

STAGE 2 - PROPOSED ROAD UPGRADE

MOUNTAIN RIDGE ROAD, NEW BEITH

FOR 'FRASERS PROPERTY AUSTRALIA

DRAWING LIST

EARTHWORKS, ROADWORKS AND DRAINAGE

20-0181-700	COVER PLAN
20-0181-701	GENERAL NOTES
20-0181-702	STAGE 2 BULK EARTHWORKS LAYOUT PLAN SHEET 1 OF 3
20-0181-703	STAGE 2 BULK EARTHWORKS LAYOUT PLAN SHEET 2 OF 3
20-0181-704	STAGE 2 BULK EARTHWORKS LAYOUT PLAN SHEET 3 OF 3
20-0181-705	STAGE 2 ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 1 OF 3
20-0181-706	STAGE 2 ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 2 OF 3
20-0181-707	STAGE 2 ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 3 OF 3
20-0181-708	STAGE 2 SURVEY SETOUT AND KERB TYPES LAYOUT PLAN SHEET 1 OF 3
20-0181-709	STAGE 2 SURVEY SETOUT AND KERB TYPES LAYOUT PLAN SHEET 2 OF 3
20-0181-710	STAGE 2 SURVEY SETOUT AND KERB TYPES LAYOUT PLAN SHEET 3 OF 3
20-0181-711	STAGE 2 MOUNTAIN RIDGE ROAD LONGITUDINAL SECTION SHEET 1 OF 2
20-0181-712	STAGE 2 MOUNTAIN RIDGE ROAD LONGITUDINAL SECTION SHEET 2 OF 2
20-0181-713	STAGE 2 MOUNTAIN RIDGE ROAD CROSS SECTIONS SHEET 1 OF 5
20-0181-714	STAGE 2 MOUNTAIN RIDGE ROAD CROSS SECTIONS SHEET 2 OF 5
20-0181-715	STAGE 2 MOUNTAIN RIDGE ROAD CROSS SECTIONS SHEET 3 OF 5
20-0181-716	STAGE 2 MOUNTAIN RIDGE ROAD CROSS SECTIONS SHEET 4 OF 5
20-0181-717	STAGE 2 MOUNTAIN RIDGE ROAD CROSS SECTIONS SHEET 5 OF 5
20-0181-718	STAGE 2 INTERSECTION DETAILS LAYOUT PLAN
20-0181-719	STAGE 2 SIGNS AND LINEMARKING LAYOUT PLAN SHEET 1 OF 3
20-0181-720	STAGE 2 SIGNS AND LINEMARKING LAYOUT PLAN SHEET 2 OF 3
20-0181-721	STAGE 2 SIGNS AND LINEMARKING LAYOUT PLAN SHEET 3 OF 3
20-0181-722	STAGE 2 STORMWATER DRAINAGE CATCHMENT LAYOUT PLAN SHEET 1 OF 3
20-0181-723	STAGE 2 STORMWATER DRAINAGE CATCHMENT LAYOUT PLAN SHEET 2 OF 3
20-0181-724	STAGE 2 STORMWATER DRAINAGE CATCHMENT LAYOUT PLAN SHEET 3 OF 3
20-0181-725	STAGE 2 STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 1 OF 4
20-0181-726	STAGE 2 STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 2 OF 4
20-0181-727	STAGE 2 STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 3 OF 4
20-0181-728	STAGE 2 STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 4 OF 4
20-0181-729	STAGE 2 STORMWATER DRAINAGE CALCULATIONS TABLE SHEET 1 OF 2
20-0181-730	STAGE 2 STORMWATER DRAINAGE CALCULATIONS TABLE SHEET 2 OF 2
20-0181-731	STAGE 2 STORMWATER DRAINAGE STRUCTURE DETAILS
20-0181-732	EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 1 OF 3
20-0181-733	EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 2 OF 3
20-0181-734	EROSION AND SEDIMENT CONTROL LAYOUT PLAN SHEET 3 OF 3

SEWERAGE AND WATER RETICULATION

20-0181-900	STAGE 2 WATER RETICULATION COVER PLAN
20-0181-901	STAGE 2 WATER RETICULATION GENERAL NOTES AND LIVE WORKS DETAILS
20-0181-902	STAGE 2 WATER RETICULATION LAYOUT PLAN SHEET 1 OF 3
20-0181-903	STAGE 2 WATER RETICULATION LAYOUT PLAN SHEET 2 OF 3
20-0181-904	STAGE 2 WATER RETICULATION LAYOUT PLAN SHEET 3 OF 3
20-0181-905	STAGE 2 EXISTING SEWER INFRASTRUCTURE RELOCATION



LOCALITY PLAN
SCALE 1:5,000 (A1)
SCALE 1:10,000 (A3)

This approval is limited to the proposed works within Lot 1 on RP193185

AMENDED IN RED

By: Vivian Lun
Date: 15 July 2025



PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL

Approval no: DEV2025/1618

Date: 22 July 2025



REV	DATE	DESIGN	DRAWN	REVISION DETAILS	DRAWN	STATUS	CLIENT	PROJECT NAME	DRAWING TITLE
A	31.10.24	BR	DH	ORIGINAL ISSUE	DH	NOT FOR CONSTRUCTION	FRASERS PROPERTY AUSTRALIA	MOUNTAIN RIDGE ROAD UPGRADE, NEW BEITH - LOT 4	COVER PLAN
B	02.04.25	BR	DH	RPI RESPONSE	BR	APPROVED DANIEL COLLINS RPEQ 18631 DATE 2.04.25	ASSOCIATED CONSULTANT RPS GROUP (07) 3539 9500	MOUNTAIN RIDGE ROAD UPGRADE, NEW BEITH - LOT 4	PROJECT No: 20-0181 DRAWING No: 700 REVISION: B
						FOR AND ON BEHALF OF COLLIER'S INTERNATIONAL ENGINEERING & DESIGN PTY LTD			

GENERAL NOTES:

1. THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIALS, PLANT AND EQUIPMENT TO CONSTRUCT THE WORKS AS DOCUMENTED AND STRICTLY IN ACCORDANCE WITH THE RELEVANT AUTHORITY STANDARDS, SPECIFICATIONS AND REQUIREMENTS.
2. THE EXISTING SERVICES THAT ARE SHOWN ON THE DRAWINGS ARE PROVIDED FOR INFORMATION PURPOSES ONLY. NO RESPONSIBILITY IS TAKEN BY THE SUPERINTENDENT OR THE PRINCIPAL FOR INFORMATION THAT HAS BEEN SUPPLIED BY OTHERS, OR ANY EXISTING SERVICES THAT MAY BE PRESENT NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY THE POSITION OF ANY UNDERGROUND SERVICES WITHIN THE AREAS OF WORKS AND SHALL BE RESPONSIBLE FOR MAKING GOOD ANY DAMAGE THERETO. ANY ALTERATION WORKS TO SERVICES WILL BE CARRIED OUT ONLY BY THE SERVICE OWNER AUTHORITY UNLESS APPROVED OTHERWISE.
3. ALL CONSTRUCTION ACTIVITIES UNDERTAKEN SHALL COMPLY WITH CURRENT WORKPLACE HEALTH AND SAFETY REQUIREMENTS AND LEGISLATION.
4. PRIOR TO COMMENCING WORK, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL RELEVANT LOCAL AUTHORITY PERMITS.
5. THE CONTRACTOR SHALL NOT COMMENCE THE DEMOLITION OF ANY EXISTING BUILDINGS AND/OR STRUCTURES WITHOUT APPROVAL FROM THE SUPERINTENDENT.
6. THE CONTRACTOR SHALL APPLY INDUSTRY BEST PRACTICE SO WORKS SHALL NOT DISTURB OR AFFECT NEARBY RESIDENTS EITHER BY DUST, NOISE, FLOODING OR DISCONNECTION OF SERVICES. CONTRACTOR TO ENSURE THAT ACCESS AND SERVICES TO EXISTING PROPERTIES ARE AVAILABLE AT ALL TIMES.
7. THE CONTRACTOR SHALL VERIFY LEVELS OF EXISTING SERVICE CROSSINGS AND CONNECTION POINTS PRIOR TO COMMENCEMENT OF WORKS AND NOTIFY SUPERINTENDENT OF ANY DISCREPANCIES BETWEEN ACTUAL AND PROPOSED DESIGN LEVELS.
8. THESE ENGINEERING DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE APPROVED VEGETATION MANAGEMENT PLAN, WHERE APPLICABLE. WHEN IN DOUBT, ALL EXISTING TREES ARE TO REMAIN UNLESS DIRECTED OTHERWISE.
9. HOLD POINT: ONCE THE BASE OF MANHOLES, INSPECTION PITS, GULLIES AND FIELD INLETS FOR STORMWATER DRAINAGE AND SEWER RETICULATION HAVE BEEN POURED, CONSTRUCTION SHALL ONLY RE-COMMENCE ONCE THE SUPERINTENDENT AND/OR ENGINEER HAVE INSPECTED THE WORKS.
10. THE CONTRACTOR SHALL NOTE DURING THE COURSE OF THE WORKS WHEN JOINT INSPECTIONS WITH THE AUTHORITY AND THE SUPERINTENDENT ARE REQUIRED. THESE INCLUDE PRE-STARTS, SUBGRADES, PRE-SEALS, CLEARING, AND OTHER SUCH INSPECTIONS AS NOMINATED IN THE APPROVAL AND THE SPECIFICATIONS. THE CONTRACTOR SHALL ENSURE NO WORKS PROCEED PAST THE INSPECTION POINT UNTIL THE JOINT INSPECTION HAS BEEN SUCCESSFULLY COMPLETED.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A SAFE MOVEMENT OF TRAFFIC AND THE PROTECTION OF PERSON AND PROPERTY THROUGH AND AROUND THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC MANAGEMENT INCLUDING THE DESIGN, CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ROADWAYS, DETOURS, SIGNS, LIGHTS AND BARRIER AS REQUIRED STRICTLY IN ACCORDANCE WITH THE RELEVANT AUTHORITY REQUIREMENTS.

