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COURTNEY DRIVE

OPERATIONAL WORKS

STAGE 04

No. 41901-04

MORTONS urbansolutions
Civil Engineering
Project Coordination

CLIENT

HB Land

SUB-CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING

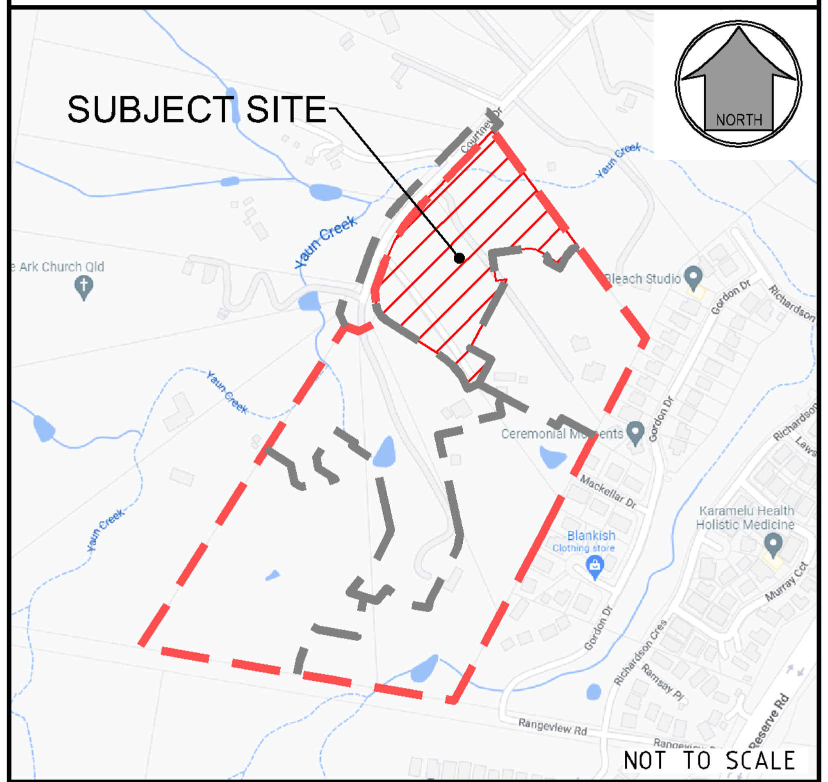
Robin Russell & ASSOCIATES PTY. LTD.

BENNETT+BENNETT

SCHEDULE OF DRAWINGS

NUMBER	REV. NO.	TITLE
GENERAL		
41901-04-000	A	COVERT SHEET
41901-04-003	A	SAFETY IN DESIGN
41901-04-004	A	RISK MATRIX & NOTES
41901-04-005	A	ROAD HIERARCHY & STAGING PLAN
EARTHWORKS: RETAINING WALL & DETAIL GRADING		
41901-04-060	A	PLAN SHEET 01
41901-04-061	A	PLAN SHEET 02
41901-04-062	A	PLAN SHEET 03
41901-04-070	A	DETAILS SHEET 01
EARTHWORKS: PADMOUNT SECTIONS		
41901-04-075	A	SHEET 01
EARTHWORKS: FINAL SURFACE & SEDIMENT AND EROSION CONTROL		
41901-04-080	A	PLAN SHEET 01
41901-04-081	A	PLAN SHEET 02
EARTHWORKS: COMBINED SERVICES		
41901-04-090	A	PLAN SHEET 01
ROADS: ROADWORKS		
41901-04-100	A	PLAN SHEET 01
41901-04-120	A	DETAILS SHEET 01
ROADS: LONGITUDINAL SECTIONS		
41901-04-200	A	SHEET 01
41901-04-201	A	SHEET 02
ROADS: CROSS SECTIONS		
41901-04-300	A	SHEET 01
41901-04-301	A	SHEET 02
41901-04-302	A	SHEET 03
ROADS: INTERSECTION GRADING		
41901-04-400	A	DETAILS SHEET 01
ROADS: JOINTING DETAILS		
41901-04-410	A	DETAILS SHEET 01
ROADS: LINEMARKING AND SIGNAGE		
41901-04-420	A	PLAN SHEET 01
SEWER: SEWER RETICULATION		
41901-04-500	A	PLAN SHEET 01
41901-04-501	A	PLAN SHEET 02
41901-04-510	A	DETAILS SHEET 01
SEWER: PROFILES		
41901-04-530	A	PROFILES SHEET 01
41901-04-531	A	PROFILES SHEET 02
SEWER: HOUSE CONNECTION PROFILES		
41901-04-550	A	PROFILES SHEET 01
DRAINAGE: STORMWATER		
41901-04-600	A	PLAN SHEET 01
41901-04-601	A	PLAN SHEET 02
DRAINAGE: PROFILES		
41901-04-620	A	PROFILES SHEET 01
41901-04-621	A	PROFILES SHEET 02
41901-04-622	A	PROFILES SHEET 03
DRAINAGE: PIT DETAILS & TYPICAL DETAILS		
41901-04-640	A	OUTLETS & TYPICAL DETAILS SHEET 01
41901-04-650	A	PIT DETAILS SHEET 01
41901-04-651	A	PIT DETAILS SHEET 02
DRAINAGE: BASINS & CULVERTS		
41901-04-660	A	BASIN PLAN SHEET 01
41901-04-661	A	FOREBAY DETAILS SHEET 01
41901-04-662	A	SECTIONS SHEET 01
41901-04-663	A	SECTIONS SHEET 02
41901-04-665	A	DETAILS SHEET 01
DRAINAGE: CATCHMENT		
41901-04-670	A	PLAN SHEET 01
DRAINAGE: CALCULATION TABLES		
41901-04-680	A	MINOR SHEET 01
41901-04-681	A	MAJOR SHEET 02
WATER: WATER RETICULATION		
41901-04-700	A	PLAN SHEET 01
41901-04-710	A	WATER RETICULATION DETAILS

LOCALITY PLAN



NOT TO SCALE

R. P. DESCRIPTION
LOT 188, 189 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

DRAWING NUMBER	AMEND.
41901-04-000	A

DESIGN ITEM	POTENTIAL HAZARD	PHASE	THOSE AT RISK	PRE-TREATMENT RISK ASSESSMENT				TREATMENT OPTIONS	- ADOPTED TREATMENT - REASON - BY WHOM	RESIDUAL RISK ASSESSMENT				ONGOING RESPONSIBILITY
				SEVERITY	LIKELIHOOD (RISK)	Risk Product	RISK RATING			SEVERITY	LIKELIHOOD (RISK)	Risk Product	RISK RATING	
Road Design	Traffic Speed	Operational	Public	Death	Possible	15	Significant	- Design compliance with Local Council requirements, Queensland Streets and appropriate sections of Austroads. - Lot layout to consider natural slow points in road layout. - Consideration of slow points within Local street network.	Town Planners and Council to ensure original layout reduces risk (i.e. minimise long straight roads). Designer to consider inclusion of slow points in consultation with Council and prepare design in accordance with applicable standards.	Permanent Disability	Rare	4	Low	Closed
Road Design	Unclear priorities at intersections or slow points	Operational	Public	Death	Unlikely	10	High	- Design compliance with Local Council requirements, Queensland Streets and appropriate sections of Austroads. - Linemarking to be provided in accordance with MUTCD and Council's approval.	Designer to incorporate linemarking in accordance with MUTCD and Council's requirements to assist in minimising confusion at intersections and slow points.	Permanent Disability	Rare	4	Low	Closed
Traffic Management	Accidents at the interface between public and work site	Construction	Contractor & Public	Permanent Disability	Unlikely	8	Moderate	- Traffic Management Plan to be prepared by suitable qualified consultant. - TMP to consider temporary lighting, signals, barriers/separation and other traffic management measures.	Contractor to prepare site specific TMP incorporating appropriate measures to minimise risk at interface of work site and public roads.	Permanent Disability	Rare	4	Low	On Going: Contractor to monitor until end of Construction Phase
Public Access	Public wandering onto work site	Construction	Contractor & Public	Death	Unlikely	10	High	- Appropriate signage to be installed at public interface - Fencing to discourage accidental access to site	Contractor to prepare site specific Construction Management Plan to minimise risk of public access to the site.	Death	Rare	5	Moderate	On Going: Contractor to monitor until end of Construction Phase
Existing Services	Working on or near existing services - Electrocution, disrupt critical services, explosion	Construction	Contractor, Public & Asset Owner	Permanent Disability	Unlikely	8	Moderate	- Design to consider existing services and include appropriate clearances or protection measures. - Dial Before You Dig to be performed prior to design commencing. - Developer provide survey of any critical existing infrastructure prior to design. - Design drawings to show known services. - Connection point to be detailed in accordance with the relevant standard.	Contractor to physically locate and confirm service location information. Dial Before You Dig logo to be added to drawings. Connection details design and annotated on drawings in accordance with Water Authority requirements.	Permanent Disability	Rare	4	Low	On Going: Contractor to monitor until end of Construction Phase
Retaining Walls	Falling	Construction, operational, maintenance and demolition	Contractor, Public & Asset Owner	Medical Treatment	Possible	9	High	- Minimise the height if retaining walls. - Minimise the number of locations.	Batters designed in all locations practical. Heights of wall minimised by civil designer. Safety fencing requirements included on drawings.	Medical Treatment	Unlikely	6	Moderate	On Going: Contractor to monitor until end of Construction Phase
Earthworks Surface	Working on steep Batters	Construction and maintenance	Contractor & Asset Owner	Medical Treatment	Possible	9	High	- Minimise the height of batters. - Minimise the number of locations. - Extend services up batters where possible to reduce future works on batter slopes.	Batters designed to minimum practical height in all locations practical. Services to be constructed up the batters to ensure future batter stability.	Medical Treatment	Rare	3	Low	On Going: Contractor to monitor until end of Construction Phase and Asset Owner to continue monitoring for future maintenance.
Deep excavation	Falling or collapse	Construction, Maintenance and demolition	Public, Client, Supervisors, Contractors	Permanent Disability	Possible	12	High	- Minimise depth of structure. - Bench deep trenches appropriately to minimise trench collapse risk. - Design in accordance with relevant standard. - Minimise the number of structures.	Structures designed in accordance with local authority requirements. Utilise RIGS sewer to reduce the number of access points. Graded pipelines as shallow as practical to reduce depth. Contractor to manage open excavations during construction in accordance with their Management Plans.	Permanent Disability	Rare	4	Low	On Going: Contractor to Monitor until end of Construction Phase
Stormwater and Sewer	Falling and Trench Collapse	Construction and Maintenance	Contractor & Asset Owner	Death	Unlikely	10	High	- Minimise depth of drainage lines. - Design in accordance with relevant standard.	Infrastructure designed in accordance with local authority requirements. Graded pipelines as shallow as practical to reduce depth.	Death	Rare	5	Moderate	On going: Contractor to Monitor until end of Pipe line construction completed.
Stormwater Inlets	Drowning	Operational	Public	Death	Unlikely	10	High	- Design to minimise stormwater inlets within public areas. - Install inlet grates on stormwater inlets where required.	Risk assessment of stormwater inlets undertaken in accordance with QUDM requirements and stormwater inlet grates have been specified where required.	Death	Rare	5	Moderate	Closed
Temporary Stormwater Construction Sediment Ponds	Drowning	Construction and Maintenance	Public, Contractors & Council	Death	Possible	15	Significant	- Site fencing and warning signs to be installed. - Minimise depth - Design access and egress in accordance with QUDM and Asset Owner requirements.	Notes annotated on civil drawings for contractor to provide fencing and signage. Designed in accordance Qudm for access and egress. Depth minimised.	Death	Rare	5	Moderate	Monitor until end of Construction of Sediment Basins
Permanent Stormwater Basin Infrastructure	Drowning	Maintenance and demolition	Public	Death	Possible	15	Significant	- Site fencing and warning signs to be installed. - Minimise depth - Design access and egress in accordance with QUDM and Asset Owner requirements.	Notes annotated on civil drawings for contractor to provide fencing and signage. Designed in accordance Qudm for access and egress. Depth minimised.	Death	Rare	5	Moderate	Monitor until end of Construction of Sediment Basins

Risk Table stage 4 (ID 981940)
Page 1 of 1

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

SAFETY IN DESIGN

MORTONS
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DESIGNED RB
DRAWN BL
APPROVED
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-003
REV A

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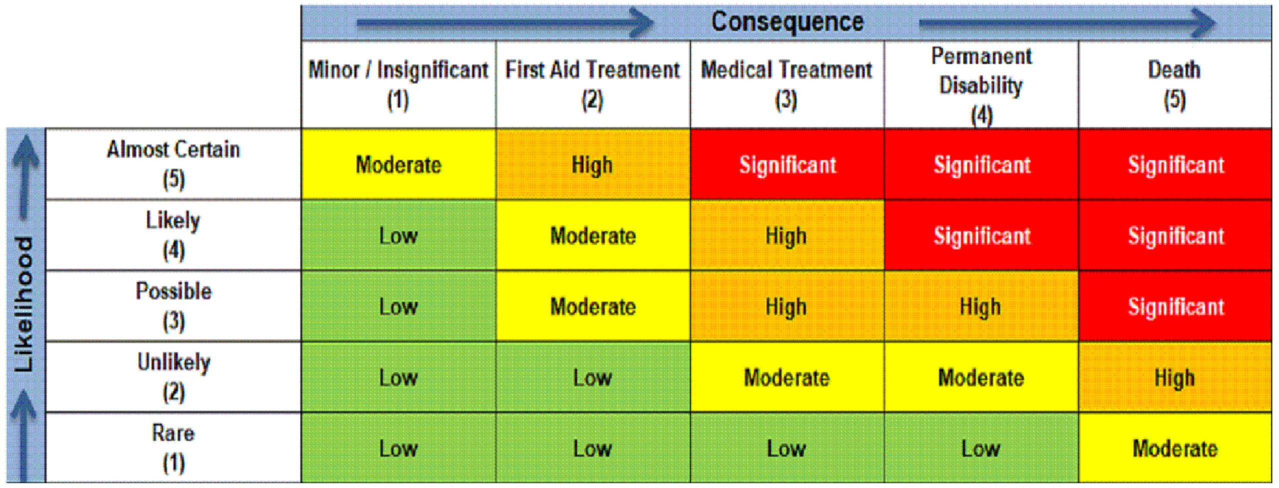
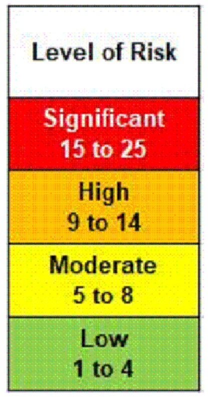


		Consequence				
		Minor / Insignificant (1)	First Aid Treatment (2)	Medical Treatment (3)	Permanent Disability (4)	Death (5)
Likelihood	Almost Certain (5)	Moderate	High	Significant	Significant	Significant
	Likely (4)	Low	Moderate	High	Significant	Significant
	Possible (3)	Low	Moderate	High	High	Significant
	Unlikely (2)	Low	Low	Moderate	Moderate	High
	Rare (1)	Low	Low	Low	Low	Moderate



Level of Risk
Significant 15 to 25
High 9 to 14
Moderate 5 to 8
Low 1 to 4

NOTES:

1. THIS SID REGISTER IN NO WAY RELIEVES THE PRINCIPAL, CONTRACTOR, ASSET OWNER OR ANY OTHER PARTY OF THEIR OWN OBLIGATIONS UNDER THE WORKPLACE HEALTH AND SAFETY ACT AND THEIR DUTY OF CARE. THIS IS PROVIDED AS INFORMATION FOR PARTIES TO ASSIST IN MEETING THEIR OWN OBLIGATIONS AND IS BY NO MEANS A COMPLETE LIST. THIS SID REGISTER OR THE NOTES AND DETAILS INCLUDED WITHIN THE DESIGN DRAWINGS DO NOT RELIEVE THE PRINCIPAL CONTRACTOR OF ANY OBLIGATION UNDER ALL RELEVANT LEGISLATION OR GUIDELINE.
2. ALL CONTRACTORS AND ASSET OWNERS REMAIN RESPONSIBLE IN THE PREPARATION OF THEIR OWN SAFETY MANAGEMENT PLANS AND SUITABLE SAFE WORK METHOD STATEMENTS.
3. THIS SID REGISTER IDENTIFIES ATYPICAL FEATURES OF THE DESIGN. COMMON/TYPICAL FEATURES OF THIS DESIGN ARE NOT INCLUDED IN THIS SID REGISTER.

