUCTURAL FILL.
7. ALL STRIPPED TOPSOIL IS TO BE STOCKPILED ON SITE AND REUSED DURING REVEGETATION WORKS.
8. AFTER CLEARING, GRUBBING AND STRIPPING THE EXPOSED SURFACE, ALL PAVED CONSTRUCTION AREAS SHOULD BE PROOF ROLLED TO DETECT ANY SOFT OR LOOSE MATERIAL. WEAK SOILS, PARTICULARLY LOOSE SURFACE, CLAYEY OR SANDS SHOULD BE COMPACTED TO THE APPROPRIATE REQUIREMENTS WHERE POSSIBLE. WEAK, OVERLY MOIST SOILS PARTICULARLY CLAY SOILS, SHOULD BE PREFERABLY REMOVED. PROOF ROLLING OF CUT AREAS SHOULD BE DEFERRED UNTIL AFTER FULL EXCAVATION IS COMPLETED.
9. MATERIAL EXCAVATED FROM CUT AREAS SHALL NOT BE USED AS FILL WITHOUT THE SUPERINTENDENTS APPROVAL.
10. THE INSITU SOILS, WHERE FREE OF ORGANIC AND DELETERIOUS MATERIAL, MAY BE USED FOR STRUCTURAL FILL PROVIDED THE MOISTURE CONTENT OF THE SOILS ON PLACEMENT APPROXIMATES THE OPTIMUM MOISTURE CONTENT REQUIRED FOR COMPACTION.
11. FILL TO BE PLACED IN MAXIMUM 200mm LIFTS, UNLESS APPROVED OTHERWISE BY A SUITABLY QUALIFIED CONSULTANT, AND COMPACTED TO SPECIFICATION.
12. PLACEMENT OF FILL SHALL CONFORM TO THE FOLLOWING MINIMUM DRY DENSITY RATIO (M.D.D.R.) COMPACTION STANDARDS:
    - A) RESIDENTIAL ALLOTMENTS = 95% STD
    - B) ROAD VERGES/EMBANKMENTS = 95% STD
    - C) PAVEMENT SUBGRADE = 100% STD
13. ANY IMPORTED FILL, IF NEEDED TO MAKE UP EARTHWORK DEFICIENCIES, SHOULD HAVE A SOAKED CBR OF NOT LESS THAN 15% AND A MAXIMUM AGGREGATE SIZE OF NO GREATER THAN 75 mm, MAX LIQUID LIMIT = 40, MAX P.I = 15, MAX P.I X % PASSING 4.25 um = 450. TEST RESULTS SHALL BE PROVIDED.
14. FIELD DENSITY TESTING SHOULD BE CARRIED OUT TO CHECK THE STANDARD OF COMPACTION ACHIEVED AND THE PLACEMENT MOISTURE CONTENT. THE FREQUENCY AND EXTENT OF TESTING SHOULD BE AS PER GUIDELINES IN AS 3798-2007 AND TRC PLANNING SCHEME POLICY SCHEDULE 6.
15. CONTROL TESTING OF EARTHWORKS TO BE IN ACCORDANCE WITH AS1289.5 & AS3798-2007, WITH LEVEL 1 GEOTECHNICAL CERTIFICATION FOR ALLOTMENT AND TEMPORARY DRAIN FILLING.
16. FILL DENSITY TESTING SHALL CONFORM TO THE FOLLOWING:
    - A) 1 TEST PER 500m^3 - GENERALLY
    - B) 1 TEST PER 100m^3 - WATERCOURSES
    - C) 1 TEST PER 2 LAYERS PER 40m - TRENCH FOR NON-COHESIVE MATERIALS, M.D.D.R. = 80%
13. ALL FILL MATERIAL PLACED ON THE SITE IS TO:
    - i) COMPRISE ONLY OF NATURAL EARTH AND ROCK AND IS TO BE FREE OF CONTAMINANTS, NOXIOUS, HAZARDOUS, DELETERIOUS AND ORGANIC MATERIALS. FILL MATERIAL IS TO BE FREE DRAINING. NO DEMOLITION MATERIAL IS TO BE USED. THE FILL SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 300 mm AND TO A MINIMUM 95% DRY DENSITY RATIO USING STANDARD COMPACTION IN ACCORDANCE WITH AS 1289.29. A MINIMUM OF 98% DRY DENSITY IS REQUIRED OF SUBGRADE LEVEL AND 100% DRY DENSITY IS REQUIRED FOR PAVEMENTS.
    - ii) BE PLACED IN ACCORDANCE WITH AS 3798 - GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL PROPERTIES.
14. STRIP TURF OPEN DRAIN INVERTS AND BATTERS AT 3m INTERVALS. APPLY GRASS SEEDING TO ALL REMAINING DISTURBED AREAS.
15. ALL AREAS SUBJECT TO EARTHWORKS ARE TO BE FREE DRAINING WITH A MINIMUM SLOPE OF 1:100 (1%).
16. ALL TEMPORARY STOCKPILES (IF APPLICABLE) TO HAVE 1:6 MAXIMUM SIDE BATTERS (GRASS SEEDED).
17. WHERE TOPSOIL STOCKPILES ARE LOCATED ADJACENT TO FILL AREAS, CARE MUST BE TAKEN TO ENSURE STRUCTURAL FILL DOES NOT BECOME CONTAMINATED BY BLENDING WITH TOPSOIL.
18. EARTHWORKS BATTERS ARE TO BE TREATED AS FOLLOWS:
    - A) 1V:4H OR FLATTER TO BE GRASS SEEDED (UNLESS NOTED OTHERWISE)
    - B) STEEPER THAN 1V:4H OR HIGHER THAN 300mm TO BE MULCHED
19. WHERE THERE IS EVIDENCE OF REMOVAL OF TREES, THE STUMP HOLE SHALL BE EXCAVATED, FILLED AND COMPACTED AS PART OF THE LEVEL 1 CERTIFICATION.

CONCRETE NOTES

1. ALL CONCRETE TO BE IN ACCORDANCE WITH AS1379 AND AS3600 WITH COMPRESSIVE STRENGTHS AS SHOWN ON THE DRAWINGS.
2. CONCRETE CONSTRUCTION TO COMPLY WITH THE REQUIREMENTS OF AS3600.
3. REINFORCEMENT FABRIC TO AS1304, WITH COVER AS SPECIFIED ON THE DRAWINGS.
4. CONCRETE TO BE BROOM FINISHED AND HAVE A MAXIMUM AGGREGATE SIZE AS SPECIFIED ON THE DRAWINGS.

PIT AND CONCRETE NOTES

1. BASE OF PITS TO BE PREPARED WITH 150 MM OF 3.2 PAVEMENT MATERIAL, COMPACTED TO 95% OF MAXIMUM DRY DENSITY.
2. CONCRETE TO BE S40, 60 MM COVER AND TO COMPLY WITH MRTS70.
3. ALL REINFORCING STEEL AND PLACEMENT TO COMPLY WITH MRTS71.

STORMWATER DRAINAGE NOTES

1. PIPE MATERIAL TO BE UPVC DRAINAGE PIPE PLASCOR OR EQUIVALENT AND RCP CLASS "3" RUBBER RING JOINTED, UNLESS NOTED OTHERWISE.
2. UPVC PIPES ARE EITHER RUBBER RING JOINTED OR SOLVENT WELD JOINTED. STANDARD MANUFACTURER'S FITTING ARE TO BE USED IN BOTH CASES.
3. LIDS TO CAST-IN-SITU MANHOLES ARE CLASS 'D', CLOSE FITTING BOLT DOWN CAST IRON OR GALVANISED STEEL, CONCRETE INFILL TYPE (GATIC LIGHT DUTY, POLYCRETE BROADSTEL, OR SIMILAR) OF APPROXIMATELY THE SAME INTERNAL DIMENSIONS AS THE MANHOLE.
4. LIDS TO FRC AND RCP MANHOLES ARE IN ACCORDANCE WITH THE MANUFACTURE'S PROPRIETARY CONCRETE OR CONCRETE INFILL TYPE.
5. LIDS MATCH FINISHED SURFACE GROUND SLOPE AND ARE MARKED "STORMWATER" IMPRESSED INTO THE CONCRETE INFILL.
6. INFILL CONCRETE IS CLASS N25.
7. UPVC PIPE AND KERB ADAPTORS ARE USED WHERE DISCHARGE IS INTO THE KERB AND CHANNEL.
8. 150mm UPVC PIPE WHERE DISCHARGING DIRECTLY TO GULLY PIT. REFER TRC DRAWING 101450-001.
9. MATERIALS AND CONSTRUCTION ARE IN ACCORDANCE WITH THE LOCAL AUTHORITY STANDARD SPECIFICATION.

WATER RETICULATION NOTES

1. ALL WATER RETICULATION MAINS SHALL BE RIGID PVC-M PIPE, SOCKET AND SPIGOT, RUBBER RING JOINTED CLASS 12 OR GREATER TO COMPLY WITH A.S. 2977 AND BE COMPATIBLE WITH DICL PIPE FITTINGS TO AS 2280 - U.N.O.
2. ALL WATER RETICULATION MAINS TO BE LOCATED IN FOOTPATH ON A 1.2m ALIGNMENT FROM PROPERTY BOUNDARIES (UNLESS NOTED OTHERWISE).
3. CONCRETE (GRADE N20) THRUST BLOCKS TO WSAA STANDARDS SHALL BE PLACED AT ALL BENDS, TEES, REDUCERS, VALVES AND DEAD ENDS.
4. CONNECTION TO EXISTING WATER RETICULATION MAIN TO BE CARRIED OUT BY COUNCIL AT THE CONTRACTORS EXPENSE.
5. ALL DUCTILE IRON FITTING TO BE HEAVY CEMENT LINED & COMPLY WITH AS 2280.
6. WATER SERVICE ENVELOPING CONDUITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH TRC STANDARD DRAWING 101214-001 REV. A. A BRASS INDICATOR DISC SHALL BE SET IN THE KERB TO DENOTE CONDUIT LOCATION.
7. WATER SERVICES TO BE CONSTRUCTED IN ACCORDANCE WITH TOOWOOMBA REGIONAL COUNCIL WATER INFRASTRUCTURE POLICY 2.03.
8. WATER SERVICE ENVELOPING CONDUITS SHALL BE PLUGGED TO PREVENT THE ENTRY OF DIRT ETC.
9. THE CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF LEVELS & LOCATIONS OF SERVICES TO FULLY COMPLY WITH COUNCILS "AS CONSTRUCTED" INFORMATION REQUIREMENTS.
10. MARKER PLATES- ONLY KERB PAINTING WILL BE DONE PRIOR TO ON-MAINTENANCE INSPECTION. MARKER PLATE SHALL BE INSTALLED TOWARDS OFF-MAINTENANCE INSPECTION.
11. HYDRANT RRPM'S SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH WSAA STANDARDS.
12. ALL CAST IRON FITTINGS INCLUDING VALVES AND HYDRANTS SHALL HAVE THERMALLY APPLIED PROTECTIVE COATINGS IN ACCORDANCE WITH AS 4158.
13. REFER WSAA STANDARDS FOR ALL TRENCHING AND THRUST BLOCK DETAILS ETC.
14. ALL WATER MAINS UNDER ROADWAYS SHALL BE DUCTILE IRON CEMENT LINED (DICL)
15. MAXIMUM SPACING OF FIRE HYDRANTS SHALL BE 80 m BUT LOCATED WITHIN 40m OF EACH PROPERTY. HYDRANTS SHALL BE LOCATED < 200 mm FROM THE DIVIDING PROPERTY BOUNDARY.
16. COVER TO WATER MAINS SHALL BE IN ACCORDANCE WITH TOOWOOMBA REGIONAL COUNCIL'S WATER INFRASTRUCTURE POLICY 2.03.
17. SLUICE VALVES TO BE CLASS 14 AND COMPLY WITH AS 2638.
18. MINIMUM 1.0m HORIZONTAL SEPERATION TO STREET LIGHTING AND GREEN BOYS TO WATER MAINS AND WATER CROSSINGS AS PER TRC REQUIREMENTS.

SEWERAGE RETICULATION NOTES

PIPELINES

1. ALL SEWERS ARE TO BE 150 TO 300 mm DIA. UPVC CLASS 'SN8' - AS 1260 - RUBBER RING JOINTED IN MAXIMUM 3.0 m LENGTHS UNLESS NOTED OTHERWISE.
2. ALIGNMENT UNLESS OTHERWISE NOTED SHALL BE:
   - 2.1. 1.5 m INSIDE FRONT OR REAR BOUNDARY OF ALLOTMENTS
   - 2.2. 1.5 m FROM SIDE BOUNDARY OF ALLOTMENTS
   - 2.3. 1.5 m WHERE A RETAINING WALL GREATER THAN 0.8 m HIGH IS LOCATED ON THE REAR OR SIDE BOUNDARY.
3. BEDDING FOR PIPELINES TO BE GENERALLY TYPE 3 BEDDING UNLESS OTHERWISE NOTED AND PLACED IN ACCORDANCE WITH WSAA STANDARD DRAWING NO. SEW-1201.
4. MINIMUM COVER FOR SEWER PIPES SHALL BE 0.9 m FOR ALLOTMENTS, 0.9 m FOR PARKS AND 1.2 m FOR ROADWAYS AND PATHS.
5. ALL BACKFILL TO PIPES TO BE COMPACTED TO 98% OF THE MAXIMUM DRY DENSITY (STANDARD) WITH REPRESENTATIVE TESTING AS REQUESTED BY THE ENGINEER ON SITE.
6. CONTRACTOR TO SUPPLY ENGINEER WITH ACCURATE AS CONSTRUCTED PLANS ON COMPLETION OF WORKS.
7. MARKER TAPE REQUIRED FOR ALL NEW SEWER MAIN INSTALLATION.
8. WHERE ACID SULFATE SOILS ARE ENCOUNTERED, REMOVAL AND TREATMENT SHALL BE IN ACCORDANCE WITH AN APPROVED ACID SULFATE SOIL MANAGEMENT PLAN.
9. DROP STRUCTURES TO BE CONSTRUCTED AS A 'TYPE C INLET' IN ACCORDANCE WITH TRC STANDARD DRAWING NO 101211-001 REVISION C. REFER DWG GS323-411.

HOUSE CONNECTION BRANCHES

10. HOUSE CONNECTION BRANCHES TO BE 100mm DIA AND EXTEND TO 1.0 m INTO PROPERTY BEING SERVED.
11. ALL HOUSE CONNECTION BRANCHES TO BE CONSTRUCTED IN ACCORDANCE WITH TRC STANDARD DRAWING NO 101211-001 REVISION C.
12. HOUSE CONNECTION JUMP UPS/STUBS TO BE CAPPED AT 1 m ABOVE GROUND LEVEL AND FINISHED WITH A PUSH ON CAPPING PIECE, PAINTED YELLOW, IN ACCORDANCE WITH TRC STANDARD DRAWING NO. 101211-001 REV C.

WORK ON EXISTING SEWERS

13. ALL WORK ON EXISTING SEWERS TO BE PERFORMED BY TOOWOOMBA REGIONAL COUNCIL, UNLESS OTHERWISE DIRECTED AND ACTUAL COST INCLUDING LABOUR AND MATERIALS SHALL BE MET BY THE DEVELOPER.

MANHOLES

14. MANHOLES ON 150 mm Ø SEWER LINES SHALL BE PRE-CAST 1050 mm DIAMETER UNLESS NOTED OTHERWISE AND CONSTRUCTED IN ACCORDANCE WITH WSAA STANDARD DRAWING NO. SEW-1300.
15. MANHOLES ON 300 mm Ø SEWER LINES SHALL BE PRE-CAST 1200 mm DIAMETER, EPOXY COATED.
16. ALL MANHOLES TO HAVE LIDS AS SHOWN ON THE SEWER LONGITUDINAL SECTIONS.
17. FINAL SURFACE LEVELS OF MANHOLES NOMINATED ON LONG SECTIONS ARE TO DESIGN SURFACE LEVEL AND ARE TO BE ADJUSTED ON SITE TO SUIT ALL EARTHWORKS TYPICALLY 75 mm ABOVE SURROUNDING FINISHED SURFACE LEVELS.
18. INVERTS IN ALL MANHOLES TO BE BENCHED TO SUIT INLET AND OUTLET PIPES IN ACCORDANCE WITH WSAA.

LIST OF ABBREVIATIONS

WSAA	WATER SERVICES ASSOCIATION OF AUSTRALIA
TRC	TOOWOOMBA REGIONAL COUNCIL
DTMR	DEPARTMENT OF TRANSPORT AND MAIN ROADS
ID	INSIDE DIAMETER
OD	OUTSIDE DIAMETER
DICL	DUCTILE IRON CEMENT LINED
HDPE	HIGH DENSITY POLYETHYLENE
RCP	REINFORCED CONCRETE PIPE
PRV	PRESSURE REDUCING VALVE
DN	NOMINAL DIAMETER

TOOWOOMBA REGIONAL COUNCIL
APPROVED PLAN
referred to in Council's Decision Notice dated
5 March 2025
This plan is subject to conditions of Approval Number
OW/2024/8232
Assessment Manager

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
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RPEQ Certification

Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

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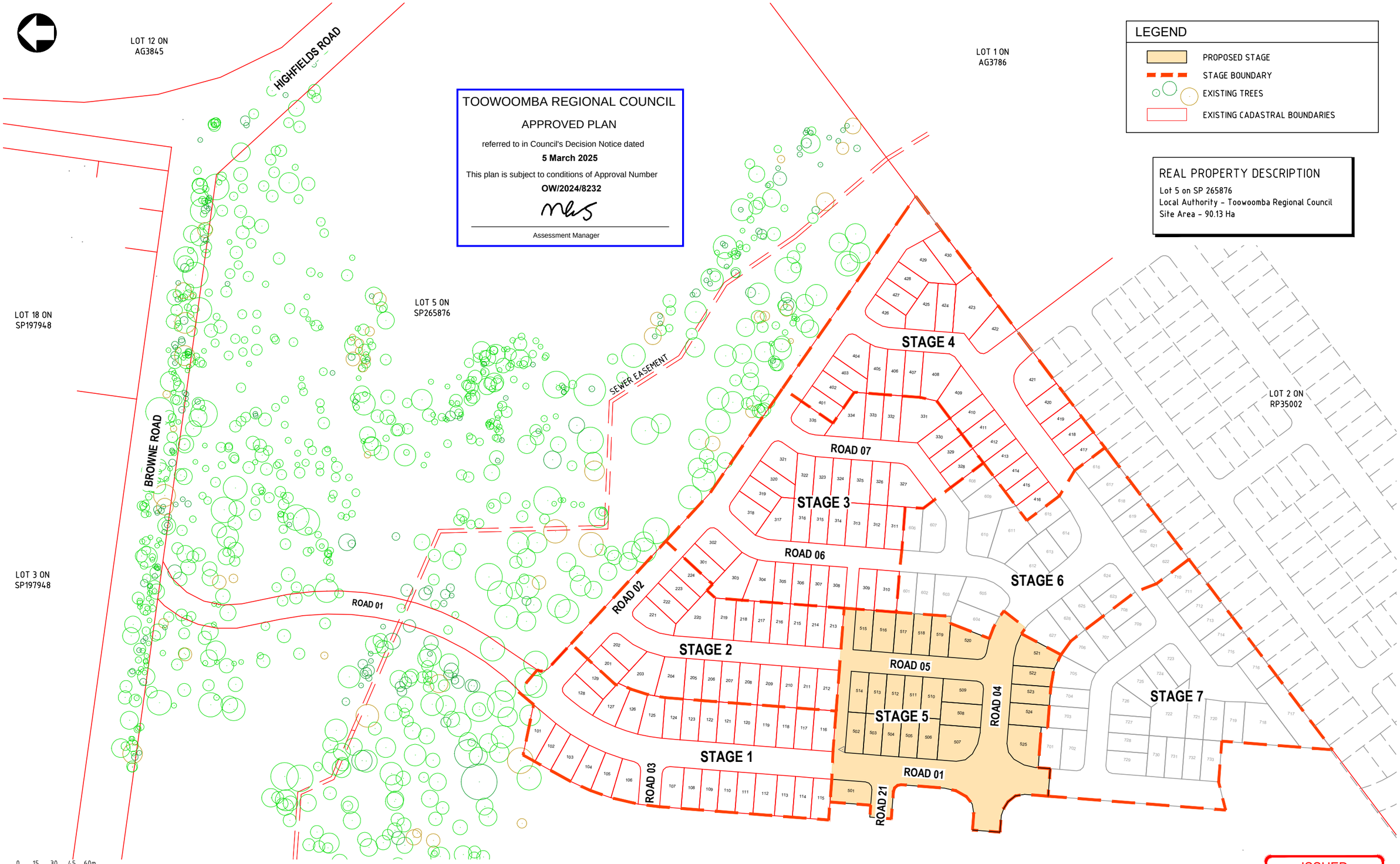
CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: CONSTRUCTION NOTES

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	002	B



TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

5 March 2025

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OW/2024/8232

Assessment Manager

LEGEND

- PROPOSED STAGE
- STAGE BOUNDARY
- EXISTING TREES
- EXISTING CADASTRAL BOUNDARIES

REAL PROPERTY DESCRIPTION

Lot 5 on SP 265876
Local Authority - Toowoomba Regional Council
Site Area - 90.13 Ha

0 15 30 45 60m

SCALE 1:1,500 (A1)
SCALE 1:3,000 (A3)

OVERALL LAYOUT AND STAGING PLAN

SCALE 1:1500

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

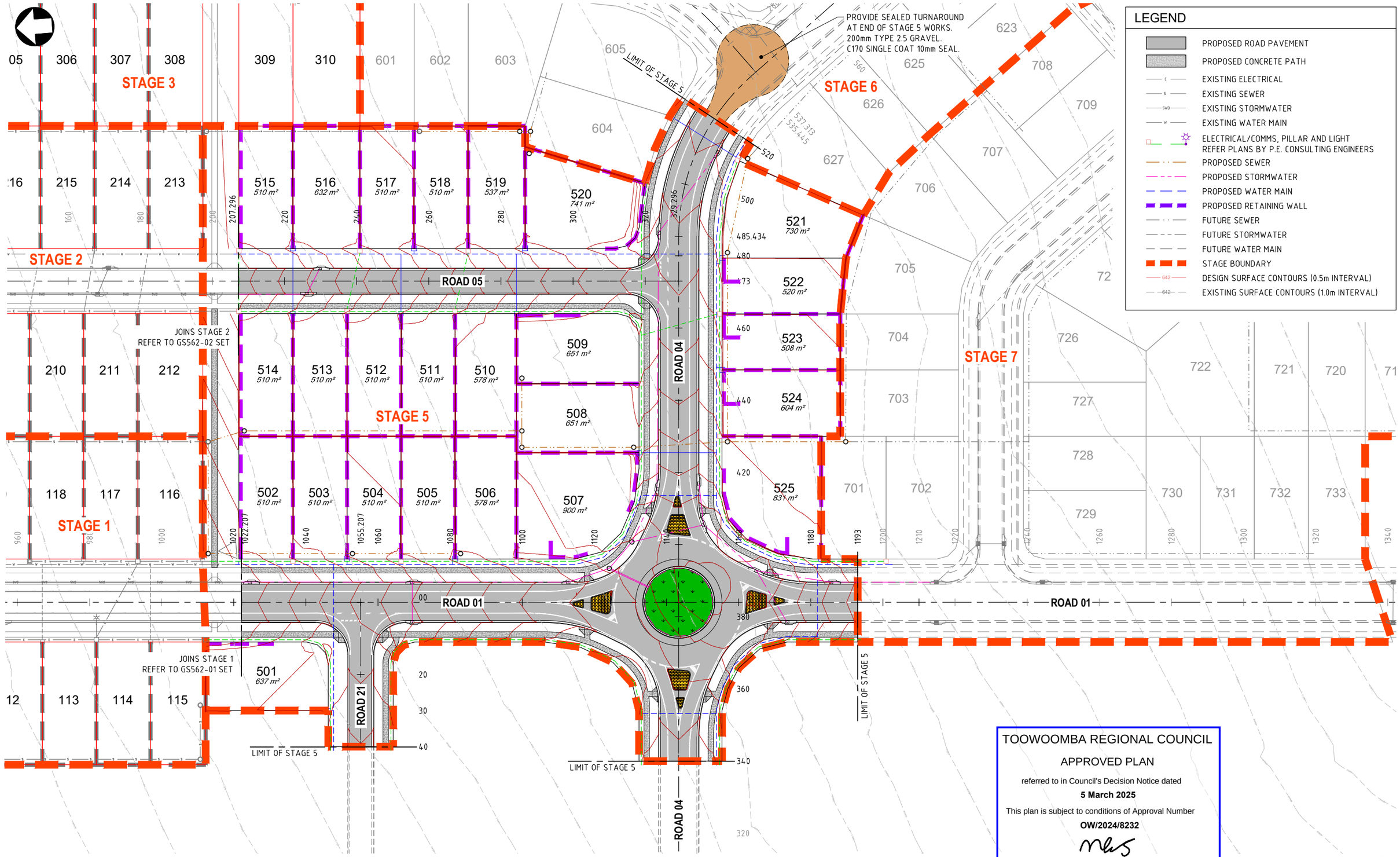
GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE: OVERALL LAYOUT AND STAGING PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	010	B



STAGE 5 DEVELOPMENT LAYOUT PLAN

SCALE 1:500

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

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Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

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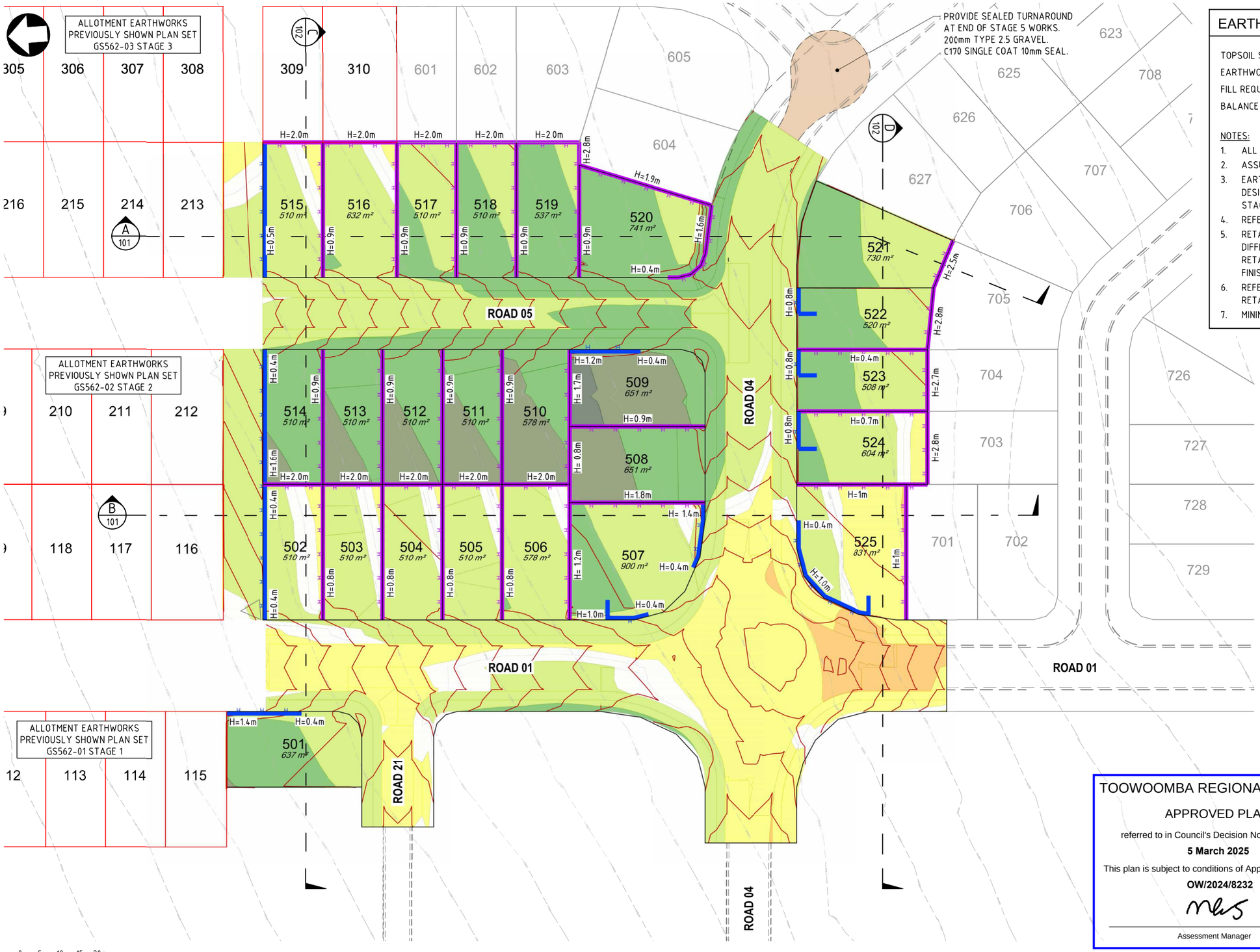
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: STAGE 5 DEVELOPMENT LAYOUT

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	020	B



EARTHWORKS QUANTITIES - STAGE 5

TOPSOIL STRIP	2,629m³ (100mm THICK)
EARTHWORKS CUT	1,930m³
FILL REQUIRED	22,675m³
BALANCE	20,745m³

NOTES:

1. ALL VOLUMES INDICATED ARE SOLID VOLUMES
2. ASSUMED TOPSOIL RE-SPREAD AT 100mm THICK
3. EARTHWORKS QUANTITIES BASED ON COMPARISON BETWEEN BOXING DESIGN SURFACE AND COMPLETED EARTHWORKS SURFACE FROM STAGE 1, REFER PLANS GS562-01.
4. REFER EARTHWORKS NOTES ON SHEET 101.
5. RETAINING WALL HEIGHTS NOMINATED IS THE APPROXIMATE DIFFERENCE BETWEEN EARTHWORKS LEVELS ONLY. THE FINISHED RETAINING WALL HEIGHT SHOULD SIT A MINIMUM 100mm PROUD OF THE FINISHED SURFACE LEVEL TO ALLOW FOR FUTURE CUT/FILL OF LOTS.
6. REFER TO LANDSCAPE PLANS BY SAUNDERS HAVILL FOR DETAILS ON RETAINING WALL FINISH.
7. MINIMUM 0.5% FALL REQUIRED DIAGONALLY ACROSS ALL BLOCKS.