BULK EARTHWORKS NOTES

1. NOTWITHSTANDING THE EXTENTS OF CUTTING AND FILLING SHOWN ON DRAWINGS, THE SUPERINTENDENT RESERVES THE RIGHT TO ADJUST THE FINISHED SURFACE LEVELS AND EARTHWORKS EXTENTS THROUGH WRITTEN DIRECTION.
2. THE CONTRACTOR SHALL UNDERTAKE ALL CLEARING USING INDUSTRY BEST PRACTICE INCLUDING CONSIDERATION OF FAUNA RELOCATION.
3. THE CONTRACTOR SHALL UNDERTAKE ALL EARTHWORKS IN ACCORDANCE WITH AS3798-2007 AND LOCAL AUTHORITY REQUIREMENTS. LEVEL 1 SUPERVISION IS REQUIRED.
4. THE CONTRACTOR SHALL CONSIDER LOADS GENERATED BY THE EARTHWORKS OPERATIONS SO AS TO AVOID DAMAGE TO ALL PIPES, SERVICES AND STRUCTURES.
5. THE EARTHWORKS DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PROJECT'S SEDIMENT AND EROSION CONTROL PLAN, WHERE APPLICABLE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLANNING, DESIGN, CERTIFICATION, IMPLEMENTATION AND MAINTENANCE OF AN EROSION AND SEDIMENT CONTROL PLAN THAT IS COMPLIANT WITH THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) GUIDELINE 'BEST PRACTICE EROSION AND SEDIMENT CONTROL' AND RELEVANT COUNCIL POLICIES.
7. ALLOTMENT FINISHED SURFACE LEVELS, SHOWN ON THE LAYOUT PLAN, INDICATE THE FINISHED SURFACE LEVEL AFTER TOPSOIL PLACEMENT.

ROADWORKS AND DRAINAGE NOTES

1. ALL WORKS SHALL BE IN ACCORDANCE WITH THE RELEVANT AUTHORITY'S STANDARD DRAWINGS, METHODS AND SPECIFICATIONS.
2. NOTWITHSTANDING THE EXTENTS OF CUTTING AND FILLING SHOWN ON DRAWINGS, THE SUPERINTENDENT RESERVES THE RIGHT TO ADJUST THE FINISHED SURFACE LEVELS AND EARTHWORKS EXTENTS THROUGH WRITTEN DIRECTION.
3. NEW CONSTRUCTION SHALL BE NEATLY JOINED TO EXISTING FORMATION. WHERE REQUIRED, THE EXISTING FORMATION SHALL BE SAW CUT IN ACCORDANCE WITH IPWEAQ STD DRG RS-170. LEVELS AND GRADIENTS AT CONNECTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE A SMOOTH CONNECTION.
4. THE CONTRACTOR SHALL UNDERTAKE ALL EARTHWORKS IN ACCORDANCE WITH AS3798-2007 AND LOCAL AUTHORITY REQUIREMENTS. LEVEL 1 SUPERVISION IS REQUIRED.
5. THE CONTRACTOR SHALL SUPPLY THE SUPERINTENDENT WITH THE SUBGRADE TEST RESULTS NECESSARY FOR ALL PAVEMENT DESIGN.
6. THE CONTRACTOR SHALL ENSURE A MINIMUM OF 75mm TOPSOIL TO ALL VERGE AND BATTER AREAS (AND STABILISATION AS ORDERED)
7. THE CONTRACTOR SHALL INSTALL ALL FOOTPATH AND PRAM RAMPS IN COMPLIANCE WITH THE AUTHORITY'S STANDARD DRAWINGS. PRAM RAMPS ARE TO BE LOCATED CLEAR OF DRAINAGE GULLY PITS AND FUTURE DRIVEWAY POSITIONS INDICATED ON THE LAYOUT PLANS.
8. THE CONTRACTOR SHALL INSTALL SUBSOIL DRAINS UNDER ALL KERBS AS REQUIRED BY THE LOCAL AUTHORITY'S STANDARDS.
9. THE CONTRACTOR SHALL ENSURE THAT ALL RETAINING WALL SUBSOIL DRAINS ARE TO CONNECT TO EITHER KERB ADAPTORS, KERB SUBSOIL DRAINS OR STORMWATER DRAINAGE STRUCTURES. CONTRACTOR TO DEMONSTRATE TO SUPERINTENDENT THAT SUITABLE CONNECTIONS HAVE BEEN PROVIDED FOR ALL WALLS.
10. ALL STORMWATER DRAINAGE MATERIALS, BEDDING, JOINTING AND STEP IRON REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE RELEVANT AUTHORITIES STANDARD DRAWINGS, METHODS AND SPECIFICATIONS.
11. THE STORMWATER PIPE CLASSES HAVE BEEN DESIGNED FOR SERVICE LOADS ONLY. THE CONTRACTOR SHALL ASSESS THE SUITABILITY OF MACHINERY USED ON SITE AND THE ANTICIPATED CONSTRUCTION LOADS, AND UPGRADE THE PIPE CLASSES IF NECESSARY IN ACCORDANCE WITH AS3725-2007.
12. THE TERM D₅₀ DOCUMENTED ON THE DRAWINGS, IN RELATION TO ROCK ARMORING, CORRESPONDS TO THE REQUIRED MEDIAN DIAMETER OF THE PLACED ROCKS. THE ROCKS USED SHALL NOT VARY IN SIZE BY +/- 30% OF THE PROPOSED D₅₀ SIZE.