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PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

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WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

RISK MATRIX
& NOTES

MORTONS
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DESIGNED RB
DRAWN BL
APPROVED
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-004
REV A

GENERAL

1. **CONTRACT SPECIFICATIONS**
   ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFICATION.
2. **SETOUT**
   SURVEY SETOUT INFORMATION HAS BEEN ESTABLISHED ON SITE BY THE PRINCIPAL'S SURVEYOR TO ENABLE THE CONTRACTOR TO ACCURATELY SETOUT THE WORKS TO THE CO-ORDINATES SHOWN. SETOUT INFORMATION SHALL NOT BE OBTAINED BY SCALING FROM THESE DRAWINGS.
3. **DATUM**
   LEVELS SHOWN ARE TO A.H.D.
4. **TRENCH SPOIL**
   ALL MATERIALS ARISING FROM ROADS & SERVICES ARE TO BE COMPACTED TO FUTURE STAGES, TO LEVEL 1 IF NO SPOIL AREA IS AVAILABLE THESE MATERIALS SHALL BE TRUCKED TO A LICENSED TIP. THESE WORKS FORM PART OF THE CONTRACTED WORKS.
5. **CHECK ELECTRONIC SETOUT**
   CONTRACTOR IS RESPONSIBLE TO ENSURE ANY ELECTRONIC DATA FILES MATCH THE DRAWINGS.
6. **PRE START**
   a. ERECT SITE SIGNAGE. CONSTRUCT ENTRY & EXIT POINT AS INDICATED.
   b. CONSTRUCT VEHICLE WASHDOWN AREA & ASSOCIATED SILT MANAGEMENT DEVICES.
   c. CONSTRUCT SITE OFFICE & STORAGE COMPOUND AREA.
   d. INSTALL EROSION & SEDIMENT CONTROL DEVICES AS PER THE CONTRACTOR'S EROSION & SEDIMENT CONTROL PLAN.
   e. ERECT TEMPORARY TREE PROTECTION FENCING IN ACCORDANCE WITH THE APPROVED VEGETATION MANAGEMENT PLAN & AUTHORITIES APPROVAL CONDITIONS (IF REQUIRED).
7. **HEALTH & SAFETY**
   ALL WORKS UNDERTAKEN BY THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE WORKPLACE HEALTH & SAFETY LEGISLATION.
8. **STOCKPILING**
   STOCKPILING OF ANY SURPLUS MATERIAL IS NOT PERMITTED

PROJECT SPECIFIC REPORTS

THE CONTRACTOR MUST FOLLOW THE RECOMMENDATIONS & PROCEDURES OUTLINED IN THE FOLLOWING REPORTS AT ALL TIMES:

a) GEOTECHNICAL INVESTIGATION REPORTS (INCLUDING ANY ACID SULPHATE OR DISPERSIVE SOIL REPORTING)
b) VEGETATION & FAUNA MANAGEMENT PLANS
c) OTHER MANAGEMENT PLANS NOMINATED IN THE CONTRACT, AUTHORITIES APPROVAL CONDITIONS OR BY THE SUPERINTENDENT.

LEGEND

🟩	RESIDENTIAL ACCESS STREET (7.5m CARRIAGEWAY)	REFER 120 DRAWINGS SERIES FOR TYPICAL SECTIONS
🟥	RESIDENTIAL COLLECTOR STREET (7.5m CARRIAGEWAY)	
———	EXISTING PROPERTY LINE	
———	EXISTING KERB (INVERT)	
— — —	FUTURE PROPERTY LINE	
— — —	FUTURE KERB (INVERT)	
———	PROPOSED PROPERTY LINE	
———	PROPOSED KERB (INVERT)	
▬ ▬ ▬	SITE BOUNDARY	
▬ ▬ ▬	STAGE BOUNDARY	
▬ ▬ ▬	LIMIT OF WORKS BOUNDARY	

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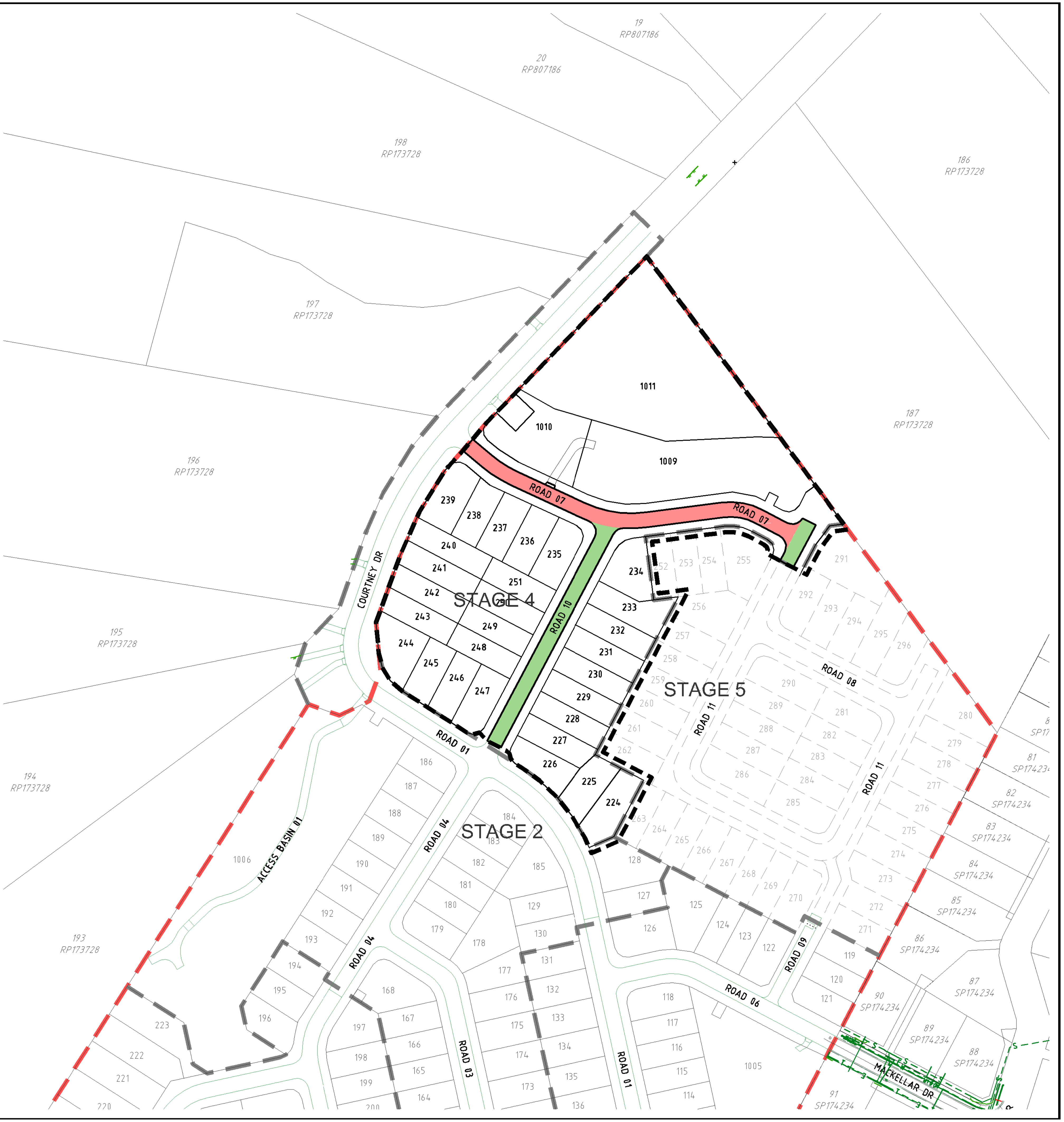

PROJECT NAME
COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION
LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT
HB Land

NORTH
0 10 20 30 40 50m
Scale 1:1000 - A1 (1:2000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS
BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

ROAD HIERARCHY, STAGING PLAN AND GENERAL NOTES

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DESIGNED RB		DRAWN BL	
APPROVED	W.K. Morton	RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-005
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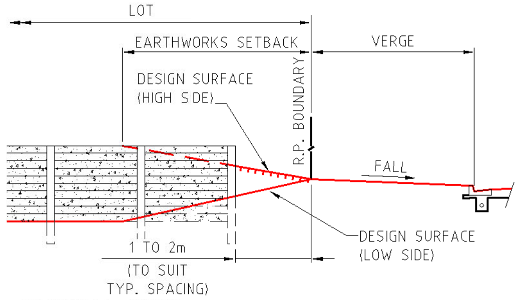
GENERAL

1. **CONTRACT SPECIFICATIONS**
   ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFICATION.
2. **SETOUT**
   SURVEY SETOUT INFORMATION HAS BEEN ESTABLISHED ON SITE BY THE PRINCIPAL'S SURVEYOR TO ENABLE THE CONTRACTOR TO ACCURATELY SETOUT THE WORKS TO THE CO-ORDINATES SHOWN. SETOUT INFORMATION SHALL NOT BE OBTAINED BY SCALING FROM THESE DRAWINGS.
3. **DATUM**
   LEVELS SHOWN ARE TO A.H.D.
4. **EXISTING SERVICES - EXTERNAL WORKS**
   THE LOCATIONS OF ALL EXISTING SERVICES WITHIN THE WORK AREA SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION COMMENCING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE RELEVANT AUTHORITIES & TO ENSURE THAT THE EXISTING SERVICES ARE NOT DAMAGED OR DISTURBED IN ANY WAY BY THE CONTRACT WORKS.
5. ALL MATERIALS ARISING FROM RETAINING WALL CONSTRUCTION ARE TO BE COMPACTED TO FUTURE STAGES, TO LEVEL 1 OR IF DIRECTED BY THE SUPERINTENDENT SHALL BE TRUCKED TO A LICENSED TIP.

LEGEND

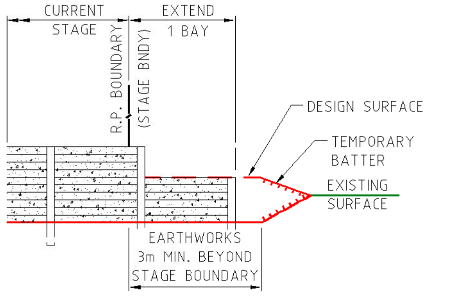
———	EXISTING KERB (INVERT)
———	EXISTING PROPERTY LINE
— —1.0— —	EXISTING CONTOURS
┬ ┬ ┬ ┬	EXISTING RETAINING WALL
———	EXISTING BOULDER WALL
— — —	FUTURE KERB (INVERT)
— — —	FUTURE PROPERTY LINE
— —1.0— —	FUTURE CONTOURS
┬ ┬ ┬ ┬	FUTURE RETAINING WALL
—○—○—○—	FUTURE BOULDER WALL
———	PROPOSED KERB (INVERT)
———	PROPOSED PROPERTY LINE
—1.0— —	DESIGN CONTOURS
┬ ┬ ┬ ┬	PROPOSED SINGLE TIER RETAINING WALL
╪ ╪ ╪ ╪	PROPOSED TWO TIER RETAINING WALL
—○—○—○—	PROPOSED BOULDER WALL
PL50.4	NOMINAL LOT PAD LEVEL
RH1.0	INDICATIVE WALL HEIGHT
——>	DETAIL PAD FALL DIRECTION (CONTRACTOR TO ENSURE LOTS FALL TO ROAD AT 1:150 MIN. REFER DRG. 072)



LOT
EARTHWORKS SETBACK
VERGE
DESIGN SURFACE (HIGH SIDE)
R.P. BOUNDARY
FALL
DESIGN SURFACE (LOW SIDE)
1 TO 2m (TO SUIT TYP. SPACING)

TYPICAL SIDE BOUNDARY CONSTRUCTION

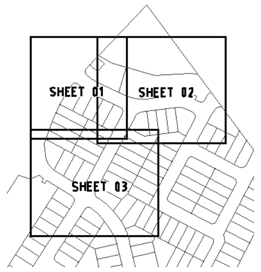
SCALE 1:100 - A1 (1:200 - A3)

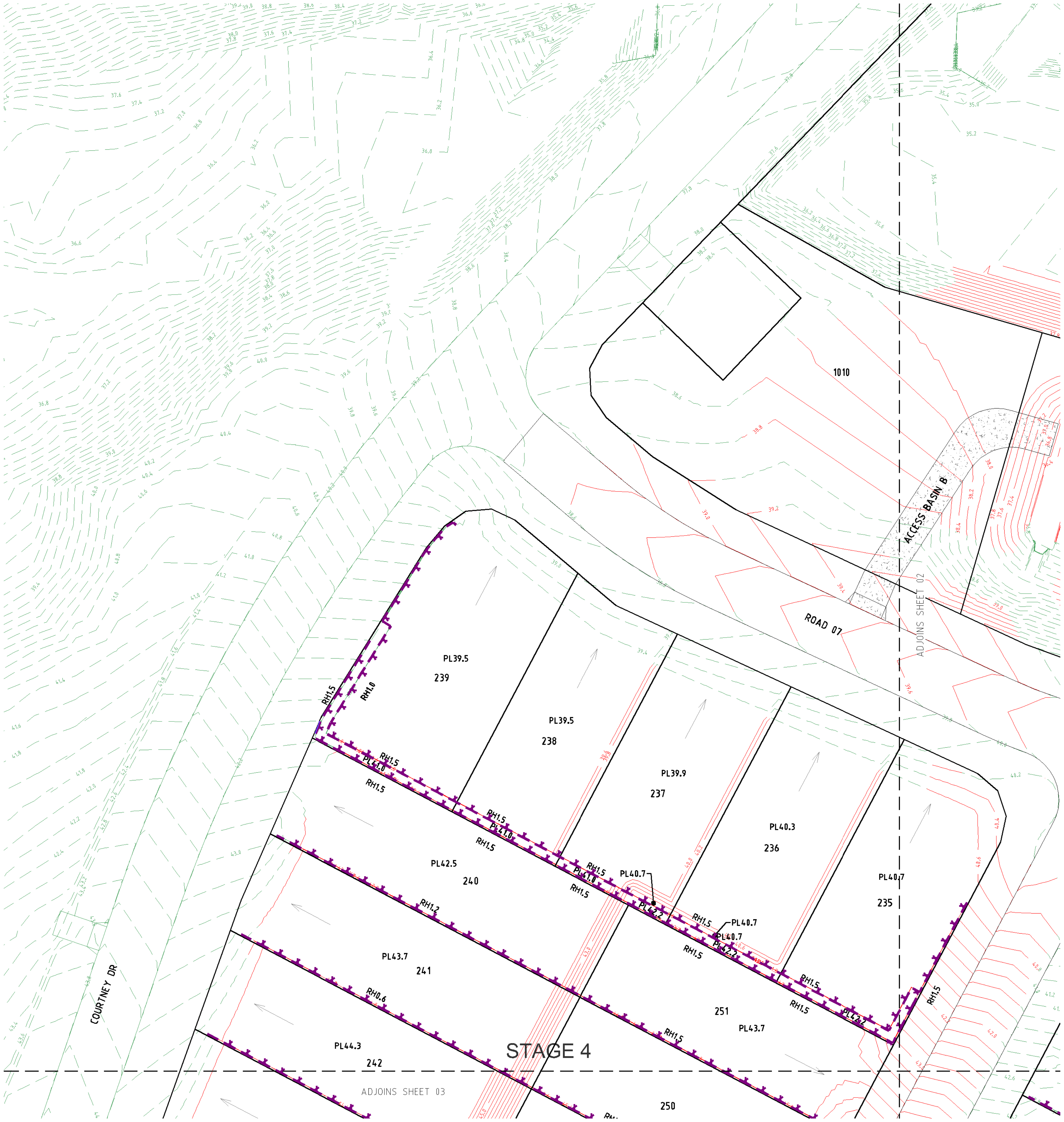


TYPICAL STAGE BOUNDARY CONSTRUCTION

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

SHEET LAYOUT





PROJECT NAME

COURTNEY DR
UPPER COOMERA

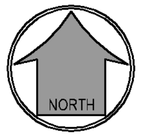
STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land



0 2.5 5 7.5 10 12.5m
Scale 1:250 - A1 (1:500 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

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WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