LEGEND

- CUT DEPTH >3m
- CUT DEPTH 2m to 3m
- CUT DEPTH 1m to 2m
- CUT DEPTH 0.1m to 1m
- CUT/FILL 0.1m FROM NATURAL
- FILL DEPTH 0.1m to 1m
- FILL DEPTH 1m to 2m
- FILL DEPTH 2m to 3m
- FILL DEPTH >3m
- EXISTING RETAINING WALLS (POSTS DENOTE LOW SIDE)
- PROPOSED A GRADE SANDSTONE BLOCK RET. WALLS (POSTS DENOTE LOW SIDE)
- PROPOSED TEXTURED CONCRETE SLEEPER RET. WALLS (POSTS DENOTE LOW SIDE)
- DESIGN SURFACE CONTOURS (0.5m)
- EXISTING SURFACE CONTOURS (1m)
- BATTERS (SLOPES AS NOTED)

TOOWOOMBA REGIONAL COUNCIL

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Assessment Manager

0 5 10 15 20m

SCALE 1:500 (A1)
SCALE 1:1,000 (A3)

EARTHWORKS LAYOUT PLAN

SCALE 1:500

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Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

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TITLE: EARTHWORKS LAYOUT PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
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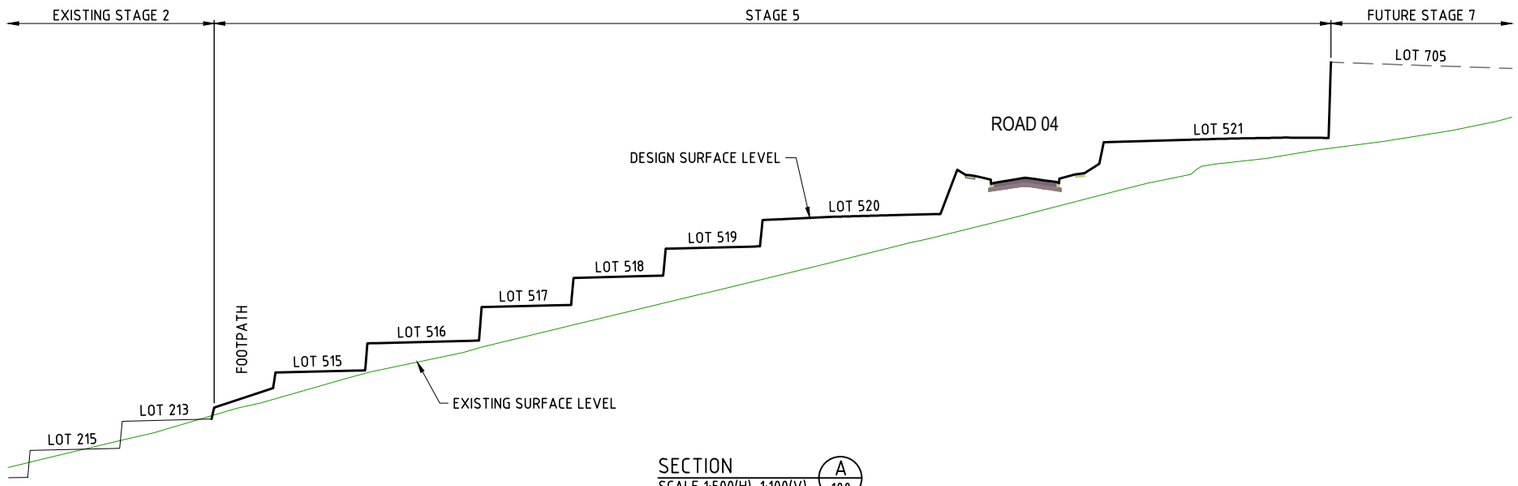
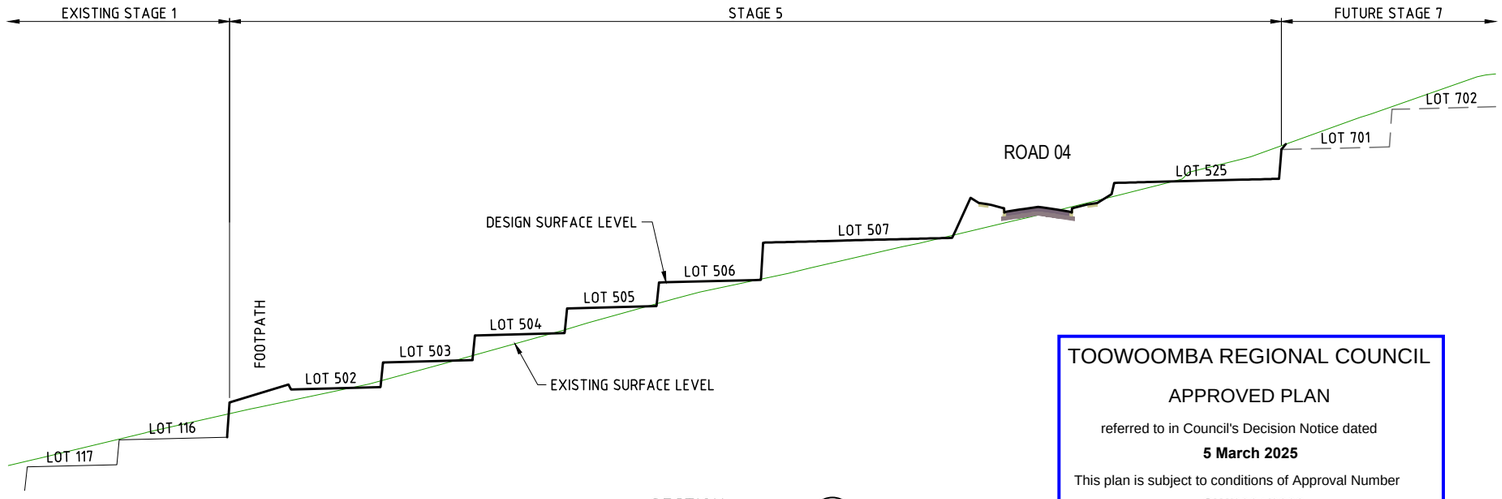


SECTION A / 100
SCALE 1:500(H), 1:100(V)



SECTION B / 100
SCALE 1:500(H), 1:100(V)

TOOWOOMBA REGIONAL COUNCIL

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0 5 10 15 20m
SCALE 1:500 (A1)
SCALE 1:1,000 (A3)

0 1 2 3 4m
SCALE 1:100 (A1)
SCALE 1:200 (A3)

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B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE: EARTHWORKS SECTIONS
SHEET 1 OF 2

SHEET	SCALE	JOB No	SHEET No	REVISION
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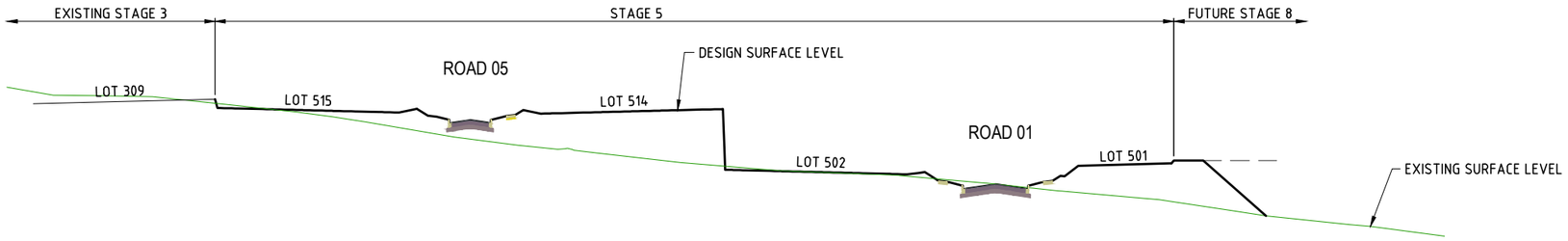
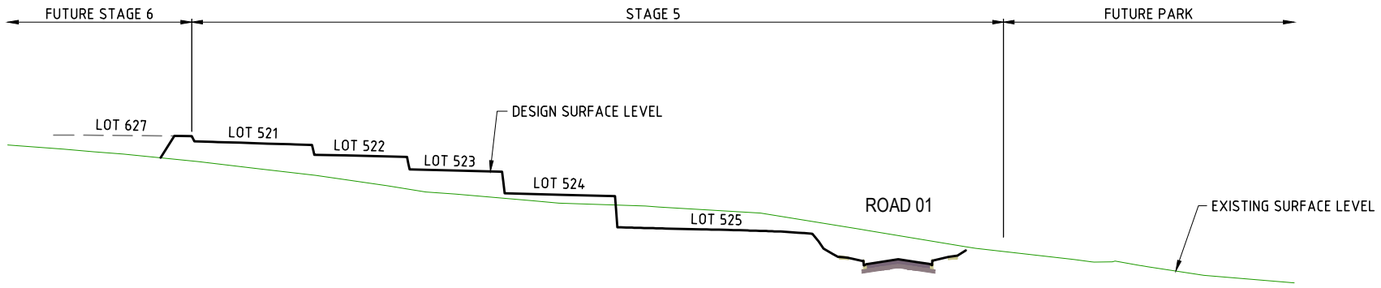


SECTION C/100
SCALE 1:500(H), 1:100(V)



SECTION D/100
SCALE 1:500(H), 1:100(V)

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0 5 10 15 20m
SCALE 1:500 (A1)
SCALE 1:1,000 (A3)

0 1 2 3 4m
SCALE 1:100 (A1)
SCALE 1:200 (A3)

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TITLE: EARTHWORKS SECTIONS
SHEET 2 OF 2

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	102	B

NOTES:
RETAINING WALL DESIGN AND CERTIFICATION IS PROVIDED BASED ON THE FOLLOWING PERFORMANCE CRITERIA:

- WALL DESIGN BASED ON USE OF PROPRIETARY CONCRETE SLEEPER RETAINING WALL SYSTEM OR SIMILAR
- PROTECTION OF ADJACENT SEWER SERVICES TO MEET THE REQUIREMENTS OF QDC MP1.4.
- PERPENDICULAR CROSSING OF SEWER WITH RETAINING WALL - FOOTINGS TO EXTEND BELOW THE INVERT OF THE SEWER. REFER DETAIL.
- PARALLEL RETAINING WALL ADJACENT TO SEWER - RETAINING WALL FOOTINGS TO EXTEND SO THAT ZONE OF INFLUENCE IS A MINIMUM OF 300mm BELOW THE INVERT OF THE SEWER. DESIGN IS BASED ON A SOIL FRICTION ANGLE OF 25°. REFER DETAIL.
- CONTRACTOR TO PROVIDE FORM 15 AND FORM 16 DURING CONSTRUCTION, CERTIFYING THAT THE RETAINING WALL MEETS THE NOMINATED PERFORMANCE CRITERIA.

TOOWOOMBA REGIONAL COUNCIL
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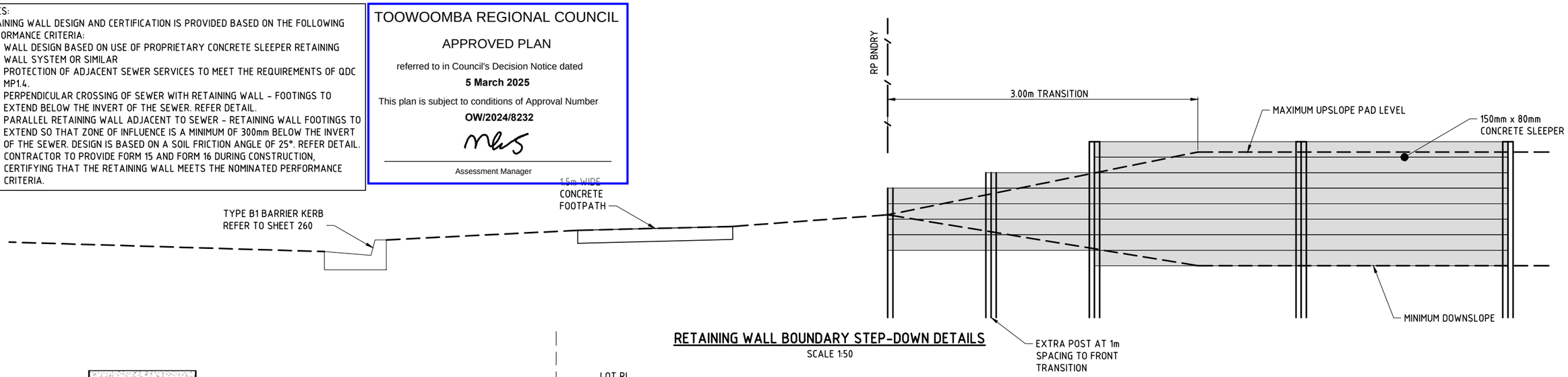
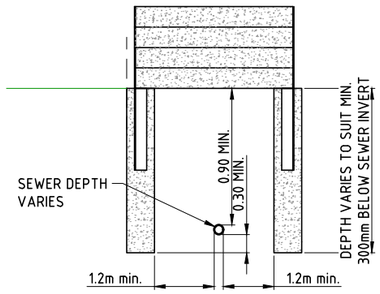
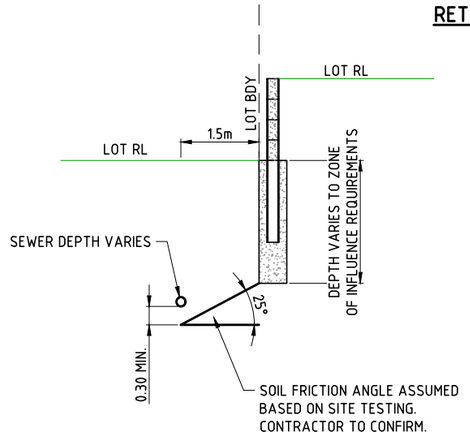


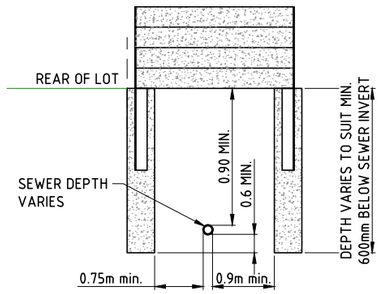
RETAINING WALL BOUNDARY STEP-DOWN DETAILS
SCALE 1:50



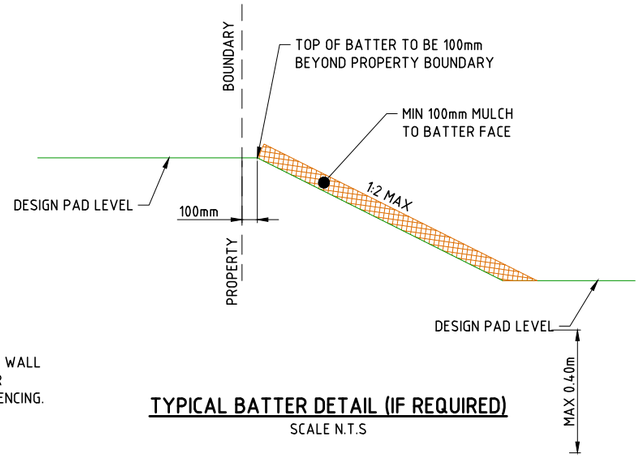
RETAINING WALL BRIDGE OF SEWER DETAIL TYPE 1
SCALE N.T.S



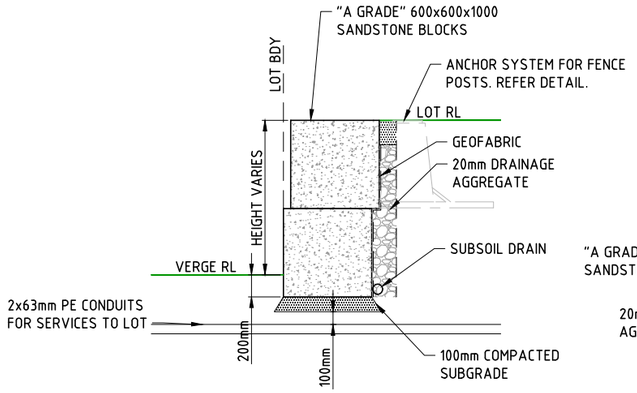
RETAINING WALL BRIDGE OF SEWER DETAIL TYPE 2
SCALE N.T.S



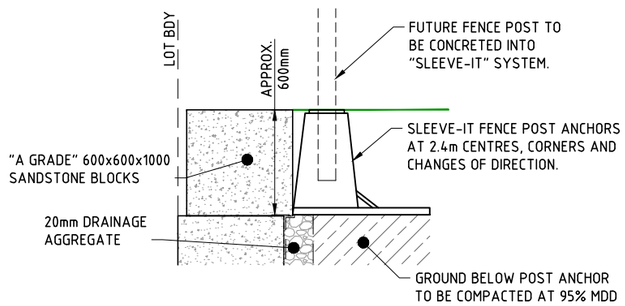
RETAINING WALL BRIDGE OF SEWER DETAIL TYPE 3
SCALE N.T.S



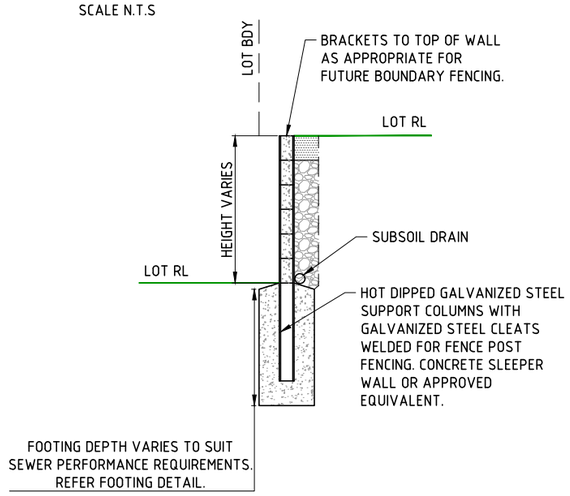
TYPICAL BATTER DETAIL (IF REQUIRED)
SCALE N.T.S



SANDSTONE BLOCK WALL AND SERVICE CONDUIT DETAIL
SCALE N.T.S



ANCHOR FOR FUTURE FENCE POSTS TO SANDSTONE BLOCK WALL DETAIL
SCALE N.T.S



INDICATIVE CONCRETE SLEEPER RETAINING WALL FOOTING DETAILS
SCALE N.T.S

REFER DRAWINGS FOR DURAWALL BY CASEDC FOR STRUCTURAL CERTIFICATION.

0 0.5 1.0 1.5 2.0m
SCALE 1:50 (A1)
SCALE 1:100 (A3)

0 0.1 0.2 0.3 0.4m
SCALE 1:10 (A1)
SCALE 1:20 (A3)

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RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

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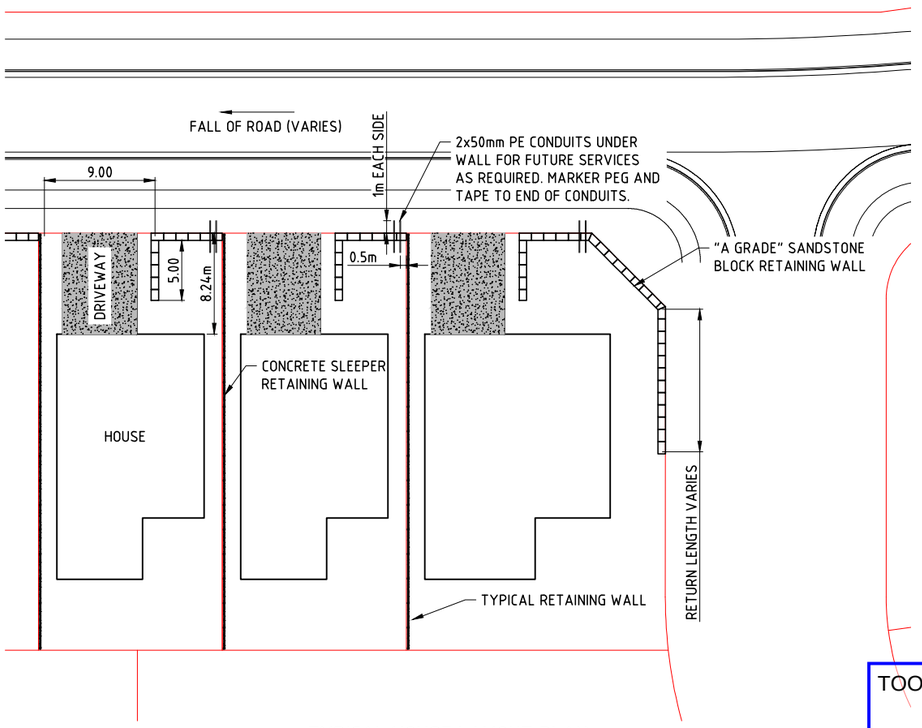
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

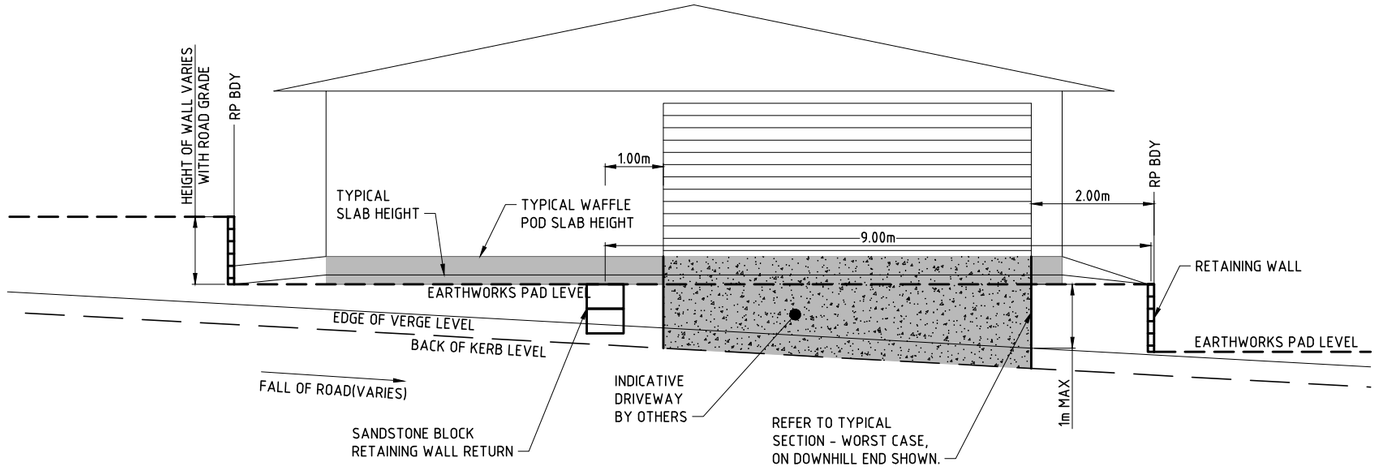
TITLE: EARTHWORKS TYPICAL RETAINING WALL AND BATTER DETAILS

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	110	B



TYPICAL HOUSE LAYOUT PLAN

SCALE 1:250



ELEVATION - TYPICAL EARTHWORKS AND DRIVEWAY ARRANGEMENT

SCALE 1:50

TOOWOOMBA REGIONAL COUNCIL

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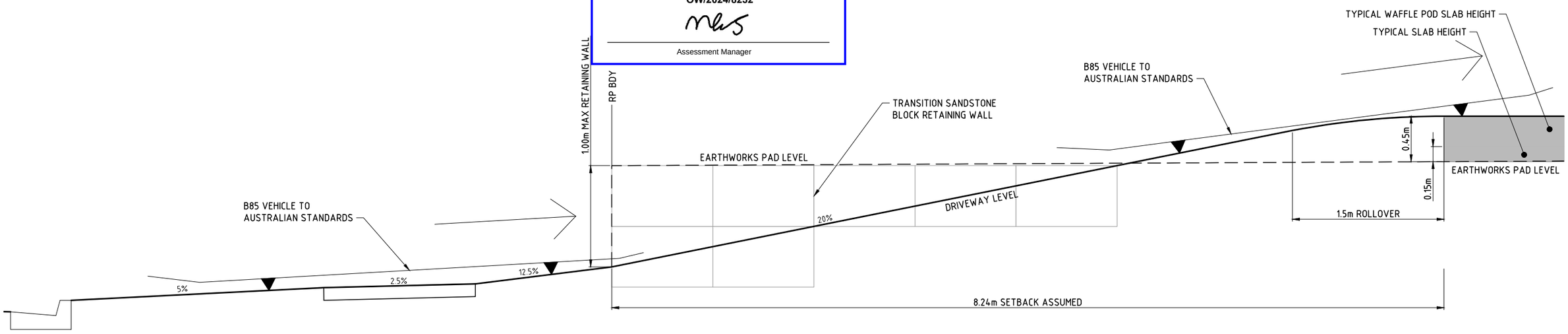

TYPICAL CROSS SECTION - WORST CASE

SCALE 1:20

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0 0.5 1.0 1.5 2.0m — SCALE 1:50 (A1) SCALE 1:100 (A3)

0 0.2 0.4 0.6 0.8m — SCALE 1:20 (A1) SCALE 1:40 (A3)

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RPEQ Certification			
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Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

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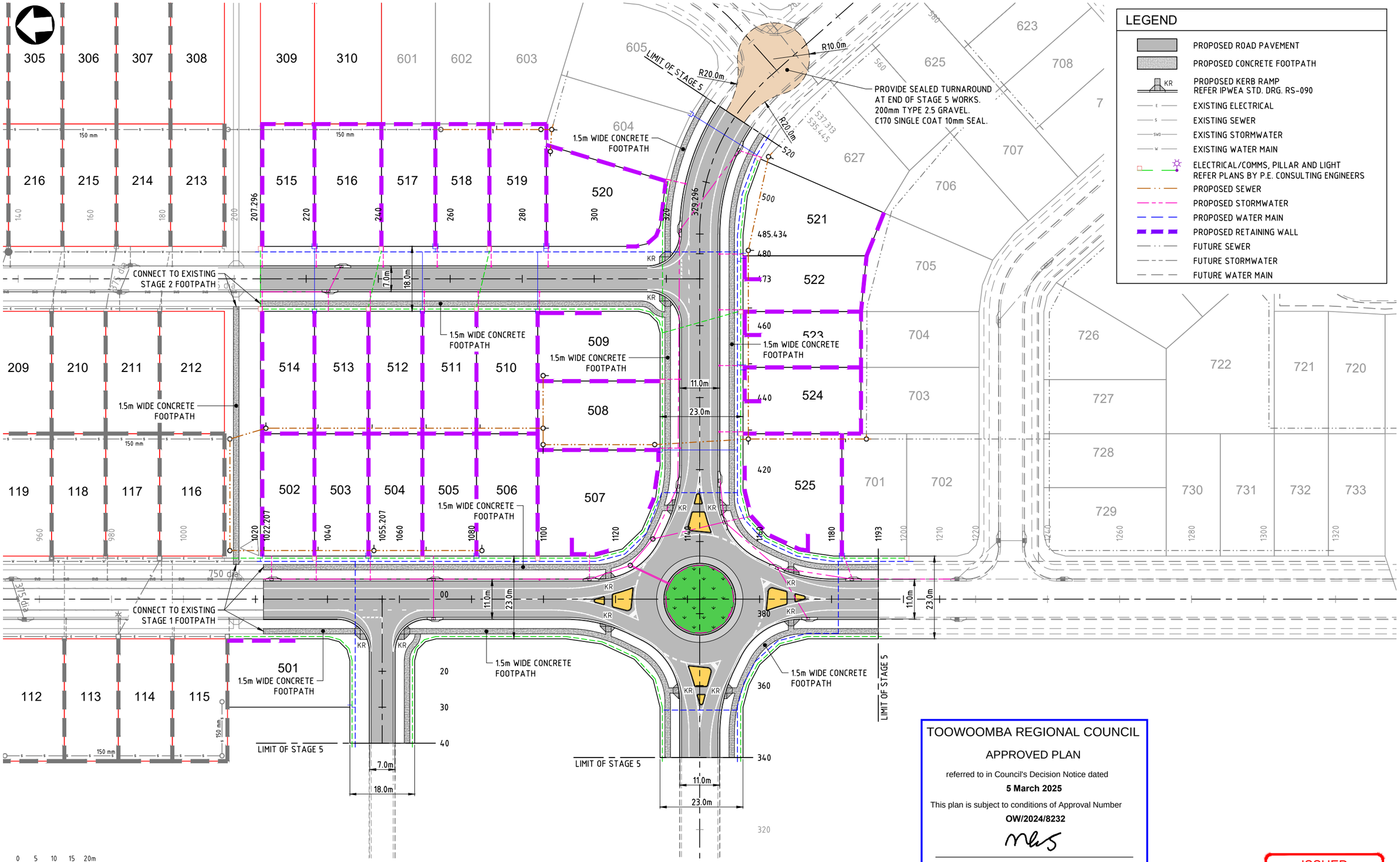
DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE: EARTHWORKS TYPICAL FRONT RETAINING WALL ARRANGEMENT AND DETAILS

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	111	B



ROADS AND FOOTPATHS LAYOUT PLAN

SCALE 1:500

0 5 10 15 20m
SCALE 1:500 (A1)
SCALE 1:1,000 (A3)

TOOWOOMBA REGIONAL COUNCIL
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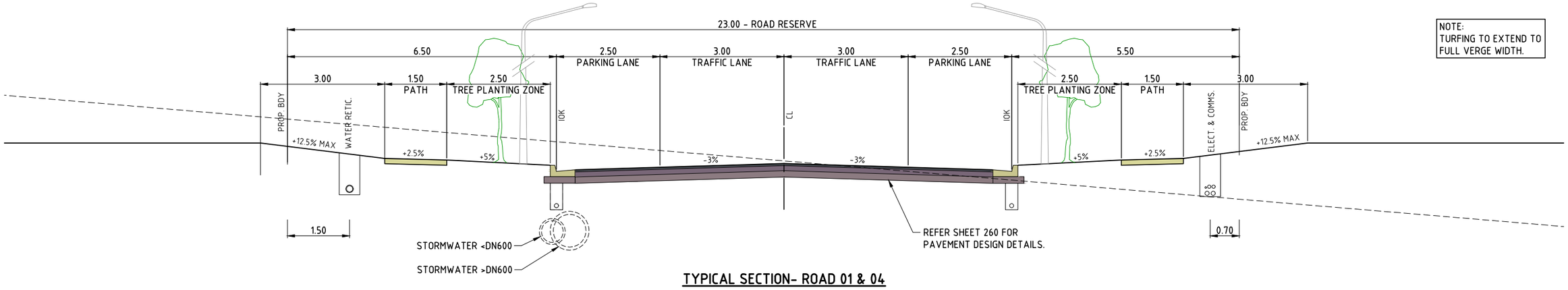
TITLE: ROADS AND FOOTPATHS DETAIL PLAN

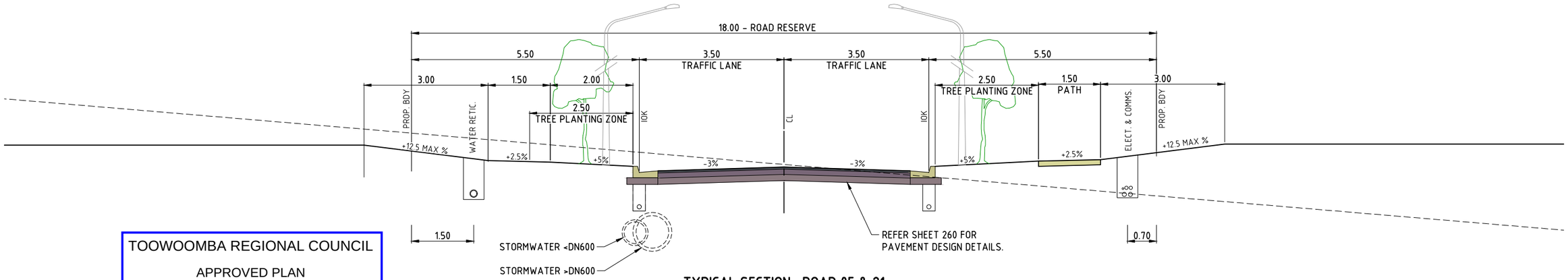
SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	200	B

NOTE:
TURFING TO EXTEND TO FULL VERGE WIDTH.