REV	DATE	DESIGN	DRAWN	REVISION DETAILS			DRAWN	STATUS			SCALE	CLIENT	PROJECT NAME	DRAWING TITLE			
A	31.10.24	BR	DH	ORIGINAL ISSUE			DH	NOT FOR CONSTRUCTION						GENERAL NOTES			
B	02.04.25	BR	DH	RFI RESPONSE													
							DESIGN	APPROVED DANIEL COLLINS  RPEQ 18631 DATE 2.04.25									
							BR	FOR AND ON BEHALF OF COLLIERS INTERNATIONAL ENGINEERING & DESIGN PTY LTD				ASSOCIATED CONSULTANT					
												RPS GROUP (07) 3539 9500		MOUNTAIN RIDGE ROAD NEW BEITH	PROJECT No. 20-0181	DRAWING No. 701	REVISION B

This approval is limited to the proposed drainage work within Lot 1 on RP193185

AMENDED IN RED

By: Vivian Lun

Date: 15 July 2025

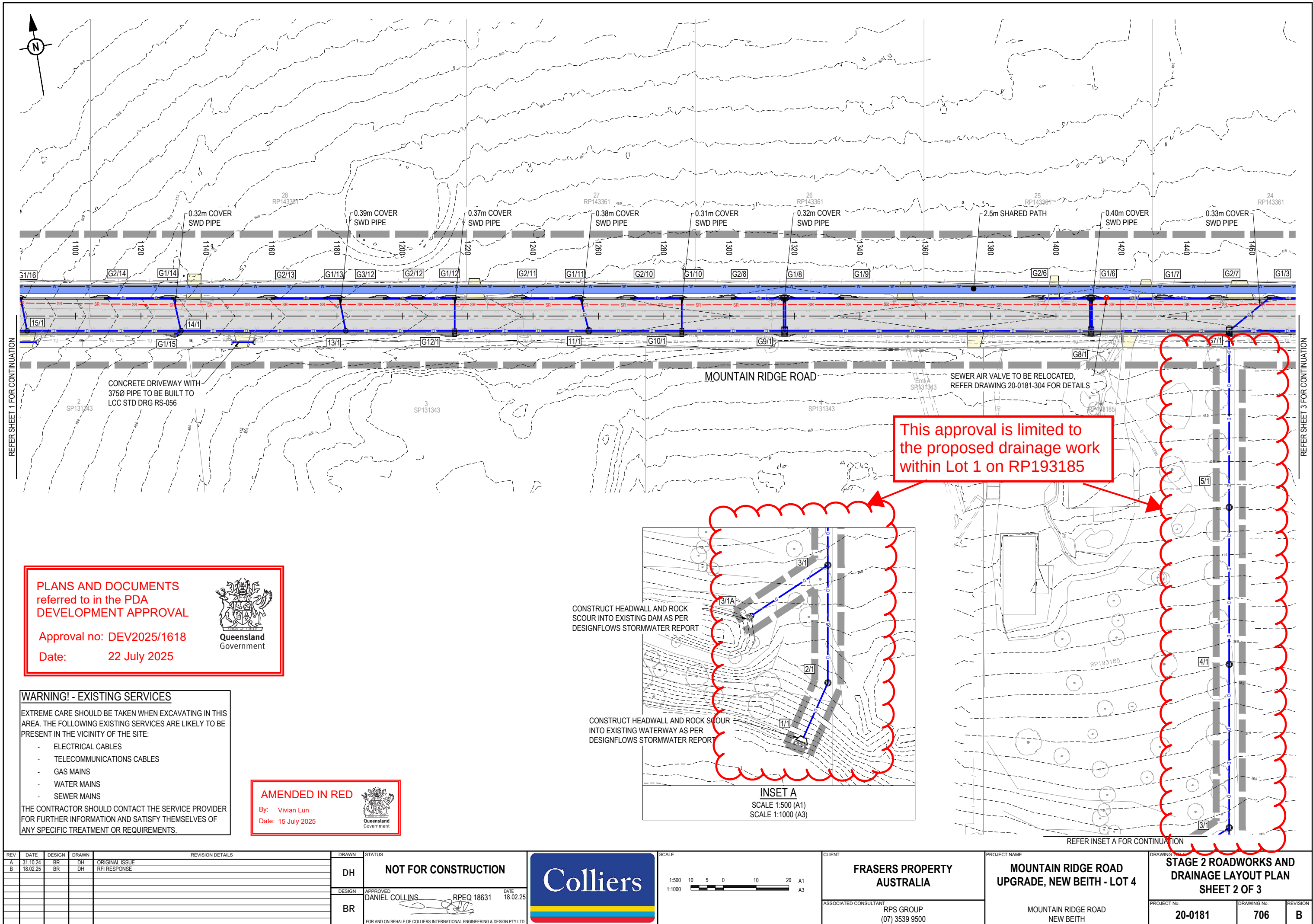


PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL

Approval no: DEV2025/1618

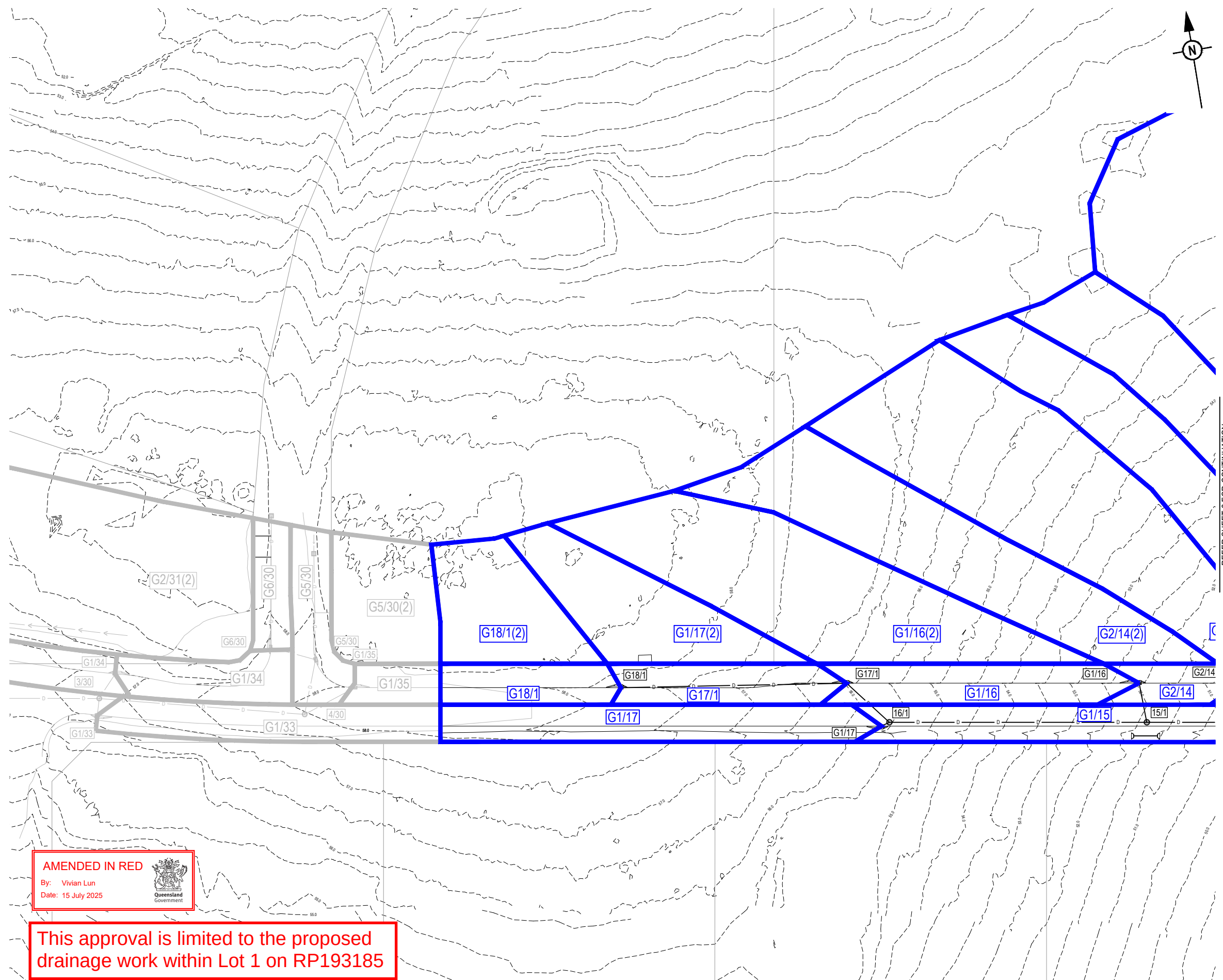
Date: 22 July 2025





	CATCHMENT NAME
	CATCHMENT BOUNDARY
	FUTURE CATCHMENT BOUNDARY
	PROPOSED STORMWATER DRAINAGE PIPE
	FUTURE STORMWATER DRAINAGE PIPE
	EXISTING STORMWATER DRAINAGE PIPE
	FINISHED SURFACE CONTOUR