RETAINING WALL AND DETAIL GRADING PLAN SHEET 01

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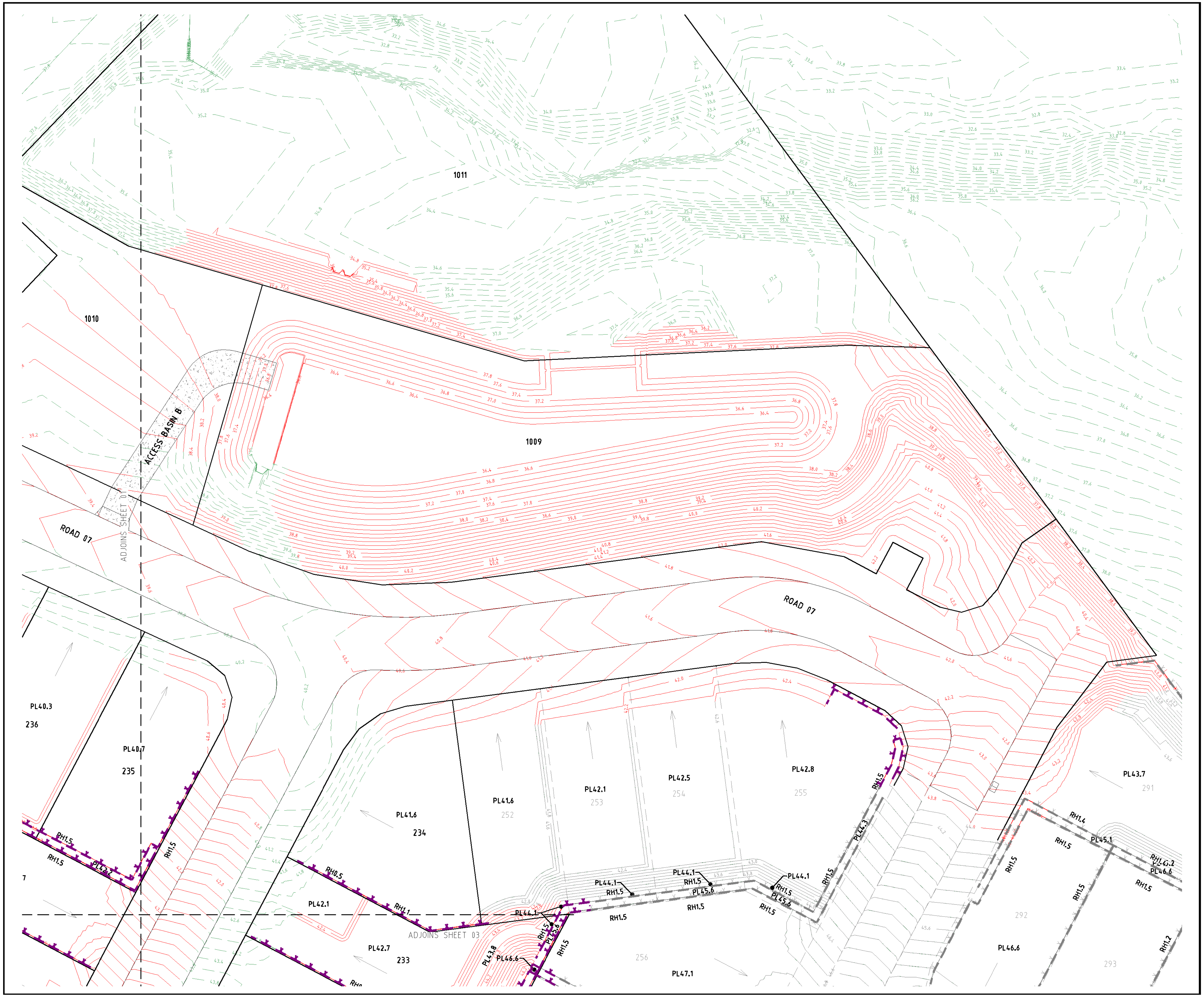
DESIGNED RB	DRAWN BL
APPROVED M.K. Morton	RPEQ 4706
	DATE 27-04-24

DRAWING NUMBER	REV
41901-04-060	A



PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

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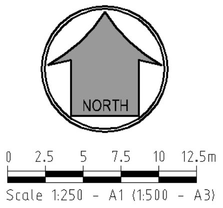

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

RETAINING WALL AND DETAIL GRADING PLAN SHEET 02

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

MUS Pty Ltd T/As:
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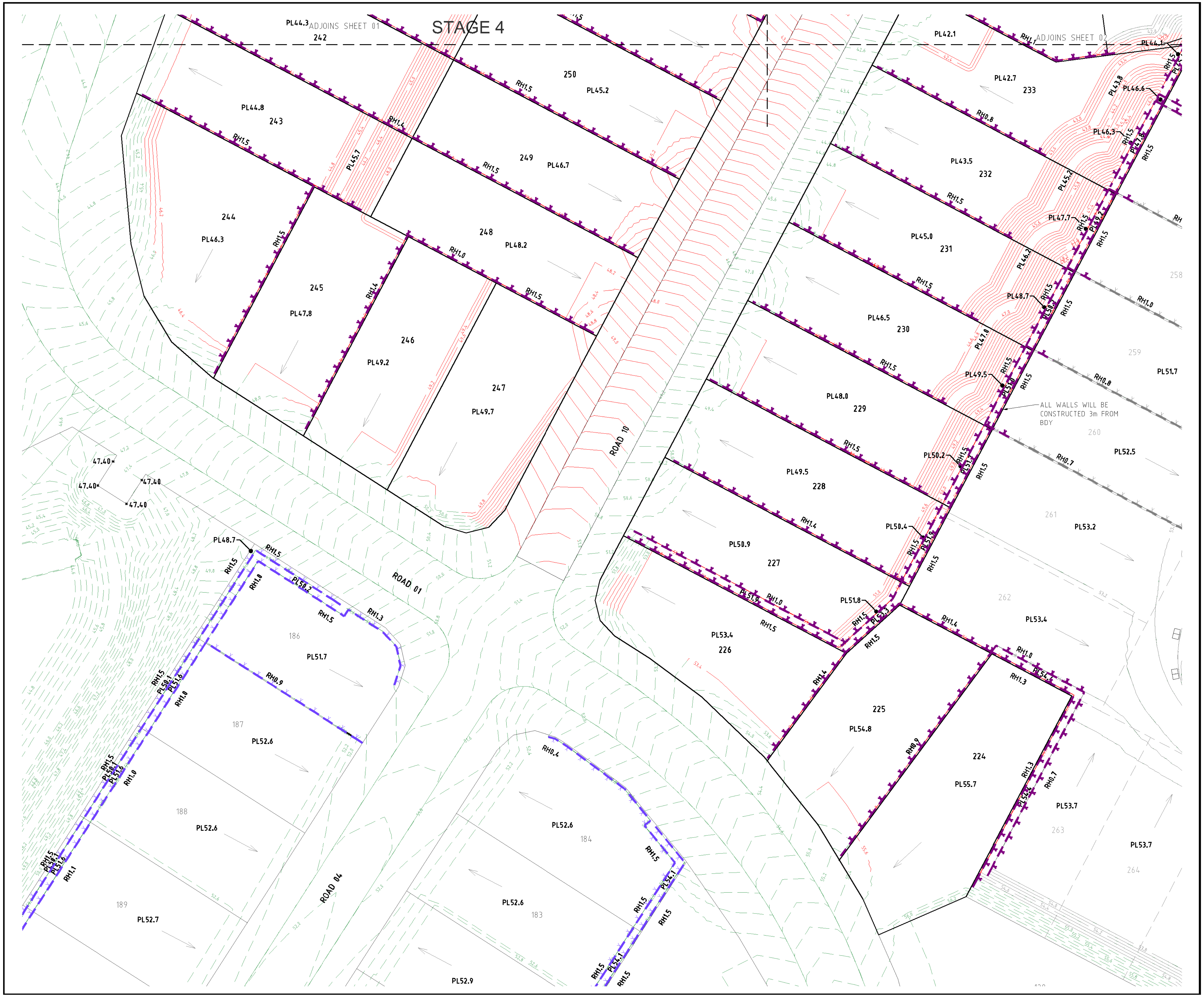
DESIGNED RB
DRAWN BL
APPROVED M.K. Morto
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-061
REV A



ALL WALLS WILL BE CONSTRUCTED 3m FROM BDY

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 2.5 5 7.5 10 12.5m
Scale 1:250 - A1 (1:500 - A3)

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APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-062
REV A

NOTES:

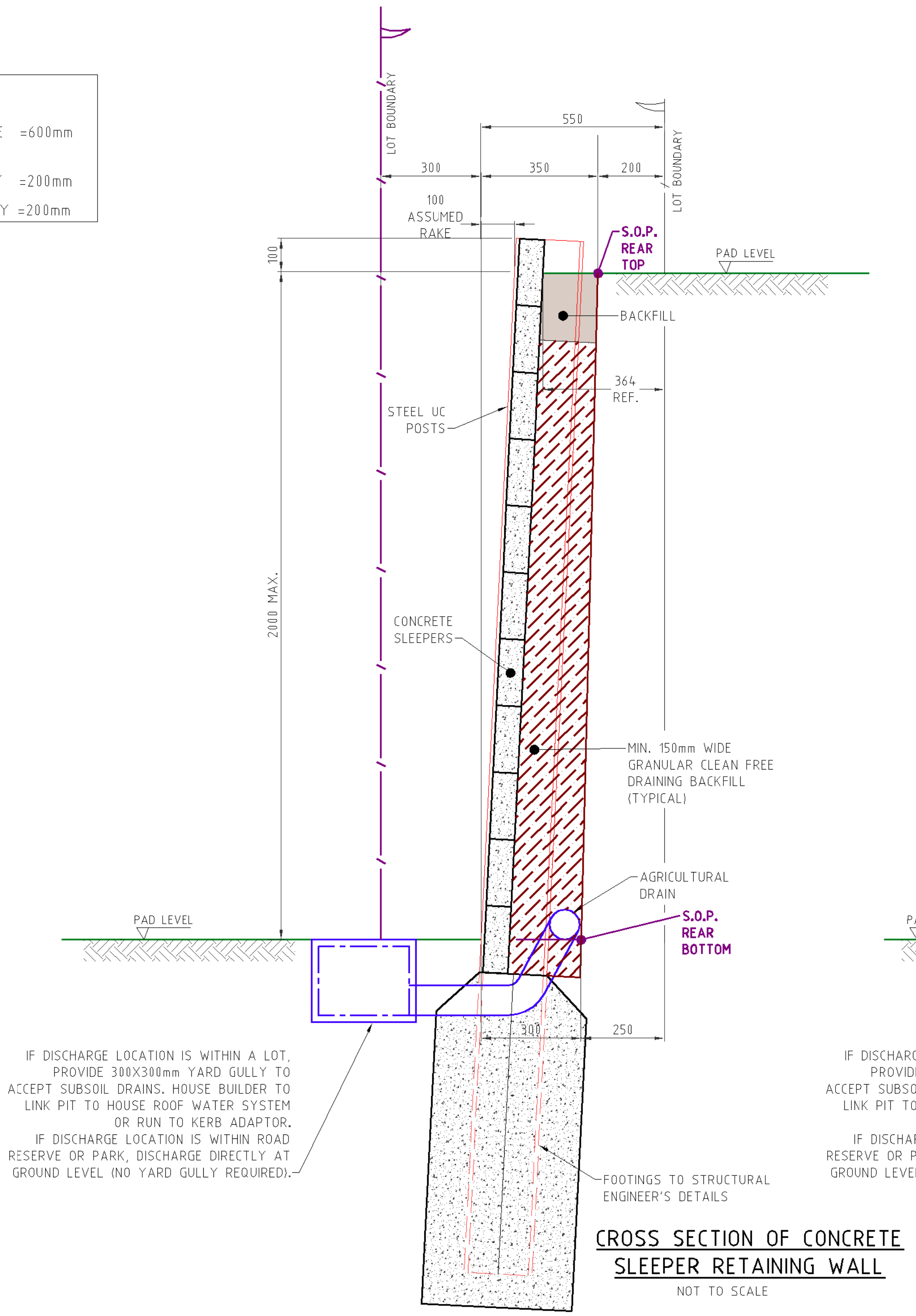
1. RETAINING WALL DETAILS ARE INDICATIVE ONLY.
2. CONTRACTOR TO ARRANGE FOR DESIGN & CONSTRUCTION OF WALLS BY RPEQ STRUCTURAL ENGINEER. CONTRACTOR TO PROVIDE STRUCTURAL CERTIFICATION OF DESIGN & FINAL CONSTRUCTION.
3. ALLOW FOR 5KPa LOADING TO WALLS EXCEPT ADJACENT TO ROADS WHICH REQUIRE A 10kPa LOADING.
4. CONTRACTOR TO CONFIRM LOCATION OF LOT BOUNDARY PRIOR TO COMMENCING WALL CONSTRUCTION.
5. THE BUILDING ON THE HIGHER SIDE OF THE RETAINING WALL MUST MAINTAIN AN OFFSET OR APPROPRIATE FOUNDATION STRUCTURES (EG; PIERS) IN ORDER TO ENSURE THE ENTIRE DEPTH OF THE RETAINING WALL IS FREE FROM THE ZONE OF INFLUENCE OF THE BUILDING/OVERBURDEN LOAD UNLESS OTHERWISE SPECIFIED BY STRUCTURAL ENGINEER.
6. STRUCTURAL ENGINEER TO DESIGN SLAB & PIER.
7. AGRICULTURAL DRAIN TO DISCHARGE TO 300x300mm STORMWATER PIT. HOUSE BUILDER TO CONNECT 300x300mm STORMWATER PIT TO ROOFWATER SYSTEM.
8. RETAINING WALL DESIGN TO ALLOW FOR ALL SERVICES (ADJACENT OR BELOW) & HAVE NO IMPACT.
9. SANDSTONE & PROPRIETARY RETAINING WALLS TO BE DESIGNED & CONSTRUCTED TO HAVE VERTICAL FACE UNLESS OTHERWISE AGREED BY THE SUPERINTENDENT.
10. ANY WALL GREATER THAN 0.9M HIGH TO INSTALL A FALL BARRIER AT THE TOP OF WALL. THE FALL BARRIER IS TO BE MAINTAINED UNTIL THE END OF THE MAINTENANCE PERIOD OR THE ASSOCIATED LOT IS SOLD BY THE DEVELOPER.
11. REFER TO LANDSCAPE ARCHITECT FOR RETAINING WALL COLOUR & FINISH.
12. SETBACKS- REFER TABLE
13. WHERE RETAINING WALLS ARE LOCATED WITHIN 2m OF A PMT SITE THE RETAINING WALL IS TO BE DESIGNED & CONSTRUCTED TO ALLOW EXCAVATION OF THE FULL PMT SITE TO A DEPTH OF 1.3m.
14. FENCE BRACKETS TO BE INSTALLATION POSTS. NO BRACKETS 5m FROM FRONT BOUNDARY.
15. ALL FOOTINGS MUST BE A MINIMUM OF 200mm FROM PROPERTY BOUNDARY.

SETBACKS:

ROAD RESERVE OR OPEN SPACE BOUNDARY	=600mm
SIDE BOUNDARY	=200mm
REAR BOUNDARY	=200mm

RETAINING WALL COLOUR AND FACE FINISH NOTE:

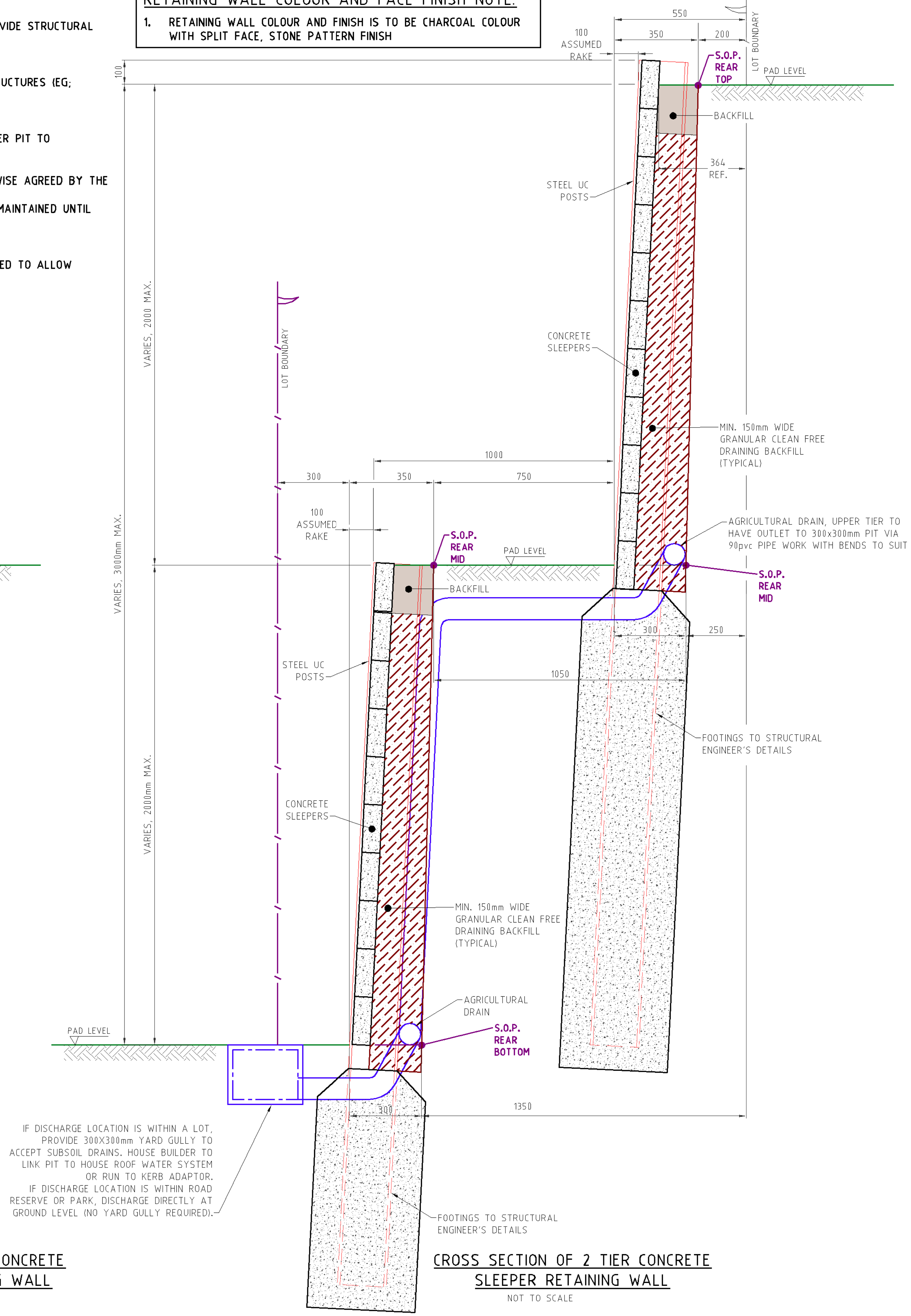
1. RETAINING WALL COLOUR AND FINISH IS TO BE CHARCOAL COLOUR WITH SPLIT FACE, STONE PATTERN FINISH



IF DISCHARGE LOCATION IS WITHIN A LOT, PROVIDE 300X300mm YARD GULLY TO ACCEPT SUBSOIL DRAINS. HOUSE BUILDER TO LINK PIT TO HOUSE ROOF WATER SYSTEM OR RUN TO KERB ADAPTOR. IF DISCHARGE LOCATION IS WITHIN ROAD RESERVE OR PARK, DISCHARGE DIRECTLY AT GROUND LEVEL (NO YARD GULLY REQUIRED).