TYPICAL SECTION- ROAD 01 & 04

SCALE 1:50



TYPICAL SECTION- ROAD 05 & 21

SCALE 1:50

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

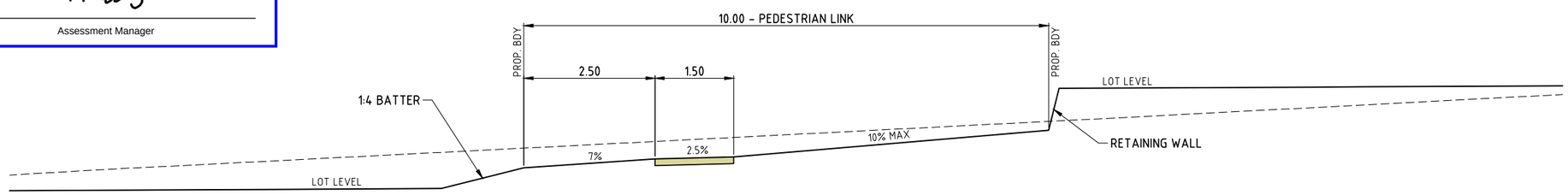
referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager



TYPICAL SECTION- PEDESTRIAN LINK

SCALE 1:50

0 0.5 1.0 1.5 2.0m

SCALE 1:50 (A1)
SCALE 1:100 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD

PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED B ENRIGHT			HORIZ. DATUM MGA 2020 (Z 56) VERT. DATUM AHD

TITLE: ROADS TYPICAL SECTIONS AND SERVICES ALLOCATIONS

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	210	B

ROADS & DRAINAGE

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

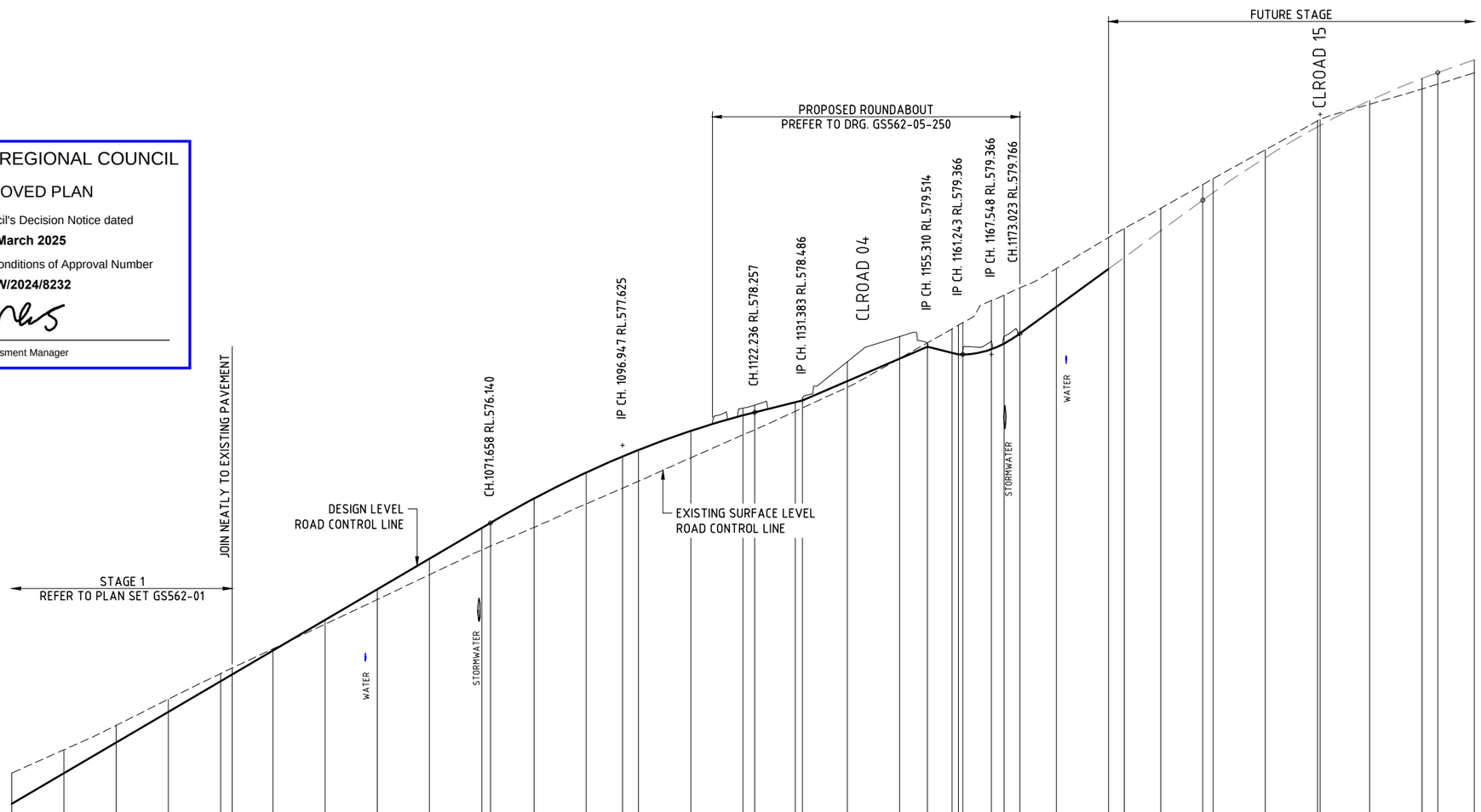
referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager



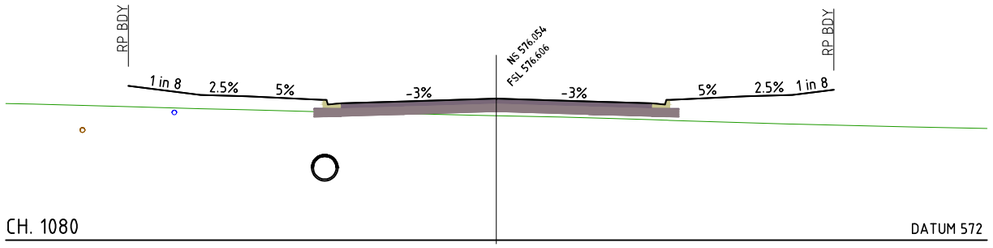
VERT. CURVE LENGTH

VERT. GEOMETRY

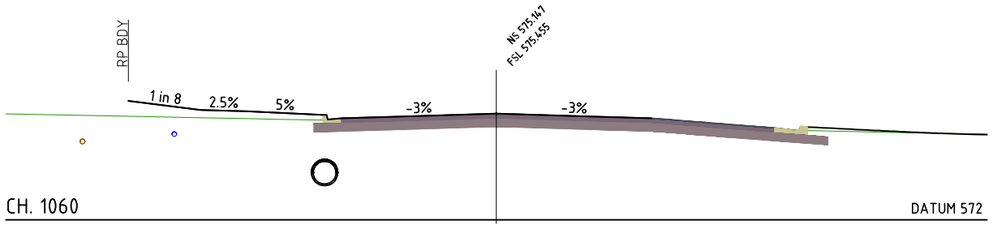
HORZ. GEOMETRY

DATUM RL 569

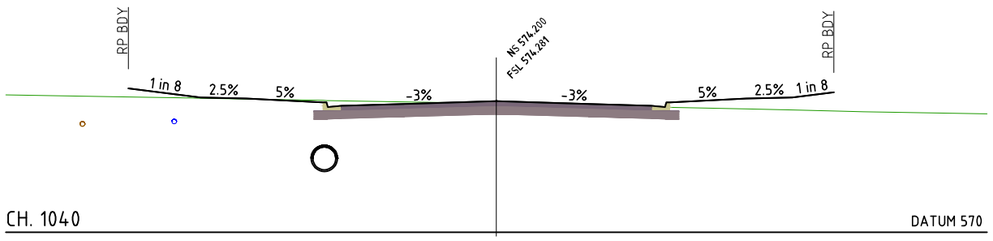
| | | |



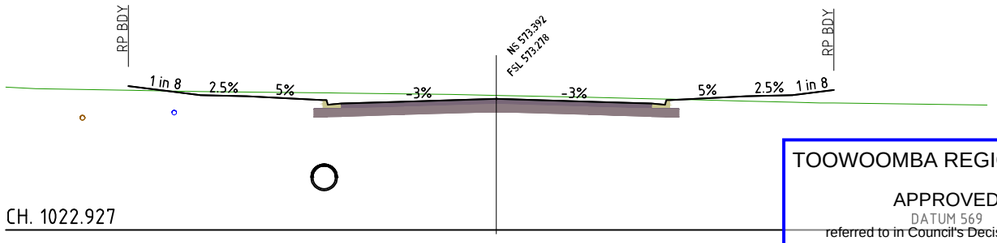
CH. 1080 DATUM 572



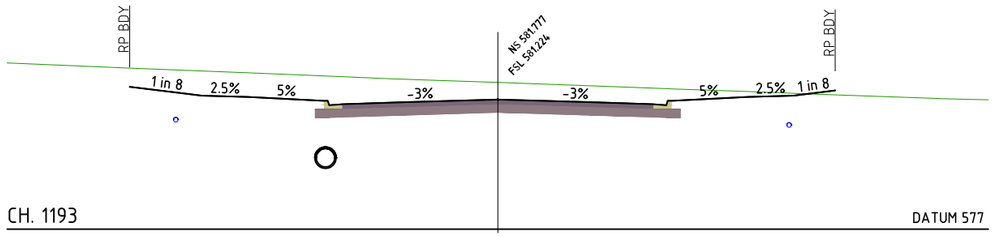
CH. 1060 DATUM 572



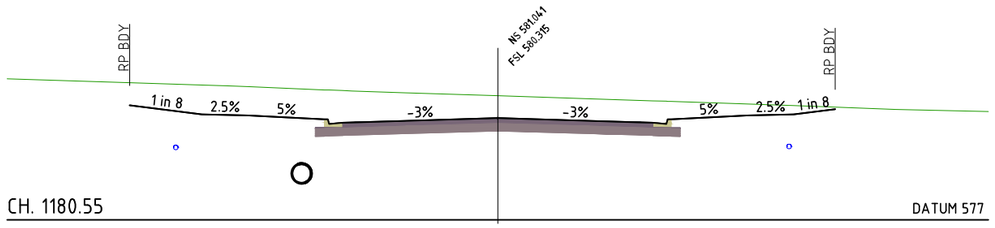
CH. 1040 DATUM 570



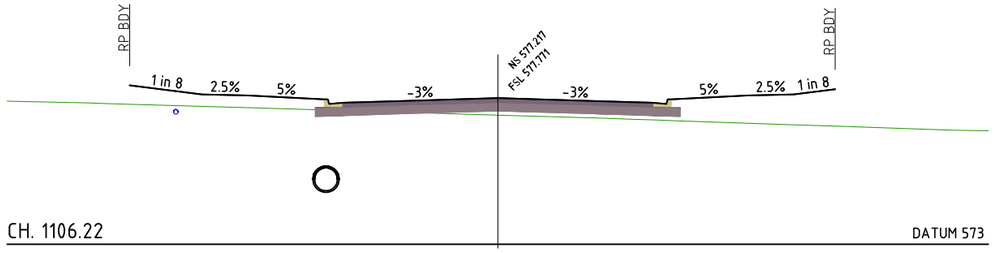
CH. 1022.927



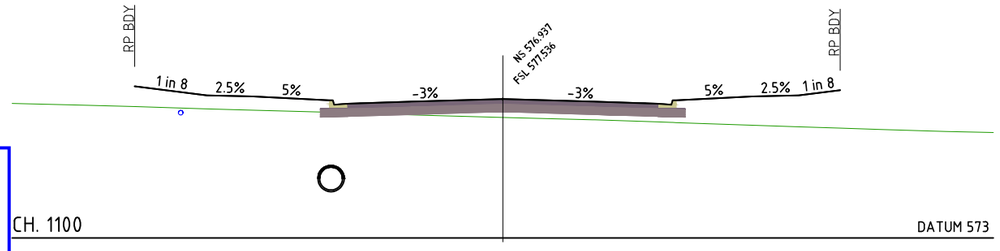
CH. 1193 DATUM 577



CH. 1180.55 DATUM 577



CH. 1106.22 DATUM 573



CH. 1100 DATUM 573

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

DATUM 569

referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

0 1 2 3 4m

SCALE 1:100 (A1)
SCALE 1:200 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE: ROAD 01 CROSS SECTIONS

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	221	B

ROADS & DRAINAGE

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

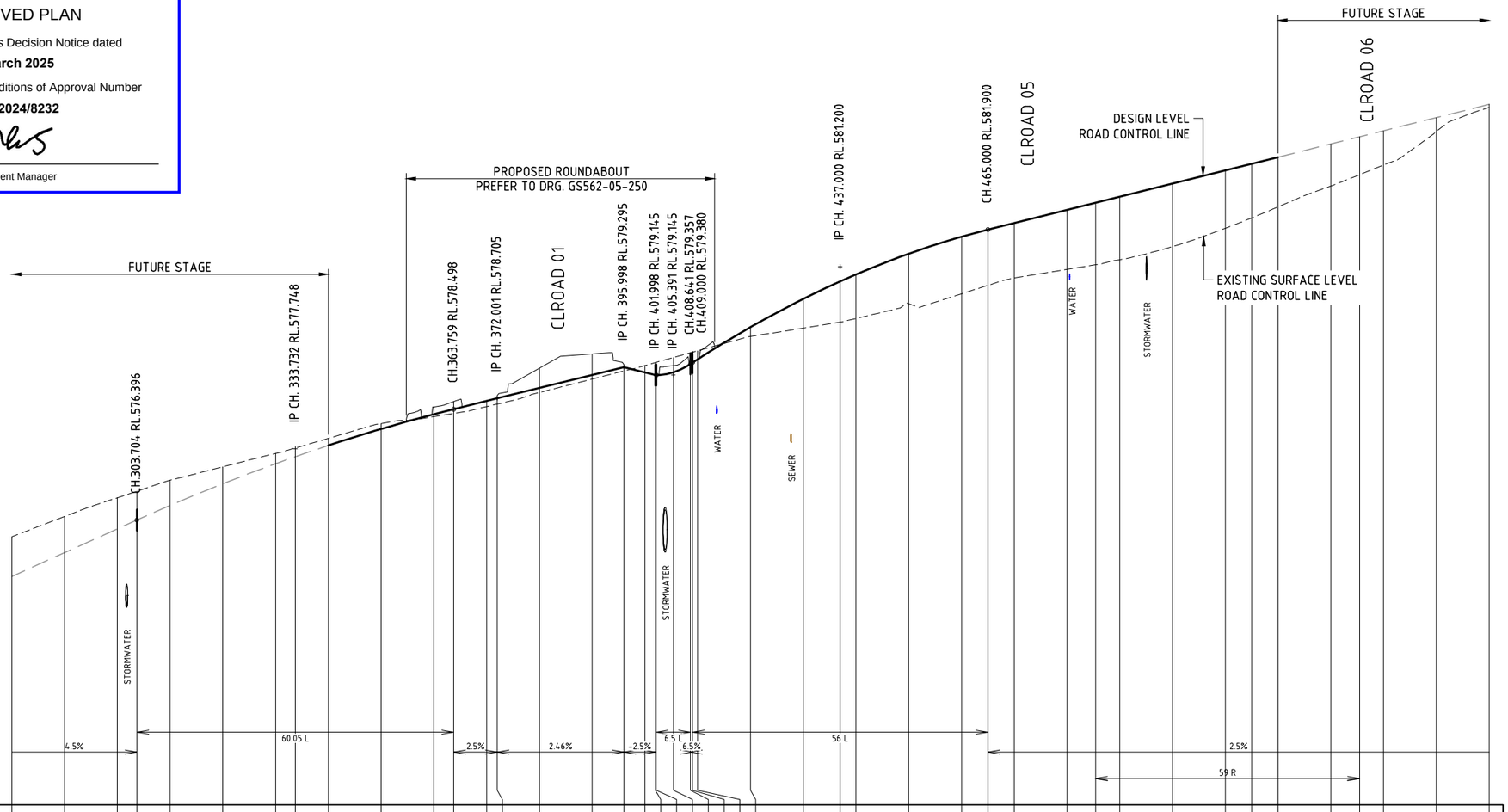
referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager



DATUM RL 571

CHAINAGE	DESIGN LEVEL ROAD CONTROL LINE	LIP OF KERB RIGHT	LIP OF KERB LEFT	EXISTING SURFACE LEVEL ROAD CONTROL LINE	CUT / FILL DEPTH
280	575.329			576.080	-0.751
290	575.779			576.464	-0.685
300	576.229			576.819	-0.590
303.704	576.396			576.943	-0.547
310	576.673			577.152	-0.479
320	577.085			577.407	-0.322
330	577.464			577.658	-0.194
333.732	577.597			577.762	-0.165
340	577.810	577.659	577.659	577.946	-0.136
350	578.123		577.971	578.226	-0.103
360	578.402			578.356	0.046
363.759	578.498			578.418	0.080
370	578.654			578.547	0.108
372.001	578.705			578.594	0.110
380	578.901			578.814	0.088
390	579.148			579.070	0.078
395.998	579.295			579.223	0.072
400	579.195			579.326	-0.131
401.998	579.145			579.382	-0.236
402.141	579.145			579.386	-0.240
405.391	579.198			579.476	-0.278
408.641	579.357			579.566	-0.210
409	579.380			579.576	-0.196
410	579.445			579.604	-0.159
420	580.052	579.900		579.876	0.176
430	580.587	580.436	580.436	580.035	0.553
437	580.920	580.768	580.768	580.146	0.774
440	581.052	580.900	580.900	580.217	0.835
450	581.445	581.293	581.293	580.497	0.948
460	581.766	581.615	581.615	580.685	1.081
465	581.900	581.748	581.748	580.845	1.055
470	582.025	581.873	581.873	580.983	1.042
480	582.275	582.123	582.123	581.147	1.128
485.434	582.411	582.259	582.259	581.235	1.176
490	582.525	582.373	582.373	581.330	1.195
500	582.775	582.623	582.623	581.580	1.195
510	583.025	582.873	582.873	581.926	1.099
515	583.150	582.998	582.998	582.122	1.028
520	583.275	583.123	583.123	582.332	0.943
530	583.525			582.728	0.797
535.445	583.661			582.942	0.719
540	583.775			583.127	0.648
550	584.025			583.763	0.262
560	584.275			584.219	0.056

ROAD 04 LONGITUDINAL SECTION

SCALE 1:500(H), 1:50(V)

0 5 10 15 20m
SCALE 1:500 (A1)
SCALE 1:1,000 (A3)

0 0.5 1.0 1.5 2.0m
SCALE 1:50 (A1)
SCALE 1:100 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: ROAD 04 LONGITUDINAL SECTION

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	222	B

ROADS & DRAINAGE

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

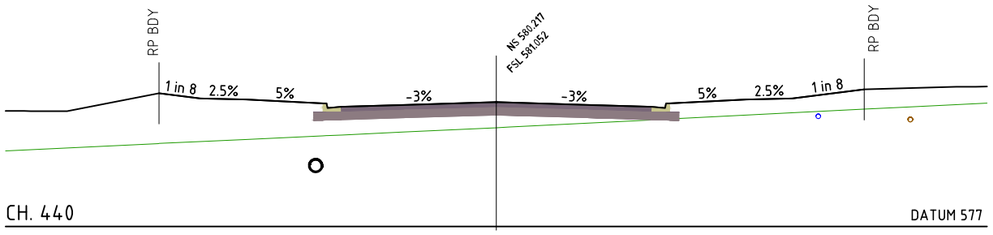
referred to in Council's Decision Notice dated

5 March 2025

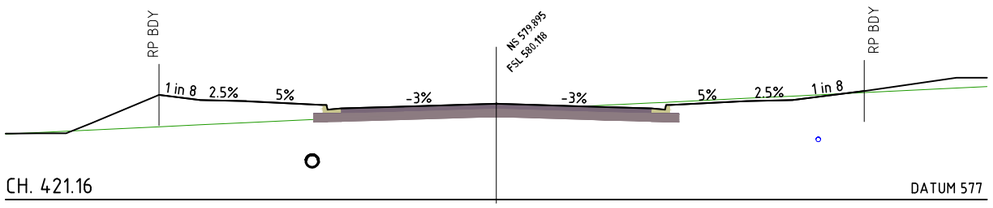
This plan is subject to conditions of Approval Number

OW/2024/8232

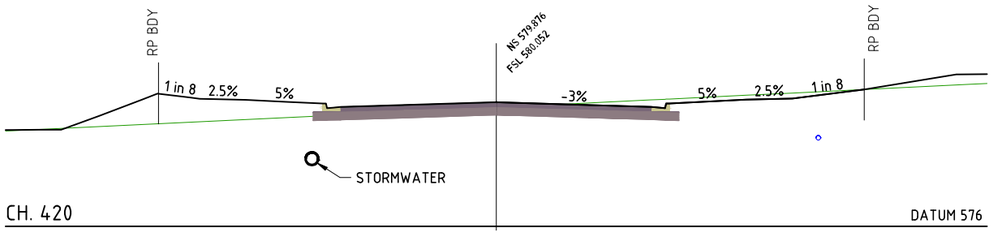
Assessment Manager



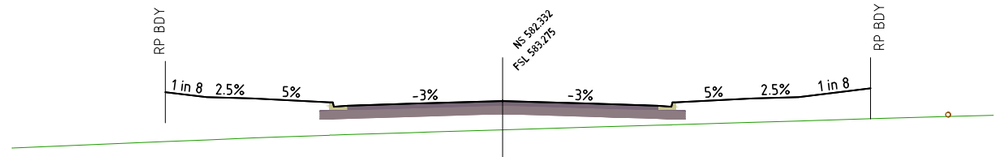
CH. 440 DATUM 577



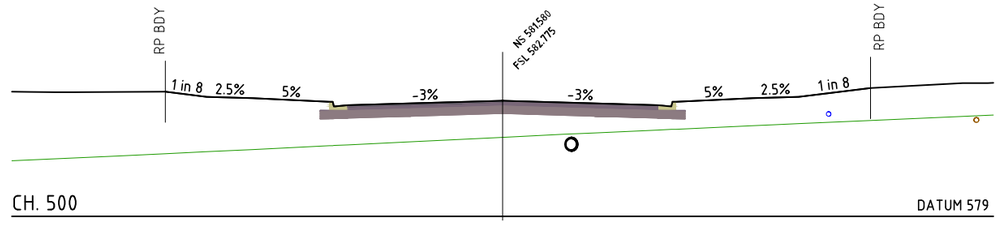
CH. 421.16 DATUM 577



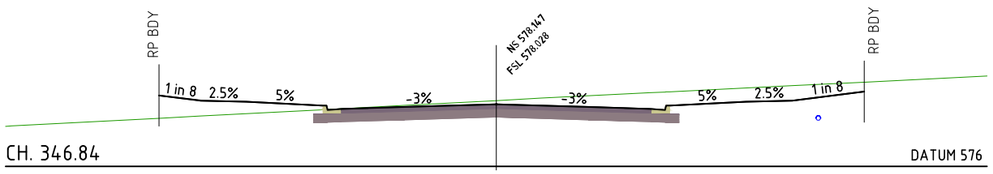
CH. 420 DATUM 576



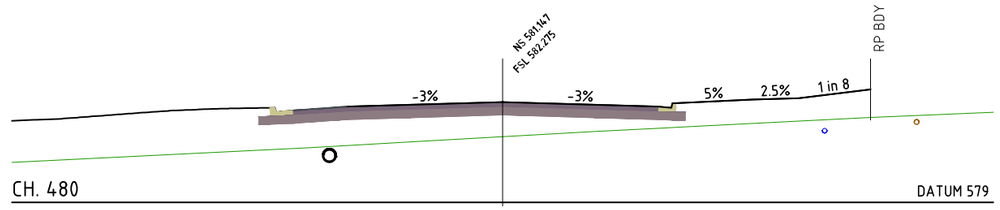
CH. 520 DATUM 580



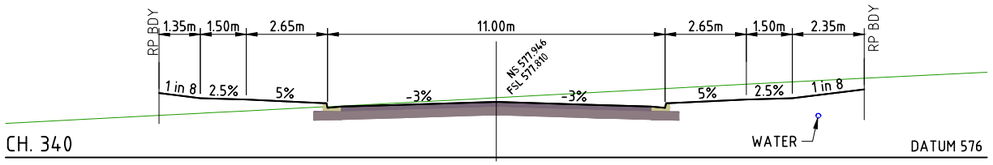
CH. 500 DATUM 579



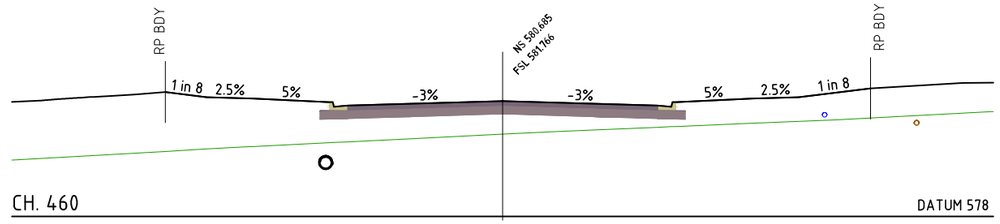
CH. 346.84 DATUM 576



CH. 480 DATUM 579



CH. 340 DATUM 576



CH. 460 DATUM 578

ROAD 04 CROSS SECTIONS

SCALE 1:100

0 1 2 3 4m

SCALE 1:100 (A1)
SCALE 1:200 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

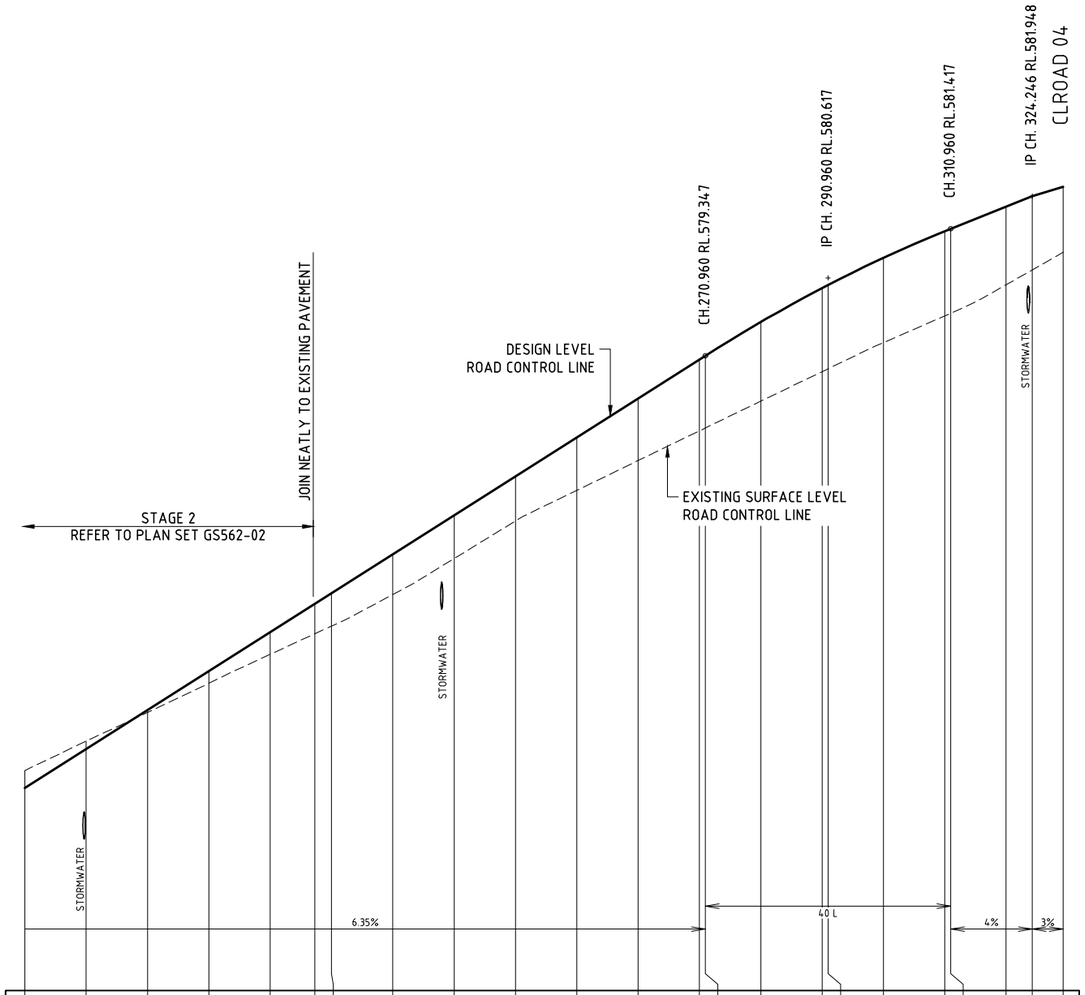
CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE: ROAD 04 CROSS SECTIONS

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	223	B

ROADS & DRAINAGE



VERT. CURVE LENGTH
VERT. GEOMETRY
HORZ. GEOMETRY
DATUM RL 569

CHAINAGE	DESIGN LEVEL ROAD CONTROL LINE	LIP OF KERB RIGHT	LIP OF KERB LEFT	EXISTING SURFACE LEVEL ROAD CONTROL LINE	CUT / FILL DEPTH
160	572.301			572.585	-0.284
170	572.936			573.066	-0.130
180	573.571			573.532	0.039
190	574.206			574.007	0.199
200	574.841			574.478	0.363
207.296	575.304	575.213	575.213	574.815	0.489
210	575.476	575.385	575.385	574.938	0.538
220	576.111	576.020	576.020	575.454	0.657
230	576.746	576.655	576.655	576.040	0.706
240	577.381	577.290	577.290	576.652	0.729
250	578.016	577.925	577.925	577.153	0.863
260	578.651	578.560	578.560	577.640	1.011
270	579.286	579.195	579.195	578.124	1.162
270.96	579.347	579.256	579.256	578.170	1.177
280	579.897	579.806	579.806	578.607	1.290
290	580.450	580.358	580.358	579.088	1.362
290.96	580.500	580.408	580.408	579.134	1.366
300	580.943	580.852	580.852	579.560	1.384
310	581.378	581.287	581.287	579.997	1.381
310.96	581.417	581.326	581.326	580.039	1.378
320	581.779			580.504	1.275
324.246	581.948			580.745	1.203
329.296	582.100			581.032	1.068

ROAD 05 LONGITUDINAL SECTION

SCALE 1:500(H), 1:50(V)

0 5 10 15 20m
SCALE 1:500 (A1)
SCALE 1:1,000 (A3)

0 0.5 1.0 1.5 2.0m
SCALE 1:50 (A1)
SCALE 1:100 (A3)

TOOWOOMBA REGIONAL COUNCIL
APPROVED PLAN
referred to in Council's Decision Notice dated
5 March 2025
This plan is subject to conditions of Approval Number
OW/2024/8232
Assessment Manager

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

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ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT
HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: ROAD 05 LONGITUDINAL SECTION

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	224	B

ROADS & DRAINAGE

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

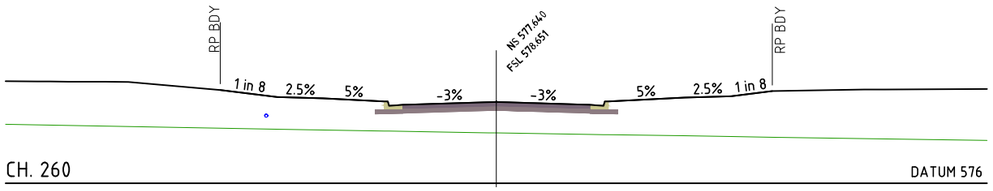
referred to in Council's Decision Notice dated

5 March 2025

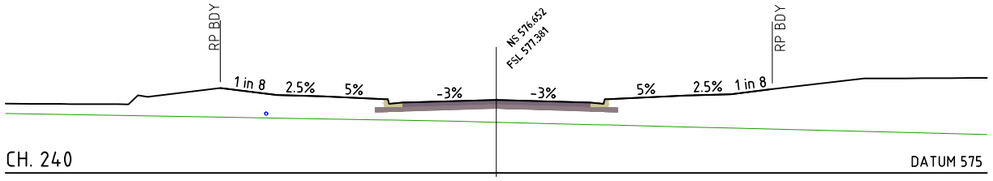
This plan is subject to conditions of Approval Number

OW/2024/8232

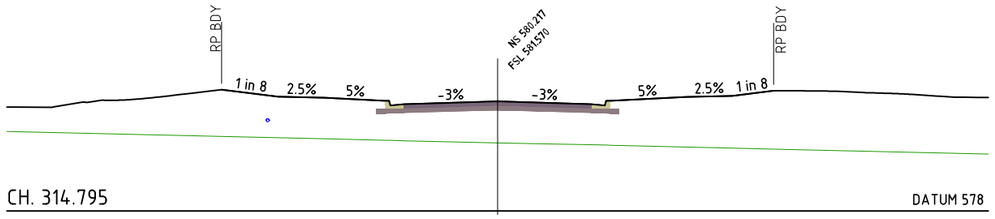
Assessment Manager



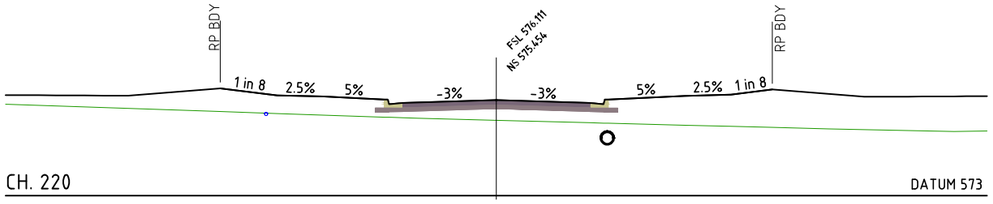
CH. 260 DATUM 576



CH. 240 DATUM 575



CH. 314.795 DATUM 578



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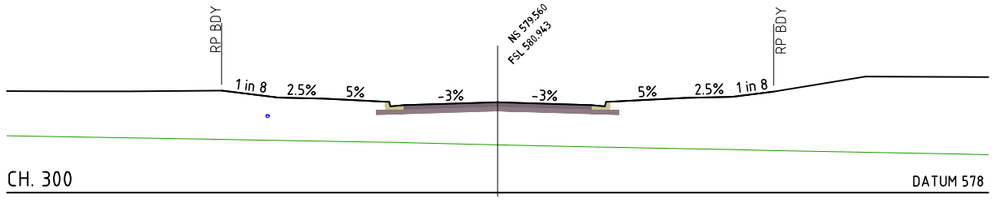
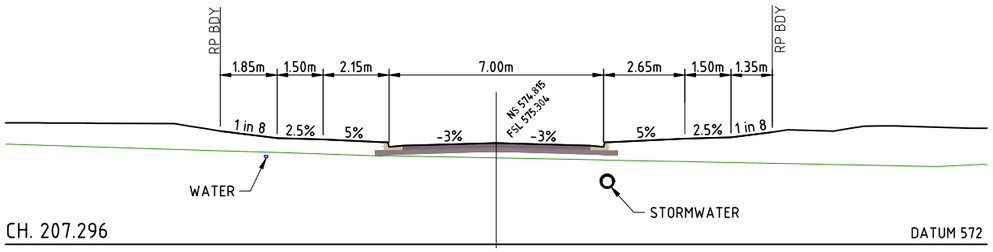
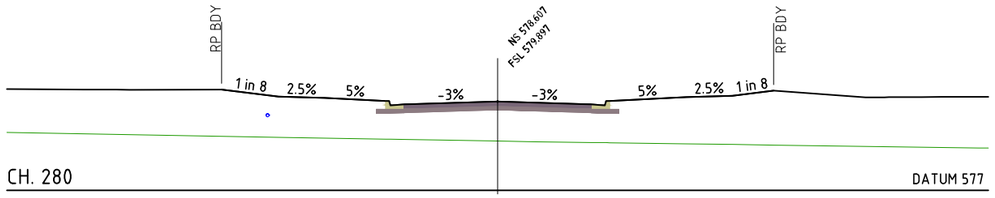