CATCHMENT NAME	CATCHMENT AREA (ha)
18/1	0.144
17/1	0.059
6/1	0.067
7/2	0.159
6/2	0.203
5/2	0.364
4/2	0.168
3/2	0.176
2/2	0.213
3/3	0.168
2/3	0.138
1/3	0.187
1/4	0.088
1/5	0.096
2/6	0.217
1/6	0.7
1/6A	0.084
2/7	0.157
1/7	0.147
2/8	0.426
1/8	0.826
1/8A	0.077
1/9	0.413
2/10	0.35
1/10	0.316
1/10A	0.068
2/11	0.263
1/11	0.25
3/12	0.587
2/12	0.358
1/12	0.306
1/12A	0.082
2/13	0.253
1/13	0.258
2/14	0.264
1/14	0.376
1/15	0.109
1/16	0.35
1/17	0.225
2/50	0.137
2/51	0.029



Approval no: DEV2025/1618
Date: 22 July 2025

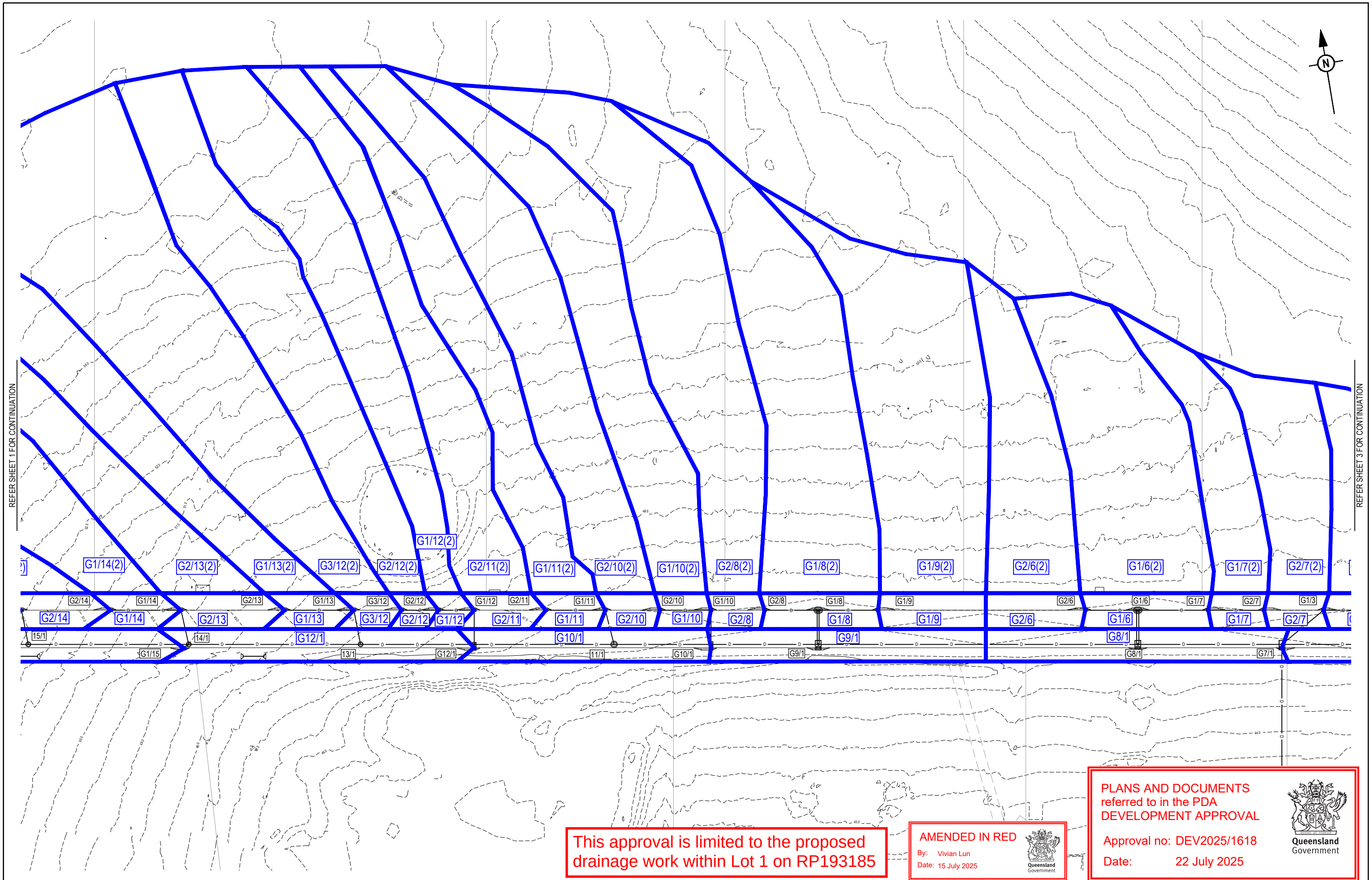


By: Vivian Lun
Date: 15 July 2025



This approval is limited to the proposed drainage work within Lot 1 on RP193185

REV	DATE	DESIGN	DRAWN	REVISION DETAILS		DRAWN	STATUS			SCALE 1:500 10 5 0 10 20 A1 1:1000  A3	CLIENT FRASERS PROPERTY AUSTRALIA	PROJECT NAME MOUNTAIN RIDGE ROAD UPGRADE, NEW BEITH - LOT 4	DRAWING TITLE STAGE 2 STORMWATER DRAINAGE CATCHMENT LAYOUT PLAN SHEET 1 OF 3		
A	31.10.24	BR	DH	ORIGINAL ISSUE	DH	NOT FOR CONSTRUCTION									
B	18.02.25	BR	DH	RPI RESPONSE											
							DESIGN	APPROVED DANIEL COLLINS  RPEQ 18631	DATE 18.02.25						
					BR			FOR AND ON BEHALF OF COLLIER'S INTERNATIONAL ENGINEERING & DESIGN PTY LTD							



This approval is limited to the proposed
drainage work within Lot 1 on RP193185

AMENDED IN RED

By: Vivian Lun
Date: 15 July 2025



PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

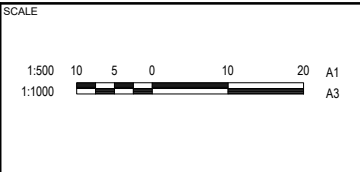
Approval no: DEV2025/1618

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REV	DATE	DESIGN	DRAWN	REVISION DETAILS
A	31.10.24	BR	DH	ORIGINAL ISSUE
B	18.02.25	BR	DH	RFI RESPONSE

DRAWN	STATUS
DH	NOT FOR CONSTRUCTION
DESIGN	APPROVED
BR	DANIEL COLLINS RPEQ 18631 DATE 18.02.25
FOR AND ON BEHALF OF COLLIER'S INTERNATIONAL ENGINEERING & DESIGN PTY LTD	



CLIENT
FRASERS PROPERTY AUSTRALIA
ASSOCIATED CONSULTANT
RPS GROUP (07) 3539 9500

PROJECT NAME
MOUNTAIN RIDGE ROAD UPGRADE, NEW BEITH - LOT 4
MOUNTAIN RIDGE ROAD NEW BEITH

DRAWING TITLE
STAGE 2 STORMWATER DRAINAGE CATCHMENT LAYOUT PLAN SHEET 2 OF 3
PROJECT No.
20-0181
DRAWING No.
723
REVISION
B

This approval is limited to the proposed drainage work within Lot 1 on RP193185

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2025/1618

Date: 22 July 2025



AMENDED IN RED

By: Vivian Lun
Date: 15 July 2025



STORMWATER STRUCTURE NOTE:

STANDARD ROUND MANHOLES LESS
THAN 3.0m DEEP:
CONSTRUCT IN ACCORDANCE WITH THE
LOCAL AUTHORITY STANDARDS.
STANDARD ROUND MANHOLES 3.0m >
5.3m DEEP:
CONSTRUCT IN ACCORDANCE WITH TMR
STD DRAWINGS 1307 AND 1308.
STANDARD ROUND MANHOLES GREATER
THAN 5.3m DEEP:
SHALL BE STRUCTURALLY DESIGNED
(CERTIFIED) AND CONSTRUCTED BY
CONTRACTOR ON A CASE BY CASE BASIS.
ROUND EXTENDED (900mm MAX)
MANHOLES:
CONSTRUCT IN ACCORDANCE WITH
COLLIERS STD DRAWINGS S-101 & S-102.
NON-STANDARD STRUCTURE (SPECIAL):
SHALL BE STRUCTURALLY DESIGNED
(CERTIFIED) AND CONSTRUCTED BY
CONTRACTOR ON A CASE BY CASE BASIS.