CROSS SECTION OF CONCRETE SLEEPER RETAINING WALL

NOT TO SCALE



IF DISCHARGE LOCATION IS WITHIN A LOT, PROVIDE 300X300mm YARD GULLY TO ACCEPT SUBSOIL DRAINS. HOUSE BUILDER TO LINK PIT TO HOUSE ROOF WATER SYSTEM OR RUN TO KERB ADAPTOR. IF DISCHARGE LOCATION IS WITHIN ROAD RESERVE OR PARK, DISCHARGE DIRECTLY AT GROUND LEVEL (NO YARD GULLY REQUIRED).

CROSS SECTION OF 2 TIER CONCRETE SLEEPER RETAINING WALL

NOT TO SCALE

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

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DRAWING TITLE

RETAINING WALL
DETAILS
SHEET 01

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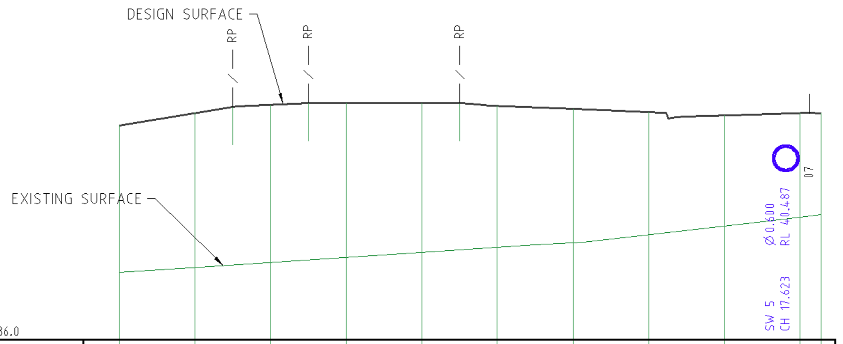
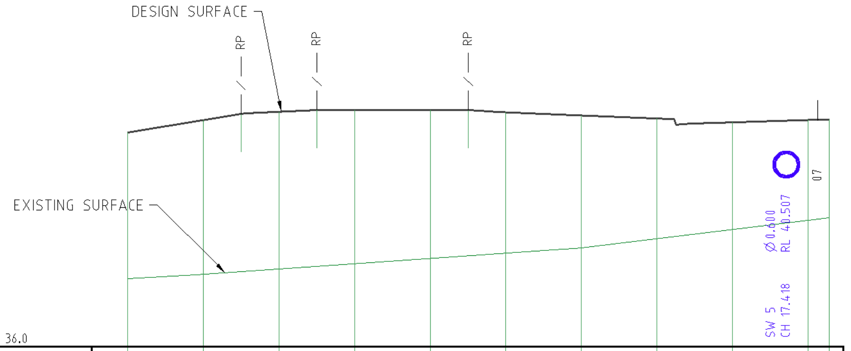


DATUM 36.0

FINISHED SURFACE	41.65	41.983	42.15	42.2	42.25	42.25	42.25	42.25	42.169	42.089	42.009	41.916	41.976	41.976
EXISTING SURFACE	37.779	37.899		38.035		38.171	38.308		38.444	38.555	38.766	38.998	39.235	39.301
CHAINAGE	0	2	3.00	4	5.00	6	8	9.00	10	12	14	16	18	18.55

LONGITUDINAL SECTION 5A

Horizontal scale 1:100 Vertical scale 1:100

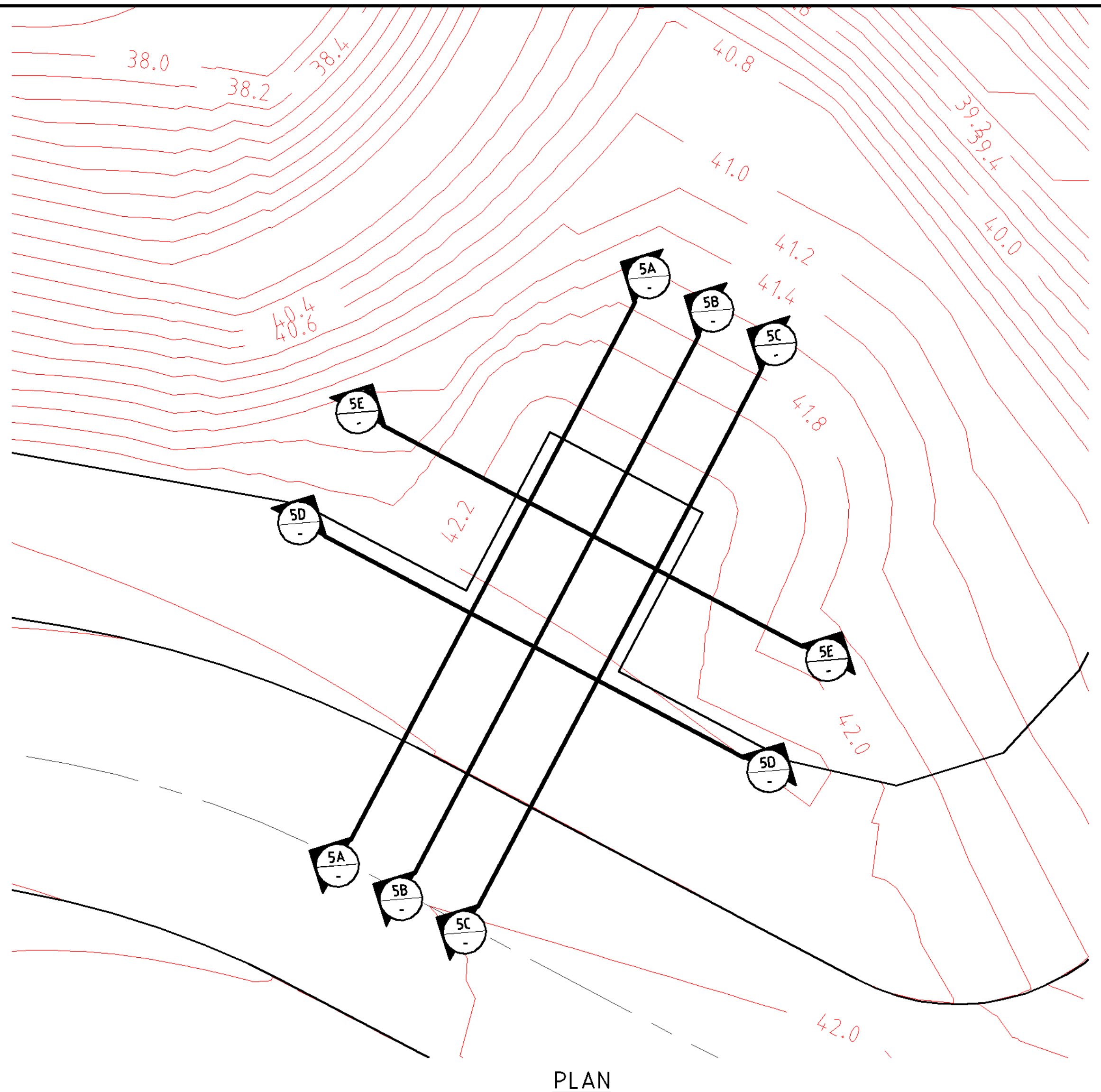


DATUM 36.0

FINISHED SURFACE	41.65	41.983	42.15	42.2	42.25	42.25	42.25	42.25	42.18	42.1	42.02	41.928	41.988	41.99
EXISTING SURFACE	37.797	37.919		38.056		38.192	38.329		38.465	38.618	38.861	39.104	39.346	39.413
CHAINAGE	0	2	3.00	4	5.00	6	8	9.00	10	12	14	16	18	18.55

LONGITUDINAL SECTION 5B

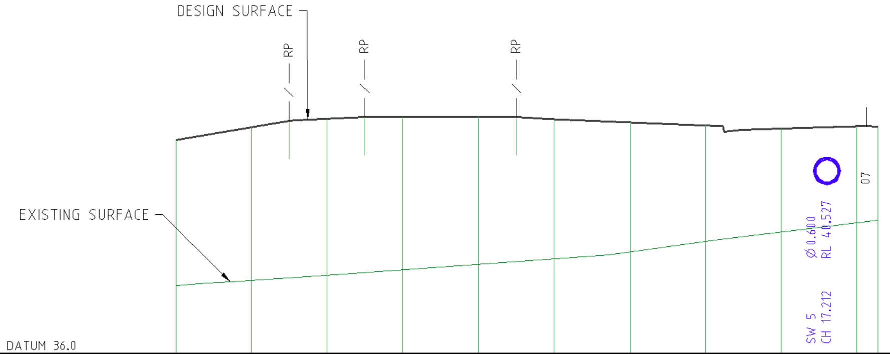
Horizontal scale 1:100 Vertical scale 1:100



PLAN

LEGEND

- CONTROL LINE / CENTER OF ROAD
- PROPOSED KERB (INVERT)
- PROPOSED KERB (LIP & BACK)
- PROPOSED FOOTPATH
- PROPOSED PROPERTY LINE
- PROPOSED RETAINING WALL
- 1.0 DESIGN CONTOURS

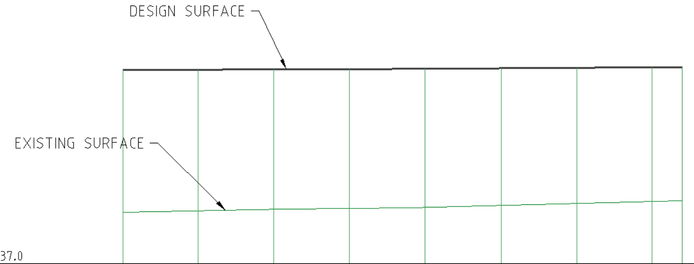


DATUM 36.0

FINISHED SURFACE	41.65	41.983	42.15	42.2	42.25	42.25	42.25	42.25	42.192	42.112	42.032	41.94	42	42.004
EXISTING SURFACE	37.804	37.94		38.077		38.221	38.366		38.51	38.691	38.967	39.216	39.458	39.525
CHAINAGE	0	2	3.00	4	5.00	6	8	9.00	10	12	14	16	18	18.55

LONGITUDINAL SECTION 5C

Horizontal scale 1:100 Vertical scale 1:100

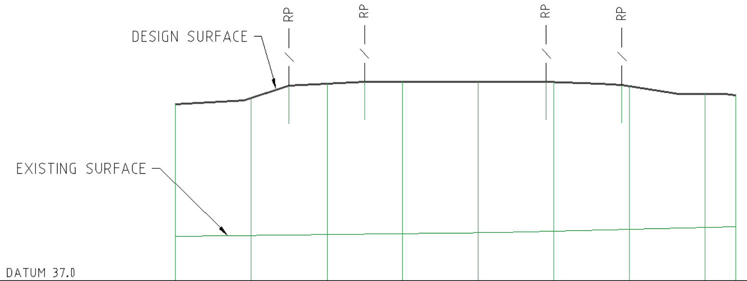


DATUM 37.0

FINISHED SURFACE	42.141	42.141	42.144	42.152	42.164	42.176	42.188	42.2	42.205
EXISTING SURFACE	38.372	38.416	38.46	38.485	38.511	38.561	38.611	38.661	38.682
CHAINAGE	0	2	4	6	8	10	12	14	14.8

LONGITUDINAL SECTION 5D

Horizontal scale 1:100 Vertical scale 1:100



DATUM 37.0

FINISHED SURFACE	41.666	41.831	42.156	42.203	42.25	42.25	42.25	42.25 42.243	42.177 42.174	41.932	41.902
EXISTING SURFACE	38.183	38.204		38.225		38.246	38.267	38.308	38.358	38.408	38.428
CHAINAGE	0	2	3.00	4	5.00	6	8	9.80 10	11.80 12	14	14.8

LONGITUDINAL SECTION 5E

Horizontal scale 1:100 Vertical scale 1:100

PROJECT NAME

COURTNEY DR
UPPER COOMERA

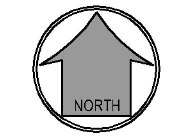
STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land



0 1 2 3 4 5m
Scale 1:100 - A1 (1:200 - A3)

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ASSOCIATED CONSULTANTS

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DRAWING TITLE

PADMOUNT SECTIONS
SHEET 01

MORTONS
urbansolutions
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APPROVED M.K. Morton
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-075
REV A

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SEDIMENT AND EROSION

1. THE EROSION & SEDIMENT CONTROL DEVICES SHOWN ON THESE DRAWINGS ARE INDICATIVE & PROVIDED FOR SUBMISSION TO LOCAL AUTHORITY ONLY. NOTWITHSTANDING THE EROSION & CONTROL DEVICES SHOW ON THESE DRAWINGS, THE CONTRACTOR MUST PREPARE & FOLLOW A SITE SPECIFIC EROSION & SEDIMENT CONTROL PLAN TO MEET ALL LOCAL & STATE GOVERNMENT LEGISLATION INCLUDING BUT NOT LIMITED TO:
    a. ENVIRONMENTAL PROTECTION ACT WITH SPECIFIC REFERENCE TO PARTS S440G & S319
    b. STATE PLANNING POLICY