CH. 300 DATUM 578



CH. 207.296 DATUM 572



CH. 280 DATUM 577

ROAD 05 CROSS SECTIONS

SCALE 1:100

0 1 2 3 4m

SCALE 1:100 (A1)
SCALE 1:200 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED B ENRIGHT			HORIZ. DATUM MGA 2020 (Z 56) VERT. DATUM AHD

TITLE: ROAD 05 CROSS SECTIONS

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	225	B

ROADS & DRAINAGE

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

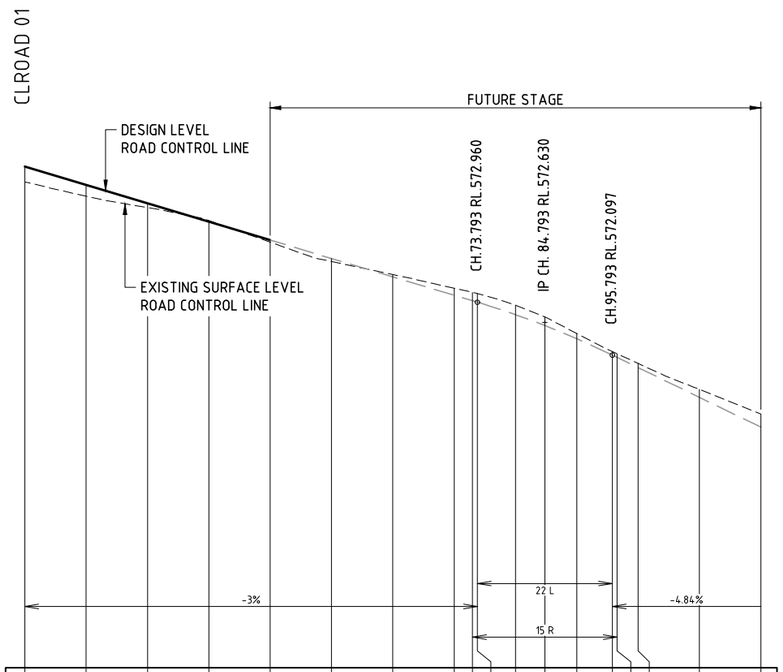
referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

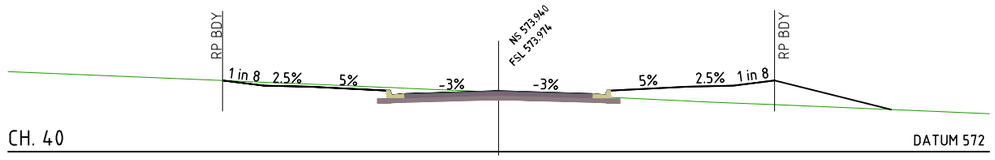


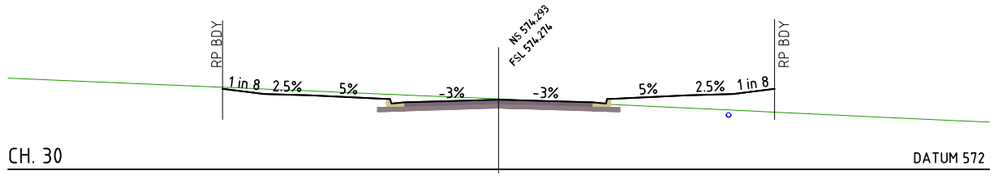
VERT. CURVE LENGTH
VERT. GEOMETRY
HORZ. GEOMETRY
DATUM RL 567

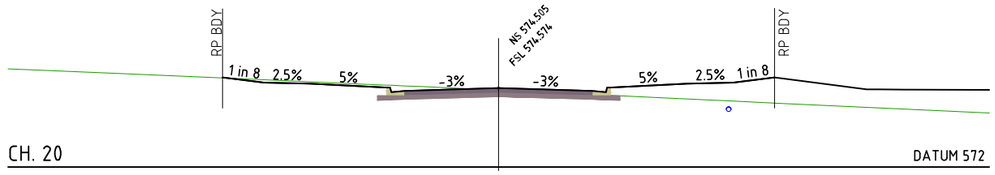
DESIGN LEVEL ROAD CONTROL LINE	575.174	574.874	574.574	574.274	573.974	573.674	573.374	573.074	572.984	572.960	572.757	572.579	572.364	572.097	572.060	571.894	571.409	570.925
LIP OF KERB RIGHT			574.482	574.182	573.882													
LIP OF KERB LEFT			574.482	574.182	573.882													
EXISTING SURFACE LEVEL ROAD CONTROL LINE	574.919	574.689	574.505	574.293	573.940	573.624	573.412	573.188	573.121	573.102	572.910	572.720	572.449	572.156	572.120	571.962	571.539	571.137
CUT / FILL DEPTH	0.255	0.184	0.069	-0.020	0.034	0.049	-0.039	-0.115	-0.137	-0.142	-0.153	-0.141	-0.085	-0.058	-0.060	-0.069	-0.129	-0.212
CHAINAGE	0	10	20	30	40	50	60	70	73	73.793	80	84.793	90	95.793	96.562	100	110	120

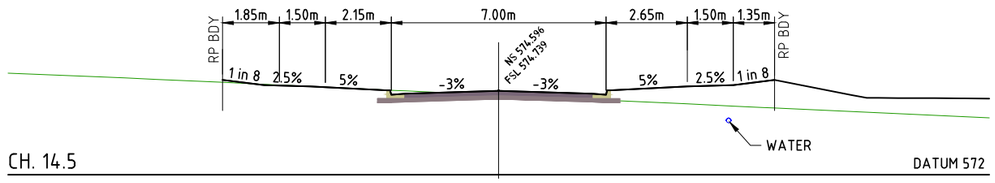
ROAD 21 LONGITUDINAL SECTION

SCALE 1:500(H), 1:50(V)









ROAD 21 CROSS SECTIONS

SCALE 1:100

0 5 10 15 20m
SCALE 1:500 (A1)
SCALE 1:1,000 (A3)

0 0.5 1.0 1.5 2.0m
SCALE 1:50 (A1)
SCALE 1:100 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

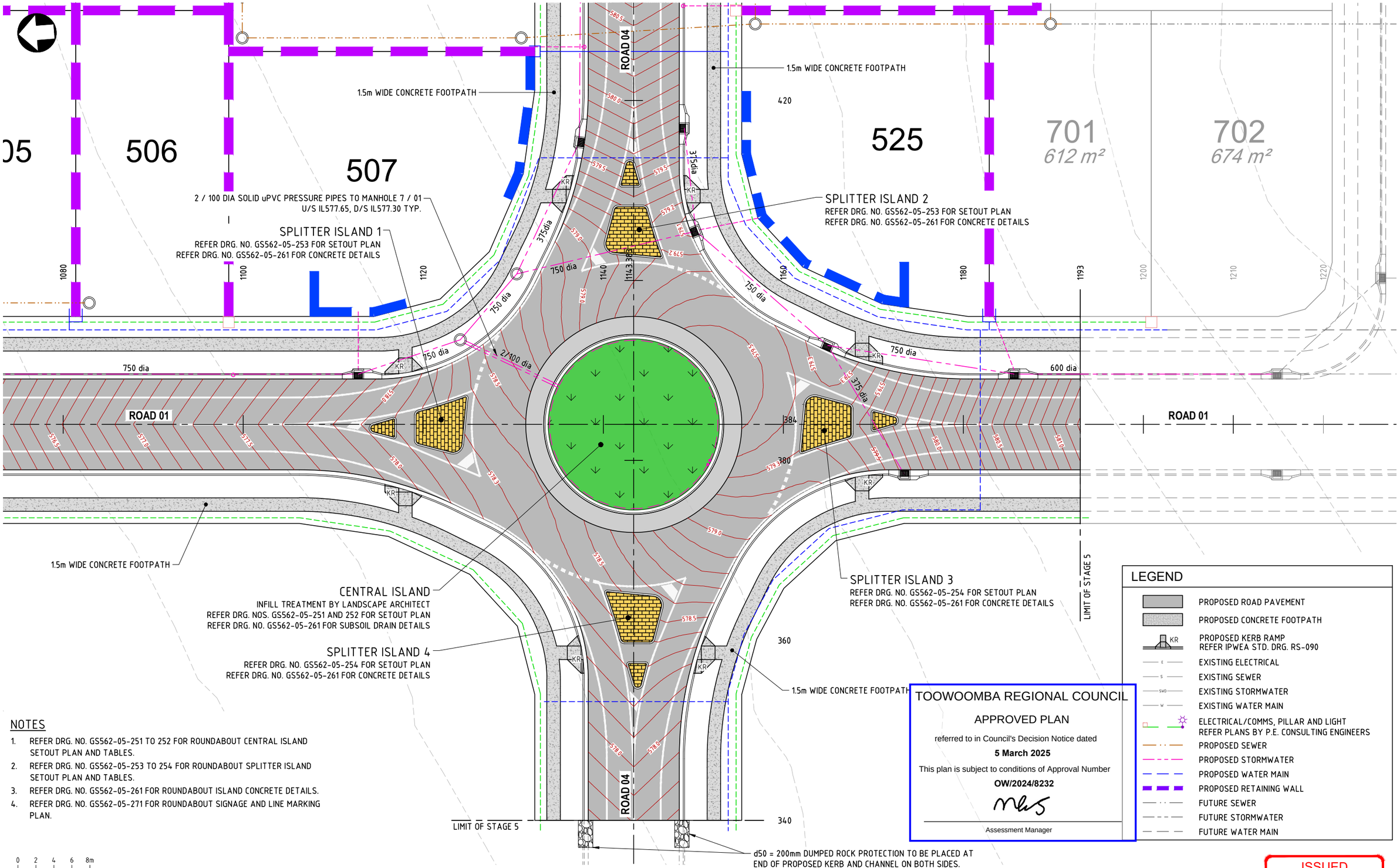
GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: ROAD 21 LONGITUDINAL SECTION AND CROSS SECTIONS

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	226	B

ROADS & DRAINAGE



ROUNDABOUT LAYOUT PLAN

SCALE 1:200

NOTES

1. REFER DRG. NO. GS562-05-251 TO 252 FOR ROUNDABOUT CENTRAL ISLAND SETOUT PLAN AND TABLES.
2. REFER DRG. NO. GS562-05-253 TO 254 FOR ROUNDABOUT SPLITTER ISLAND SETOUT PLAN AND TABLES.
3. REFER DRG. NO. GS562-05-261 FOR ROUNDABOUT ISLAND CONCRETE DETAILS.
4. REFER DRG. NO. GS562-05-271 FOR ROUNDABOUT SIGNAGE AND LINE MARKING PLAN.

0 2 4 6 8m
SCALE 1:200 (A1)
SCALE 1:400 (A3)

LEGEND

- PROPOSED ROAD PAVEMENT
- PROPOSED CONCRETE FOOTPATH
- KR — PROPOSED KERB RAMP REFER IPWEA STD. DRG. RS-090
- EXISTING ELECTRICAL
- EXISTING SEWER
- EXISTING STORMWATER
- EXISTING WATER MAIN
- ELECTRICAL/COMMS, PILLAR AND LIGHT REFER PLANS BY P.E. CONSULTING ENGINEERS
- PROPOSED SEWER
- PROPOSED STORMWATER
- PROPOSED WATER MAIN
- PROPOSED RETAINING WALL
- FUTURE SEWER
- FUTURE STORMWATER
- FUTURE WATER MAIN

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED B ENRIGHT			HORIZ. DATUM MGA 2020 (Z 56) VERT. DATUM AHD

TITLE: ROUNDABOUT LAYOUT PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	250	B

ROADS & DRAINAGE

SETOUT TABLE - CONTROL LINE 2

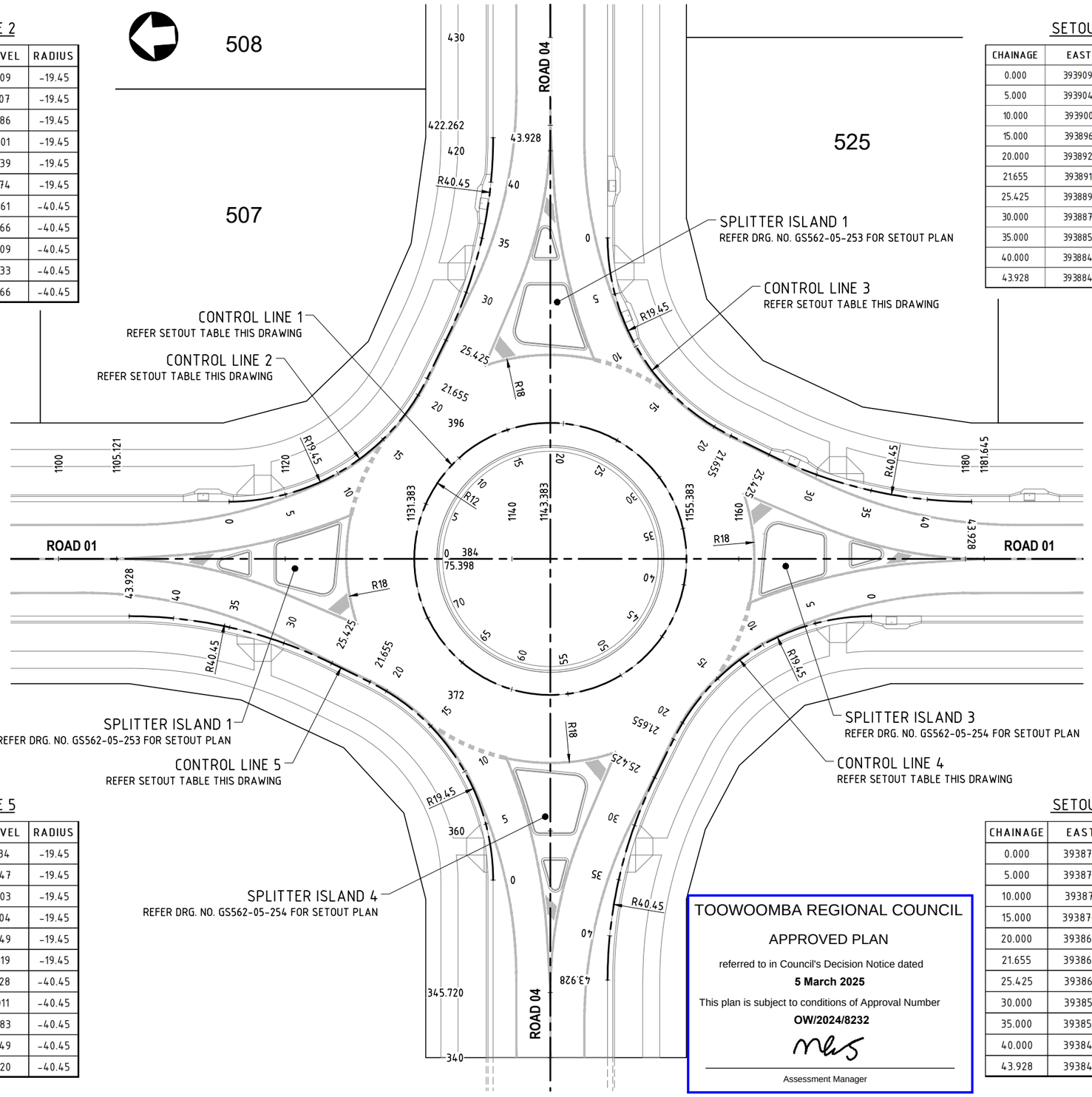
CHAINAGE	EASTING	NORTHING	LIP LEVEL	RADIUS
0.000	393889.359	6963817.607	577.909	-19.45
5.000	393889.611	6963812.627	578.107	-19.45
10.000	393891.121	6963807.875	578.386	-19.45
15.000	393893.789	6963803.663	578.601	-19.45
20.000	393897.441	6963800.268	578.739	-19.45
21.655	393898.827	6963799.364	578.774	-19.45
25.425	393902.069	6963797.440	578.861	-40.45
30.000	393906.127	6963795.334	579.066	-40.45
35.000	393910.803	6963793.571	579.409	-40.45
40.000	393915.660	6963792.399	579.733	-40.45
43.928	393919.556	6963791.903	579.966	-40.45

SETOUT TABLE - CONTROL LINE 3

CHAINAGE	EASTING	NORTHING	LIP LEVEL	RADIUS
0.000	393909.963	6963782.522	579.441	-19.45
5.000	393904.983	6963782.270	579.110	-19.45
10.000	393900.231	6963780.760	579.210	-19.45
15.000	393896.019	6963778.091	579.383	-19.45
20.000	393892.623	6963774.439	579.416	-19.45
21.655	393891.720	6963773.054	579.395	-19.45
25.425	393889.796	6963769.811	579.291	-40.45
30.000	393887.689	6963765.753	579.237	-40.45
35.000	393885.927	6963761.077	579.492	-40.45
40.000	393884.754	6963756.220	579.869	-40.45
43.928	393884.259	6963752.325	580.162	-40.45

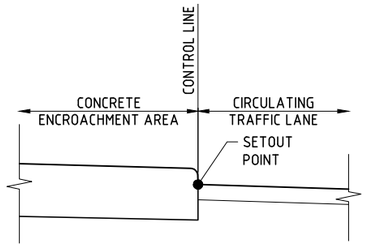
SETOUT TABLE - CONTROL LINE 1

CHAINAGE	EASTING	NORTHING	DESIGN RL	RADIUS
0.000	393883.053	6963801.726	578.486	12
5.000	393887.814	6963800.324	578.650	12
10.000	393891.602	6963797.115	578.874	12
15.000	393893.766	6963792.648	579.120	12
20.000	393893.937	6963787.687	579.345	12
25.000	393892.086	6963783.081	579.511	12
30.000	393888.529	6963779.618	579.590	12
35.000	393883.875	6963777.892	579.568	12
40.000	393878.921	6963778.196	579.448	12
45.000	393874.513	6963780.480	579.252	12
50.000	393871.407	6963784.352	579.013	12
55.000	393870.134	6963789.149	578.772	12
60.000	393870.911	6963794.052	578.569	12
65.000	393873.606	6963798.221	578.441	12
70.000	393877.757	6963800.942	578.408	12
75.398	393883.052	6963801.726	578.486	12



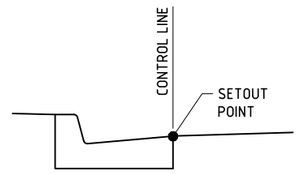
ROUNDABOUT SETOUT PLAN

SCALE 1:200



CENTRAL ISLAND SETOUT DETAIL

NTS



TYPE B1 K&C SETOUT DETAIL

NTS

SETOUT NOTES

1. REFER DRG. NOS. GS560-05-252 AND 253 FOR SPLITTER ISLAND SETOUT PLAN AND TABLES

SETOUT TABLE - CONTROL LINE 5

CHAINAGE	EASTING	NORTHING	LIP LEVEL	RADIUS
0.000	393854.273	6963797.003	578.134	-19.45
5.000	393859.253	6963797.255	578.247	-19.45
10.000	393864.005	6963798.765	578.303	-19.45
15.000	393868.217	6963801.433	578.304	-19.45
20.000	393871.613	6963805.085	578.249	-19.45
21.655	393872.516	6963806.471	578.219	-19.45
25.425	393874.440	6963809.714	578.128	-40.45
30.000	393876.547	6963813.772	578.011	-40.45
35.000	393878.309	6963818.447	577.883	-40.45
40.000	393879.482	6963823.305	577.749	-40.45
43.928	393879.977	6963827.200	577.620	-40.45

SETOUT TABLE - CONTROL LINE 4

CHAINAGE	EASTING	NORTHING	LIP LEVEL	RADIUS
0.000	393874.878	6963761.918	579.524	-19.45
5.000	393874.625	6963766.897	579.274	-19.45
10.000	393873.116	6963771.650	579.165	-19.45
15.000	393870.447	6963775.862	579.083	-19.45
20.000	393866.795	6963779.257	578.913	-19.45
21.655	393865.409	6963780.161	578.838	-19.45
25.425	393862.167	6963782.084	578.633	-40.45
30.000	393858.109	6963784.191	578.373	-40.45
35.000	393853.433	6963785.953	578.125	-40.45
40.000	393848.576	6963787.126	577.991	-40.45
43.928	393844.681	6963787.621	577.876	-40.45

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

ISSUED
FOR APPROVAL

0 2 4 6 8m
SCALE 1:200 (A1)
SCALE 1:400 (A3)

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
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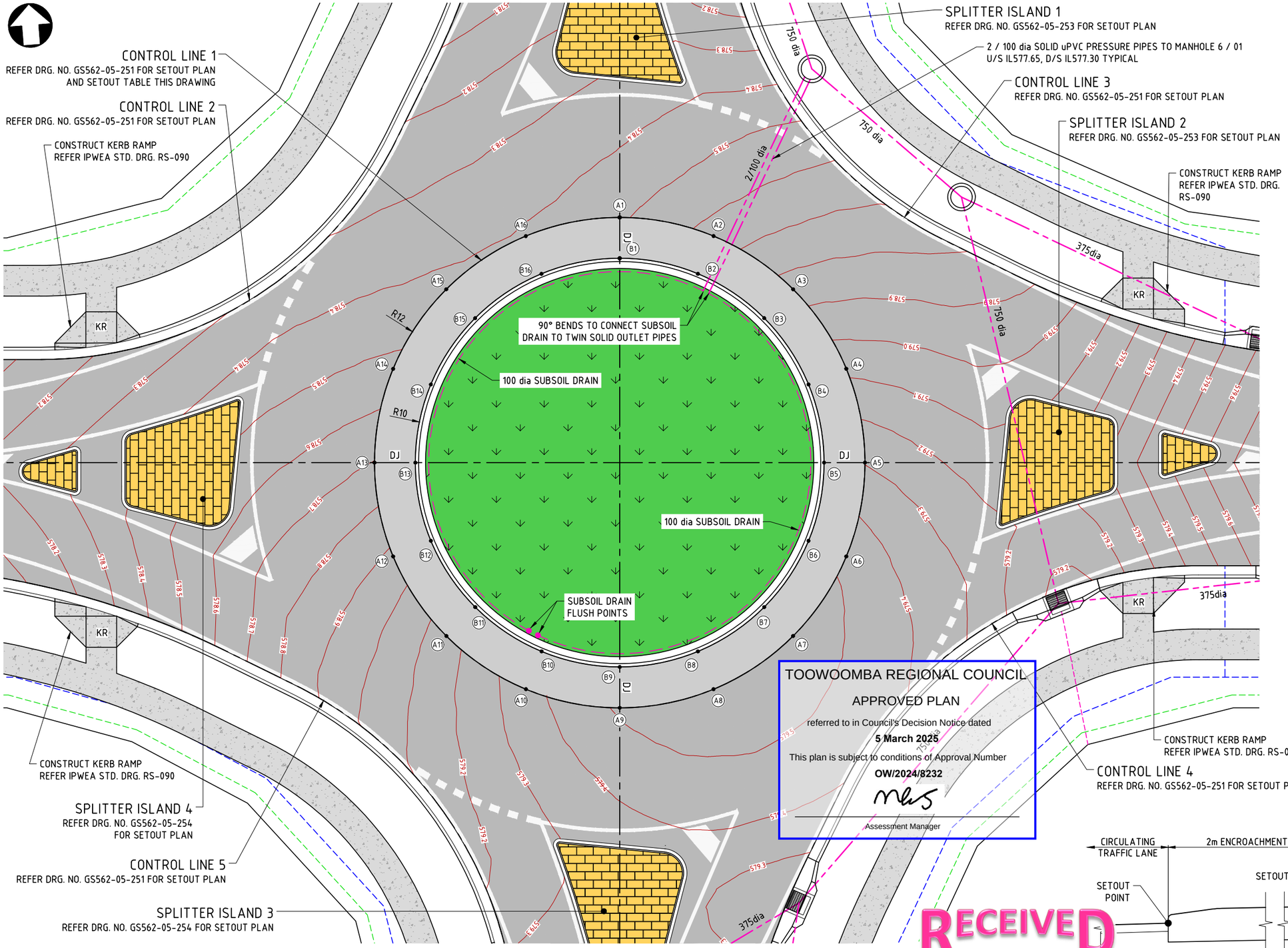
CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: ROUNDABOUT SETOUT PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	251	B

ROADS & DRAINAGE



TOOWOOMBA REGIONAL COUNCIL
APPROVED PLAN
referred to in Council's Decision Notice dated
5 March 2025
This plan is subject to conditions of Approval Number
OW/2024/8232
Assessment Manager

ROUNDABOUT CENTRAL ISLAND SETOUT TABLE

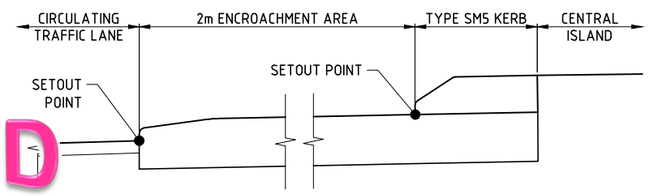
POINT	EASTING	NORTHING	DESIGN RL
A1	393883.053	6963801.726	578.486
A2	393887.560	6963800.458	578.639
A3	393891.239	6963797.561	578.847
A4	393893.529	6963793.477	579.077
A5	393894.082	6963788.828	579.295
A6	393892.814	6963784.320	579.469
A7	393889.917	6963780.642	579.571
A8	393885.833	6963778.351	579.587
A9	393881.184	6963777.798	579.514
A10	393876.676	6963779.067	579.361
A11	393872.997	6963781.963	579.153
A12	393870.707	6963786.047	578.923
A13	393870.154	6963790.697	578.704
A14	393871.422	6963795.204	578.531
A15	393874.319	6963798.883	578.429
A16	393878.403	6963801.173	578.414

ROUNDABOUT CENTRAL ISLAND SETOUT TABLE

POINT	EASTING	NORTHING	DESIGN RL
B1	393882.897	6963799.732	578.610
B2	393886.653	6963798.675	578.763
B3	393889.719	6963796.261	578.971
B4	393891.627	6963792.858	579.201
B5	393892.088	6963788.983	579.419
B6	393891.031	6963785.227	579.593
B7	393888.617	6963782.162	579.695
B8	393885.214	6963780.253	579.711
B9	393881.339	6963779.792	579.638
B10	393877.583	6963780.849	579.485
B11	393874.517	6963783.263	579.277
B12	393872.609	6963786.667	579.047
B13	393872.148	6963790.541	578.828
B14	393873.205	6963794.297	578.655
B15	393875.619	6963797.363	578.553
B16	393879.022	6963799.271	578.538

NOTES

1. REFER DRG. NO. GS562-05-261 FOR ROUNDABOUT ISLAND CONCRETE DETAILS.



CENTRAL ISLAND SETOUT DETAIL
NTS

ROUNDABOUT CENTRAL ISLAND SETOUT PLAN
SCALE 1:100

0 1 2 3 4m
SCALE 1:100 (A1)
SCALE 1:200 (A3)

RECEIVED
12/02/2025
TOOWOOMBA REGIONAL COUNCIL

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

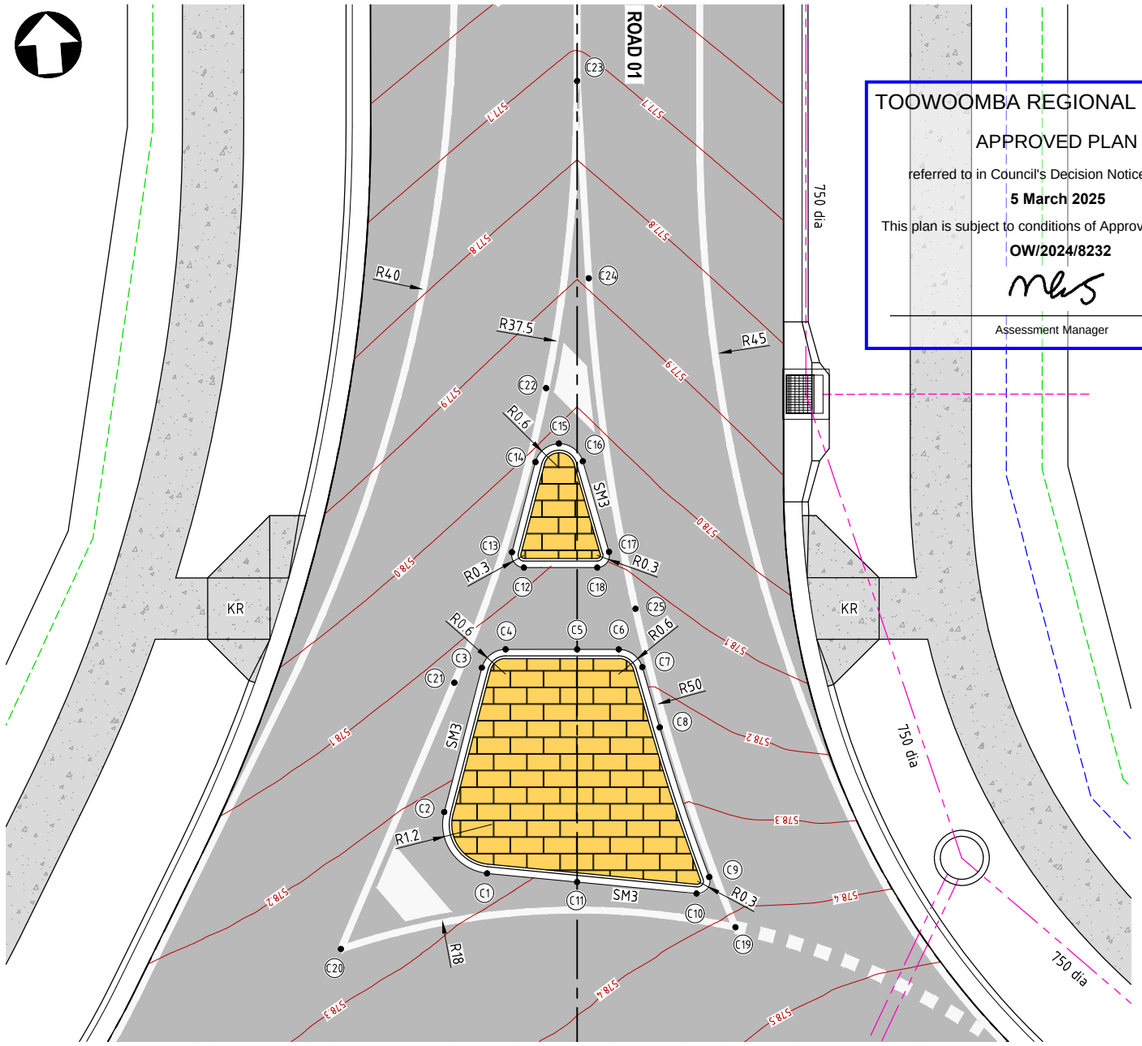
CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED B ENRIGHT			HORIZ. DATUM MGA 2020 (Z 56) VERT. DATUM AHD