DISCHARGE TO
EXISTING WATERWAY

DISCHARGE TO
EXISTING DAM

EXISTING SURFACE
DESIGN SURFACE

CLR 0.302 RISING SEWER MAIN

CLR 0.331 RISING SEWER MAIN

CLR 0.408 RISING SEWER MAIN

PIPE SIZE (mm)	1050	1050
PIPE CLASS	3	3
PIPE GRADE (%)	6.75%	1.00%
PIPE SLOPE (1 in X)	14.80	100.00
FULL PIPE VELOCITY (m/s)	2.34	2.34
PART FULL VELOCITY (m/s)	7.07	3.45
DATUM RL	19.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	33.833 33.833 33.777	30.919 30.713 29.993
PIPE FLOW (Cumecs)	2.026	2.022
PIPE CAPACITY AT GRADE (Cumecs)	7.100	2.732
DEPTH TO INVERT	2.053 2.284	2.189 3.541
INVERT LEVEL OF DRAIN	33.197 32.966	30.535 29.183
DESIGN SURFACE LEVEL	35.250	32.724
SETOUT COORDINATES	E 4847.093 N 7190.544	E 4841.307 N 7155.012
RUNNING CHAINAGE	659.202 36.000	695.202 18.290

LINE

1

STRUCTURE NAME	3/1
STRUCTURE DESCRIPTION	STD MANHOLE 1500mm DIA
STRUCTURE NAME	2/1
STRUCTURE DESCRIPTION	STD MANHOLE 1500mm DIA
STRUCTURE NAME	1/1
STRUCTURE DESCRIPTION	HEADWALL
STRUCTURE NAME	2/1A
STRUCTURE DESCRIPTION	STD MANHOLE 1500mm DIA
STRUCTURE NAME	1/1A
STRUCTURE DESCRIPTION	HEADWALL

1A

STRUCTURE NAME	G7/2
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	G6/2
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	G5/2
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	G4/2
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	G3/2
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	G2/2
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	1/2
STRUCTURE DESCRIPTION	STD MANHOLE 1200mm DIA
STRUCTURE NAME	7/1
STRUCTURE DESCRIPTION	CUSTOM MANHOLE 1500x2600

2

STRUCTURE NAME	G3/3
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	G2/3
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	G1/3
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	7/1
STRUCTURE DESCRIPTION	CUSTOM MANHOLE 1500x2600

3

STRUCTURE NAME	G1/4
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	1/2
STRUCTURE DESCRIPTION	STD MANHOLE 1200mm DIA

4

STRUCTURE NAME	G1/5
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
STRUCTURE NAME	G5/2
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S

5

STRUCTURE NAME	G2/6
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
STRUCTURE NAME	G1/6
STRUCTURE DESCRIPTION	STD TYPE A GULLY (SAG) LIL: 3.6m LINTEL; TYPE M ON A 1200Ø MH

6

REV	DATE	DESIGN	DRAWN	REVISION DETAILS
A	31.10.24	BR	DH	ORIGINAL ISSUE
B	18.02.25	BR	DH	RPI RESPONSE

DRAWN	STATUS
DH	NOT FOR CONSTRUCTION
DESIGN	APPROVED DANIEL COLLINS RPEQ 18631 DATE 18.02.25
BR	
FOR AND ON BEHALF OF COLLIERS INTERNATIONAL ENGINEERING & DESIGN PTY LTD	



SCALE	1:1000 1:2000	10 0 10 20 30 40 50 A1 A3
		HORIZONTAL
	1:100 1:200	2 1 0 2 4 A1 A3
		VERTICAL

CLIENT	FRASERS PROPERTY AUSTRALIA
ASSOCIATED CONSULTANT	RPS GROUP (07) 3539 9500

PROJECT NAME	MOUNTAIN RIDGE ROAD UPGRADE, NEW BEITH - LOT 4
	MOUNTAIN RIDGE ROAD NEW BEITH

DRAWING TITLE	STAGE 2 STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 2 OF 4
PROJECT No.	20-0181
DRAWING No.	726
REVISION	B

STRUCTURE NAME	G1/6
STRUCTURE DESCRIPTION	STD TYPE A GULLY (SAG) LIL: 3.6m LINTEL; TYPE M ON A 1500DIA EXT600 MH
	CUSTOM MANHOLE 1500x2600

STORMWATER STRUCTURE NOTE:
STANDARD ROUND MANHOLES LESS THAN 3.0m DEEP:
CONSTRUCT IN ACCORDANCE WITH THE LOCAL AUTHORITY STANDARDS.
STANDARD ROUND MANHOLES 3.0m > 5.3m DEEP:
CONSTRUCT IN ACCORDANCE WITH TMR STD DRAWINGS 1307 AND 1308.
STANDARD ROUND MANHOLES GREATER THAN 5.3m DEEP:
SHALL BE STRUCTURALLY DESIGNED (CERTIFIED) AND CONSTRUCTED BY CONTRACTOR ON A CASE BY CASE BASIS.
ROUND EXTENDED (900mm MAX) MANHOLES:
CONSTRUCT IN ACCORDANCE WITH COLLIER'S STD DRAWINGS S-101 & S-102.
NON-STANDARD STRUCTURE (SPECIAL):
SHALL BE STRUCTURALLY DESIGNED (CERTIFIED) AND CONSTRUCTED BY CONTRACTOR ON A CASE BY CASE BASIS.

PIPE SIZE (mm)	(2x)450
PIPE CLASS	3
PIPE GRADE (%)	0.60%
PIPE SLOPE (1 in X)	166.67
FULL PIPE VELOCITY (m/s)	0.68
PART FULL VELOCITY (m/s)	1.38
DATUM RL	32.0
H.G.L IN PIPE & W.S.E IN STRUCTURE	45.336 45.346 45.283 45.216 45.150 44.931
PIPE FLOW (Cumecs)	0.216
PIPE CAPACITY AT GRADE (Cumecs)	0.442
DEPTH TO INVERT	1.104 1.212 1.328 3.054
INVERT LEVEL OF DRAIN	45.162 45.054 44.994 43.269
DESIGN SURFACE LEVEL	46.266 46.323 46.323
SETOUT COORDINATES	E 4831.376 N 7357.236 E 4829.791 N 7347.362
RUNNING CHAINAGE	15.401 10.000 25.401

LINE 6

STRUCTURE NAME	G2/7
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	STD TYPE A GULLY (SAG) LIL: 3.6m LINTEL; TYPE M ON A 1500DIA EXT600 MH

LINE 7

STRUCTURE NAME	G2/8
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	STD TYPE A GULLY (SAG) LIL: 3.6m LINTEL; TYPE M ON A 1500DIA EXT600 MH
	CUSTOM MANHOLE 1500x2600

LINE 8

STRUCTURE NAME	G1/9
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	STD TYPE A GULLY (SAG) LIL: 3.6m LINTEL; TYPE M ON A 1500DIA EXT600 MH

LINE 9

STRUCTURE NAME	G2/10
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	CUSTOM MANHOLE 930x2300

LINE 10

STRUCTURE NAME	G2/11
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
	STD MANHOLE 1500mm DIA

LINE 11

STRUCTURE NAME	G3/12
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	CUSTOM MANHOLE 930x2100