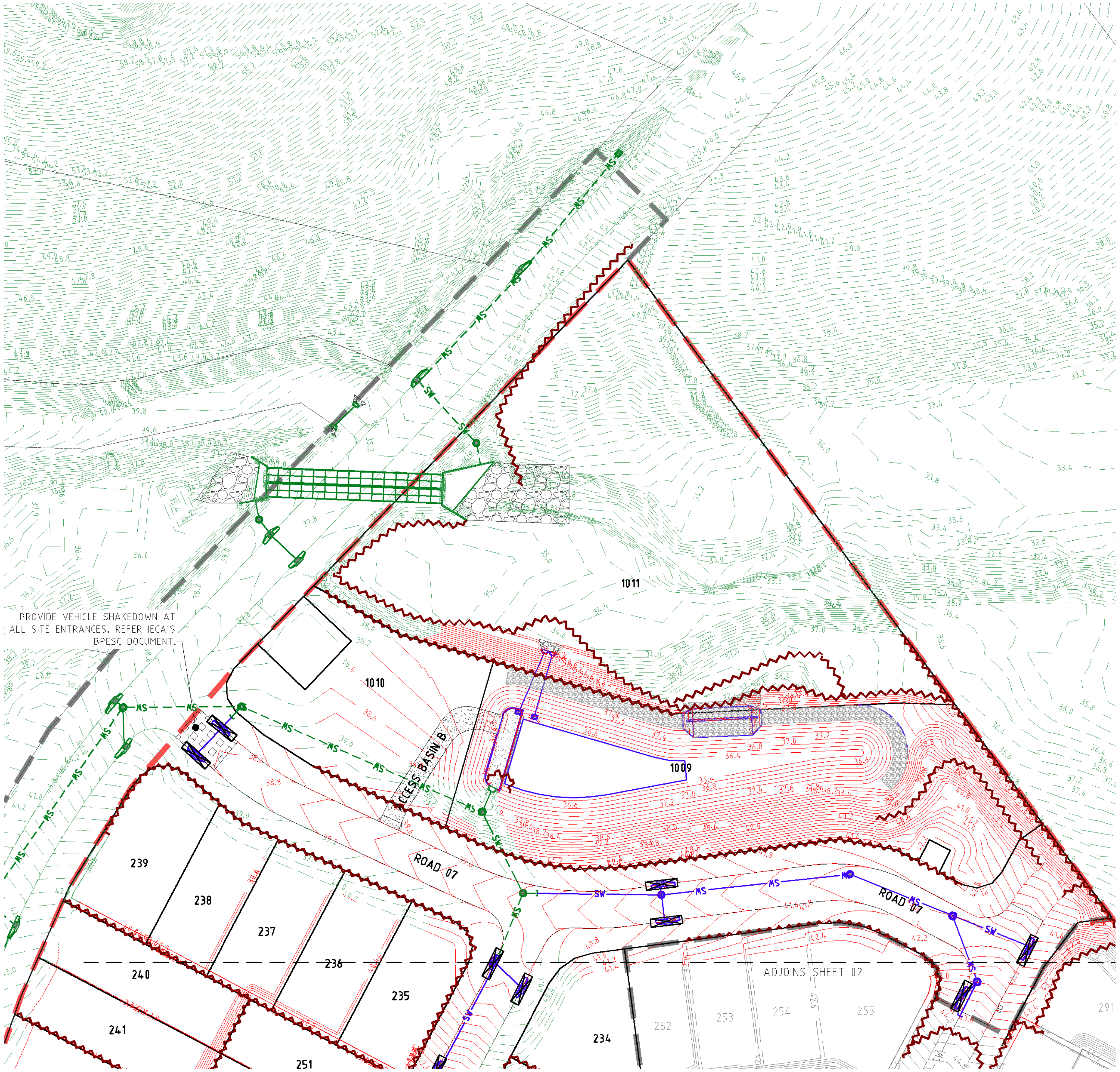
   PRESCRIBED WATER CONTAMINANTS (AS DEFINED IN THE ENVIRONMENTAL PROTECTION ACT 1994) MUST NOT BE RELEASED FROM THE SITE OR TO WATERS WITHIN THE SITE, OR BE LIKELY TO BE RELEASED SHOULD RAINFALL OCCUR, UNLESS ALL REASONABLE & PRACTICABLE MEASURES ARE TAKEN TO PREVENT OR MINIMISE THE RELEASE & CONCENTRATION OF CONTAMINATION. THE ESC PLAN MUST BE DESIGNED, IMPLEMENTED & MAINTAINED IN ACCORDANCE WITH "BEST PRACTICE EROSION & SEDIMENT CONTROL" PUBLISHED BY THE INTERNATIONAL EROSION CONTROL ASSOCIATION (AUSTRALASIAN CHAPTER) (IECA, 2008).
2. TO COMPLY WITH THE REQUIREMENTS OF THE EP ACT & BEST PRACTICE DESIGN, THE SEDIMENT BASINS ON THE SITE MUST BE DESIGNED & IMPLEMENTED TO ACHIEVE THE FOLLOWING:

   SEDIMENT BASINS ARE TO BE DESIGNED, IMPLEMENTED & MAINTAINED TO A STANDARD WHICH WOULD ACHIEVE AT LEAST 80% OF THE AVERAGE ANNUAL RUNOFF VOLUME OF THE CONTRIBUTING CATCHMENT TREATED (I.E. 80% HYDROLOGIC EFFECTIVENESS) TO 50MG/L TSS OR LESS & PH IN THE RANGE 6.5-8.5

   THIS WILL REQUIRE THE INSTALLATION & OPERATION OF A HIGH-EFFICIENCY SEDIMENT BASIN(S) DESIGNED IN ACCORDANCE WITH THE SPECIFICATIONS CONTAINED IN THE "BEST PRACTICE EROSION & SEDIMENT CONTROL - APPENDIX B SEDIMENT BASIN DESIGN & OPERATION" PUBLISHED BY THE INTERNATIONAL EROSION CONTROL ASSOCIATION (AUSTRALASIAN CHAPTER) (IECA, 2016, DRAFT)
3. THE EROSION & SEDIMENT CONTROL PLAN MUST BE PREPARED & CERTIFIED BY A CERTIFIED PROFESSIONAL IN EROSION & SEDIMENT CONTROL & FOLLOW THE REQUIREMENTS OUTLINED IN IECA'S BEST PRACTICE EROSION & SEDIMENT CONTROL DOCUMENT & THE QUEENSLAND URBAN DRAINAGE MANUAL.
4. PRIOR TO THE COMMENCEMENT OF WORKS ONSITE THE CONTRACTOR MUST MAKE THEMSELVES AWARE OF ALL PREVIOUS GEOTECHNICAL REPORTS & DETERMINE THE DISPERSIVE CHARACTERISTICS OF THE SOIL (INCLUDING PERFORMING ANY SOIL TESTS IF REQUIRED). THE RESULTS OF THIS REVIEW & ANY TESTS MUST BE INCLUDED IN THE CONTRACTOR'S EROSION & SEDIMENT CONTROL PLAN. A COPY OF ALL TEST RESULTS MUST BE PROVIDED TO THE SUPERINTENDENT.
5. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO CONTROL EROSION & DOWNSTREAM SEDIMENTATION DURING ALL STAGES OF CONSTRUCTION (INCLUDING THE MAINTENANCE PERIOD). NOTWITHSTANDING THE CONTROL MEASURES OR FINISHED EARTHWORKS DESIGN SHOWN ON THESE DRAWINGS, THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING ADDITIONAL OR ALTERNATIVE EROSION & SEDIMENT CONTROL MEASURES TO MINIMISE SEDIMENT ACROSS OR LEAVING THE SITE.
6. AT ALL TIMES THE CONTRACTOR SHALL MONITOR THE PREVAILING WEATHER CONDITIONS (INCLUDING WEEKENDS & PUBLIC HOLIDAYS) & AT ALL TIMES REMAINS RESPONSIBLE TO:
    a) CLEAN & REPAIR CONTROL DEVICES WHENEVER THE ACCUMULATED SEDIMENT REDUCES THEIR CAPACITY BY 50%.
    b) MAINTAIN POSITIVE GRADES OF ALL PERIMETER BANKS & SWALES TO AN OUTLET.
    c) PROTECT ANY DOWNSTREAM CONSTRUCTION.
    d) CONTROLLING DUST.
    e) MEASURES HAVE BEEN INSTALLED IN ACCORDANCE WITH DETAILS OUTLINED IN THEIR EROSION & SEDIMENT CONTROL PLAN & AS DIRECTED BY THE SUPERINTENDENT.
7. THE CONTRACTOR'S PLAN SHALL ALLOW FOR SUITABLE ACCESS TO ALLOW MAINTENANCE OF ALL SEDIMENT CONTROL DEVICES. NO ADDITIONAL VEGETATION CLEARING IS PERMITTED FOR GAINING ACCESS UNLESS APPROVED BY THE SUPERINTENDENT.
8. THE CONTRACTOR MAY REQUEST APPROVAL FROM THE SUPERINTENDENT TO REUSE THE STOCKPILED MULCH FOR STABILISING BATTERS ONLY IN LOCATIONS WHERE THE APPROVED LANDSCAPE OPW DESIGN REQUIRES MULCH ULTIMATELY.
9. CONSTRUCTION STOCKPILING
    a) TOPSOIL SHALL BE STRIPPED & STOCKPILED IN LOCATIONS NOMINATED ON THE CONSTRUCTION DRAWINGS OR IN LOCATIONS AGREED WITH THE SUPERINTENDENT.
    b) ADDITIONAL VEGETATION CLEARING IS NOT PERMITTED TO FACILITATE THE STOCKPILING OF MATERIALS UNLESS SHOWN ON THE APPROVED VEGETATION MANAGEMENT PLAN.
    c) ANY STOCKPILE SITE MUST BE CLEAR OF ADJACENT PROPERTY BOUNDARIES SO AS NOT TO CAUSE A NUISANCE TO ADJOINING PROPERTIES.
    d) NO STOCKPILES ARE TO BE LOCATED WITHIN THE TREE PROTECTION ZONE OF VEGETATION.
    e) A TEMPORARY SILT FENCE IS TO BE ERECTED APPROXIMATELY 5m FROM TOE OF BATTER ON LOW SIDE OF STOCKPILING.
10. NOTWITHSTANDING THE DETAILS SHOWN IN THE CONTRACTOR'S EROSION & SEDIMENT CONTROL PLAN, DURING CONSTRUCTION THE CONTRACTOR MUST:
    a) SIZE ALL TEMPORARY SEDIMENT BASINS APPROPRIATELY TO TREAT THE UPSTREAM CATCHMENT. NOTE THAT THE PERMANENT BIO BASINS SHOWN ON THESE DRAWINGS ARE SIZED FOR THE ULTIMATE CATCHMENT NOT FOR THE CONSTRUCTION PHASE.
    b) PLACE A ROCK BUND AROUND ALL HEADWALLS DURING CONSTRUCTION.
    c) PROVIDE KERB INLET PROTECTION TO ALL GULLIES.
    c) PLACE A MINIMUM 1.0m WIDE TURF STRIP BEHIND ALL KERBS & IN A HERRINGBONE LAYOUT WITHIN THE ROAD VERGE.
    d) MAINTENANCE (INCLUDING FLOCCULATION IF REQUIRED & PUMP OUT) OF ALL CONSTRUCTION SEDIMENT BASINS (WHETHER EXISTING OR NEW).
    e) CLEAN OUT OF ALL GROSS POLLUTANT TRAPS, SEDIMENT FOREBAYS & ALL OTHER PERMANENT SEDIMENT CONTROL DEVICES AT BOTH ON & OFF MAINTENANCE.
11. CONTRACTOR TO CONFIRM THE EXTENTS OF REQUIRED GRASSING TREATMENTS WITH THE SUPERINTENDENT AT LEAST 7 DAYS PRIOR TO FINAL TRIMMING.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT GRASSING STRIKE RATES ARE ACHIEVED AT THE ON & OFF MAINTENANCE INSPECTIONS IN ACCORDANCE WITH COUNCIL REQUIREMENTS. THIS INCLUDES THE SUPPLY & INSTALLATION OF ANY REQUIRED CHEMICAL/FERTILISER AMELIORATION TO ACHIEVE THE SPECIFIED GRASS STRIKE RATES.
13. GEOFABRIC LINING OF CHANNELS & CHECK DAMS MAY BE REQUIRED SUBJECT TO THE SITE CONDITIONS.
14. BATTERS WITHIN PUBLIC OPEN SPACE TO BE VEGETATED IN ACCORDANCE WITH APPROVED OPEN SPACE MANAGEMENT PLAN & LANDSCAPING OPW. CONTRACT DOCUMENTATION WILL SPECIFY WHETHER THIS IS THE CIVIL CONTRACTOR OR THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO SUPPLY & INSTALL. THE CIVIL CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUITABLE ACCESS FOR THE LANDSCAPE CONTRACTOR TO PERFORM THEIR WORKS.
15. MAINTENANCE PERIOD (PRE TO POST CONSTRUCTION)
    a) ALL PROTECTION MEASURES ARE TO BE INSPECTED & MAINTAINED REGULARLY
    b) REPAIRS ARE TO BE EFFECTED IMMEDIATELY.
    c) SILT AFTER RAIN IS TO BE CLEANED FROM STREETS & ALLOTMENTS IMMEDIATELY & CORRECTIVE ACTION TAKEN TO AVOID A RE-OCCURRENCE.
    d) AT OFF-MAINTENANCE & ONLY WHEN DIRECTED BY COUNCIL, REMOVE & DISPOSE OFFSITE ALL TEMPORARY EROSION & SEDIMENT CONTROL DEVICES.
16. EROSION & SEDIMENT CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR HOLDS ALL LIABILITY.

NOTE:

SEDIMENT AND EROSION CONTROL MEASURES SHOWN RELATE TO THE FINISHED SURFACE ONLY AND ARE CONCEPTUAL ONLY. THE CONTRACTOR IS TO PREPARE A SITE SPECIFIC CONSTRUCTION AND MAINTENANCE PHASE SEDIMENT AND EROSION CONTROL PLAN.

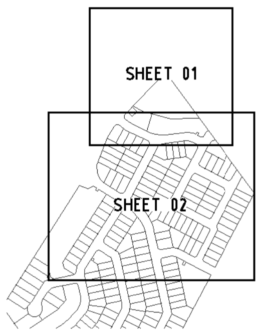


LEGEND

- EXISTING PROPERTY LINE
- EXISTING KERB (INVERT)
- EXISTING STORMWATER
- EXISTING CONTOURS
- FUTURE PROPERTY LINE
- FUTURE KERB (INVERT)
- FUTURE STORMWATER
- FUTURE CONTOURS
- SITE BOUNDARY
- STAGE BOUNDARY
- PROPOSED PROPERTY LINE
- PROPOSED KERB (INVERT)
- PROPOSED STORMWATER
- DESIGN CONTOURS
- MANHOLE
- KERB INLET (ON GRADE) PIT
- KERB INLET (SAG) PIT
- HEADWALL
- SEDIMENT FENCE
- SCOUR PROTECTION
- TEMPORARY SEDIMENT BASIN
- STORMWATER INLET FILTER
- ROCK CHECK DAM
- VEHICLE SHAKEDOWN (AT ALL SITE ENTRANCES MIN.)
- TEMPORARY SWALE
- SAND BAGS
- TREES

PROVIDE SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH INTERNATIONAL EROSION CONTROL ASSOCIATION BPESC DOCUMENT.

SHEET LAYOUT



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UPPER COOMERA

STAGE 04

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LOT 188, 189, 190, 191 & 192 ON RP173728
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ASSOCIATED CONSULTANTS

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BENNETT+BENNETT

DRAWING TITLE

FINAL SURFACE AND
SEDIMENT AND EROSION
PLAN
SHEET 01

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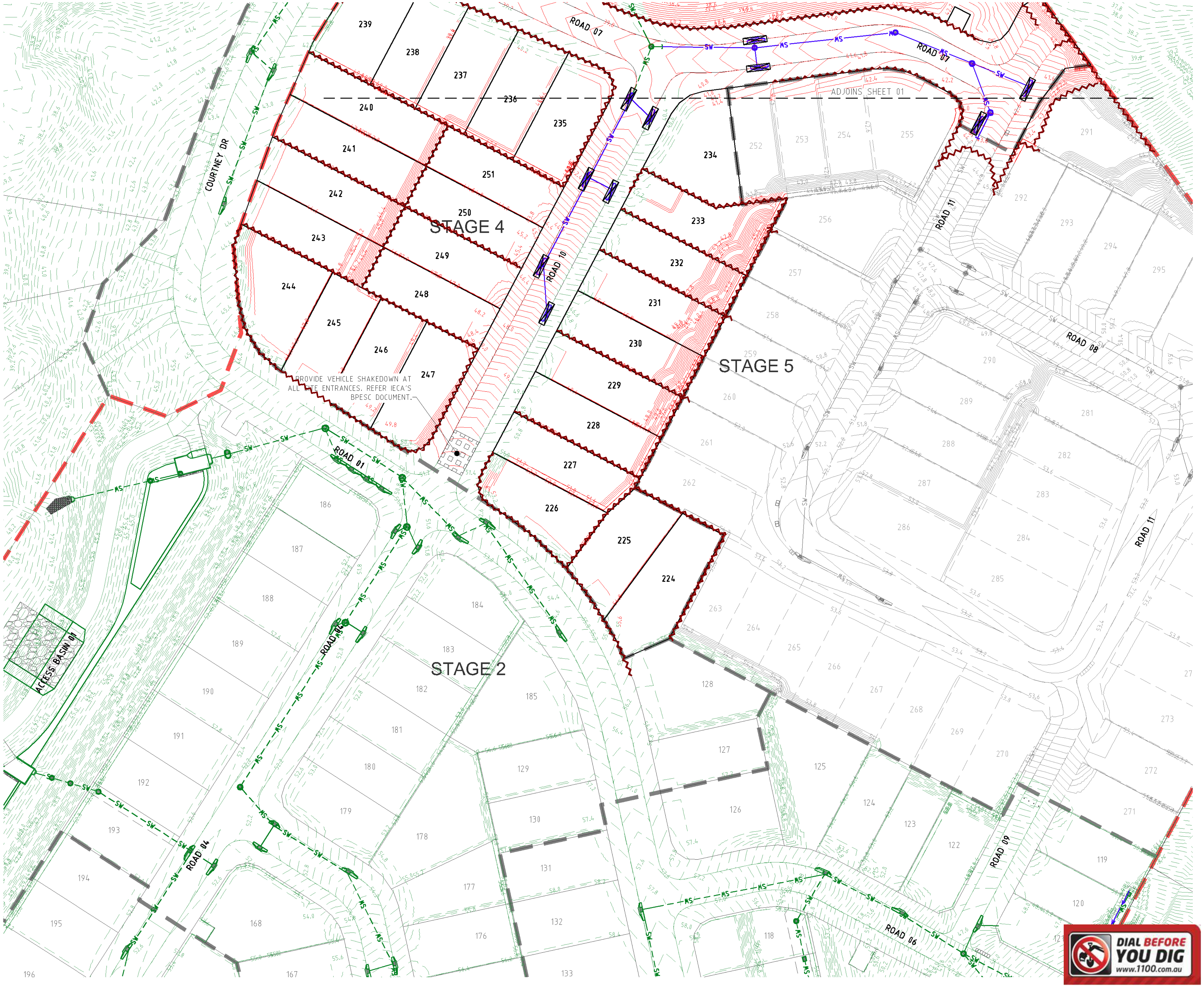

PROVIDE VEHICLE SHAKEDOWN AT ALL SITE ENTRANCES. REFER IECA'S BPESC DOCUMENT.