TITLE: ROUNDABOUT CENTRAL ISLAND PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	252	B

ROADS & DRAINAGE



ROUNDABOUT SPLITTER ISLAND 1 SETOUT PLAN

SCALE 1:75

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

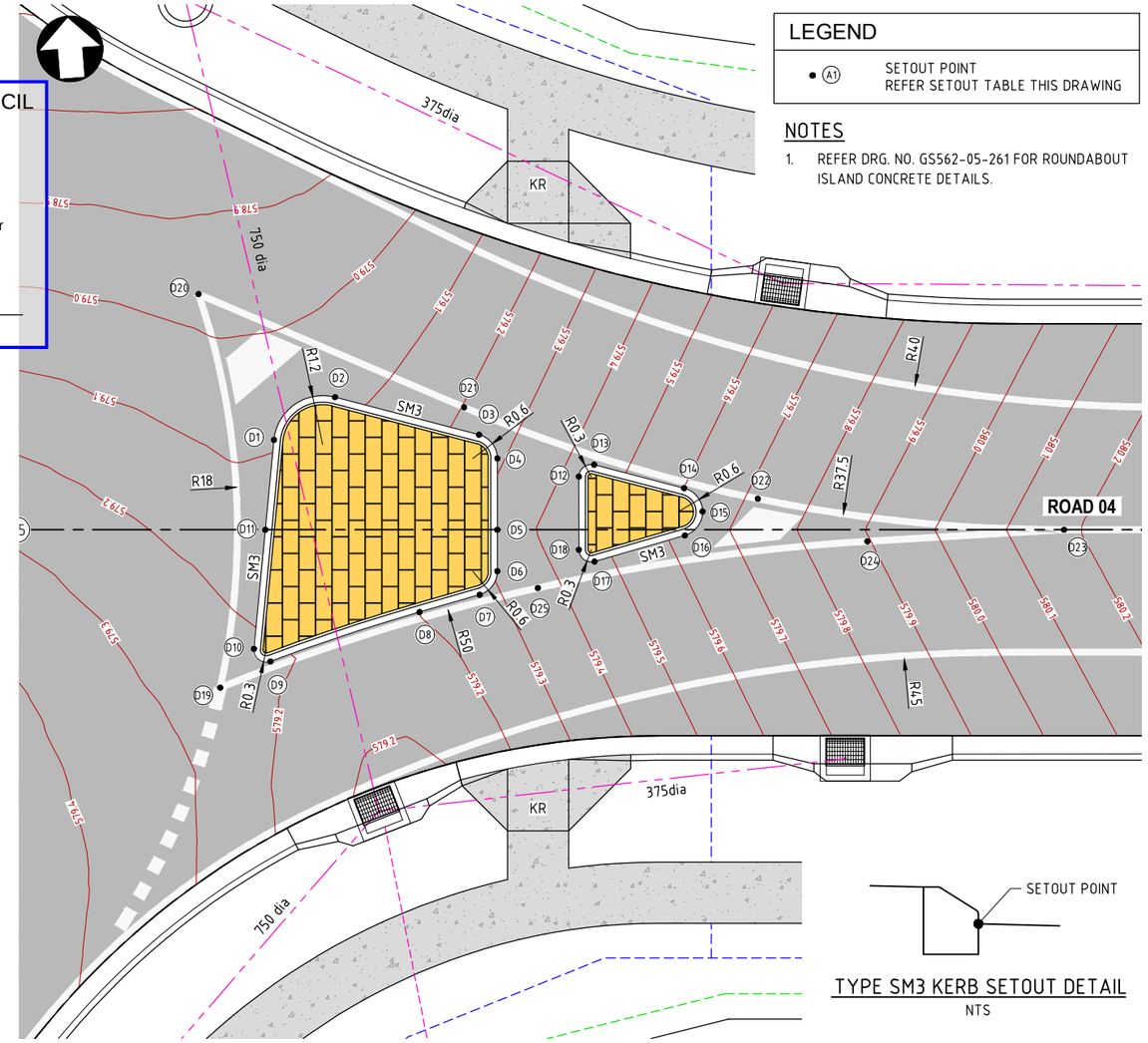
referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager



ROUNDABOUT SPLITTER ISLAND 2 SETOUT PLAN

SCALE 1:75

LEGEND

• (A1)	SETOUT POINT REFER SETOUT TABLE THIS DRAWING

NOTES

1. REFER DRG. NO. GS562-05-261 FOR ROUNDABOUT ISLAND CONCRETE DETAILS.

TYPE SM3 KERB SETOUT DETAIL

NTS

ROUNDABOUT SPLITTER ISLAND 1 SETOUT TABLE

POINT	EASTING	NORTHING	DESIGN RL	POINT	EASTING	NORTHING	DESIGN RL	POINT	EASTING	NORTHING	DESIGN RL
C1	393881.392	6963808.773	578.277	C10	393886.463	6963807.884	578.372	C19	393887.346	6963806.986	578.412
C2	393880.465	6963810.348	578.219	C11	393883.573	6963808.391	578.318	C20	393877.684	6963807.207	578.271
C3	393881.658	6963813.795	578.133	C12	393882.872	6963816.156	578.084	C21	393880.958	6963813.483	578.130
C4	393882.272	6963814.197	578.133	C13	393882.612	6963816.553	578.065	C22	393883.757	6963820.486	577.963
C5	393884.016	6963814.061	578.173	C14	393883.357	6963818.707	578.011	C23	393885.098	6963827.915	577.731
C6	393885.030	6963813.982	578.170	C15	393883.962	6963819.113	578.014	C24	393885.006	6963823.085	577.890
C7	393885.571	6963813.505	578.183	C16	393884.513	6963818.635	578.037	C25	393885.517	6963814.940	578.133
C8	393885.881	6963812.001	578.234	C17	393884.979	6963816.376	578.091				
C9	393886.804	6963808.262	578.364	C18	393884.662	6963816.016	578.109				

ROUNDABOUT SPLITTER ISLAND 2 SETOUT TABLE

POINT	EASTING	NORTHING	DESIGN RL	POINT	EASTING	NORTHING	DESIGN RL	POINT	EASTING	NORTHING	DESIGN RL
D1	393901.129	6963790.488	579.092	D10	393900.239	6963785.417	579.213	D19	393899.342	6963784.533	579.249
D2	393902.704	6963791.415	579.077	D11	393900.746	6963788.307	579.148	D20	393899.563	6963794.196	578.965
D3	393906.151	6963790.223	579.243	D12	393908.512	6963789.008	579.429	D21	393905.838	6963790.922	579.203
D4	393906.553	6963789.609	579.288	D13	393908.909	6963789.269	579.445	D22	393912.842	6963788.123	579.720
D5	393906.417	6963787.864	579.333	D14	393911.063	6963788.524	579.601	D23	393920.270	6963786.782	580.180
D6	393906.338	6963786.850	579.310	D15	393911.469	6963787.918	579.646	D24	393915.440	6963786.874	579.895
D7	393905.860	6963786.309	579.271	D16	393910.991	6963787.367	579.628	D25	393907.295	6963786.363	579.361
D8	393904.357	6963785.999	579.201	D17	393908.732	6963786.901	579.470				
D9	393900.618	6963785.077	579.213	D18	393908.372	6963787.218	579.454				

0 0.75 1.5 2.25 3.0m

SCALE 1:75 (A1)
SCALE 1:150 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

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ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD

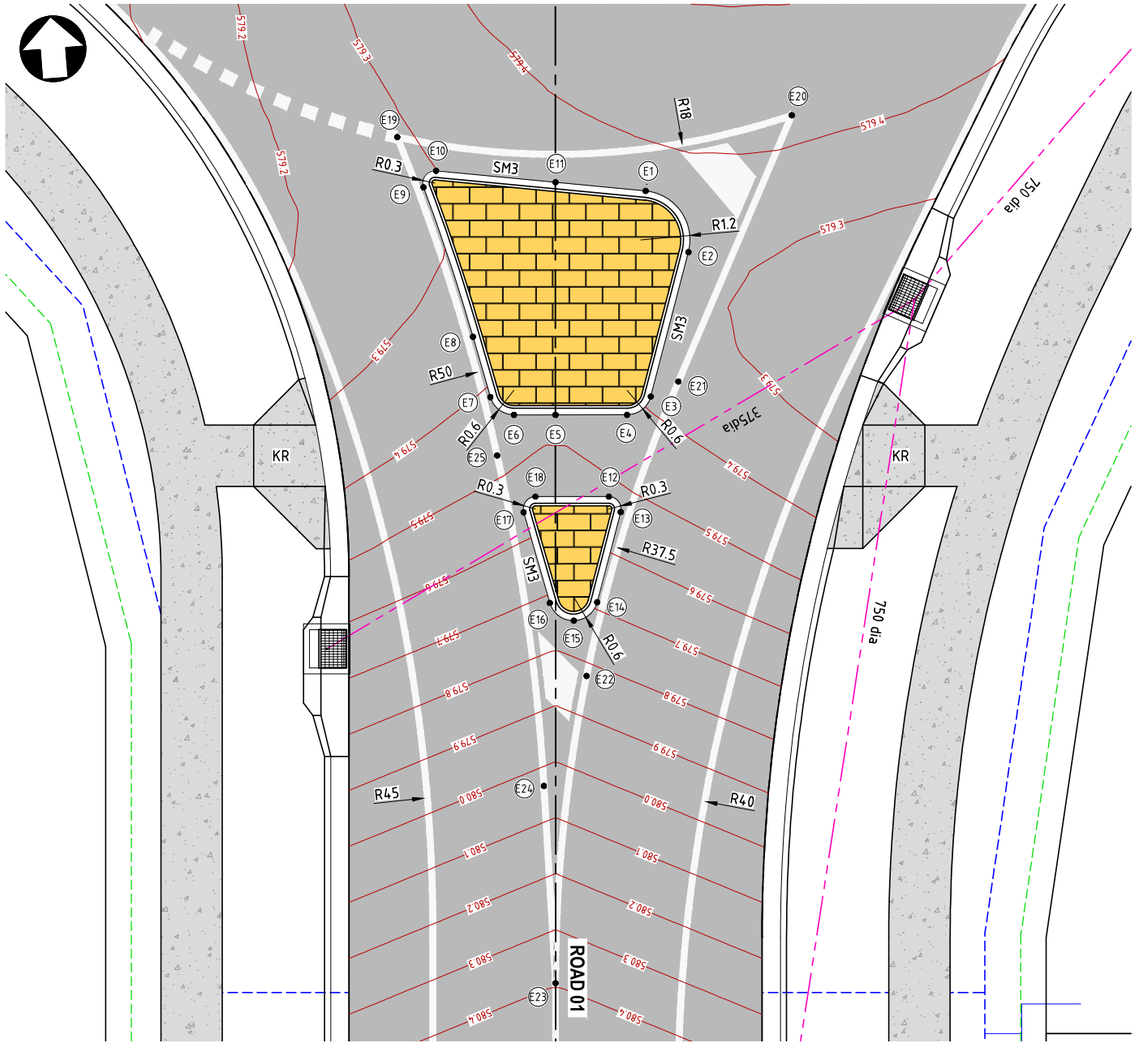
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS HORIZ. DATUM MGA 2020 (Z 56) VERT. DATUM AHD
DESIGNED B ENRIGHT			

TITLE: ROUNDABOUT SPLITTER ISLANDS SETOUT PLAN SHEET 1 OF 2

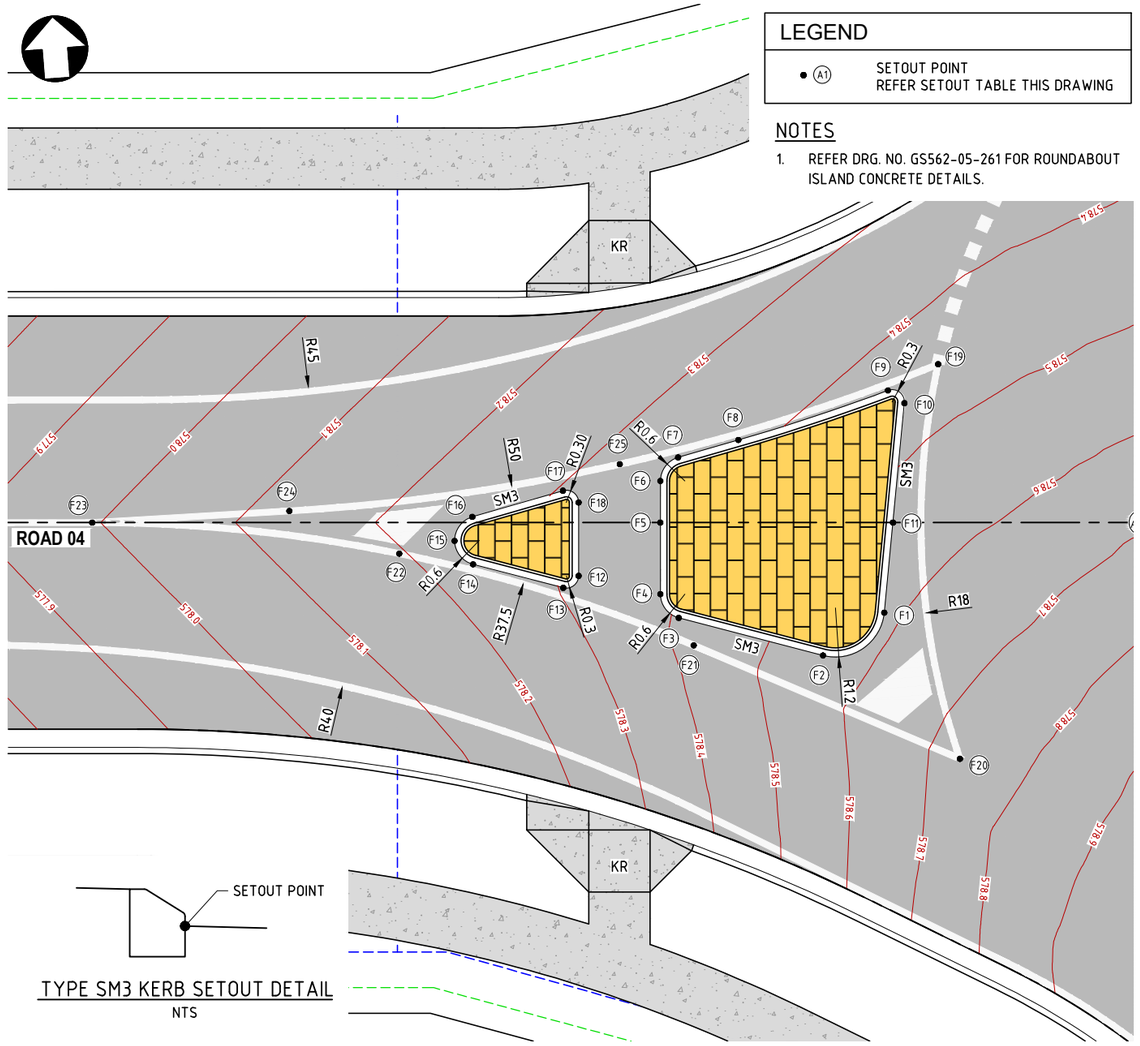
SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	253	B

ROADS & DRAINAGE



ROUNDABOUT SPLITTER ISLAND 3 SETOUT PLAN

SCALE 1:75



TYPE SM3 KERB SETOUT DETAIL

NTS

ROUNDABOUT SPLITTER ISLAND 4 SETOUT PLAN

SCALE 1:75

LEGEND

• (A1)	SETOUT POINT REFER SETOUT TABLE THIS DRAWING

NOTES

1. REFER DRG. NO. GS562-05-261 FOR ROUNDABOUT ISLAND CONCRETE DETAILS.

ROUNDABOUT SPLITTER ISLAND 3 SETOUT TABLE

POINT	EASTING	NORTHING	DESIGN RL	POINT	EASTING	NORTHING	DESIGN RL	POINT	EASTING	NORTHING	DESIGN RL
E1	393882.844	6963770.752	579.368	E10	393877.773	6963771.641	579.300	E19	393876.889	6963772.539	579.287
E2	393883.771	6963769.177	579.328	E11	393880.663	6963771.135	579.366	E20	393886.551	6963772.317	579.429
E3	393882.578	6963765.729	579.387	E12	393881.364	6963763.369	579.523	E21	393883.278	6963766.042	579.353
E4	393881.964	6963765.327	579.421	E13	393881.625	6963762.971	579.535	E22	[illegible]	[illegible]	[illegible]
E5	393880.220	6963765.463	579.467	E14	393880.880	6963760.818	579.687	E23	393879.138	6963751.610	580.396
E6	393879.206	6963765.543	579.444	E15	393880.274	6963760.412	579.736	E24	393879.230	[illegible]	[illegible]
E7	393878.665	6963766.020	579.411	E16	393879.723	6963760.890	579.715	E25	393878.726	[illegible]	[illegible]
E8	393878.355	6963767.523	579.354	E17	393879.257	6963763.149	579.560				
E9	393877.432	6963771.262	579.288	E18	393879.574	6963763.508	579.549				

ROUNDABOUT SPLITTER ISLAND 4 SETOUT TABLE

POINT	EASTING	NORTHING	DESIGN RL	POINT	EASTING	NORTHING	DESIGN RL	POINT	EASTING	NORTHING	DESIGN RL
F1	393863.108	6963789.035	578.582	F10	393863.997	6963794.106	578.461	F19	393864.895	6963794.992	578.451
F2	393861.533	6963788.109	578.554	F11	393863.490	6963791.216	578.537	F20	393864.673	6963785.328	578.734
F3	393858.085	6963789.301	578.408	F12	393855.725	6963790.515	578.321	F21	393858.397	6963788.602	578.428
F4	393857.682	6963789.916	578.390	F13	393855.327	6963790.255	578.304	F22	393851.394	6963791.401	578.194
F5	393857.819	6963791.659	578.392	F14	393853.174	6963790.999	578.241	F23	393843.960	6963792.743	577.993
F6	393857.899	6963792.673	578.362	F15	393852.768	6963791.605	578.243	F24	393848.796	6963792.649	578.131
F7	393858.375	6963793.216	578.356	F16	393853.246	6963792.156	578.263	F25	393856.941	6963793.161	578.323
F8	393859.879	6963793.526	578.381	F17	393855.505	6963792.624	578.305				
F9	393863.618	6963794.447	578.441	F18	393855.864	6963792.305	578.324				

TOOWOOMBA REGIONAL COUNCIL
APPROVED PLAN
referred to in Council's Decision Notice dated
5 March 2025
This plan is subject to conditions of Approval Number
OW/2024/8232
Assessment Manager

0 0.75 1.5 2.25 3.0m
SCALE 1:75 (A1)
SCALE 1:150 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

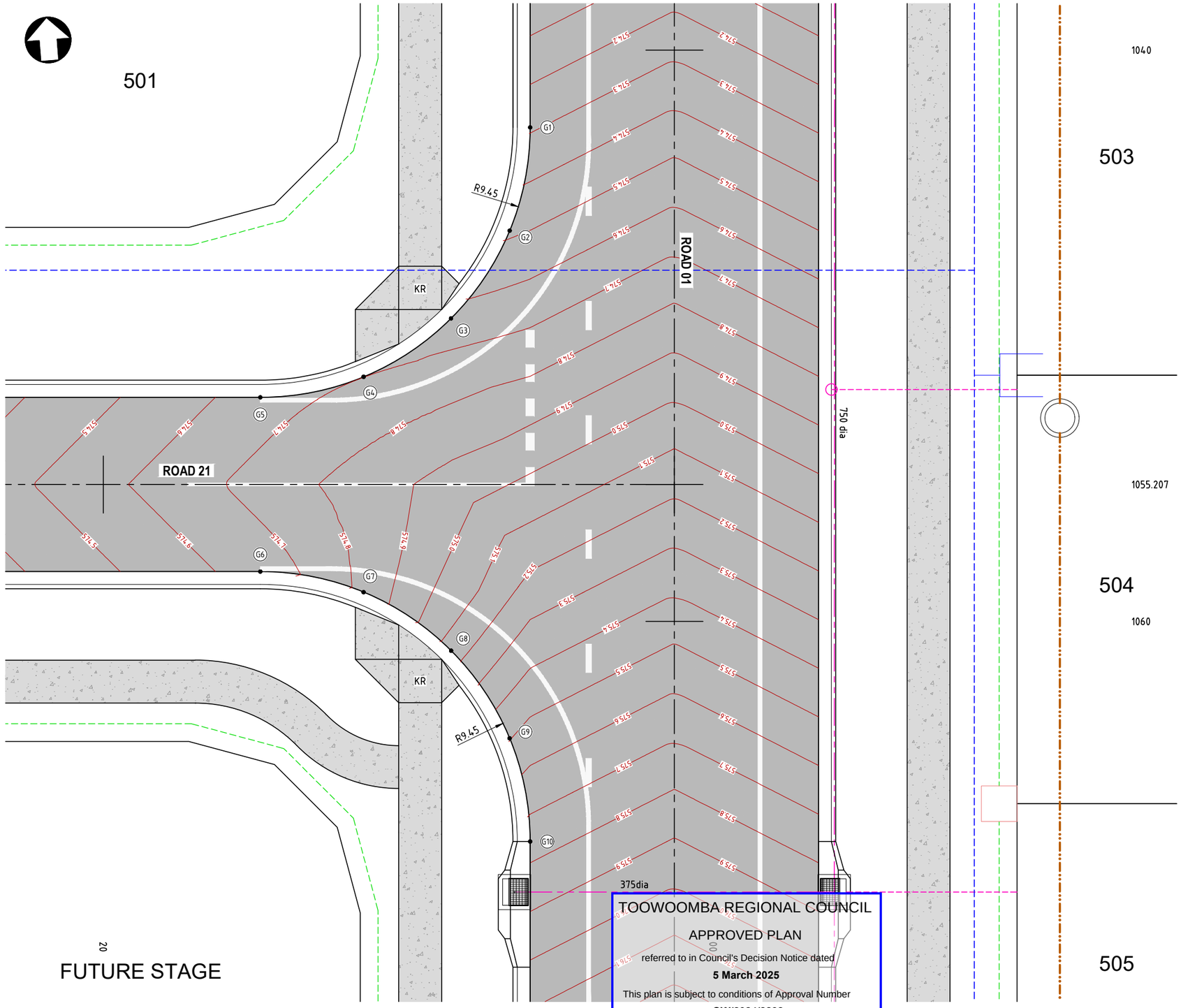
GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT
HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: ROUNDABOUT SPLITTER ISLANDS SETOUT PLAN SHEET 2 OF 2

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	254	B

ROADS & DRAINAGE

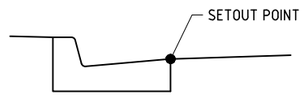


LEGEND

- PROPOSED ROAD PAVEMENT
- PROPOSED CONCRETE FOOTPATH
- PROPOSED KERB RAMP REFER IPWEA STD. DRG. RS-090
- EXISTING ELECTRICAL
- EXISTING SEWER
- EXISTING STORMWATER
- EXISTING WATER MAIN
- ELECTRICAL/COMMS, PILLAR AND LIGHT REFER PLANS BY P.E. CONSULTING ENGINEERS
- PROPOSED SEWER
- PROPOSED STORMWATER
- PROPOSED WATER MAIN
- PROPOSED RETAINING WALL
- FUTURE SEWER
- FUTURE STORMWATER
- FUTURE WATER MAIN

ROAD 01 AND ROAD 21 INTERSECTION SETOUT PLAN

POINT	EASTING	NORTHING	DESIGN RL
G1	393884.924	6963890.526	574.288
G2	393883.926	6963886.977	574.483
G3	393881.644	6963884.079	574.632
G4	393878.428	6963882.276	574.699
G5	393874.767	6963881.840	574.647
G6	393874.292	6963875.760	574.647
G7	393877.841	6963874.761	574.828
G8	393880.738	6963872.480	575.148
G9	393882.542	6963869.264	575.495
G10	393882.977	6963865.602	575.756



TYPE B1 K&C SETOUT DETAIL
NTS

TOOWOOMBA REGIONAL COUNCIL
APPROVED PLAN
referred to in Council's Decision Notice dated
5 March 2025
This plan is subject to conditions of Approval Number
OW/2024/8232
Assessment Manager

ROAD 01 AND ROAD 21 INTERSECTION SETOUT PLAN
SCALE 1:75

0 0.75 1.5 2.25 3.0m
SCALE 1:75 (A1)
SCALE 1:150 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

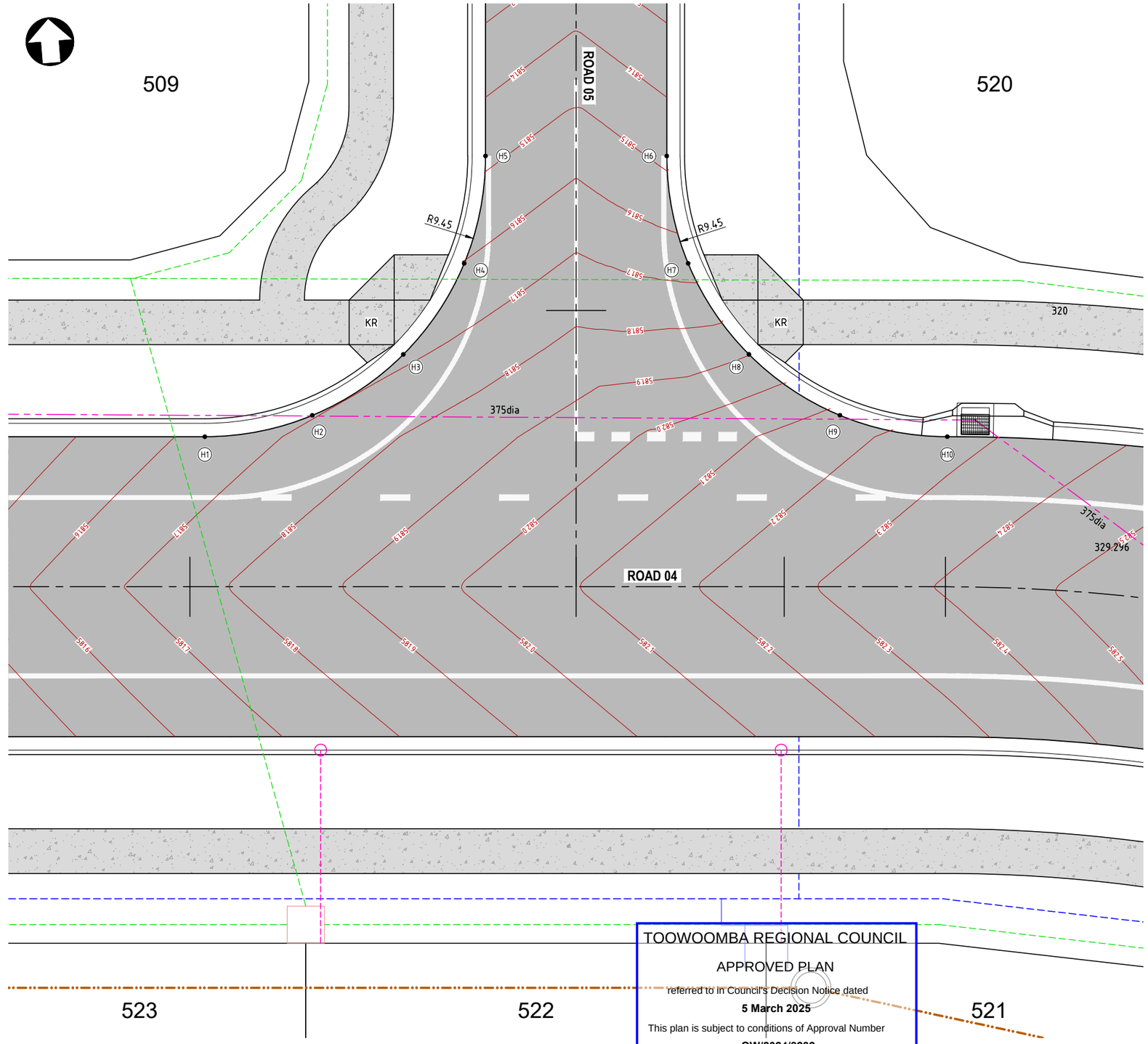
GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: ROAD 01 - ROAD 21 INTERSECTION SETOUT PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	255	B

ROADS & DRAINAGE

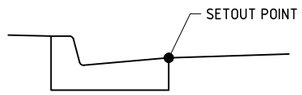


LEGEND

- PROPOSED ROAD PAVEMENT
- PROPOSED CONCRETE FOOTPATH
- PROPOSED KERB RAMP REFER IPWEA STD. DRG. RS-090
- EXISTING ELECTRICAL
- EXISTING SEWER
- EXISTING STORMWATER
- EXISTING WATER MAIN
- ELECTRICAL/COMMS, PILLAR AND LIGHT REFER PLANS BY P.E. CONSULTING ENGINEERS
- PROPOSED SEWER
- PROPOSED STORMWATER
- PROPOSED WATER MAIN
- PROPOSED RETAINING WALL
- FUTURE SEWER
- FUTURE STORMWATER
- FUTURE WATER MAIN

ROAD 04 AND ROAD 05 INTERSECTION SETOUT PLAN

POINT	EASTING	NORTHING	DESIGN RL
H1	393958.779	6963788.839	581.629
H2	393962.441	6963789.274	581.694
H3	393965.657	6963791.078	581.680
H4	393967.938	6963793.975	581.604
H5	393968.937	6963797.524	581.479
H6	393975.017	6963797.049	581.479
H7	393975.452	6963793.390	581.658
H8	393977.254	6963790.175	581.898
H9	393980.148	6963787.893	582.124
H10	393983.694	6963786.892	582.261



TYPE B1 K&C SETOUT DETAIL
NTS

TOOWOOMBA REGIONAL COUNCIL
APPROVED PLAN
referred to in Council's Decision Notice dated
5 March 2025
This plan is subject to conditions of Approval Number
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Assessment Manager

0 0.75 1.5 2.25 3.0m
SCALE 1:75 (A1)
SCALE 1:150 (A3)

ROAD 04 AND ROAD 05 INTERSECTION SETOUT PLAN
SCALE 1:75

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

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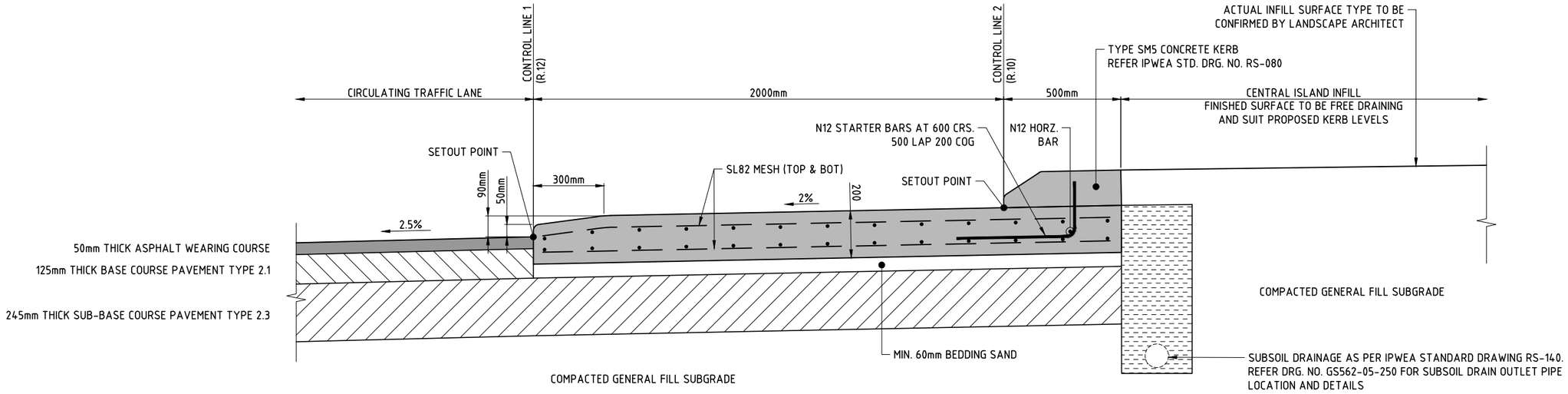
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | DESIGNED: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: ROAD 04 - ROAD 25 INTERSECTION SETOUT PLAN

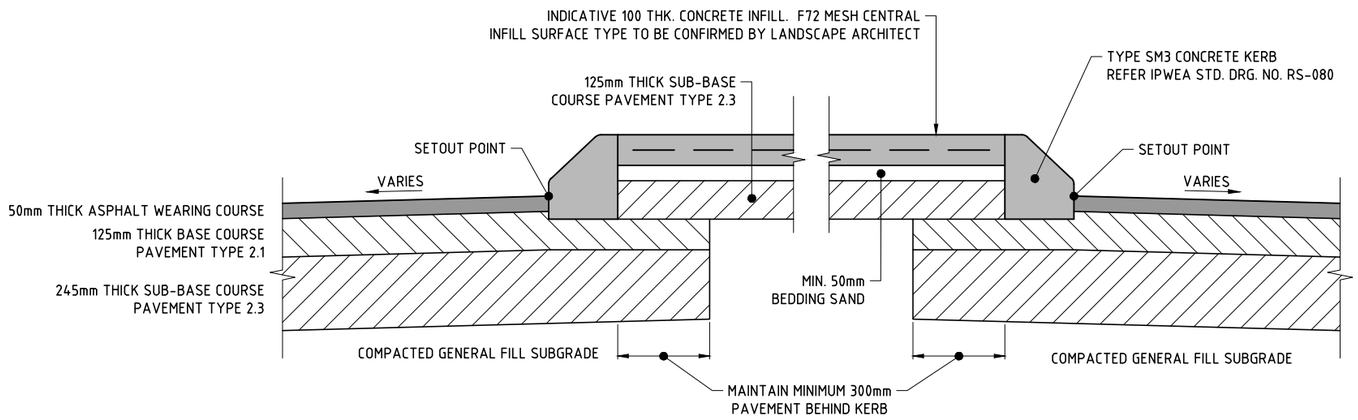
SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	256	B

ROADS & DRAINAGE



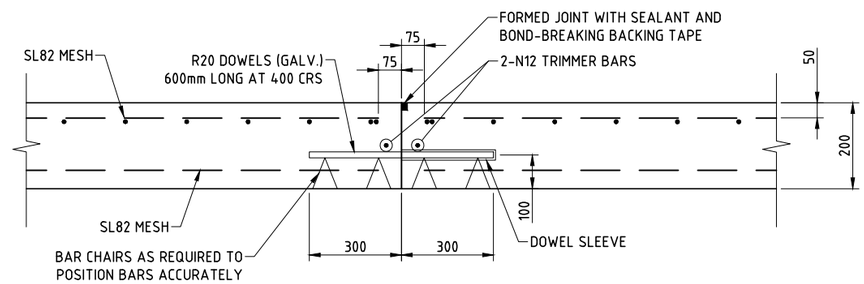
CENTRAL ISLAND - TYPICAL SECTION
CONCRETE ENCROACHMENT AREA

SCALES 1:10



SPLITTER ISLANDS - TYPICAL SECTION

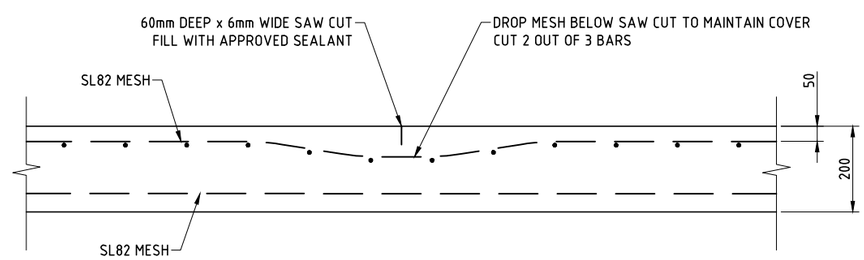
SCALES 1:10



TYPICAL SECTION - DOWEL JOINT (DJ)

CONSTRUCT AT 25m SPACING (NOM.)