LINE 12

AMENDED IN RED

By: Vivian Lun
Date: 15 July 2025



This approval is limited to the proposed drainage work within Lot 1 on RP193185

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL

Approval no: DEV2025/1618

Date: 22 July 2025



REV	DATE	DESIGN	DRAWN	REVISION DETAILS
A	31.10.24	BR	DH	ORIGINAL ISSUE
B	18.02.25	BR	DH	RFI RESPONSE

DRAWN	STATUS
DH	NOT FOR CONSTRUCTION
DESIGN	APPROVED
BR	DANIEL COLLINS RPEQ 18631 18.02.25
FOR AND ON BEHALF OF COLLIER'S INTERNATIONAL ENGINEERING & DESIGN PTY LTD	



SCALE
1:1000 10 0 10 20 30 40 50 A1
1:2000 HORIZONTAL A3
1:100 2 1 0 2 4 A1
1:200 VERTICAL A3

CLIENT
FRASERS PROPERTY AUSTRALIA
ASSOCIATED CONSULTANT
RPS GROUP (07) 3539 9500

PROJECT NAME
MOUNTAIN RIDGE ROAD UPGRADE, NEW BEITH - LOT 4
MOUNTAIN RIDGE ROAD NEW BEITH

DRAWING TITLE
STAGE 2 STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 3 OF 4
PROJECT No.
20-0181
DRAWING No.
727
REVISION
B

STRUCTURE NAME	G2/13
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	G1/13
	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	13/1
	STD MANHOLE 1200mm DIA

STORMWATER STRUCTURE NOTE:
STANDARD ROUND MANHOLES LESS THAN 3.0m DEEP:
CONSTRUCT IN ACCORDANCE WITH THE LOCAL AUTHORITY STANDARDS.
STANDARD ROUND MANHOLES 3.0m > 5.3m DEEP:
CONSTRUCT IN ACCORDANCE WITH TMR STD DRAWINGS 1307 AND 1308.
STANDARD ROUND MANHOLES GREATER THAN 5.3m DEEP:
SHALL BE STRUCTURALLY DESIGNED (CERTIFIED) AND CONSTRUCTED BY CONTRACTOR ON A CASE BY CASE BASIS.
ROUND EXTENDED (900mm MAX) MANHOLES:
CONSTRUCT IN ACCORDANCE WITH COLLIER'S STD DRAWINGS S-101 & S-102.
NON-STANDARD STRUCTURE (SPECIAL):
SHALL BE STRUCTURALLY DESIGNED (CERTIFIED) AND CONSTRUCTED BY CONTRACTOR ON A CASE BY CASE BASIS.

PIPE SIZE (mm)	375	375
PIPE CLASS	3	3
PIPE GRADE (%)	2.54%	1.00%
PIPE SLOPE (1 in X)	39.42	100.00
FULL PIPE VELOCITY (m/s)	0.61	1.23
PART FULL VELOCITY (m/s)	2.08	1.75
DATUM RL	34.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	47.557 47.427 47.428 47.454 47.265	47.204 47.252 46.952
PIPE FLOW (Cumecs)	0.067	0.136
PIPE CAPACITY AT GRADE (Cumecs)	0.279	0.175
DEPTH TO INVERT	1.242	1.290
INVERT LEVEL OF DRAIN	47.238	46.602
DESIGN SURFACE LEVEL	48.481	47.892
SETOUT COORDINATES	E 4584.370 N 7397.470	E 4604.369 N 7394.215
RUNNING CHAINAGE	0.000 20.262 20.262	10.219 30.481

LINE 13

STRUCTURE NAME	G2/14
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	G1/14
	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	14/1
	STD MANHOLE 1200mm DIA

PIPE SIZE (mm)	375	375
PIPE CLASS	3	3
PIPE GRADE (%)	4.81%	1.00%
PIPE SLOPE (1 in X)	20.81	100.00
FULL PIPE VELOCITY (m/s)	0.64	1.32
PART FULL VELOCITY (m/s)	2.65	1.78
DATUM RL	36.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	49.807 49.663 49.140 49.166 48.915	48.845 48.884 48.377
PIPE FLOW (Cumecs)	0.070	0.146
PIPE CAPACITY AT GRADE (Cumecs)	0.385	0.175
DEPTH TO INVERT	1.102	1.144
INVERT LEVEL OF DRAIN	49.470	48.356
DESIGN SURFACE LEVEL	50.572	47.968
SETOUT COORDINATES	E 4533.963 N 7405.684	E 4554.919 N 7392.119
RUNNING CHAINAGE	0.000 20.634 20.634	10.256 30.890

LINE 14

STRUCTURE NAME	G1/15
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
	14/1
	STD MANHOLE 1200mm DIA

PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.00
FULL PIPE VELOCITY (m/s)	0.47
PART FULL VELOCITY (m/s)	1.38
DATUM RL	36.0
H.G.L IN PIPE & W.S.E IN STRUCTURE	48.928 48.946 48.845 48.884
PIPE FLOW (Cumecs)	0.051
PIPE CAPACITY AT GRADE (Cumecs)	0.175
DEPTH TO INVERT	1.329
INVERT LEVEL OF DRAIN	48.203
DESIGN SURFACE LEVEL	49.532
SETOUT COORDINATES	E 4553.417 N 7391.309
RUNNING CHAINAGE	0.000 1.855 1.855

LINE 15

STRUCTURE NAME	G1/16
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 3.6m LINTEL; TYPE M
	15/1
	STD MANHOLE 1200mm DIA

PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.00
FULL PIPE VELOCITY (m/s)	0.69
PART FULL VELOCITY (m/s)	1.53
DATUM RL	38.0
H.G.L IN PIPE & W.S.E IN STRUCTURE	51.232 51.009 51.003 51.039
PIPE FLOW (Cumecs)	0.076
PIPE CAPACITY AT GRADE (Cumecs)	0.175
DEPTH TO INVERT	1.207
INVERT LEVEL OF DRAIN	50.807
DESIGN SURFACE LEVEL	52.014
SETOUT COORDINATES	E 4508.183 N 7409.882
RUNNING CHAINAGE	0.000 10.218 10.218

LINE 16

STRUCTURE NAME	G1/17
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
	16/1
	STD MANHOLE 1200mm DIA

PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.34%
PIPE SLOPE (1 in X)	74.85
FULL PIPE VELOCITY (m/s)	0.51
PART FULL VELOCITY (m/s)	1.57
DATUM RL	42.0
H.G.L IN PIPE & W.S.E IN STRUCTURE	54.676 54.550 54.551 54.568
PIPE FLOW (Cumecs)	0.056
PIPE CAPACITY AT GRADE (Cumecs)	0.203
DEPTH TO INVERT	1.336
INVERT LEVEL OF DRAIN	54.270
DESIGN SURFACE LEVEL	55.605
SETOUT COORDINATES	E 4441.203 N 7409.621
RUNNING CHAINAGE	0.000 2.319 2.319

LINE 17

STRUCTURE NAME	G2/50
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
	1/50
	STD MANHOLE 1050mm DIA

PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.00
FULL PIPE VELOCITY (m/s)	0.42
PART FULL VELOCITY (m/s)	1.34
DATUM RL	37.0
H.G.L IN PIPE & W.S.E IN STRUCTURE	49.265 49.178 49.113 49.113
PIPE FLOW (Cumecs)	0.046
PIPE CAPACITY AT GRADE (Cumecs)	0.175
DEPTH TO INVERT	1.371
INVERT LEVEL OF DRAIN	49.023
DESIGN SURFACE LEVEL	50.394
SETOUT COORDINATES	E 5171.125 N 7299.850
RUNNING CHAINAGE	0.000 4.102 4.102

LINE 50

STRUCTURE NAME	G2/51
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL: 2.4m LINTEL; TYPE S
	1/51
	PIPE CONNECTION - NO MANHOLE

PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	2.64%
PIPE SLOPE (1 in X)	37.88
FULL PIPE VELOCITY (m/s)	0.00
PART FULL VELOCITY (m/s)	0.00
DATUM RL	37.0
H.G.L IN PIPE & W.S.E IN STRUCTURE	49.361 49.361 49.300 49.300
PIPE FLOW (Cumecs)	0.000
PIPE CAPACITY AT GRADE (Cumecs)	0.285
DEPTH TO INVERT	1.117
INVERT LEVEL OF DRAIN	49.361
DESIGN SURFACE LEVEL	50.477
SETOUT COORDINATES	E 5162.645 N 7292.051
RUNNING CHAINAGE	0.000 2.299 2.299

LINE 51

AMENDED IN RED

By: Vivian Lun
Date: 15 July 2025



This approval is limited to the proposed drainage work within Lot 1 on RP193185

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL

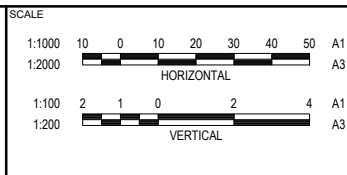
Approval no: DEV2025/1618

Date: 22 July 2025



REV	DATE	DESIGN	DRAWN	REVISION DETAILS
A	31.10.24	BR	DH	ORIGINAL ISSUE
B	18.02.25	BR	DH	RFI RESPONSE

DRAWN	STATUS
DH	NOT FOR CONSTRUCTION
DESIGN	APPROVED
BR	DANIEL COLLINS RPEQ 18631
	DATE 18.02.25
	FOR AND ON BEHALF OF COLLIER'S INTERNATIONAL ENGINEERING & DESIGN PTY LTD



CLIENT	FRASERS PROPERTY AUSTRALIA
ASSOCIATED CONSULTANT	RPS GROUP (07) 3539 9500

PROJECT NAME	MOUNTAIN RIDGE ROAD UPGRADE, NEW BEITH - LOT 4
	MOUNTAIN RIDGE ROAD NEW BEITH

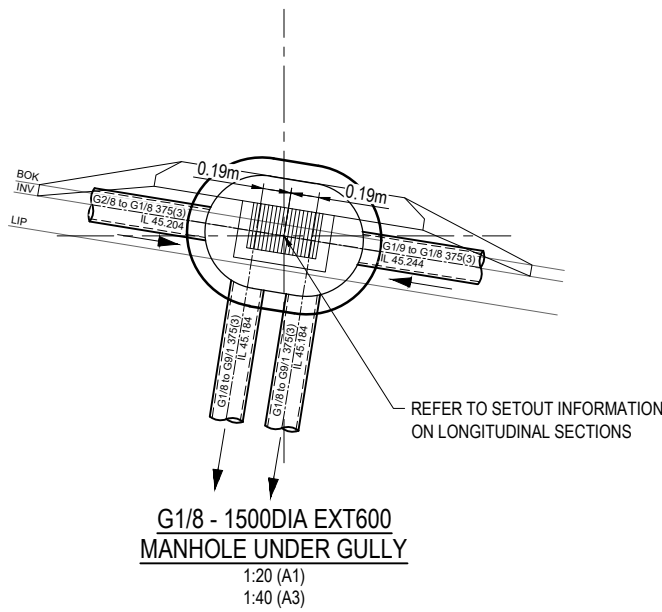
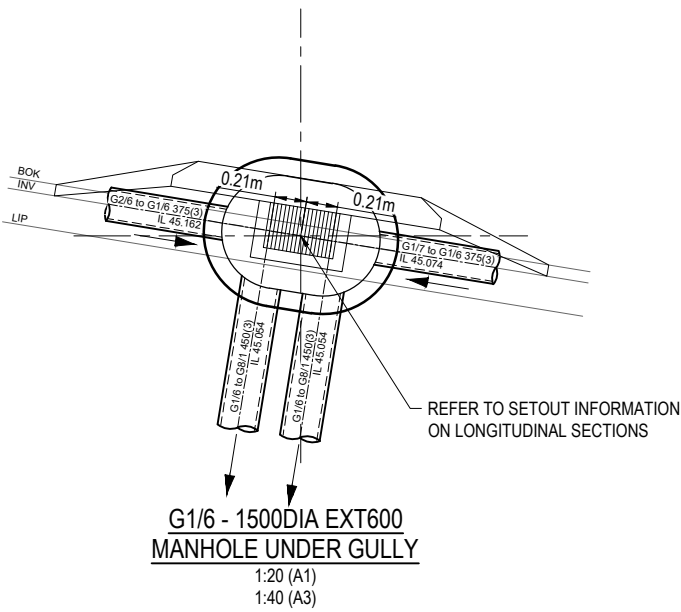
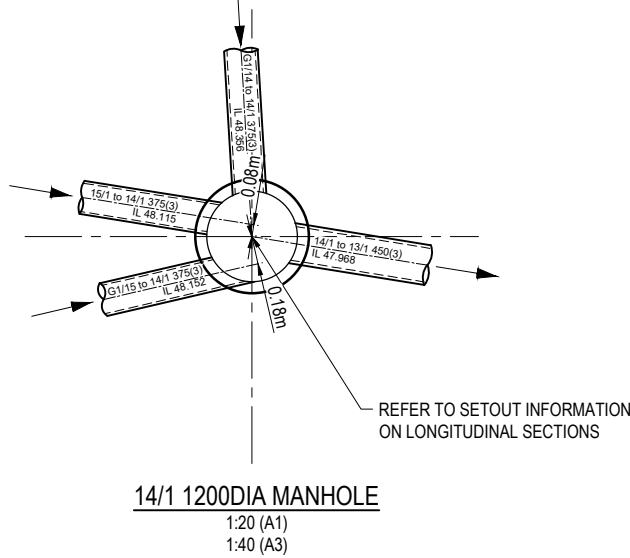
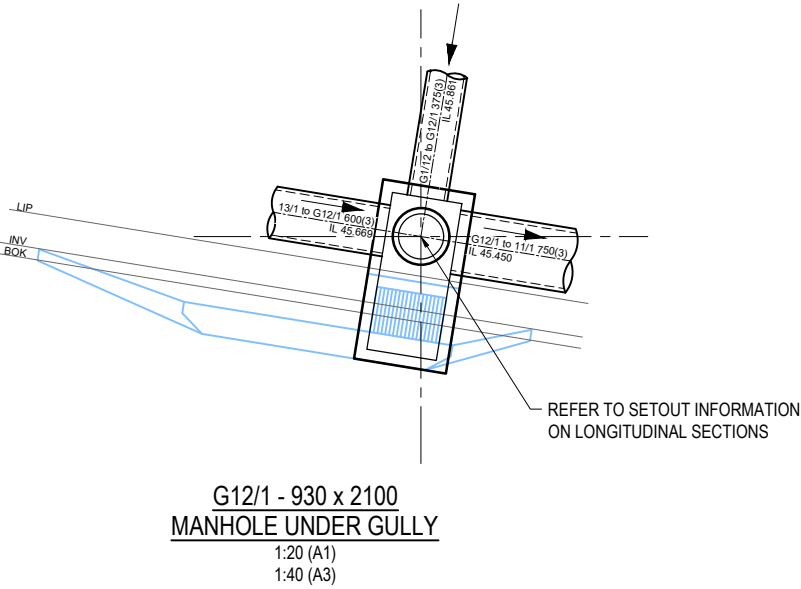
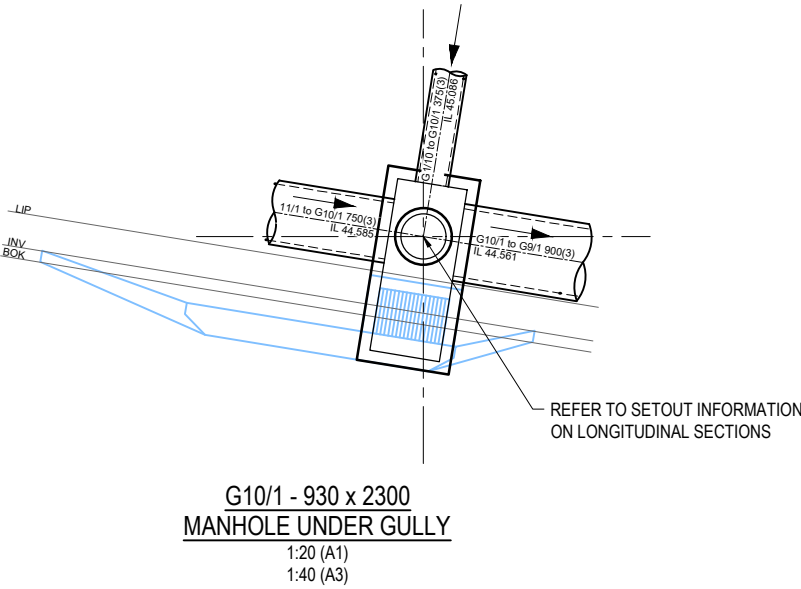
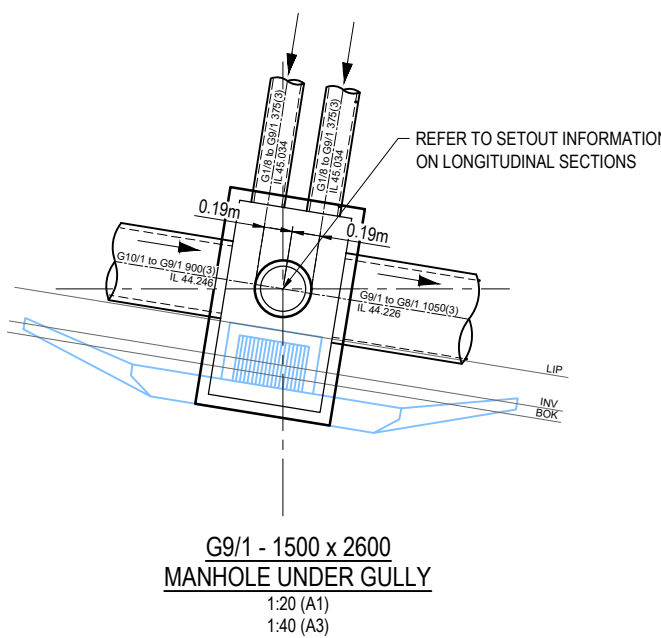
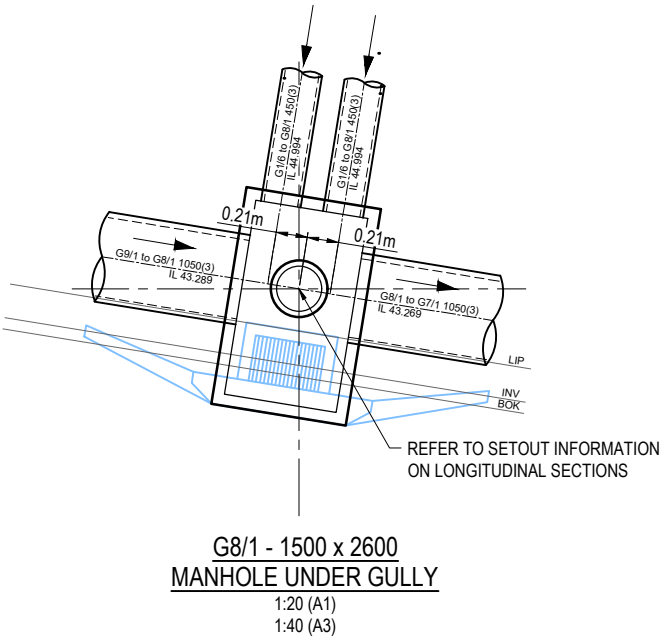
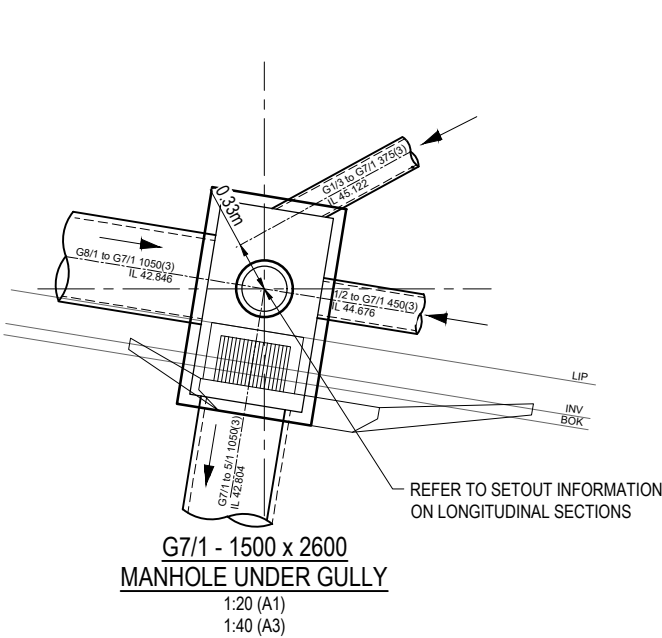
DRAWING TITLE	STAGE 2 STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 4 OF 4
PROJECT No.	20-0181
DRAWING No.	728
REVISION	B