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

FINAL SURFACE AND
SEDIMENT AND EROSION
PLAN
SHEET 02

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination
MUS Pty Ltd T/As:
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DESIGNED RB
DRAWN BL
APPROVED M.K. morto
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER
41901-04-081

REV
A

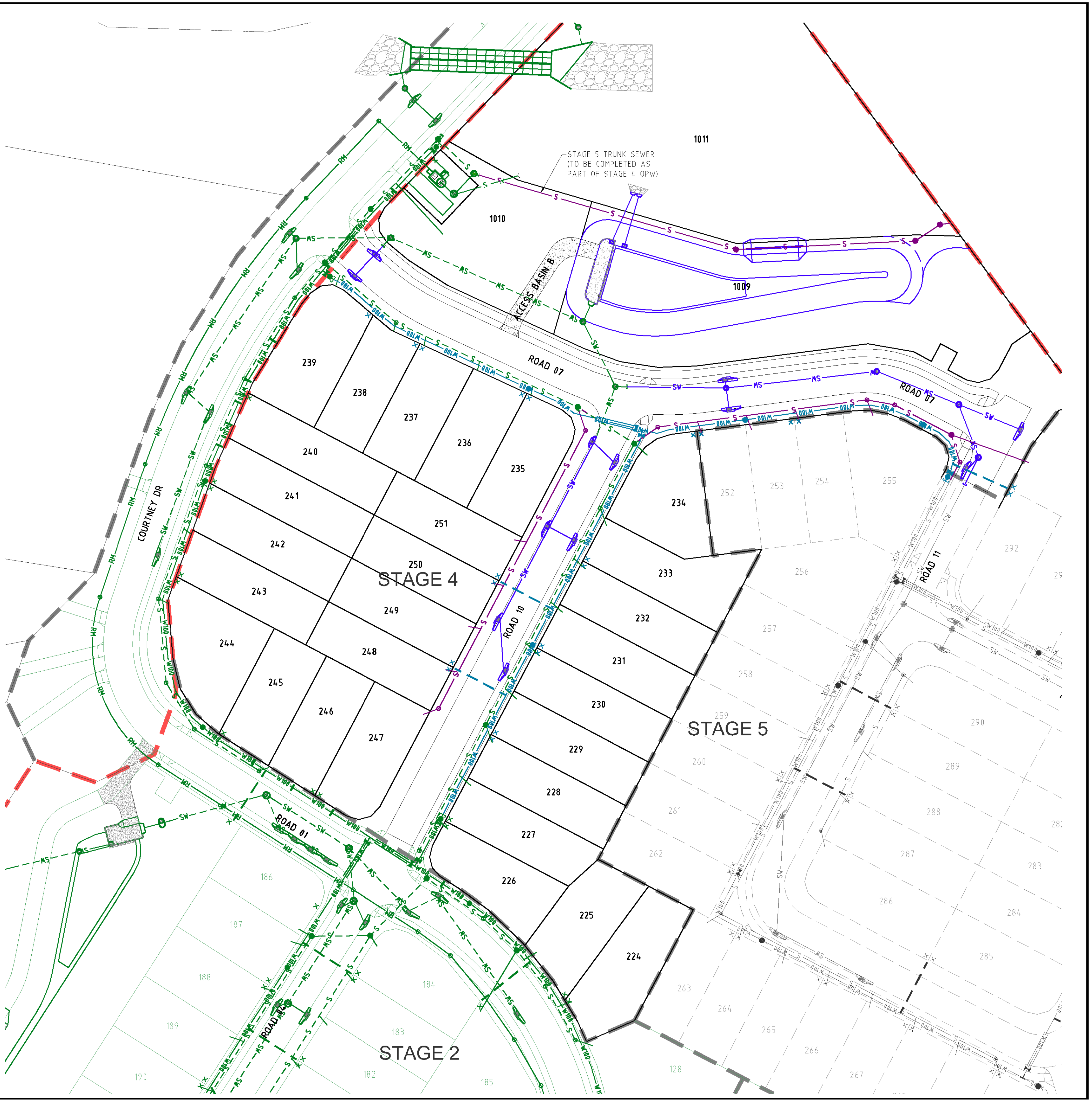
f:\autocad client\419 - hb land\01 - courtney drive\precinct-stage 04\engineering drawings\Current\41901-04-080.dwg, PLAN SHEET 02, 30/04/2024 12:36:43 PM, 1:2

CONSTRUCTION SERVICES

1. **CONSTRUCTION OF SEWER/ROOFWATER/STORMWATER/SERVICES**
   EXCAVATED MATERIAL TO BE PLACED ON HIGH SIDE OF TRENCH & TO PROTECT PIPE WORK & DIRECT SURFACE MATERIAL AWAY FROM EXCAVATIONS.
   TOPSOIL & GRASS SEED AREAS IN ALLOTMENTS IMMEDIATELY AFTER COMPLETING THE SEWER & ROOFWATER DRAINAGE CONSTRUCTION.
   DEPRESS GROUND AROUND TEMPORARY FIELD INLETS TO CREATE SILT POND.
2. **TRIP HAZARD**
   MANHOLES OR STRUCTURES INSTALLED IN THE ROAD, FOOTPATH OR VERGE MUST MATCH NEATLY WITH NO TRIP HAZARD.
3. **EXISTING SERVICES - EXTERNAL WORKS**
   THE LOCATIONS OF ALL EXISTING SERVICES WITHIN THE WORK AREA SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION COMMENCING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE RELEVANT AUTHORITIES & TO ENSURE THAT THE EXISTING SERVICES ARE NOT DAMAGED OR DISTURBED IN ANY WAY BY THE CONTRACT WORKS.

LEGEND

———	EXISTING PROPERTY LINE
———	EXISTING KERB (INVERT)
———	EXISTING FOOTPATH
—RM— —RM—	EXISTING RISING MAIN
—S— —S—	EXISTING SEWER
—SW— —SW—	EXISTING STORMWATER
—RW— —RW—	EXISTING ROOFWATER
—SS— —SS—	EXISTING SUBSOIL
—W100— —W100—	EXISTING WATER
—W150—	EXISTING WATER
—W200—	EXISTING WATER
—W225—	EXISTING WATER
—W250—	EXISTING WATER
—W300—	EXISTING WATER
- - - -	EXISTING WATER CONDUIT
———	PROPOSED PROPERTY LINE
———	PROPOSED KERB (INVERT)
———	PROPOSED FOOTPATH
—RM—	PROPOSED RISING MAIN
—S—	PROPOSED SEWER
—SW—	PROPOSED STORMWATER
—RW—	PROPOSED ROOFWATER
—SS—	PROPOSED SUBSOIL
—W100— —W100—	PROPOSED WATER
—W150—	PROPOSED WATER
—W200—	PROPOSED WATER
—W225—	PROPOSED WATER
—W250—	PROPOSED WATER
—W300—	PROPOSED WATER
- - - -	PROPOSED WATER CONDUIT
— — —	FUTURE PROPERTY LINE
— — —	FUTURE KERB (INVERT)
— — —	FUTURE FOOTPATH
—RM—	FUTURE RISING MAIN
—S—	FUTURE SEWER
—SW—	FUTURE STORMWATER
—RW—	FUTURE ROOFWATER
—SS—	FUTURE SUBSOIL
—W100— —W100—	FUTURE WATER
—W150—	FUTURE WATER
—W200—	FUTURE WATER
—W225—	FUTURE WATER
—W250—	FUTURE WATER
—W300—	FUTURE WATER
- - - -	FUTURE WATER CONDUIT
🟥 🟥 🟥	SITE BOUNDARY
▬ ▬ ▬	STAGE BOUNDARY



PROJECT NAME

COURTNEY DR
UPPER COOMERA

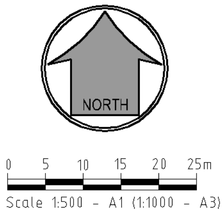
STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land



Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

DO NOT SCALE FROM THIS DRAWING.

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

COMBINED SERVICES
PLAN
SHEET 01

MORTONS
urbansolutions
Urban & Regional Planning
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Suite 9, 19 Short St
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DESIGNED RB		DRAWN BL	
APPROVED M.K. Morton	RPEQ 4706	DATE 27-04-24	

DRAWING NUMBER	REV
41901-04-090	A

ROADWORKS

1. PAVEMENT DEPTHS

a. THE DESIGN PAVEMENT DEPTHS ALLOWED IN EARTHWORKS CALCULATIONS ARE BASED ON THE AUTHORITY'S MINIMUM PAVEMENT BOX.

b. THE PAVEMENT DEPTHS GIVEN ARE NOMINAL DESIGN DEPTHS ONLY & MAY BE VARIED AFTER SUB-GRADE TESTS ARE TAKEN. THE CONTRACTOR IS TO PROVIDE THE SUPERINTENDENT A SUBGRADE C.B.R. REPORT PREPARED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER. IN PROJECTS EXPECTING LIME STABILISED SUBGRADE, THE CONTRACTOR MUST PROVIDE LIME DEMAND TEST RESULTS WITH THE CBR REPORT.

c. THE SUPERINTENDENT WILL COORDINATE THE AUTHORITIES APPROVAL OF THE PAVEMENT DESIGN.

d. REFER TO DWG. 120 FOR TYPICAL ROAD SECTIONS.

e. TESTING

ALL COMPACTION TESTING SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. TESTING AUTHORITY. ALL SITE FILLING SHALL BE TESTED AT LEVEL 1 REQUIREMENTS.

f. SUBSOIL DRAINS

SUBSOIL DRAINS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S SPECIFICATIONS. SUBSOIL DRAINS SHALL BE PLACED UNDER ALL KERB STRUCTURES & ARE TO BE CONSTRUCTED TO A DEPTH GREATER THAN THAT OF THE INVERT OF THE DEEPEST SERVICE CROSSING.

g. MITRE DRAINS

MITRE DRAINS ARE TO BE CONSTRUCTED ALONG THE CUT/FILL INTERFACE & SAG/LOW POINTS OF ALL ROADS. CONTRACTOR TO REQUEST DIRECTION FROM SUPERINTENDENT WHETHER TO INSTALL MITRE DRAIN AT ROCK ENCOUNTERED IN SUBGRADE. ALL MITRE DRAINS MUST BE FREE DRAINING & TIE INTO THE ADJACENT SUBSOIL DRAINS.

h. ROCK

THE CONTRACTOR IS TO INCLUDE ROCK EXCAVATION AS PART OF THEIR RATES.

i. TURF

1.0m TURF STRIP TO BE INSTALLED BEHIND THE BACK OF ALL KERBS. A PERPENDICULAR TURF STRIP AT MAXIMUM 10m INCREMENTS MUST BE INSTALLED TO FULL VERGE WIDTH FOR SEDIMENT & EROSION CONTROL PURPOSES.

7. KERBS

ALL KERBS TO BE CONSTRUCTED IN ACCORDANCE WITH AUTHORITY STANDARDS. FOR ALL KERB TYPES REFER TO DWG 120.

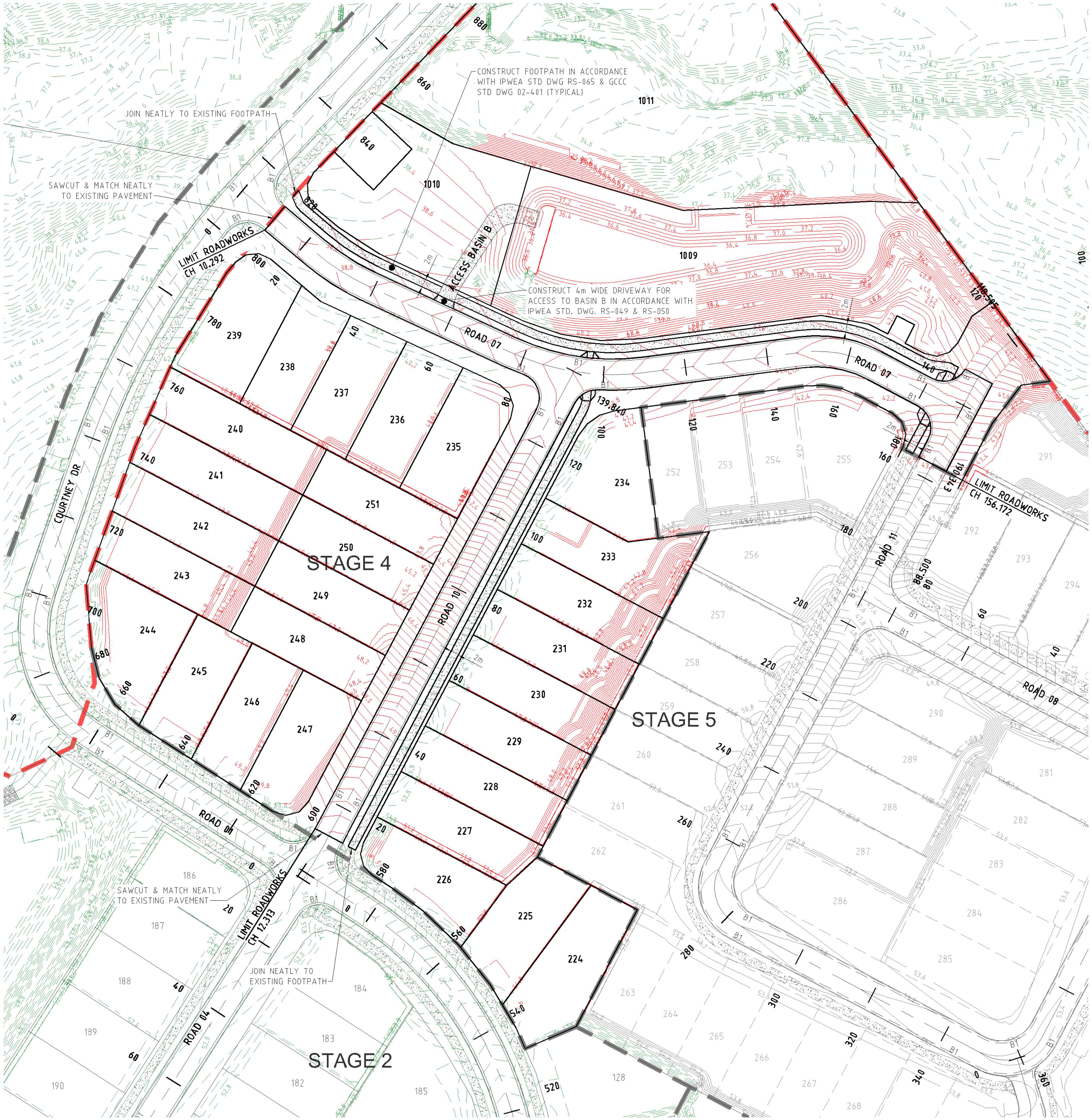
8. PAVEMENT TIE-IN

PAVEMENT TIE-IN TO BE IN ACCORDANCE WITH DWG. 120

LEGEND

───	EXISTING KERB (INVERT)
───	EXISTING KERB (LIP & BACK)
───	EXISTING FOOTPATH
───	EXISTING PROPERTY LINE
– – –	FUTURE KERB
– – –	FUTURE FOOTPATH
– – –	FUTURE PROPERTY LINE
── – ──	CONTROL LINE / CENTER OF ROAD
━━━	PROPOSED KERB (INVERT)
───	PROPOSED KERB (LIP & BACK)
━━━	PROPOSED FOOTPATH
━━━	PROPOSED PROPERTY LINE
🟥 🟥 🟥	SITE BOUNDARY
▬ ▬ ▬	STAGE BOUNDARY
▨	PROPOSED CONCRETE
— 41.065	CENTRELINE CHAINAGE
B1	BARRIER KERB & CHANNEL