1:10



TYPICAL SECTION - SAW CUT JOINT (SCJ)

CONSTRUCT AT 5m SPACING (NOM.)

1:10

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

ROUNDABOUT ISLAND CONCRETE NOTES

1. REFER REFER DRG. GS562-05-002 FOR CONSTRUCTION NOTES.
2. REFER DRG. GS562-05-051 TO 054 FOR ROUNDABOUT CENTRAL ISLAND AND SPLITTER ISLAND SETOUT PLANS AND SETOUT TABLES.
3. ALL DESIGN LEVELS ARE TO BE CHECKED AND CONFIRMED ON SITE PRIOR TO CONSTRUCTION.
4. PEDESTRIAN KERB RAMPS AND TACTILE GROUND SURFACE INDICATORS (TGSI's) ARE TO COMPLY WITH IPWEA STD. DRG. RS-090 AND RS-092.

0 0.1 0.2 0.3 0.4m

SCALE 1:10 (A1)
SCALE 1:20 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC HIGHFIELDS RD

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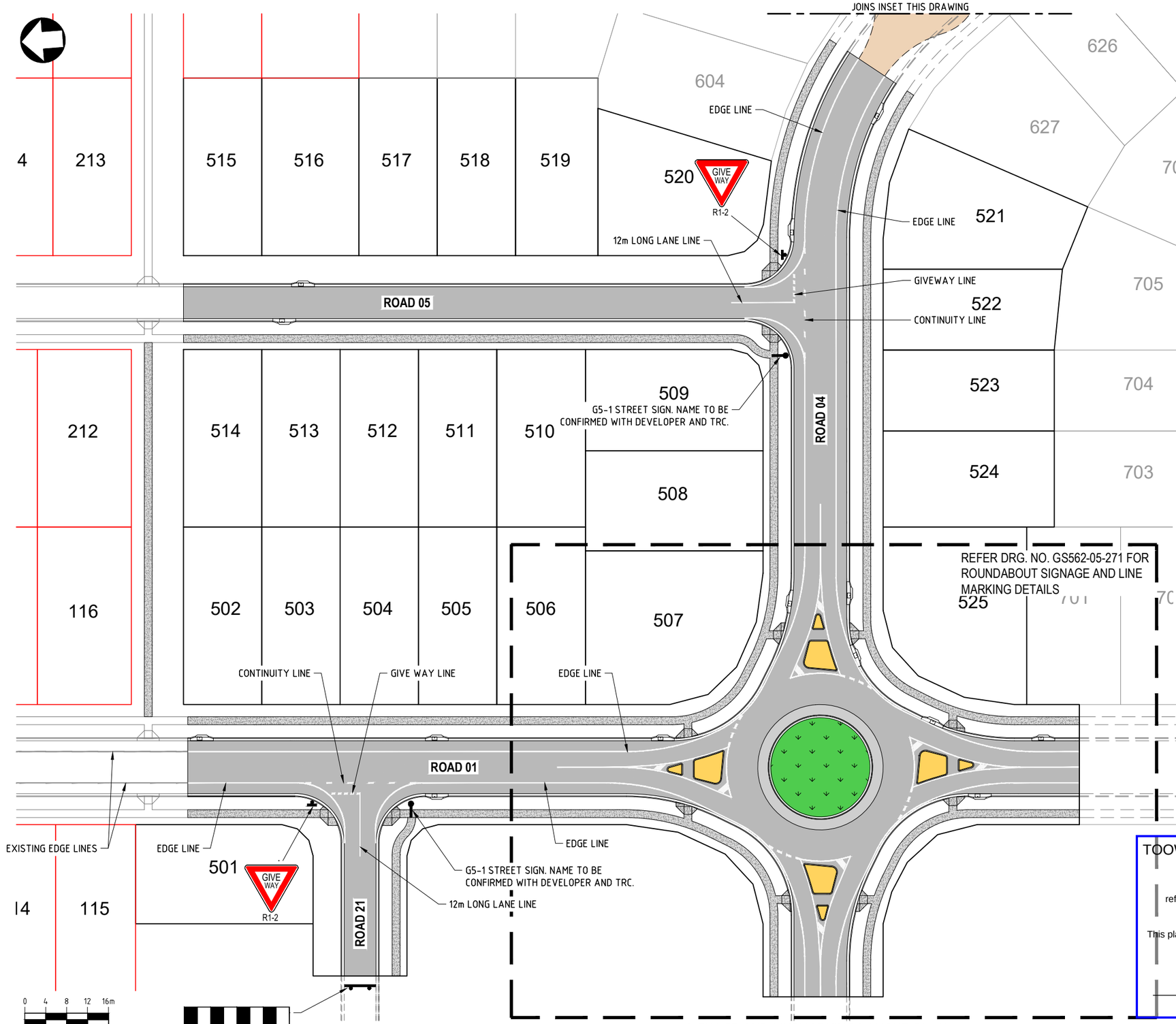
CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: ROUNDABOUT CONCRETE DETAILS

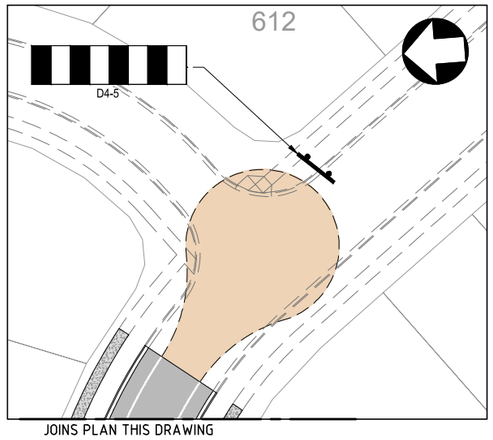
SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	261	B

ROADS & DRAINAGE



SIGNAGE AND LINEMARKING LAYOUT PLAN

SCALE 1:500



INSET

SCALE 1:400

LEGEND

- PROPOSED ROAD PAVEMENT
- PROPOSED CONCRETE PATH

PAVEMENT MARKING TYPES

No.	TYPE	EXAMPLE	WIDTH	DESCRIPTION
LONGITUDINAL LINES				
A	Lane Line Continuous		100mm	Continuous
B	Edge Line		150mm	Continuous
C	Outline Marking		150mm	Continuous
D	Continuity Line		200mm	1.0 Metre Line, 3 Metre Gap
TRANSVERSE LINES				
E	Give Way Line		300mm	0.6 Metre Line, 0.6 Metre Gap

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

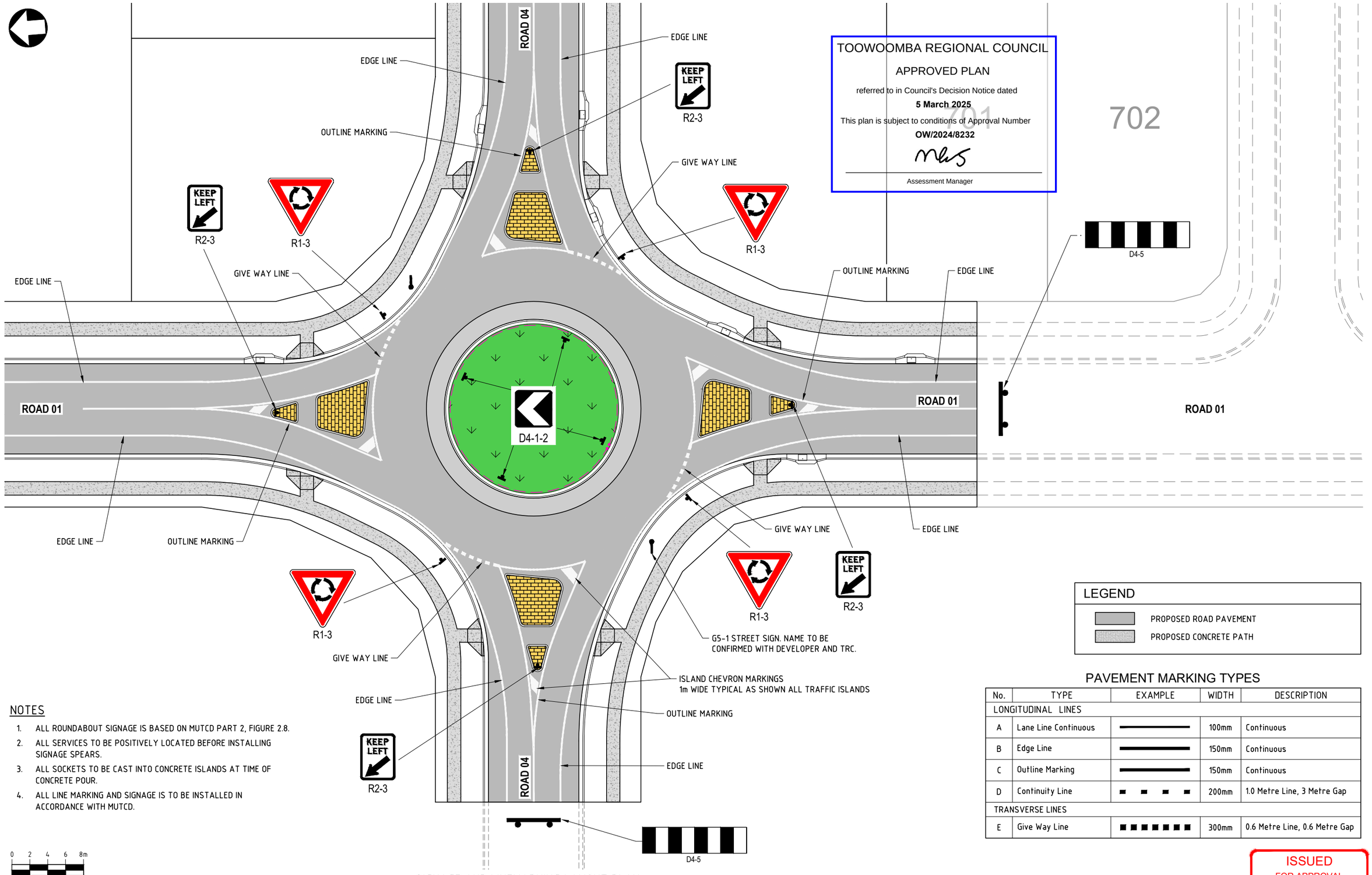
GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: SIGNAGE AND LINEMARKING PLAN
SHEET 1 OF 2

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	270	B

ROADS & DRAINAGE



TOOWOOMBA REGIONAL COUNCIL
APPROVED PLAN
referred to in Council's Decision Notice dated
5 March 2025
This plan is subject to conditions of Approval Number
OW/2024/8232
Assessment Manager

LEGEND

- PROPOSED ROAD PAVEMENT
- PROPOSED CONCRETE PATH

PAVEMENT MARKING TYPES

No.	TYPE	EXAMPLE	WIDTH	DESCRIPTION
LONGITUDINAL LINES				
A	Lane Line Continuous		100mm	Continuous
B	Edge Line		150mm	Continuous
C	Outline Marking		150mm	Continuous
D	Continuity Line		200mm	1.0 Metre Line, 3 Metre Gap
TRANSVERSE LINES				
E	Give Way Line		300mm	0.6 Metre Line, 0.6 Metre Gap

NOTES

1. ALL ROUNDABOUT SIGNAGE IS BASED ON MUTCD PART 2, FIGURE 2.8.
2. ALL SERVICES TO BE POSITIVELY LOCATED BEFORE INSTALLING SIGNAGE SPEARS.
3. ALL SOCKETS TO BE CAST INTO CONCRETE ISLANDS AT TIME OF CONCRETE POUR.
4. ALL LINE MARKING AND SIGNAGE IS TO BE INSTALLED IN ACCORDANCE WITH MUTCD.

0 2 4 6 8m
SCALE 1:200 (A1)
SCALE 1:400 (A3)

SIGNAGE AND LINEMARKING LAYOUT PLAN

SCALE 1:200

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

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ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

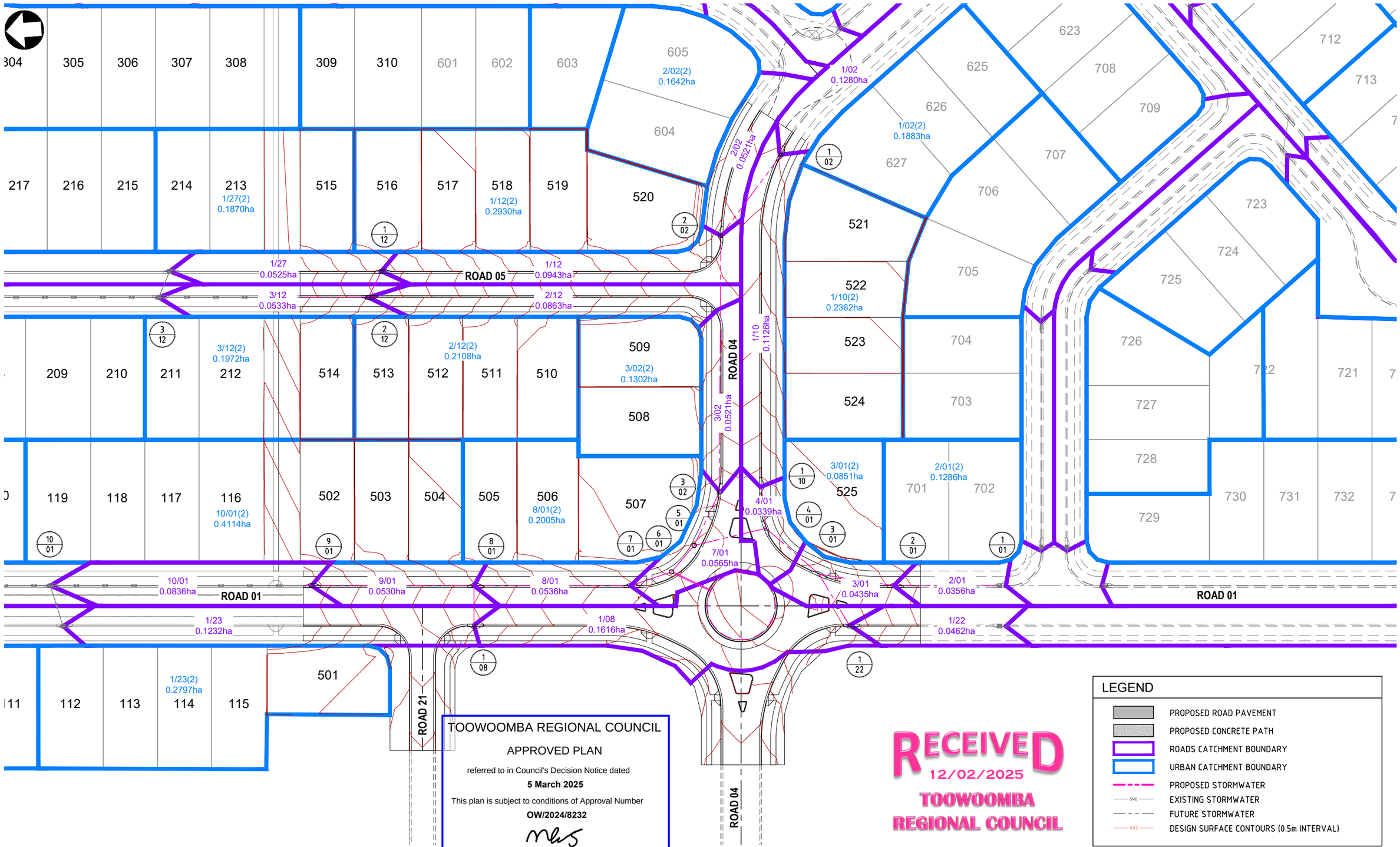
CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE: SIGNAGE AND LINEMARKING PLAN
SHEET 2 OF 2

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	271	B

ROADS & DRAINAGE



TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

RECEIVED
12/02/2025
TOOWOOMBA REGIONAL COUNCIL

STORMWATER CATCHMENT PLAN

SCALE 1:500

0 5 10 15 20m

SCALE 1:500 (A1)
SCALE 1:1,000 (A3)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

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ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
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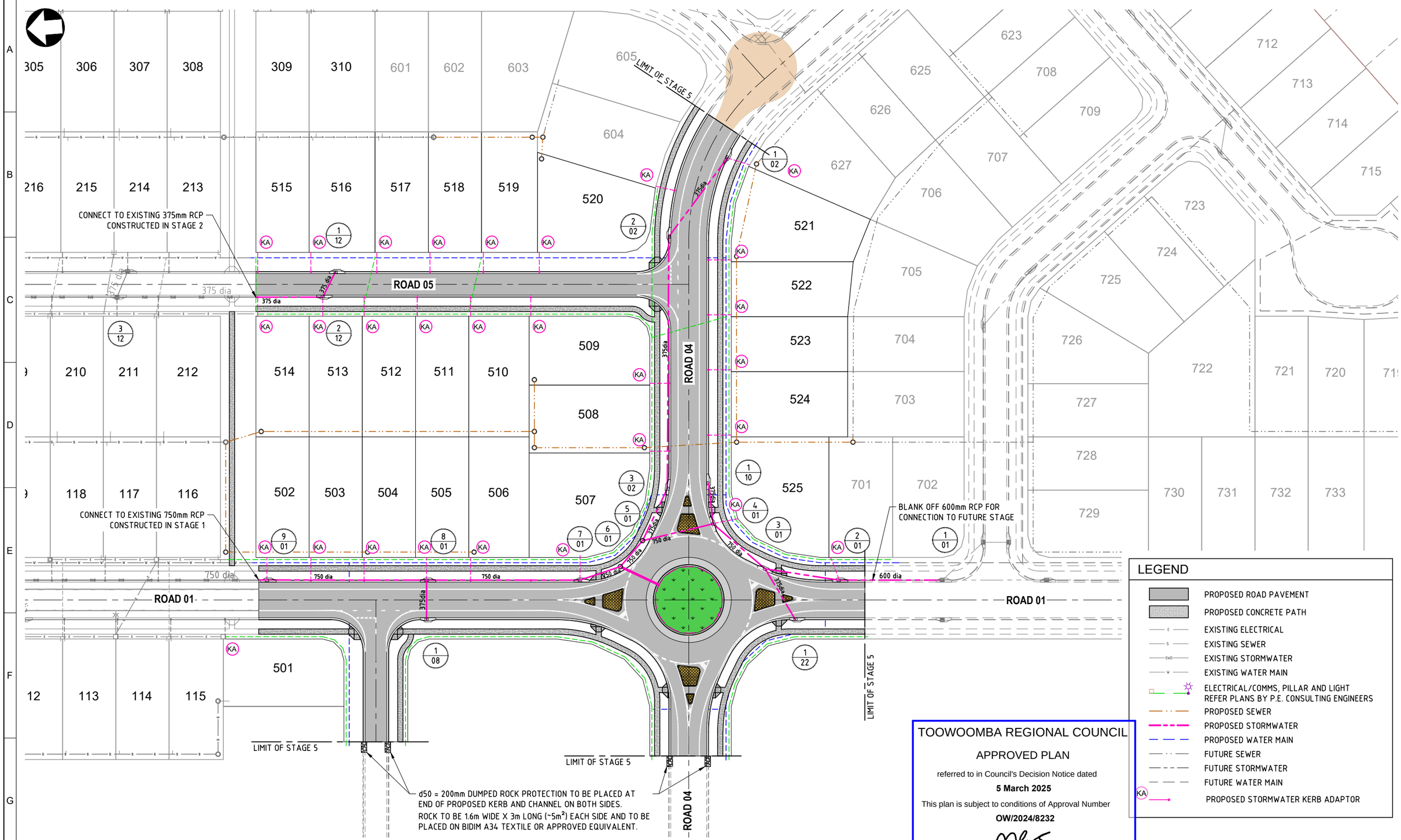
CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: STORMWATER CATCHMENT PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	300	B



STORMWATER LAYOUT PLAN

SCALE 1:500

LEGEND

- PROPOSED ROAD PAVEMENT
- PROPOSED CONCRETE PATH
- EXISTING ELECTRICAL
- EXISTING SEWER
- EXISTING STORMWATER
- EXISTING WATER MAIN
- ELECTRICAL/COMMS, PILLAR AND LIGHT REFER PLANS BY P.E. CONSULTING ENGINEERS
- PROPOSED SEWER
- PROPOSED STORMWATER
- PROPOSED WATER MAIN
- FUTURE SEWER
- FUTURE STORMWATER
- FUTURE WATER MAIN
- PROPOSED STORMWATER KERB ADAPTOR

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

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ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

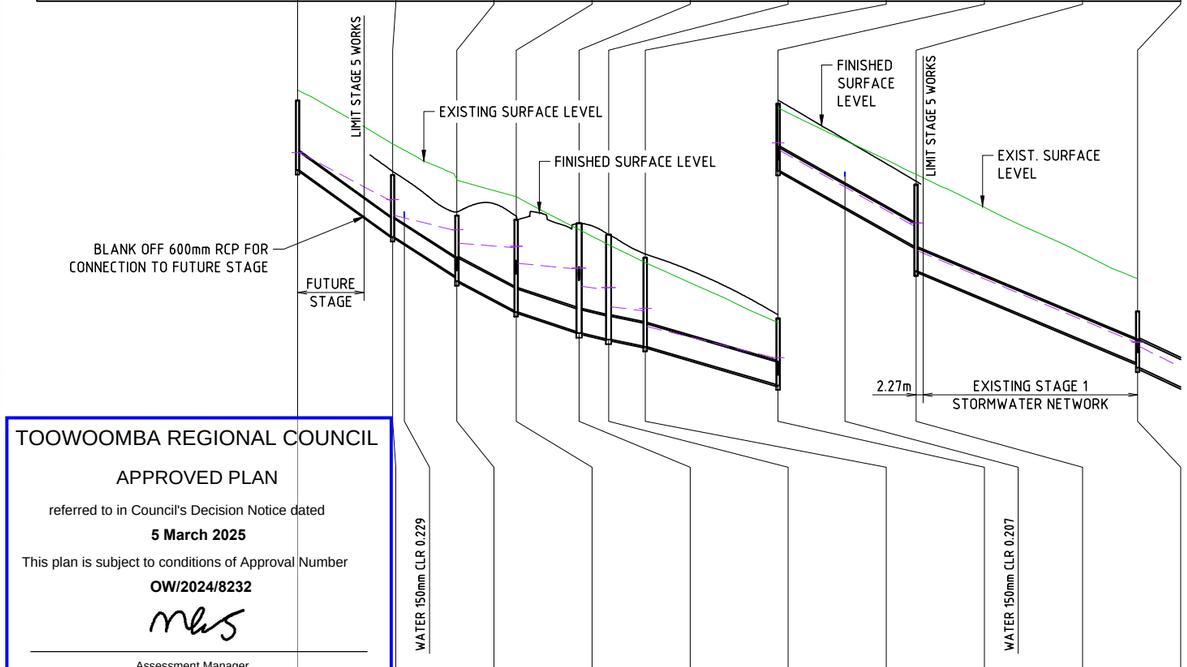
CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

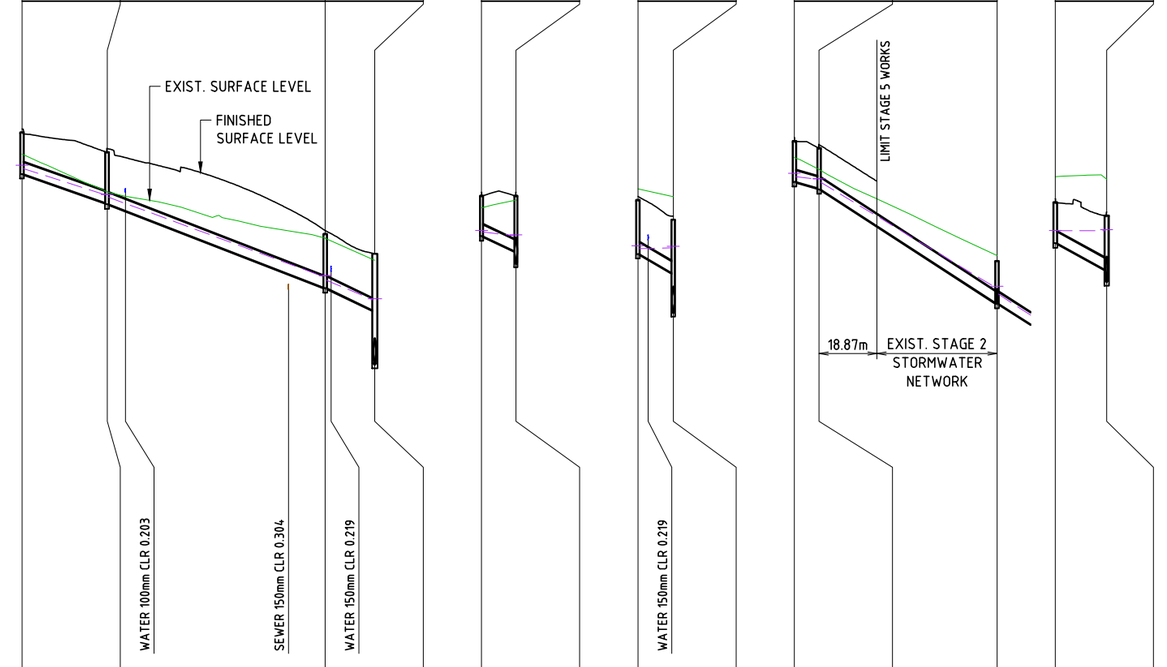
TITLE: STORWMATER LAYOUT PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	310	B

STRUCTURE NAME	1/01	2/01	3/01	4/01	5/01	6/01	7/01	8/01	9/01	10/01
	393882.012 E 6963716.278 N	393884.427 E 6963714.183 N	393889.190 E 6963767.595 N	393902.985 E 6963781.216 N	393899.806 E 6963801.417 N	393892.996 E 6963808.245 N	393890.086 E 6963819.844 N	393893.454 E 6963863.008 N	393896.979 E 6963907.870 N	393902.605 E 6963979.887 N
STRUCTURE DESCRIPTION	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC TYPE A GULLY (SAG) 1500mm DIA WITH L.I.L; 2.4m Lintel	BCC TYPE A GULLY (SAG) 1500mm DIA WITH L.I.L; 2.4m Lintel	BCC MANHOLE 1500mm DIA	BCC MANHOLE 1500mm DIA	BCC MANHOLE WITH TYPE A GULLY 1500mm DIA WITH L.I.L; 2.4m Lintel	BCC MANHOLE WITH TYPE A GULLY 1500mm DIA WITH L.I.L; 2.4m Lintel	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC MANHOLE WITH TYPE A GULLY 1800mm DIA WITH L.I.L; 2.4m Lintel