REV	DATE	DESIGN	DRAWN	REVISION DETAILS		DRAWN	STATUS		SCALE	CLIENT	PROJECT NAME	DRAWING TITLE			
A	31.10.24	BR	DH	ORIGINAL ISSUE		DH	NOT FOR CONSTRUCTION				FRASERS PROPERTY AUSTRALIA	MOUNTAIN RIDGE ROAD UPGRADE, NEW BEITH - LOT 4	STAGE 2 STORMWATER DRAINAGE CALCULATIONS TABLE SHEET 1 OF 2		
B	18.02.25	BR	DH	RFI RESPONSE											
						DESIGN	APPROVED DANIEL COLLINS	RPEQ 18631							
						BR	 FOR AND ON BEHALF OF COLLIER'S INTERNATIONAL ENGINEERING & DESIGN PTY LTD			ASSOCIATED CONSULTANT	RPS GROUP (07) 3539 9500	MOUNTAIN RIDGE ROAD NEW BEITH	PROJECT No. 20-0181	DRAWING No. 729	REVISION B

STRUCTURE SETOUT REFERENCE POINT

STRUCTURE TYPE	HORIZONTAL	VERTICAL
MANHOLE	 MAIN SHAFT	FINISHED SURFACE LEVEL
GULLY PIT	 INTERSECTION OF PIT AND KERB INVERT LNE # (INCLUDING MANHOLES UNDER GULLIES)	KERB INVERT LEVEL
HEADWALL	 INTERSECTION OF HEADWALL FACE & PIPE CENTRE LINE	TOP OF HEADWALL

NOTE:
WITHIN GULLY PIT CHAMBER, CONTRACTOR TO ENSURE PIPES ARE OFFSET AS REQUIRED SO THAT PIPES ENTER WHOLLY WITHIN A SIDE WALL
* IN INSTANCES OF MANHOLES UNDER GULLIES, CONTRACTOR TO ENSURE PIPES ARE ALIGNED TO CENTRE OF MANHOLE, UNLESS SHOWN DIFFERENTLY IN A STRUCTURE DETAIL



AMENDED IN RED

By: Vivian Lun
Date: 15 July 2025



This approval is limited to the proposed
drainage work within Lot 1 on RP193185

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2025/1618
Date: 22 July 2025



REV	DATE	DESIGN	DRAWN	REVISION DETAILS	DRAWN	STATUS	SCALE	CLIENT	PROJECT NAME	DRAWING TITLE
A	31.10.24	BR	DH	ORIGINAL ISSUE	DH	NOT FOR CONSTRUCTION	1:20 0.2 0.4 0.6 0.8 1 A1	FRASERS PROPERTY AUSTRALIA	MOUNTAIN RIDGE ROAD UPGRADE, NEW BEITH - LOT 4	STAGE 2 STORMWATER DRAINAGE STRUCTURE DETAILS
B	18.02.25	BR	DH	RFI RESPONSE	BR	APPROVED DANIEL COLLINS RPEQ 18631 DATE 18.02.25	1:40	ASSOCIATED CONSULTANT RPS GROUP (07) 3539 9500	MOUNTAIN RIDGE ROAD NEW BEITH	PROJECT No. 20-0181 DRAWING No. 731 REVISION B