REFER TO DRG. 120 FOR KERB TYPES


COURTNEY DR
ROAD 07
ROAD 10
ROAD 04
ROAD 08
ROAD 11
ACCESS BASIN B
STAGE 4
STAGE 5
STAGE 2
LIMIT ROADWORKS CH 10.292
LIMIT ROADWORKS CH 156.172
LIMIT ROADWORKS CH 12.313
CONSTRUCT FOOTPATH IN ACCORDANCE WITH IPWEA STD DWG RS-065 & GCCC STD DWG 02-401 (TYPICAL)
JOIN NEATLY TO EXISTING FOOTPATH
SAWCUT & MATCH NEATLY TO EXISTING PAVEMENT
CONSTRUCT 4m WIDE DRIVEWAY FOR ACCESS TO BASIN B IN ACCORDANCE WITH IPWEA STD. DWG. RS-049 & RS-050
SAWCUT & MATCH NEATLY TO EXISTING PAVEMENT
JOIN NEATLY TO EXISTING FOOTPATH
1009
1010
1011
139.840
88.500
2m
B1
224
225
226
227
228
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237
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PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT+BENNETT

DRAWING TITLE

ROADWORKS
PLAN
SHEET 01

MORTONS
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Civil Engineering
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DESIGNED RK
DRAWN BL
APPROVED
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-100
REV A

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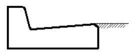
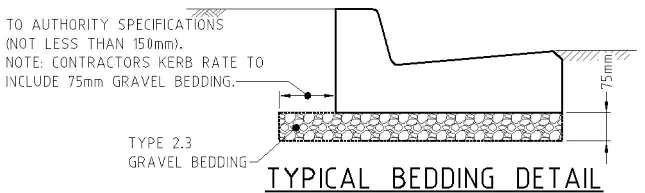
SCHEDULE OF PAVEMENT DEPTHS

ROAD NAME	SURFACING	BASE	SUB-BASE	LOWER SUB-BASE	CLASSIFICATION	DESA OR VPD	DESIGN GUIDE
ROAD 07	25mm ASPHALT	100mm TYPE 2.1 (CBR 60)	100mm TYPE 2.3 (CBR 45)	100mm TYPE 2.5 (CBR 15)	RESIDENTIAL COLLECTOR ST	751-3000	GCCC TABLE 2.11
ROAD 10	25mm ASPHALT	100mm TYPE 2.1 (CBR 60)	100mm TYPE 2.3 (CBR 45)	100mm TYPE 2.5 (CBR 15)	RESIDENTIAL ACCESS ST	401-750	GCCC TABLE 2.11
ROAD 11	25mm ASPHALT	100mm TYPE 2.1 (CBR 60)	100mm TYPE 2.3 (CBR 45)	100mm TYPE 2.5 (CBR 15)	RESIDENTIAL ACCESS ST	401-750	GCCC TABLE 2.11

NOTE: THE PAVEMENT DEPTHS ARE GIVEN AS A GUIDE ONLY AND FINAL PAVEMENT DESIGN WILL BE DETERMINED AFTER CBR TESTING IS UNDERTAKEN, AND COUNCIL HAVE APPROVED THE DESIGN. PLEASE NOTE CBR10 IS MAXIMUM INSITU CBR VALUE.

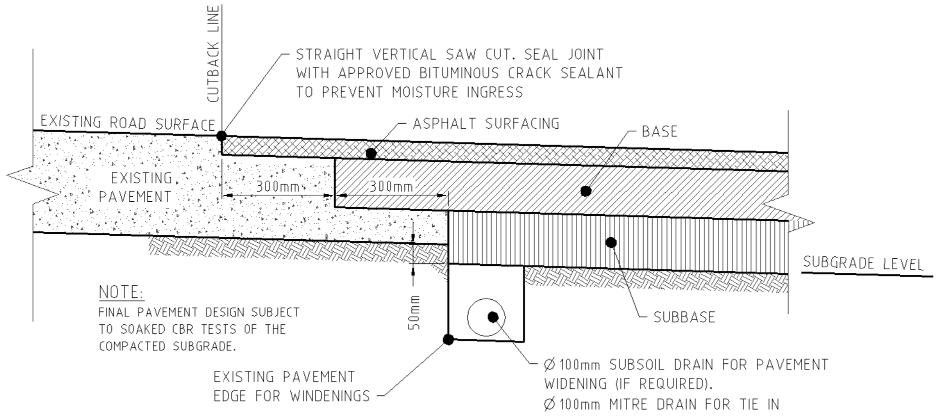
SCHEDULE OF KERB TYPES

KERB TYPE	IMAGE	REFERENCE
B1		IPWEA DWG. RS-080 **NOTE:** SUBSOIL DRAINS TO BE PLACED UNDER ALL KERBS.


TO AUTHORITY SPECIFICATIONS
(NOT LESS THAN 150mm).
NOTE: CONTRACTORS KERB RATE TO
INCLUDE 75mm GRAVEL BEDDING.
TYPE 2.3
GRAVEL BEDDING
75mm

TYPICAL BEDDING DETAIL

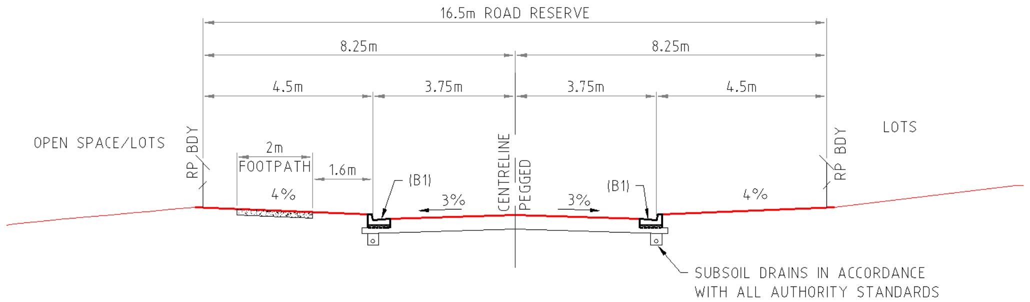
SCALE 1:10 - A1 (1:20 - A3)


CUTBACK LINE
STRAIGHT VERTICAL SAW CUT. SEAL JOINT
WITH APPROVED BITUMINOUS CRACK SEALANT
TO PREVENT MOISTURE INGRESS
EXISTING ROAD SURFACE
ASPHALT SURFACING
BASE
EXISTING
PAVEMENT
300mm
300mm
SUBGRADE LEVEL
50mm
SUBBASE
EXISTING PAVEMENT
EDGE FOR WINDENINGS
Ø 100mm SUBSOIL DRAIN FOR PAVEMENT
WIDENING (IF REQUIRED).
Ø 100mm MITRE DRAIN FOR TIE IN

NOTE:
FINAL PAVEMENT DESIGN SUBJECT
TO SOAKED CBR TESTS OF THE
COMPACTED SUBGRADE.

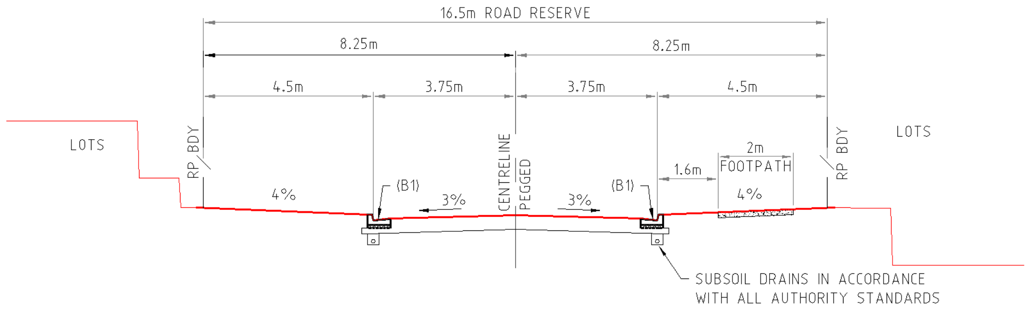
PAVEMENT WIDENING AND TIE-IN DETAIL

NOT TO SCALE

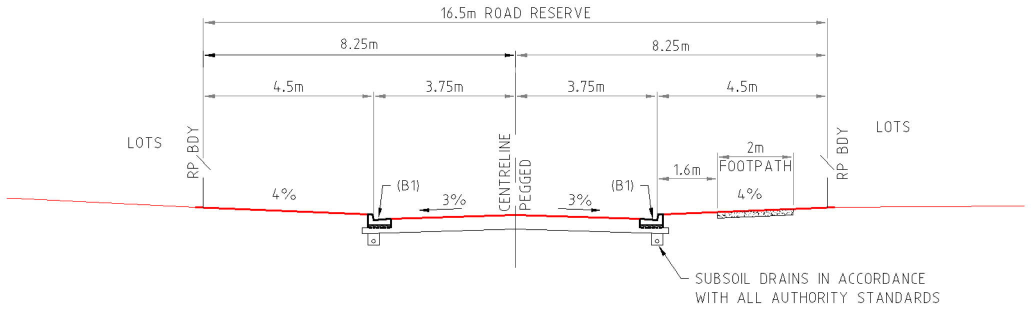


TYPICAL SECTION
7.5m ROAD-16.5m ROAD RESERVE
ROAD 07

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



TYPICAL SECTION
7.5m ROAD-16.5m ROAD RESERVE
ROAD 11



TYPICAL SECTION
7.5m ROAD-16.5m ROAD RESERVE
ROAD 10

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

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 0.1 0.2 0.3 0.4 0.5m
Scale 1:10 - A1 (1:20 - A3)

0 1 2 3 4 5m
Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

ROADWORKS
DETAILS
SHEET 01

MORTONS
urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination
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Southport QLD 4215

Gold Coast Office
Suite 9, 19 Short St
Southport QLD 4215

DESIGNED RB
DRAWN BL
APPROVED w.K. morto
RPEQ **4706**
DATE **27-04-24**

DRAWING NUMBER
41901-04-120

REV
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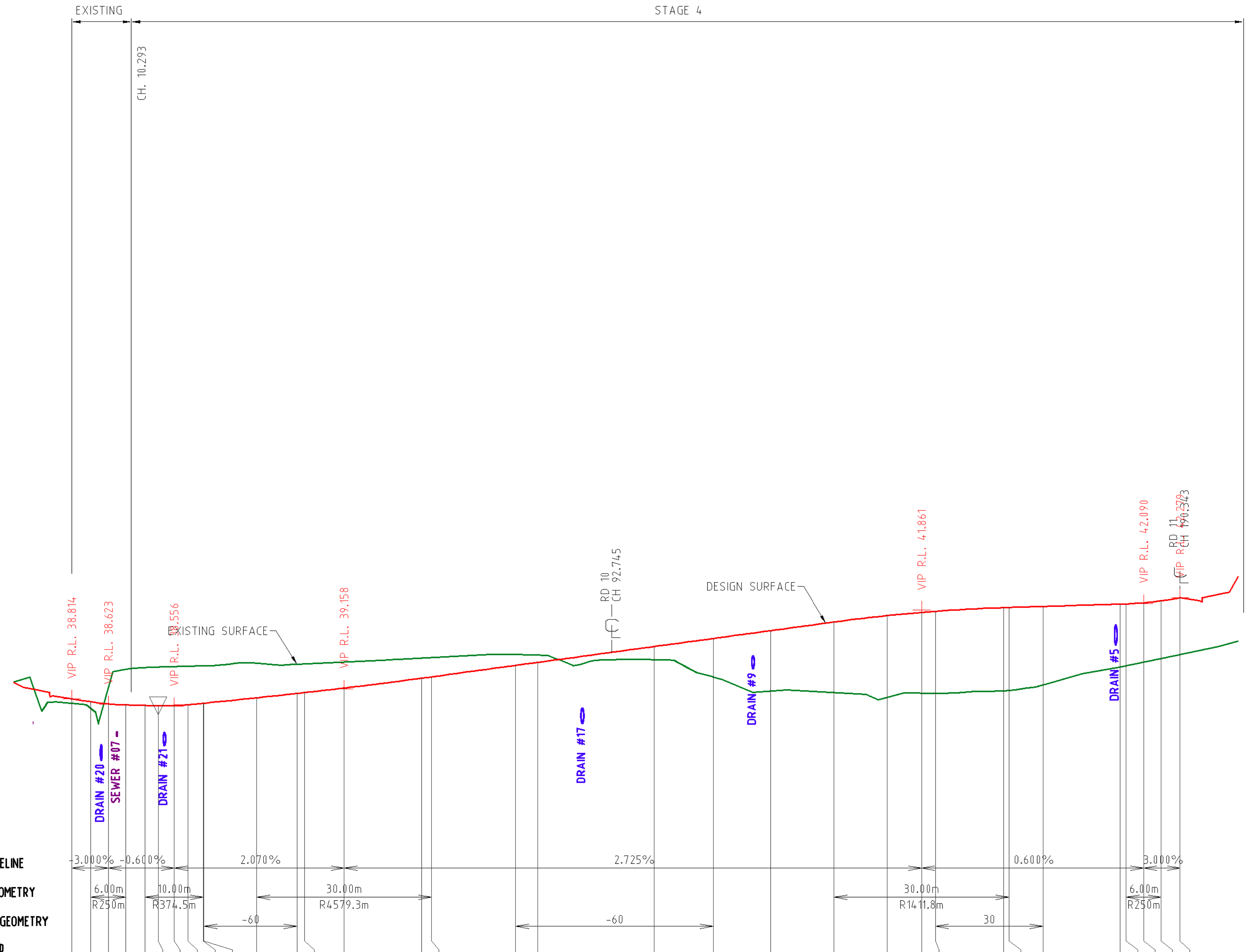

CONTROL LINE LEVELS	38.814	38.713	38.641	38.605	38.586	38.579	38.589	38.614	38.659	38.661	38.848	38.997	39.026	39.183	39.52	39.567	39.961	40.064
EXISTING SURFACE	38.654	38.478	39.192	39.827	39.895	39.911	39.922	39.931	39.942	39.942	40.034	40.003	40.015	40.078	40.214	40.232	40.333	40.316
DEPTH	-0.16	-0.236	0.551	1.222	1.309	1.332	1.333	1.317	1.283	1.281	1.186	1.006	0.989	0.895	0.694	0.665	0.371	0.252
CHAINAGE	0	3.344	6.344	9.344	12.639	14.886	17.639	20	22.639	22.728	31.753	38.685	40	46.753	60	61.753	76.227	80

CONTROL LINE LEVELS	40.609	40.885	41.154	41.452	41.67	41.781	41.819	41.945	41.951	41.986	42.065	42.072	42.108	42.18	42.279
EXISTING SURFACE	40.159	39.562	39.081	39.029	38.863	39.013	39.007	39.092	39.107	39.288	39.905	39.948	40.074	40.2	40.338
DEPTH	-0.45	-1.323	-2.074	-2.423	-2.807	-2.768	-2.811	-2.853	-2.844	-2.698	-2.161	-2.123	-2.034	-1.98	-1.941
CHAINAGE	100	110.133	120	130.929	140	145.929	148.296	160	160.929	166.766	180	181.043	184.043	187.043	190.343

LONGITUDINAL SECTION ROAD 07

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

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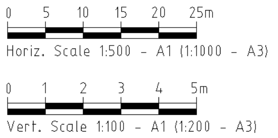
HB Land



Horiz. Scale 1:500 - A1 (1:1000 - A3)

Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT+BENNETT

DRAWING TITLE

LONGITUDINAL SECTIONS
ROAD 07

MORTONS
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Urban & Regional Planning
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Project Coordination

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DESIGNED RB
DRAWN BL
APPROVED
RPEQ **4706**
DATE **27-04-24**
DRAWING NUMBER 41901-04-200
REV A