STRUCTURE NAME	1/02	2/02	3/02	5/01	1/08	8/01	1/10	4/01	1/12	2/12	3/12	1/22	3/01
	394005.595 E 6963769.124 N	393998.680 E 6963787.377 N	393993.857 E 6963793.542 N	393899.806 E 6963801.417 N	393882.273 E 6963863.882 N	393893.454 E 6963863.008 N	393914.685 E 6963781.599 N	393902.985 E 6963781.216 N	393982.206 E 6963881.777 N	393975.273 E 6963885.930 N	393973.790 E 6963943.754 N	393874.174 E 6963760.197 N	393889.190 E 6963767.595 N
STRUCTURE DESCRIPTION	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC MANHOLE 1500mm DIA	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC MANHOLE WITH TYPE A GULLY 1500mm DIA WITH L.I.L; 2.4m Lintel	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC TYPE A GULLY (SAG) 1500mm DIA WITH L.I.L; 2.4m Lintel	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC TYPE A GULLY L.I.L; 2.4m Lintel	BCC TYPE A GULLY (SAG) 1500mm DIA WITH L.I.L; 2.4m Lintel



| | 01 | | |

AEP	STRUCTURE	SUB-CATCHMENT RUNOFF						INLET DESIGN											DRAIN DESIGN											HEAD LOSSES								PART FULL		DESIGN LEVELS						STRUCTURE
DESIGN AEP %	STRUCTURE No.	DRAIN SECTION	Tc SUB-CATCHMENT TIME OF CONC. min	I RAINFALL INTENSITY mm/h	A SUB-CATCHMENT AREA ha	CA EQUIVALENT AREA ha	Qc SUB-CATCHMENT DISCHARGE L/s	Qa FLOW IN K&C (INC. BYPASS) L/s	HALF ROAD CAPACITY L/s	FLOW WIDTH m	FLOW DEPTH m	FLOW DxV m^2/s	ROAD GRADE AT INLET %	ROAD XFALL AT INLET %	INLET TYPE	INLET CURVE	Qg FLOW INTO INLET L/s	Qb BYPASS FLOW L/s	BYPASS STRUCTURE No.	Tc CRITICAL TIME OF CONC. min	I RAINFALL INTENSITY mm/hr	CA TOTAL (C x A) ha	Qrat PEAK FLOW L/s	Q PIPE FLOW L/s	L REACH LENGTH m	S PIPE GRADE %	PIPE SIZE mm	PIPE CLASS	Vf=Q/A FULL PIPE VELOCITY m/s	Qcap CAPACITY FLOW L/s	Vcap CAPACITY VELOCITY m/s	Vt TRAVEL VELOCITY m/s	CHART(S) USED	Vf²/2g VELOCITY HEAD m	Ku U/S HEAD LOSS COEFFICIENT	hu U/S HEAD LOSS m	Kw W.S.E COEFFICIENT	hw CHANGE IN W.S.E m	Sf PIPE FRICTION SLOPE %	hf PIPE FRICTION HEAD LOSS m	dn NORMAL DEPTH m	Vn NORMAL DEPTH VEL. m/s	PIPE U/S I.L m	PIPE D/S I.L m	PIPE U/S H.G.L m	PIPE D/S H.G.L m	W.S.E m	GRATE LEVEL m	STRUCTURE No.
39.35	1/01	1/01 to 2/01	0	0	0	0	0	0							AL2E		0	0		1	167	0	923	923	31	6.97	600	3	3.26	1622	5.74	2		0.544	0	0		0	5.12	1.606	0.324	5.92	580.691	578.531	581.265	579.676	581.265	582.927	1/01
39.35	2/01	2/01 to 3/01	5	119	0.118	0.082	27	27	1539	0.984	0.056	0.074	7.3	3	AL2E	8G,3.3X	27	0	3/01	5	119	0.082	950	950	20.96	6.16	600	3	3.36	1524	5.39	2	T1/T3	0.576	0.8	0.459	0.88	0.509	2.39	0.501	0.343	5.68	578.511	577.22	579.217	578.716	579.726	580.496	2/01
39.35	3/01	3/01 to 4/01	5	119	0.096	0.067	22	22	342		0		3.46	1.89	SAL2E 1500	SAG	22	0	4/01	5.17	118	0.18	982	982	19.386	5	750	3	2.22	2490	5.64	2	T3/T6	0.252	1.62	0.408	1.75	0.441	0.78	0.151	0.327	5.3	577.07	576.101	578.308	578.157	578.749	579.176	3/01
39.35	4/01	4/01 to 5/01	5	119	0.03	0.022	7	14	319		0		4.88	0.69	SAL2E 1500	SAG	14	0	3/02	5.34	118	0.385	1049	1051	20.449	3.14	750	3	2.38	1974	4.47	2	T6/T9	0.289	1.76	0.509	1.92	0.555	0.89	0.182	0.389	4.54	576.061	575.418	577.648	577.465	578.203	579.04	4/01
39.35	5/01	5/01 to 6/01													MH1500					5.96	115	0.763	1173	1173	9.643	2	750	3	2.66	1575	3.57	2	T3/T6	0.36	1.57	0.564	1.65	0.594	1.11	0.107	0.482	3.91	575.378	575.185	576.902	576.795	577.495	578.962	5/01
39.35	6/01	6/01 to 7/01													MH1500					6.04	114	0.763	1172	1172	11.959	1.83	750	3	2.65	1508	3.41	2	T3/T6	0.359	1.57	0.564	1.74	0.625	1.11	0.132	0.497	3.77	575.165	574.946	576.231	576.098	576.856	578.584	6/01
39.35	7/01	7/01 to 8/01	5	119	0.051	0.037	12	12	1011	0.774	0.049	0.041	3.08	3	AL2E 1500	4G,3.3X	12	0	8/01	6.14	114	0.801	1183	1183	43.295	2.86	750	3	2.68	1883	4.26	2	T1/T3	0.366	1.4	0.512	1.63	0.598	2.38	1.085	0.431	4.5	574.926	573.688	575.586	574.556	576.184	577.799	7/01
39.35	8/01	8/01 to 9/01	5	119	0.182	0.126	42	42	1380	1.315	0.065	0.086	5.87	3	AL2E 1500	4G,3.3X	42	0	9/01	6.5	112	1.04	1254	1254	45	5.5	750	3	2.84	2612	5.91	2	T1/T3	0.411	0.52	0.215	0.57	0.234	5.53	2.474	0.366	5.85	573.668	571.193	574.341	571.853	574.575	575.82	8/01
39.35	9/01	9/01 to 10/01	5	119	0.048	0.035	12	12	1380	0.54	0.042	0.047	5.87	3	AL2E	4G,3.3X	12	0		6.87	110	1.076	1260	1260	72.237	4.14	750	3	2.85	2266	5.13	2	T6/T9	0.415	1.9	0.789	2.17	0.901	4.15	2.991	0.4	5.26	570.39	567.399	571.064	568.066	571.965	573.178	9/01
39.35	10/01	10/01 to 11/01	5	119	0.35	0.242	80	80							AL2E 1800	PIT	80	0		7.25	109	1.537	1394	1394	80.984	4.61	900	3	2.19	3887	6.11	2	T1/T3	0.245	0.49	0.119	0.54	0.133	5.01	2.808	0.373	5.6	567.249	563.517	567.947	563.89	568.08	569.05	10/01
39.35	11/01														AL2E 1800	PIT																														563.89	565.296	11/01
39.35	1/02	1/02 to 2/02	5	119	0.241	0.17	56	63	945	1.883	0.082	0.088	2.78	2.96	AL2E	2G,3.3X	61	3	1/10	5	119	0.17	63	61	27.76	3.4	375	3	0.55	324	2.93	2	G1	0.015	7	0.108		0.108	3.12	0.906	0.11	2.24	581.562	580.617	581.741	580.876	581.848	582.885	1/02
39.35	2/02	2/02 to 3/02	5	119	0.156	0.109	36	36	861	1.535	0.072	0.063	2.28	3.02	AL2E	2G,3.3X	36	0	1/12	5.23	118	0.279	99	96	71.074	3.82	375	3	0.87	343	3.11	2	T3/T6	0.039	1.85	0.071	2.42	0.093	3.64	2.645	0.136	2.66	580.577	577.859	580.805	578.215	580.898	582.242	2/02
39.35	3/02	3/02 to 5/01	5	119	0.134	0.093	31	31	1009	1.351	0.059	0.07	6.29	3.01	AL2E	8G,3.3X	31	0	7/01	5.82	115	0.374	127	124	16.206	4.42	375	3	1.13	369	3.34	2	T3/T6	0.065	1.79	0.116	2.29	0.148	3.91	0.681	0.15	3.01	577.839	577.123	578.099	577.465	578.247	579.569	3/02
39.35	5/01														MH1500																		T3/T6		1.57	0.564	1.65	0.594						577.495	578.962	5/01
39.35	1/08	1/08 to 8/01	5	119	0.145	0.107	35	35	1380	1.207	0.062	0.079	5.87	3	AL2E	4G,3.3X	35	0		5	119	0.107	35	35	11.215	4.4	375	3	0.32	368	3.33	2	G2	0.005	9.7	0.05		0.05	1.03	0.16	0.078	2.1	574.537	574.043	574.672	574.556	574.722	575.82	1/08
39.35	8/01	8/01 to 9/01	5	119	0.182	0.126	42	42	1380	1.315	0.065	0.086	5.87	3	AL2E 1500	4G,3.3X	42	0	9/01														T1/T3		0.52	0.215	0.57	0.234						574.575	575.82	8/01
39.35	1/10	1/10 to 4/01	5	119	0.259	0.181	60	63	1391	1.584	0.073	0.106	5.89	3	AL2E	4G,3.3X	56	6	4/01	5	119	0.181	60	56	11.506	5.38	375	3	0.51	407	3.68	2	G1	0.013	7	0.092		0.092	-0.27	0.022	0.094	2.59	577.954	577.335	578.126	578.157	578.219	579.68	1/10
39.35	4/01		5	119	0.03	0.022	7	14	319		0		4.88	0.69	SAL2E 1500	SAG	14	0	3/02														T6/T9		1.76	0.509	1.92	0.555						578.203	579.04	4/01
39.35	1/12	1/12 to 2/12	5	119	0.281	0.195	65	65	454	1.585	0.073	0.109	6.35	3	AL2E	8G,3.3X	54	11		5	119	0.195	65	54	8.081	2.5	375	3	0.48	278	2.51	2	G2	0.012	9.7	0.116		0.116	0.92	0.122	0.112	1.94	575.303	575.101	575.471	575.396	575.587	576.6	1/12
39.35	2/12	2/12 to 3/12	5	119	0.218	0.153	50	50	454	1.413	0.068	0.096	6.35	3	AL2E	8G,3.3X	45	5		5.07	119	0.348	115	99	58	6.39	375	3	0.89	443	4.02	2	T6/T9	0.041	2.51	0.102	2.76	0.112	5.92	3.493	0.12	3.23	575.063	571.356	575.294	571.858	575.406	576.371	2/12
39.35	3/12	3/12 to 4/12	5	119	0.179	0.125	41	41							AL2E		41	0		5.55	117	0.595	193	176	111	6.37	375	3	1.6	443	4.01	2	T1/T3	0.13	1.65	0.214	1.99	0.259	6.5	6.65	0.165	3.78	571.336	564.268	571.644	564.433	571.903	572.688	3/12
39.35	4/12														AL3E																															564.433	565.644	4/12
39.35	1/22	1/22 to 3/01	5	119	0.042	0.03	10	10	1539	0.436	0.038	0.046	7.3	3	AL2E	8G,3.3X	10	0	1/39	5	119	0.03	10	10	16.74	5.14	375	3	0.09	398	3.6	2	G2	0	9.7	0.004		0.004	0	0.001	0.041	1.53	578.306	577.445	578.716	578.716	578.72	579.607	1/22
39.35	3/01		5	119	0.096	0.067	22	22	342		0		3.46	1.89	SAL2E 1500	SAG	22	6	4/01														T3/T6		1.62	0.408	1.75	0.441						578.749	579.176	3/01
39.35	1/23	1/23 to 10/01	5	119	0.297	0.208	69	69							AL2E		69	0		5	119	0.208	69	69	11.778	1.4	375	3	0.62	208	1.88	2	G1	0.02	7	0.139		0.139	0.54	0.111	0.149	1.69	567.939	567.774	568.13	568.066	568.269	569.23	1/23
39.35	10/01		5	119	0.35	0.242	80	80							AL2E 1800	PIT	80	0															T1/T3		0.49	0.119	0.54	0.133						568.08	569.05	10/01
39.35	1/27	1/27 to 3/12	5	119	0.171	0.119	39	39							AL2E		39	0		5	119	0.119	39	39	7.832	2.14	375	3	0.36	257	2.33	2	G1	0.006	7	0.045		0.045	-0.01	0.004	0.099	1.68	571.584	571.416	571.857	571.858	571.903	572.879	1/27
39.35	3/12		5	119	0.179	0.125	41	41							AL2E		41	0															T1/T3		1.65	0.214	1.99	0.259						571.903	572.688	3/12

MINOR STORM CALCULATION TABLE

39.35% AEP (2 YEAR ARI)

AEP	STRUCTURE	SUB-CATCHMENT RUNOFF						INLET DESIGN											DRAIN DESIGN											HEAD LOSSES								PART FULL		DESIGN LEVELS						STRUCTURE
DESIGN AEP %	STRUCTURE No.	DRAIN SECTION	Tc SUB-CATCHMENT TIME OF CONC. min	I RAINFALL INTENSITY mm/h	A SUB-CATCHMENT AREA ha	CA EQUIVALENT AREA ha	Qc SUB-CATCHMENT DISCHARGE L/s	Qa FLOW IN K&C (INC. BYPASS) L/s	HALF ROAD CAPACITY L/s	FLOW WIDTH m	FLOW DEPTH m	FLOW DxV m^2/s	ROAD GRADE AT INLET %	ROAD XFALL AT INLET %	INLET TYPE	INLET CURVE	Qg FLOW INTO INLET L/s	Qb BYPASS FLOW L/s	BYPASS STRUCTURE No.	Tc CRITICAL TIME OF CONC. min	I RAINFALL INTENSITY mm/hr	CA TOTAL (C x A) ha	Qrat PEAK FLOW L/s	Q PIPE FLOW L/s	L REACH LENGTH m	S PIPE GRADE %	PIPE SIZE mm	PIPE CLASS	Vf=Q/A FULL PIPE VELOCITY m/s	Qcap CAPACITY FLOW L/s	Vcap CAPACITY VELOCITY m/s	Vt TRAVEL VELOCITY m/s	CHART(S) USED	Vf²/2g VELOCITY HEAD m	Ku U/S HEAD LOSS COEFFICIENT	hu U/S HEAD LOSS m	Kw W.S.E COEFFICIENT	hw CHANGE IN W.S.E m	Sf PIPE FRICTION SLOPE %	hf PIPE FRICTION HEAD LOSS m	dn NORMAL DEPTH m	Vn NORMAL DEPTH VEL. m/s	PIPE U/S I.L m	PIPE D/S I.L m	PIPE U/S H.G.L m	PIPE D/S H.G.L m	W.S.E m	GRATE LEVEL m	STRUCTURE No.
1	1/01	1/01 to 2/01	0	0	0	0	0	0							AL2E		0	0		1	367	0	1086	1086	31	6.97	600	3	3.84	1622	5.74	2		0.753	0	0		0	3.09	0.969	0.359	6.14	580.691	578.531	581.277	580.318	581.277	582.927	1/01
1	2/01	2/01 to 3/01	5	264	0.118	0.107	78	745	1539	4.338	0.151	0.419	7.3	3	AL2E	8G,3.3X	21	724	3/01	5	264	0.107	1831	1107	20.96	6.16	600	3	3.91	1524	5.39	2	T1/T3	0.782	0.59	0.461	0.68	0.533	3.25	0.681	0.379	5.88	578.511	577.22	579.856	579.176	580.39	580.496	2/01
1	3/01	3/01 to 4/01	5	264	0.096	0.088	64	789	0		0.188		3.46	1.89	SAL2E 1500	SAG	-623	1412	4/01	5.17	262	0.234	2046	556	19.386	5	750	3	1.26	2490	5.64	2	T3/T6	0.081	1.84	0.148	2.05	0.166	0.25	0.048	0.241	4.54	577.07	576.101	578.183	578.134	578.349	579.176	3/01
1	4/01	4/01 to 5/01	5	264	0.03	0.029	21	1764	160		0.15		4.88	0.69	SAL2E 1500	SAG	160	1604	3/02	5.34	260	0.501	2237	851	20.449	3.14	750	3	1.93	1974	4.47	2	T6/T9	0.189	1.81	0.342	1.96	0.371	0.58	0.119	0.344	4.3	576.061	575.418	577.793	577.673	578.164	579.04	4/01
1	5/01	5/01 to 6/01													MH1500					5.96	253	0.994	2884	1188	9.643	2	750	3	2.69	1575	3.57	2	T6/T9	0.369	1.67	0.615	1.77	0.654	1.14	0.11	0.487	3.92	575.378	575.185	577.058	576.948	577.712	578.962	5/01
1	6/01	6/01 to 7/01													MH1500					6.04	253	0.994	2882	1186	11.959	1.83	750	3	2.68	1508	3.41	2	T3/T6	0.367	1.48	0.542	1.64	0.602	1.13	0.135	0.501	3.78	575.165	574.946	576.406	576.271	577.008	578.584	6/01
1	7/01	7/01 to 8/01	5	264	0.051	0.048	35	1607	1011	6.48	0.191	0.633	3.08	3	AL2E 1500	4G,3.3X	142	1466	8/01	6.14	251	1.044	2913	1323	43.295	2.86	750	3	2.99	1883	4.26	2	T1/T3	0.457	1.44	0.66	1.64	0.752	1.75	0.8	0.464	4.61	574.926	573.688	575.61	574.852	576.363	577.799	7/01
1	8/01	8/01 to 9/01	5	264	0.182	0.165	121	1587	1380	6.48	0.191	0.625	5.87	3	AL2E 1500	4G,3.3X	142	1445	9/01	6.5	247	1.356	3116	1507	45	5.5	750	3	3.41	2612	5.91	2	T1/T3	0.594	0.8	0.477	0.87	0.515	4.51	2.058	0.409	6.12	573.668	571.193	574.376	572.346	574.89	575.82	8/01
1	9/01	9/01 to 10/01	5	264	0.048	0.045	33	1478	1380	6.48	0.191	0.582	5.87	3	AL2E	4G,3.3X	142	1337		6.87	243	1.402	3132	1631	72.237	4.14	750	3	3.69	2266	5.13	2	T6/T9	0.696	1.78	1.238	1.94	1.349	3.56	2.595	0.471	5.58	570.39	567.399	571.108	568.534	572.457	573.178	9/01
1	10/01	10/01 to 11/01	5	264	0.35	0.315	231	231							AL2E 1800	PIT	231	0		7.25	239	2.006	3517	2017	80.984	4.61	900	3	3.17	3887	6.11	2	T1/T3	0.513	0.92	0.473	1.04	0.535	5.04	2.713	0.46	6.17	567.249	563.517	568.062	563.977	568.597	569.05	10/01
1	11/01														AL2E 1800	PIT																														563.977	565.296	11/01
1	1/02	1/02 to 2/02	5	264	0.241	0.221	162	456	945	4.326	0.151	0.257	2.78	2.96	AL2E	2G,3.3X	161	296	1/10	5	264	0.221	456	161	27.76	3.4	375	3	1.45	324	2.93	2	G1	0.108	4.3	0.464		0.464	2.01	0.6	0.187	2.92	581.562	580.617	581.857	581.3	582.321	582.885	1/02
1	2/02	2/02 to 3/02	5	264	0.156	0.142	104	119	861	2.544	0.102	0.118	2.28	3.02	AL2E	2G,3.3X	73	46	1/12	5.23	261	0.364	573	232	71.074	3.82	375	3	2.1	343	3.11	2	T3/T6	0.224	1.7	0.382	1.96	0.44	2.71	1.947	0.226	3.33	580.577	577.859	580.918	578.993	581.359	582.242	2/02
1	3/02	3/02 to 5/01	5	264	0.134	0.122	89	1694	1009	6.258	0.156	0.684	6.29	3.01	AL2E	8G,3.3X	122	1572	7/01	5.82	255	0.488	655	345	16.206	4.42	375	3	3.13	369	3.34	2	T3/T6	0.498	1.39	0.692	1.54	0.766	3.87	0.628	0.288	3.79	577.839	577.123	578.301	577.673	579.066	579.569	3/02
1	5/01														MH1500																		T6/T9		1.67	0.615	1.77	0.654						577.712	578.962	5/01
1	1/08	1/08 to 8/01	5	264	0.145	0.138	101	101	1380	1.962	0.085	0.136	5.87	3	AL2E	4G,3.3X	62	39		5	264	0.138	101	62	11.215	4.4	375	3	0.56	368	3.33	2	G2	0.016	9.7	0.157		0.157	0.1	0.014	0.104	2.48	574.537	574.043	574.863	574.852	575.02	575.82	1/08
1	8/01		5	264	0.182	0.165	121	1587	1380	6.48	0.191	0.625	5.87	3	AL2E 1500	4G,3.3X	142	1445	9/01														T1/T3		0.8	0.477	0.87	0.515						574.89	575.82	8/01
1	1/10	1/10 to 4/01	5	264	0.259	0.236	173	469	1391	3.625	0.134	0.312	5.89	3	AL2E	4G,3.3X	138	331	4/01	5	264	0.236	173	138	11.506	5.38	375	3	1.25	407	3.68	2	G1	0.08	4.77	0.381		0.381	0.82	0.144	0.151	3.33	577.954	577.335	578.228	578.134	578.609	579.68	1/10
1	4/01		5	264	0.03	0.029	21	1764	160		0.15		4.88	0.69	SAL2E 1500	SAG	160	1604	3/02														T6/T9		1.81	0.342	1.96	0.371						578.164	579.04	4/01
1	1/12	1/12 to 2/12	5	264	0.281	0.255	187	233	454	2.718	0.107	0.215	6.35	3	AL2E	8G,3.3X	92	141		5	264	0.255	187	92	8.081	2.5	375	3	0.83	278	2.51	2	G2	0.035	8.23	0.29		0.29	0.18	0.021	0.148	2.25	575.303	575.101	575.626	575.612	575.916	576.6	1/12
1	2/12	2/12 to 3/12	5	264	0.218	0.199	146	146	454	2.246	0.093	0.167	6.35	3	AL2E	8G,3.3X	71	74		5.07	263	0.454	332	163	58	6.39	375	3	1.47	443	4.02	2	T6/T9	0.11	2.28	0.252	2.55	0.281	4.84	2.85	0.157	3.7	575.063	571.356	575.36	572.553	575.641	576.371	2/12
1	3/12	3/12 to 4/12	5	264	0.179	0.162	119	119							AL2E		119	0		5.55	258	0.776	556	386	111	6.37	375	3	3.5	443	4.01	2	T3/T6	0.625	1.36	0.847	1.5	0.938	6.46	6.754	0.271	4.51	571.336	564.268	571.706	564.54	572.644	572.688	3/12
1	4/12														AL3E																															564.54	565.644	4/12
1	1/22	1/22 to 3/01	5	264	0.042	0.04	29	151	1539	2.214	0.092	0.176	7.3	3	AL2E	8G,3.3X	73	78	1/39	5	264	0.04	151	73	16.74	5.14	375	3	0.66	398	3.6	2	G2	0.022	4.53	0.101		0.101	0.17	0.029	0.109	2.74	578.306	577.445	579.205	579.176	579.306	579.607	1/22
1	3/01		5	264	0.096	0.088	64	789	0		0.188		3.46	1.89	SAL2E 1500	SAG	-623	1412	4/01														T3/T6		1.84	0.148	2.05	0.166						578.349	579.176	3/01
1	1/23	1/23 to 10/01	5	264	0.297	0.271	199	199							AL2E		199	0		5	264	0.271	199	199	11.778	1.4	375	3	1.8	208	1.88	2	G1	0.165	2.95	0.487		0.487	1.29	0.151	0.294	2.14	567.939	567.774	568.686	568.534	569.173	569.23	1/23
1	10/01		5	264	0.35	0.315	231	231							AL2E 1800	PIT	231	0															T1/T3		0.92	0.473	1.04	0.535						568.597	569.05	10/01
1	1/27	1/27 to 3/12	5	264	0.171	0.155	114	114							AL2E		114	0		5	264	0.155	114	114	7.832	2.14	375	3	1.03	257	2.33	2	G1	0.054	3.07	0.166		0.166	0.42	0.033	0.175	2.25	571.584	571.416	572.586	572.553	572.752	572.879	1/27
1	3/12		5	264	0.179	0.162	119	119							AL2E		119	0															T3/T6		1.36	0.847	1.5	0.938						572.644	572.688	3/12

MAJOR STORM CALCULATION TABLE

1% AEP (100 YEAR ARI)

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification

Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD

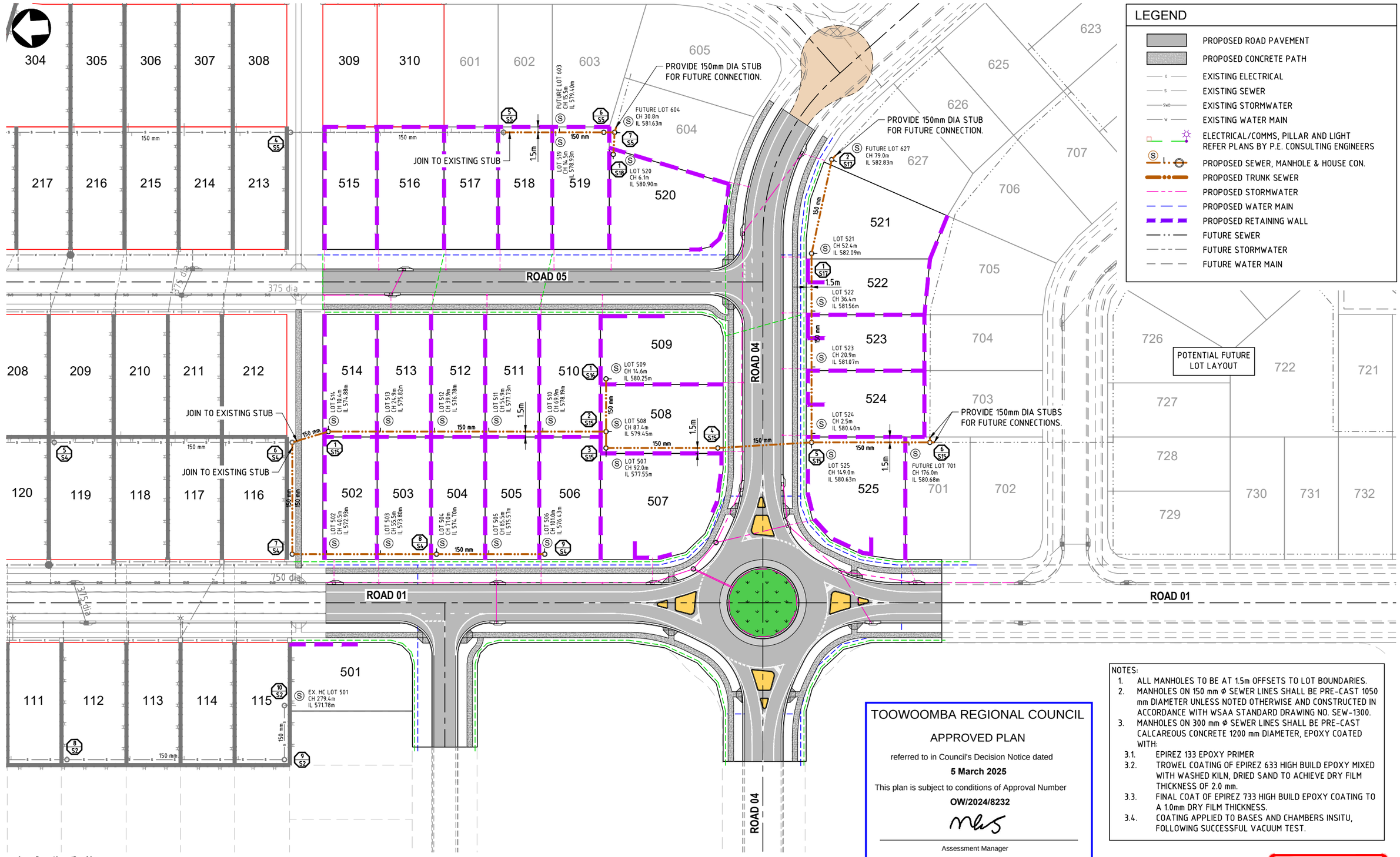
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE: STORMWATER CALCULATION TABLES

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	330	B

STORMWATER



SEWERAGE LAYOUT PLAN

SCALE 1:500

NOTES:

1. ALL MANHOLES TO BE AT 1.5m OFFSETS TO LOT BOUNDARIES.
2. MANHOLES ON 150 mm ø SEWER LINES SHALL BE PRE-CAST 1050 mm DIAMETER UNLESS NOTED OTHERWISE AND CONSTRUCTED IN ACCORDANCE WITH WSAA STANDARD DRAWING NO. SEW-1300.
3. MANHOLES ON 300 mm ø SEWER LINES SHALL BE PRE-CAST CALCAREOUS CONCRETE 1200 mm DIAMETER, EPOXY COATED WITH:
   - 3.1. EPIREZ 133 EPOXY PRIMER
   - 3.2. TROWEL COATING OF EPIREZ 633 HIGH BUILD EPOXY MIXED WITH WASHED KILN, DRIED SAND TO ACHIEVE DRY FILM THICKNESS OF 2.0 mm.
   - 3.3. FINAL COAT OF EPIREZ 733 HIGH BUILD EPOXY COATING TO A 1.0mm DRY FILM THICKNESS.
   - 3.4. COATING APPLIED TO BASES AND CHAMBERS INSITU, FOLLOWING SUCCESSFUL VACUUM TEST.

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

referred to in Council's Decision Notice dated

5 March 2025

This plan is subject to conditions of Approval Number

OW/2024/8232

Assessment Manager

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

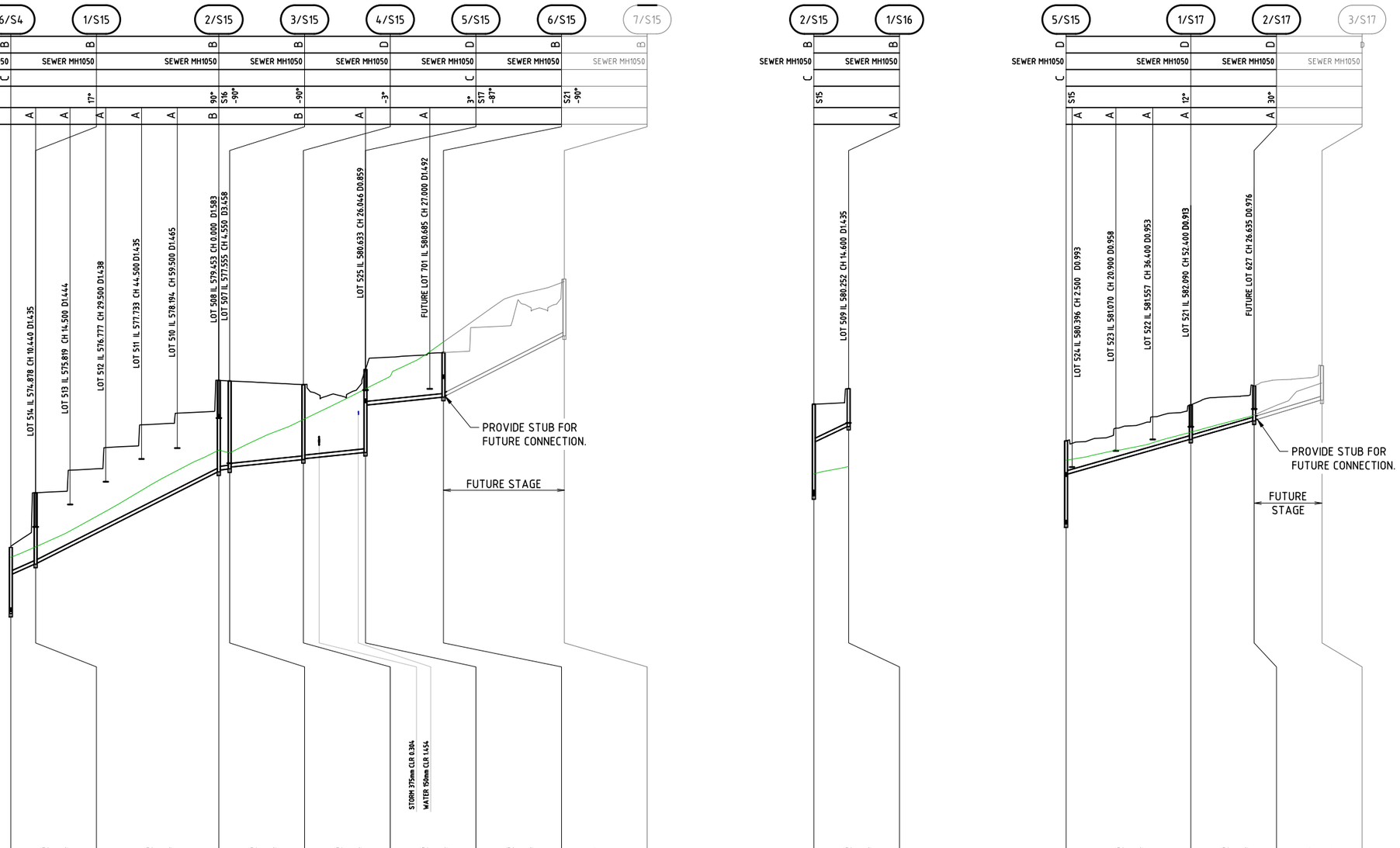
RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT			
BIRD IN HAND 3 PTY LTD			
PROJECT: BOTANIC HIGHFIELDS STAGE 5			
DRAWN: B ENRIGHT	CHECKED: D TAYLOR	ENGINEER: B LUSK	SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE				
SEWERAGE LAYOUT PLAN				
SHEET: A1	SCALE: AS SHOWN	JOB No: GS562-05	SHEET No: 400	REVISION: B



MAINTENANCE HOLE / SHAFT NAME	6/S4	1/S15	2/S15	3/S15	4/S15	5/S15	6/S15	7/S15
MH / MS COVER TYPE	B	B	B	B	D	D	B	B
MH / MS TYPE	SEWER MH1050	SEWER MH1050	SEWER MH1050	SEWER MH1050	SEWER MH1050	SEWER MH1050	SEWER MH1050	SEWER MH1050
DS MH / MS DROP TYPE	C					C		
LINE DEFLECTION & BRANCHES		17°	90° S16 -90°	-90°	-3°	3° S17 -87°	S21 -90°	
PROPERTY CONNECTION TYPE	A	A A	A A B	B	A	A		
PIPE SIZE (mm)	150mm Ø	150mm Ø	150mm Ø	150mm Ø	150mm Ø	150mm Ø	150mm Ø	
PIPE CLASS	SN8 UPVC	SN8 UPVC	SN8 UPVC	SN8 UPVC	SN8 UPVC	SN8 UPVC	SN8 UPVC	
PIPE GRADE (%)	4.00%	4.99%	1.00%	1.00%	1.00%	1.00%	4.99%	
PIPE SLOPE (1 in X)	25.0	20.0	100.0	100.0	100.0	100.0	20.0	
PIPE LENGTH (m)	10.440m	77.000m	4.550m	31.000m	26.046m	32.800m	50.800m	
DATUM RL	557.000							
FINISHED (& EXISTING) SURFACE LEVEL	574.064 (573.598)	576.313 (574.046)	581.036 (578.108)	581.013 (577.988)	580.858 (579.391)	581.492 (580.680)	582.205 (582.652)	585.296 (585.187)
DEPTH OF INVERT BELOW FSL	2.821 1.171	3.002 2.962	3.843 3.763	3.695 3.615	3.150 3.110	3.483 1.489	1.873 1.833	2.389
INVERT LEVEL	571.243 572.893	573.311 573.351	577.193 577.273	577.319 577.399	577.709 577.749	578.009 580.004	580.332 580.372	582.907
CHAINAGE	0.000	10.440	87.440	91.990	122.990	149.036	181.836	232.636

MAINTENANCE HOLE / SHAFT NAME	2/S15	1/S16
MH / MS COVER TYPE	B	B
MH / MS TYPE	SEWER MH1050	SEWER MH1050
DS MH / MS DROP TYPE	C	
LINE DEFLECTION & BRANCHES	S15	
PROPERTY CONNECTION TYPE		A
PIPE SIZE (mm)	150mm Ø	
PIPE CLASS	SN8 UPVC	
PIPE GRADE (%)	4.42%	
PIPE SLOPE (1 in X)	22.6	
PIPE LENGTH (m)	14.600m	
DATUM RL	558.000	
FINISHED (& EXISTING) SURFACE LEVEL	581.036 (578.108)	581.687 (578.421)
DEPTH OF INVERT BELOW FSL	3.843 1.580	1.585
INVERT LEVEL	577.193 579.456	580.102
CHAINAGE	0.000	14.600

MAINTENANCE HOLE / SHAFT NAME	5/S15	1/S17	2/S17	3/S17
MH / MS COVER TYPE	D	D	D	D
MH / MS TYPE	SEWER MH1050	SEWER MH1050	SEWER MH1050	SEWER MH1050
DS MH / MS DROP TYPE	C			
LINE DEFLECTION & BRANCHES	S15	12°	30°	
PROPERTY CONNECTION TYPE	A A	A A	A	
PIPE SIZE (mm)	150mm Ø	150mm Ø	150mm Ø	
PIPE CLASS	SN8 UPVC	SN8 UPVC	SN8 UPVC	
PIPE GRADE (%)	2.79%	2.77%	2.93%	
PIPE SLOPE (1 in X)	35.9	36.1	34.1	
PIPE LENGTH (m)	52.400m	26.635m	28.460m	
DATUM RL	560.000			
FINISHED (& EXISTING) SURFACE LEVEL	581.492 (580.680)	583.003 (581.858)	583.810 (582.577)	584.658 (583.925)
DEPTH OF INVERT BELOW FSL	3.483 1.395	1.444 1.404	1.474 1.434	1.447
INVERT LEVEL	578.009 580.098	581.559 581.599	582.336 582.376	583.210
CHAINAGE	0.000	52.400	79.035	107.495

LINE S15 S16 S17

TOOWOOMBA REGIONAL COUNCIL
APPROVED PLAN
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Assessment Manager

SCALE 1:1,000 (A1)
SCALE 1:2,000 (A3)

SCALE 1:125 (A1)
SCALE 1:250 (A3)

SEWERAGE LONGITUDINAL SECTIONS

SCALE 1:1000(H), 1:100(V)

ISSUED
FOR APPROVAL

REV.	DATE	DRAWN	APP'D	DRAWING REVISION
B	05/02/25	BE	BL	RFI RESPONSE
A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

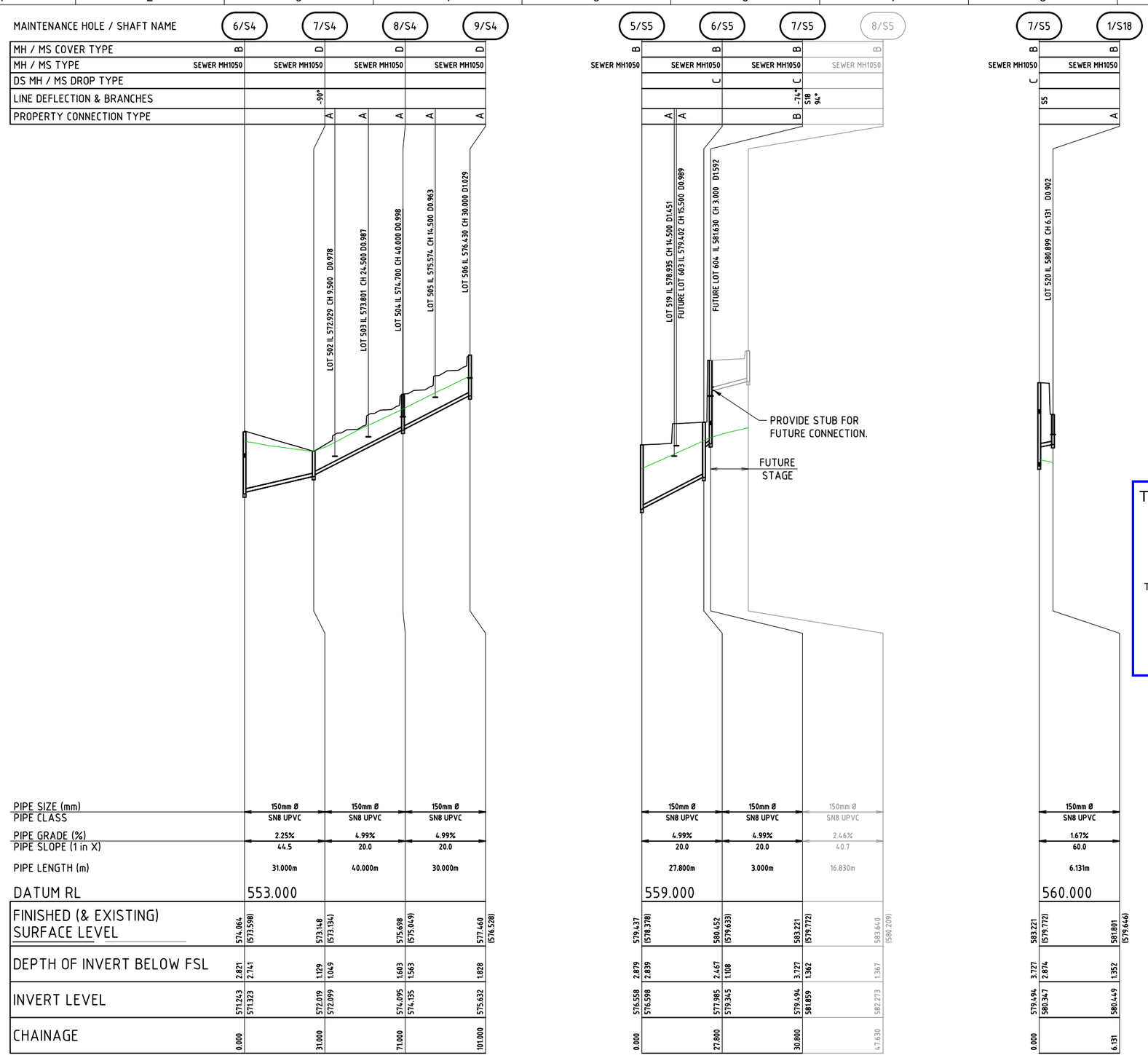
BOTANIC HIGHFIELDS RD

GenEng Solutions Pty Ltd
ABN 81 150 773 961
PO Box 300
Crows Nest QLD 4355
Ph: (07) 4698 2100
www.genengsolutions.com.au

CLIENT: BIRD IN HAND 3 PTY LTD
PROJECT: BOTANIC HIGHFIELDS STAGE 5
DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: SEWERAGE LONG SECTIONS SHEET 1 OF 2

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	410	B



TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

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Assessment Manager

0 10 20 30 40m

SCALE 1:1,000 (A1)
SCALE 1:2,000 (A3)

0 1.25 2.5 3.75 5m

SCALE 1:125 (A1)
SCALE 1:250 (A3)

SEWERAGE LONGITUDINAL SECTIONS

SCALE 1:1000(H), 1:100(V)

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Signature		Date	05/02/2025
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CLIENT: BIRD IN HAND 3 PTY LTD

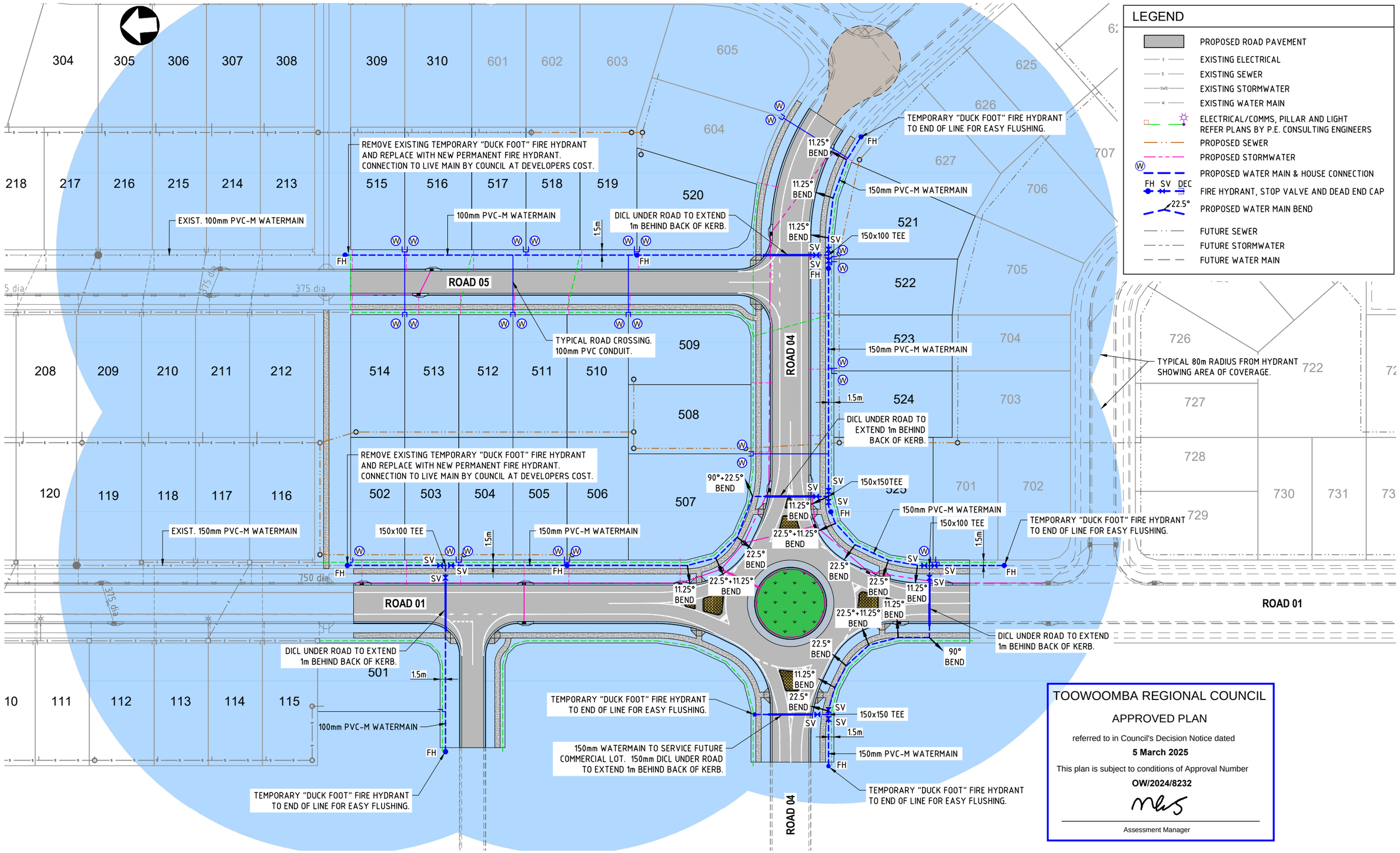
PROJECT: BOTANIC HIGHFIELDS STAGE 5

DRAWN	CHECKED	ENGINEER	SURVEYOR
B ENRIGHT	D TAYLOR	B LUSK	PARKINSON SURVEYS
DESIGNED: B ENRIGHT			HORIZ. DATUM: MGA 2020 (Z 56) VERT. DATUM: AHD

TITLE: SEWERAGE RETICULATION SHEET 2 OF 2

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	411	B

SEWER



WATER RETICULATION LAYOUT PLAN

SCALE 1:500

TOOWOOMBA REGIONAL COUNCIL

APPROVED PLAN

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A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

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DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT
HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: WATER LAYOUT PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	500	B

JOINS INSET THIS DRAWING

EXISTING BUND FROM STAGES 3 AND 4 TO BE RELOCATED AS SHOWN

DIVERSION BUND / CUT-OFF DRAIN TO DIVERT CLEAN WATER AROUND SITE. REFER DETAIL ON SHEET 610

DOWNSTREAM SILT FENCE DURING CONSTRUCTION

TOPSOIL AND GRASS SEED DISTURBED AREAS IMMEDIATELY FOLLOWING FINAL TRIMMING OF EARTHWORKS ON ALLOTMENTS

BUND TO BE ESTABLISHED DURING BULK EARTHWORKS PHASE TO DIVERT STAGE 5 RUN-OFF TO SEDIMENT BASIN IN THE NORTH WEST CORNER OF THE SITE.

TURF STRIPS BEHIND KERB

SAND BAGS TO ROAD BOX AS END-OF-DAY TREATMENT AND WHEN RAIN IS IMMINENT

DOWNSTREAM SILT FENCE DURING CONSTRUCTION

SAND BAGS TO ROAD BOX AS END-OF-DAY TREATMENT AND WHEN RAIN IS IMMINENT

ROAD 05

ROAD 04

ROAD 01

ROAD 21

LEVEL SPREADER

LIMIT OF STAGE 5

DOWNSTREAM SILT FENCE DURING CONSTRUCTION

TURF STRIP BETWEEN ROCK PROTECTION

d50 = 200mm DUMPED ROCK PROTECTION
REFER DRG. NO.GS562-05-310 FOR DETAILS

TURF STRIPS BEHIND KERB

TURF STRIP BETWEEN ROCK PROTECTION

LEVEL SPREADER

TURF STRIPS BEHIND KERB

TOOWOOMBA REGIONAL COUNCIL
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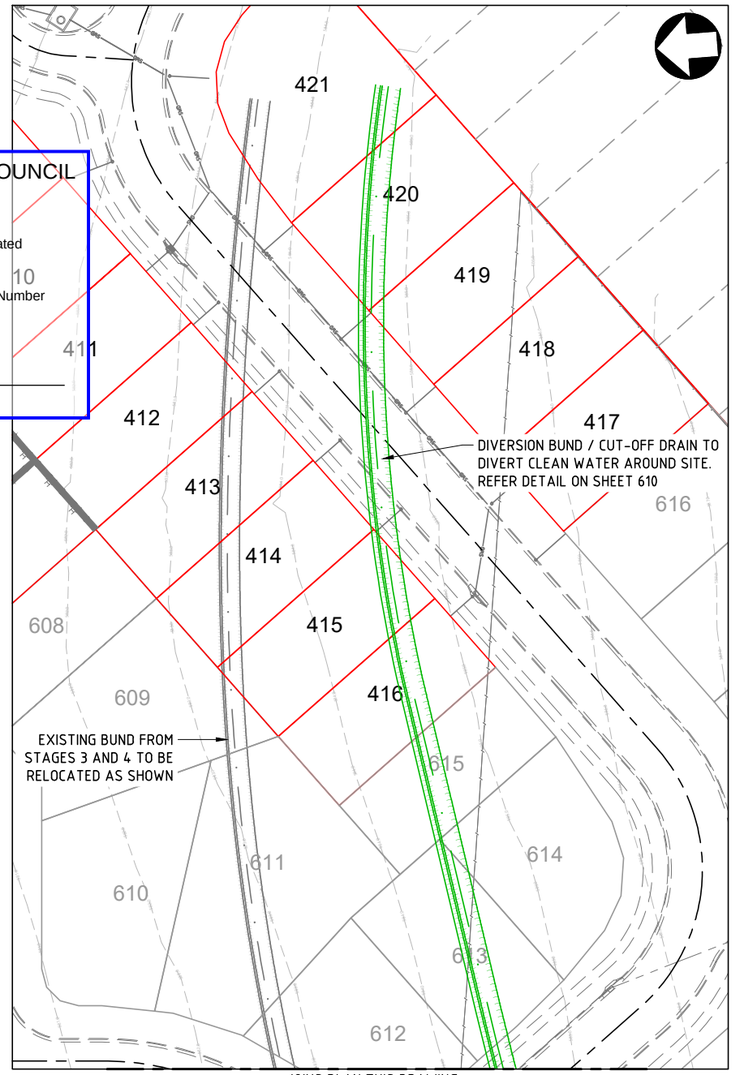
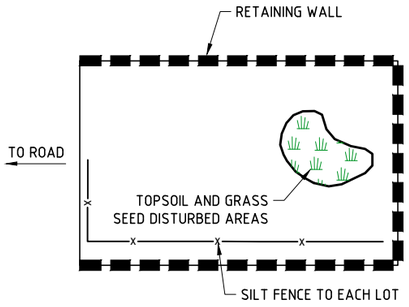
0 5 10 15 20m
SCALE 1:500 (A1)
SCALE 1:1,000 (A3)

EROSION AND SEDIMENT CONTROL LAYOUT PLAN
SCALE 1:500



INSET
SCALE 1:500



TYPICAL LOT DETAIL- POST CONSTRUCTION
SCALE N.T.S

NOTE:
NO MORE THAN 1HA OF AREA IS TO BE LEFT UNPROTECTED AT ANY TIME. FOLLOWING COMPLETION OF EACH 1HA EARTHWORKS SECTION, GEOBINDER IS TO BE APPLIED IN ACCORDANCE WITH MRTS52.

ISSUED
FOR APPROVAL

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A	06/12/24	BE	BL	ISSUED FOR APPROVAL

RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

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DRAWN: B ENRIGHT | CHECKED: D TAYLOR | ENGINEER: B LUSK | SURVEYOR: PARKINSON SURVEYS
DESIGNED: B ENRIGHT | HORIZ. DATUM: MGA 2020 (Z 56) | VERT. DATUM: AHD

TITLE: ESC LAYOUT PLAN

SHEET	SCALE	JOB No	SHEET No	REVISION
A1	AS SHOWN	GS562-05	600	B

E&SCP

EROSION AND SEDIMENT CONTROL ASSESSMENT

1. ASSESSMENT OF EROSION RISK WAS CARRIED OUT IN ACCORDANCE WITH URBAN STORMWATER QUALITY PLANNING GUIDELINES 2010. ASSESSMENT DETERMINED THE SITE AS A LOW RISK SITE.
2. SOIL LOSS, CALCULATED VIA THE RUSLE EQUATION IS EXPECTED TO BE 86 t/ha/year ASSUMING A 40m LENGTH ACROSS EACH LOT. IN ACCORDANCE WITH IECA, TYPE 2 TREATMENTS ARE REQUIRED, PROVIDED ONLY 1HA OF AREA IS LEFT EXPOSED AT ONE TIME.
3. A SEDIMENT WEIR WAS SELECTED AS A SUITABLE TREATMENT MEASURE AND WAS CONSTRUCTED IN THE STAGE 1 WORKS IN THE NORTH-WEST CORNER. A TEMPORARY DIVERSION BUIND IS TO BE USED TO TAKE WATER FROM THE STAGE 5 CATCHMENT TO THIS WEIR.

STAGING

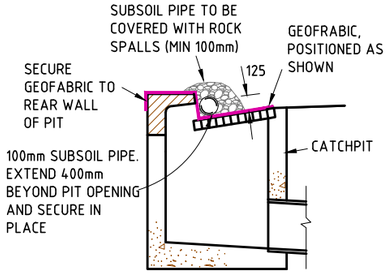
1. EROSION CONTROL DEVICES TO BE INSTALLED PRIOR TO COMMENCEMENT OF EARTHWORKS.
2. SITE STRIPPING OF GROUNDCOVER AND TOPSOIL SHALL BE MINIMISED SO THAT ONLY SMALL AREAS ARE EXPOSED AT ANY ONE TIME.
3. DISTURBED AREAS ARE TO BE REINSTATED AS SOON AS POSSIBLE AFTER CONSTRUCTION LEVELS ARE ACHIEVED.
4. EROSION CONTROL STRUCTURES ARE TO REMAIN IN PLACE UNTIL VEGETATION IS APPROPRIATELY ESTABLISHED.

GENERAL NOTES

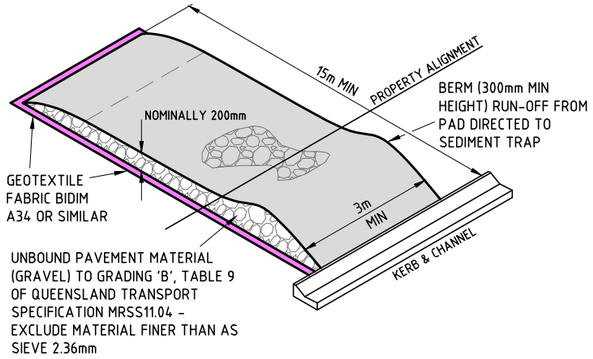
ALL SEDIMENT AND EROSION CONTROL MEASURES IMPLEMENTED DURING THE CONSTRUCTION ARE TO BE IN ACCORDANCE WITH LOCAL/STATE AUTHORITY REQUIREMENTS.

THE GUIDELINES PROVIDE THE NECESSARY REQUIREMENTS AND STANDARD DRAWINGS (SD) AS REFERENCED INDIVIDUALLY BELOW.

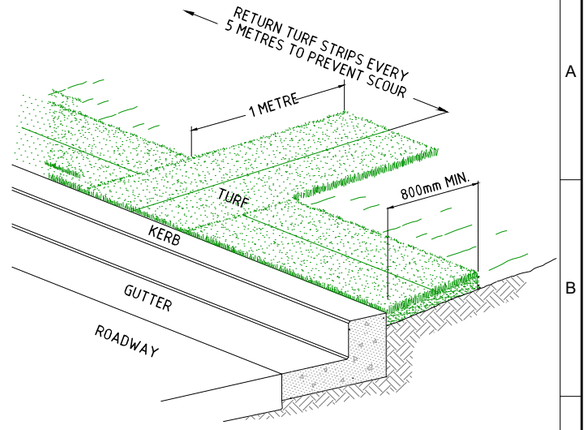
1. GENERAL
   - (A) TEMPORARY DRAINAGE CONTROL. FLOW SHOULD BE DIVERTED AROUND THE WORK SITE WHERE POSSIBLE. (SD 5-5 & 5-6)
   - (B) ALL DRAINAGE, EROSION AND SEDIMENT CONTROLS TO BE INSTALLED AND BE OPERATIONAL BEFORE COMMENCING UP-SLOPE EARTHWORKS.
   - (C) ALL SEDIMENT & EROSION CONTROL DEVICES MUST BE REGULARLY INSPECTED AND MAINTAINED BY THE CONTRACTOR. INSPECTIONS SHOULD OCCUR ON A WEEKLY BASIS (MINIMUM), ALONG WITH BEFORE AND AFTER SIGNIFICANT RUNOFF PRODUCING STORMS.
   - (D) ALL DISTURBED LAND MUST BE RENDERED EROSION-PROOF BY THE ESTABLISHMENT OF 70% EFFECTIVE GROUND COVER WITHIN 28 DAYS OF FINAL EARTHWORKS TRIM.
   - (E) IN AREAS WHERE RUNOFF TURBIDITY IS TO BE CONTROLLED, EXPOSED SURFACES TO BE EITHER MULCHED, COVERED WITH EROSION CONTROL BLANKETS OR TURFED, IF EARTHWORKS ARE EXPECTED TO BE DELAYED FOR MORE THAN 14 DAYS.
   - (F) STRAW BALE SEDIMENT TRAPS ARE A SECONDARY OPTION WHICH GENERALLY SHOULD NOT BE USED IF OTHER OPTIONS ARE AVAILABLE.
2. SEDIMENT CONTROL FENCE (SD 6-7)
   - (A) NOT TO BE LOCATED IN AREAS OF CONCENTRATED FLOW.
   - (B) NORMALLY LOCATED ALONG THE CONTOUR WITH A MAXIMUM CATCHMENT AREA 0.6 HA PER 100M LENGTH OF FENCE.
   - (C) WOVEN FABRICS ARE PREFERRED, NON-WOVEN FABRICS MAY BE USED ON SMALL WORK SITES, I.E. OPERATIONAL PERIOD LESS THAN 6 MONTHS OR ON SITES WHERE SIGNIFICANT SEDIMENT RUNOFF IS NOT EXPECTED.
   - (D) FENCES ARE REQUIRED 2M MIN FROM TOE OF CUT OR FILL BATTERS. WHERE NOT PRACTICAL, ONE FENCE CAN BE AT THE TOE WITH A SECOND FENCE 1M MIN AWAY. FENCE SHOULD NOT BE LOCATED PARALLEL WITH TOE IF CONCENTRATION OF FLOW WILL OCCUR BEHIND THE FENCE.
3. TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP (SD 6-9).
   - (A) ADJACENT STORMWATER RUNOFF TO BE DIVERTED AWAY FROM ENTRY/EXIT.
   - (B) WHEEL-WASH OR SPRAY UNIT MAY BE REQUIRED DURING WET WEATHER.
4. SAFETY ISSUES MUST BE CONSIDERED AT ALL TIMES - INCORPORATE TRAFFIC CONTROL DEVICES .
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN ADDRESSED AS STIPULATED.
6. TEMPORARY STOCKPILES TO HAVE 2:1 SIDE BATTERS (MAXIMUM) AND BE SHAPED TO ENSURE RUN-OFF IS TREATED AND MANAGED TO THE SATISFACTION OF THE SUPERINTENDENT. ALL EXPOSED STOCKPILE SURFACES TO BE GRASS SEEDED. SEDIMENT FENCES AND CUT-OFF DRAINS MAY BE REQUIRED.
7. ADDITIONAL OR DIFFERENT SEDIMENT & EROSION CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION PHASE TO COMPLY WITH THE ABOVE.



GULLY PIT SEDIMENT BARRIER
N.T.S.



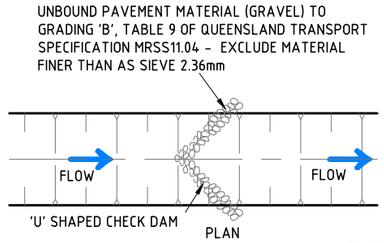
TEMPORARY CONSTRUCTION ACCESS / EXIT
N.T.S.

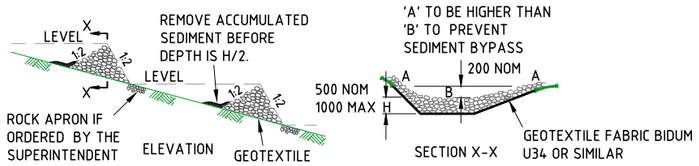


TURF FILTER STRIP DETAIL
N.T.S.

CONSTRUCTION NOTES

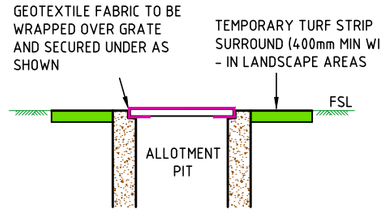
1. INSTALL A 2 x 400mm MINIMUM WIDE ROLL OF TURF ON THE VERGE NEXT TO THE KERB AND AT THE SAME LEVEL AS THE TOP OF THE KERB.
2. LAY 1.8m LONG TURF STRIPS NORMAL TO THE KERB EVERY 5 METRES.



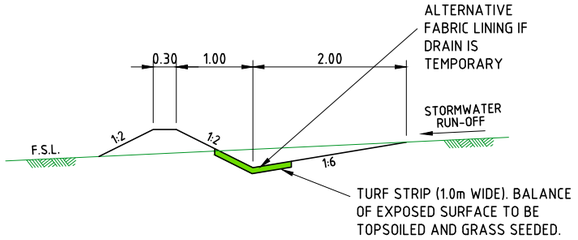


TEMPORARY CHECK DAMS - FLOW CONTROL
N.T.S.

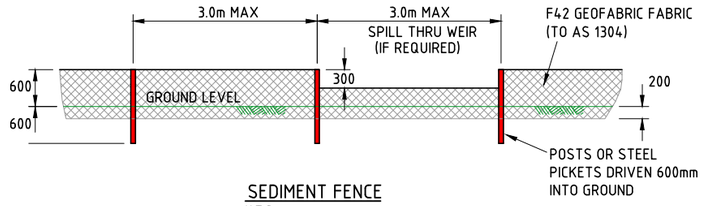
NOTE:
CHECK DAM CATCHMENT AREA LIMITED TO 4.00 Ha. DEVICE IS INTENDED FOR VELOCITY CONTROL ONLY - SEDIMENT COLLECTION IS A SECONDARY PURPOSE.



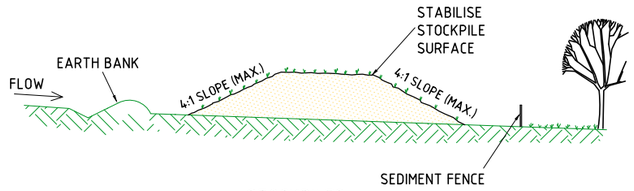
ALLOTMENT PIT PROTECTION
N.T.S.



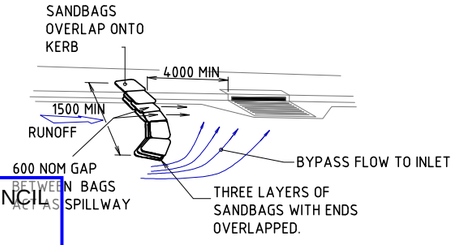
DIVERSION / CUT-OFF DRAINS
N.T.S.



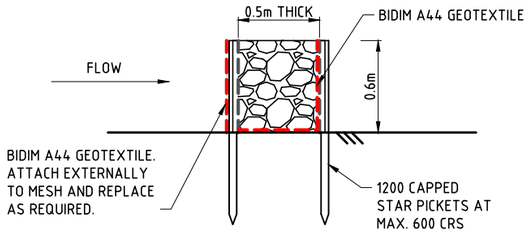
SEDIMENT FENCE
N.T.S.



STOCKPILES
N.T.S.



CHECK DAM (SANDBAG) DETAIL
N.T.S.



SEDIMENT WEIR TYPICAL SECTION
SCALE 1:20

CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

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RPEQ Certification			
Engineer	Ben Lusk	RPEQ Number	13132
Signature		Date	05/02/2025
Project Number	GS562-05 BOTANIC STAGE 5 REV B		

BOTANIC
HIGHFIELDS RD

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ABN 81 150 773 961
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Ph: (07) 4698 2100
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CLIENT			
BIRD IN HAND 3 PTY LTD			
PROJECT: BOTANIC HIGHFIELDS STAGE 5			
DRAWN: B ENRIGHT	CHECKED: D TAYLOR	ENGINEER: B LUSK	SURVEYOR: PARKINSON SURVEYS; HORIZ. DATUM: MGA 2020 (Z 56); VERT. DATUM: AHD
DESIGNED: B ENRIGHT			

TITLE				
ESC DETAILS AND NOTES				
SHEET: A1	SCALE: AS SHOWN	JOB No: GS562-05	SHEET No: 610	REVISION: B

E&SCP