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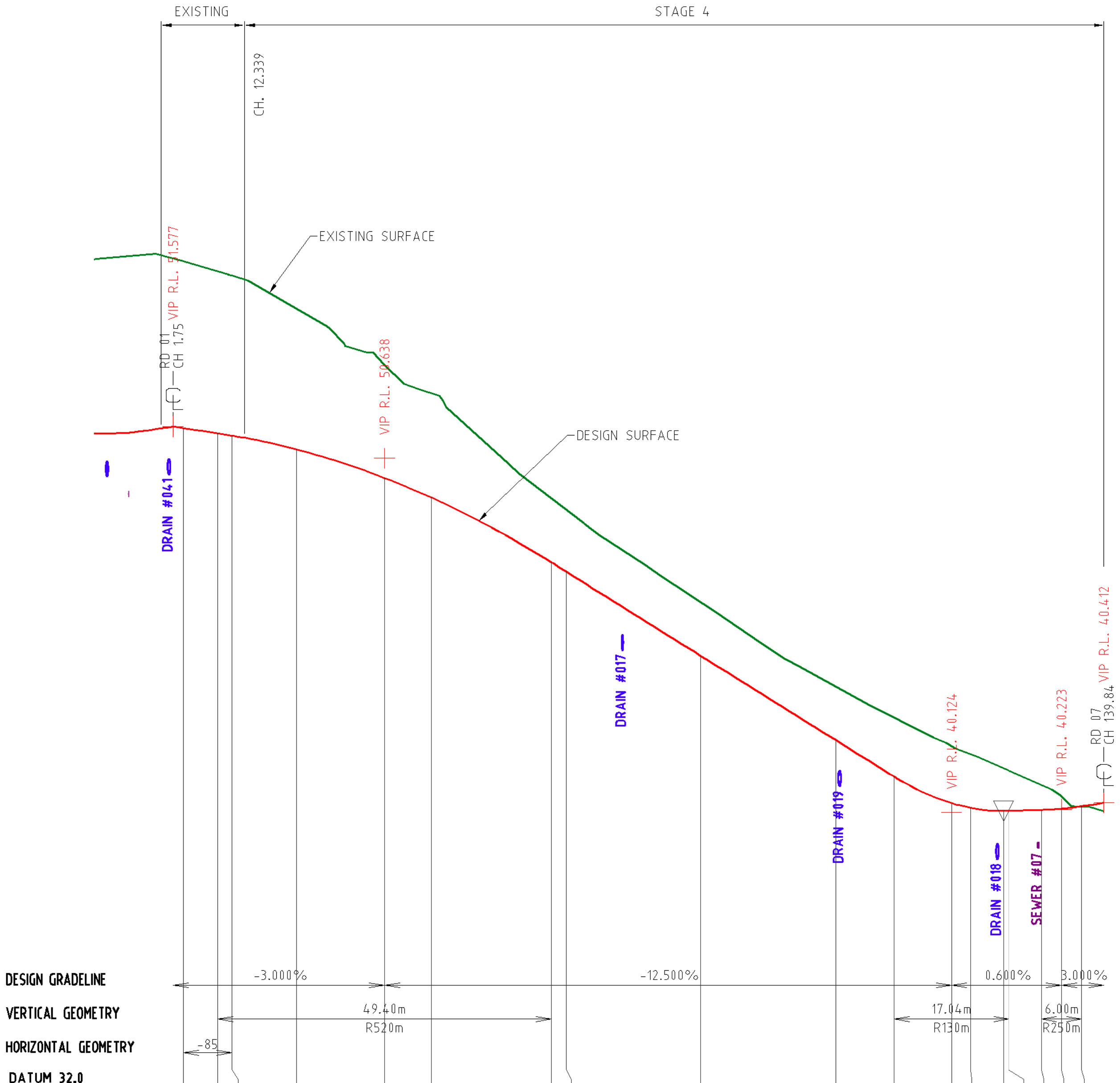
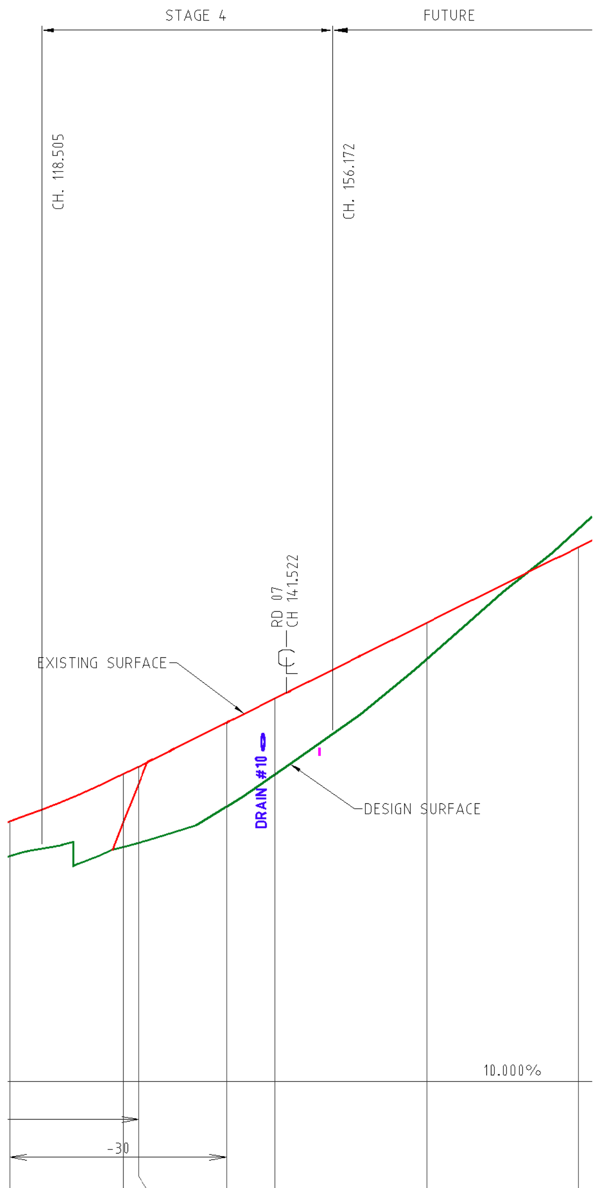


CONTROL LINE LEVELS	EXISTING SURFACE	DEPTH	CHAINAGE
	56.655		0
51.532	56.475	4.944	3.277
51.379	56.183	4.805	8.374
51.312	56.055	4.743	10.464
50.9	55.082	4.182	20
50.051	53.394	3.343	33.074
49.468	52.567	3.099	40
47.55	49.446	1.896	57.774
47.272	49.106	1.834	60
44.772	46.37	1.598	80
42.272	43.866	1.594	100
41.189	42.941	1.752	108.662
40.403	42.088	1.685	117.179
40.266	41.856	1.589	120
40.173	41.443	1.27	124.917
40.176	41.374	1.199	125.697
40.205	40.949	0.744	130.54
40.241	40.598	0.357	133.54
40.313	40.297	-0.016	136.54

LONGITUDINAL SECTION ROAD 10



CONTROL LINE LEVELS	EXISTING SURFACE	DEPTH	CHAINAGE
40.13	38.195	-1.935	120
40.329	38.305	-2.024	122.024
41.489	39.264	-2.225	133.623
42.126	40.125	-2.001	140
44.126	43.169	-0.957	160
46.126	46.606	0.479	180

LONGITUDINAL SECTION ROAD 11

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)

0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

LONGITUDINAL SECTIONS
ROAD 10

MORTONS
urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

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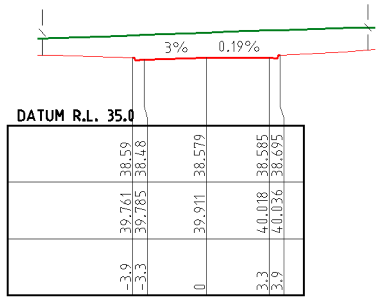
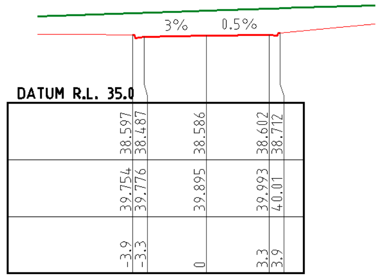
DESIGNED RB
DRAWN BL
APPROVED M.K. Morton
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-201
REV A



CH 14.886



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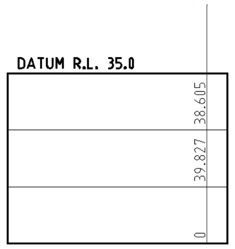
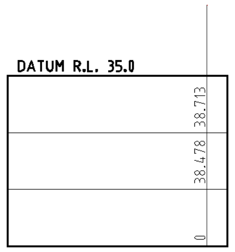


CH 9.344



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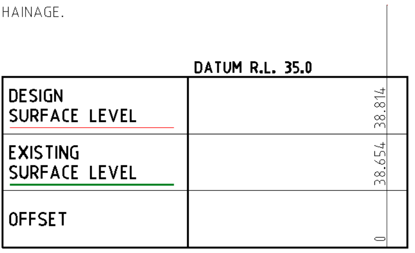
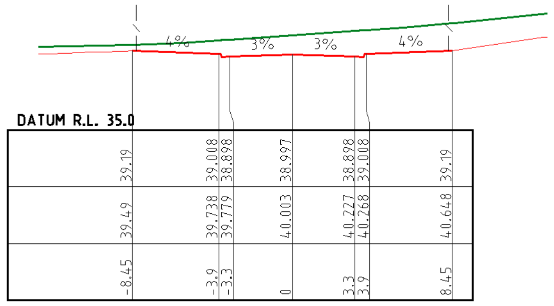
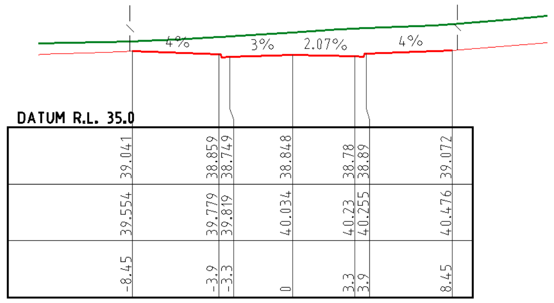


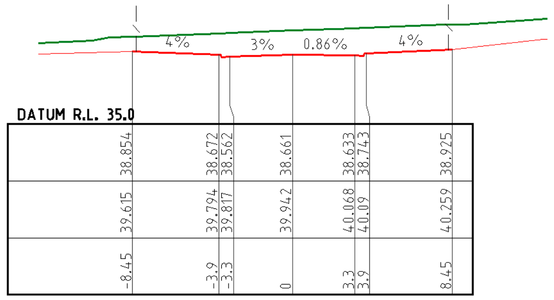
CH 0



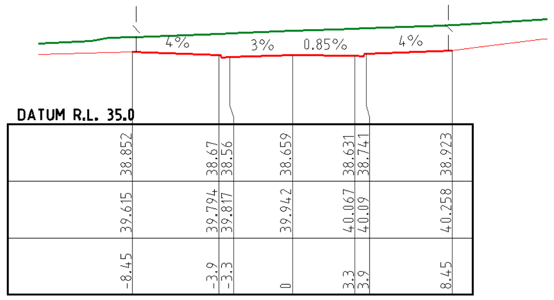
CH 38.685



CH 31.753



CH 22.728



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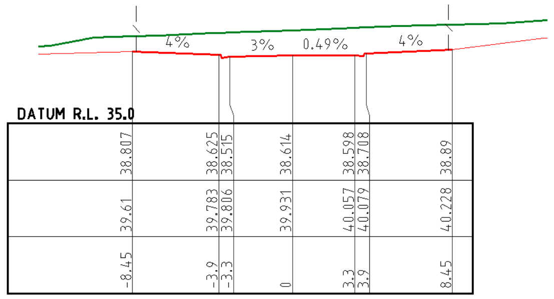

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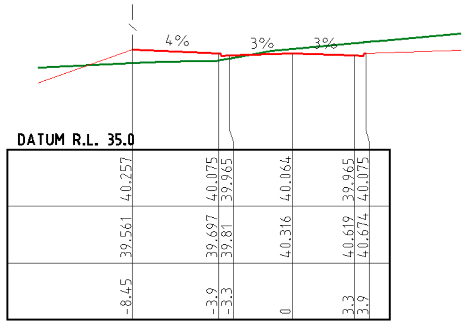
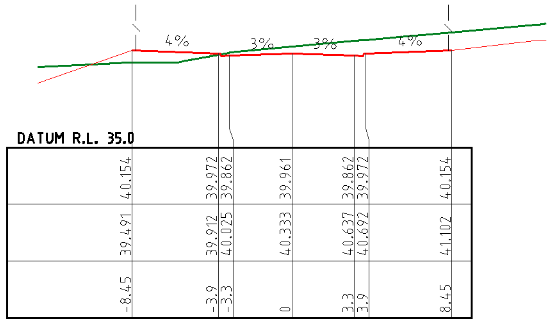
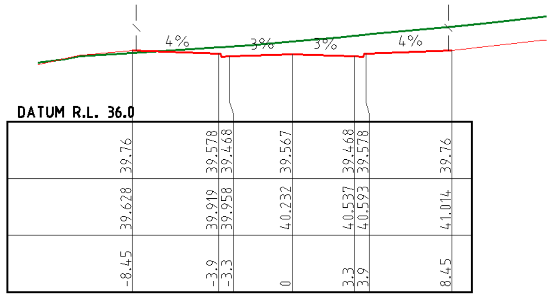


CH 80



CH 76.227



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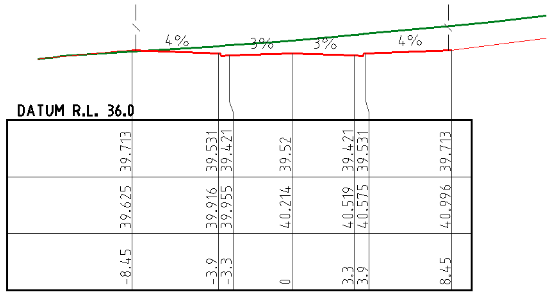
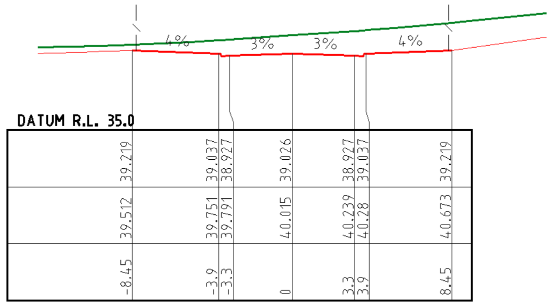
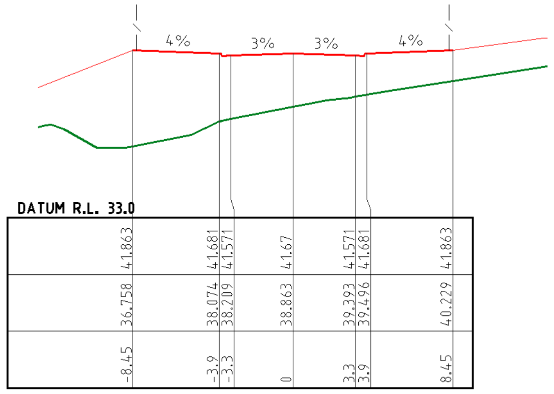


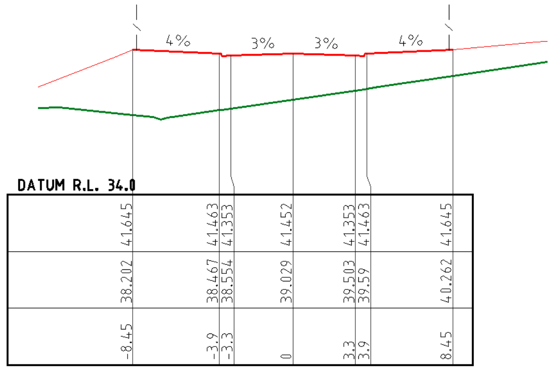
CH 60



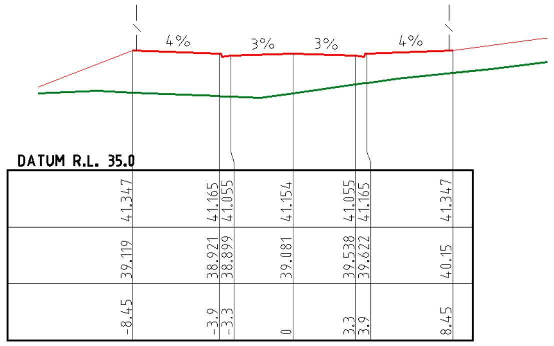
CH 40



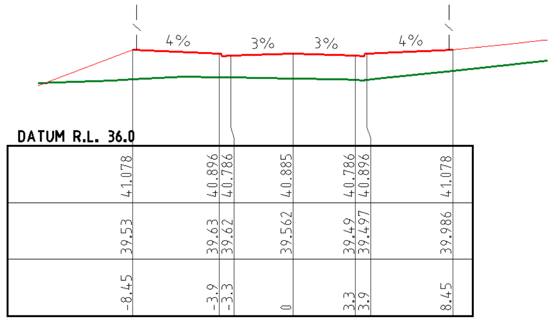
CH 140



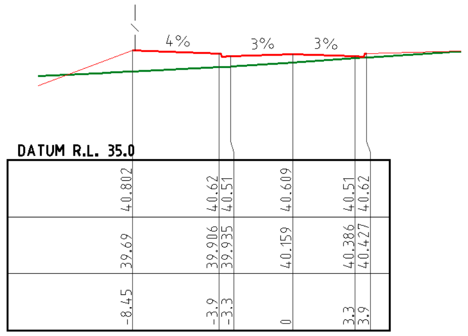
CH 130.929



CH 120



CH 110.133



CH 100

ROAD 07

NOTES:

1. REFER TO 080 SERIES FINAL SURFACE PLAN DWGS FOR EARTHWORKS BEYOND ROAD RESERVE.
2. CROSS SECTIONS WITH NO TEMPLATE REPRESENT CONTROL LINE LEVELS AT THAT CHAINAGE.

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

CROSS SECTIONS
ROAD 07

MORTONS
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DESIGNED RB
DRAWN BL
APPROVED
RPEQ 4706
DATE 27-04-24

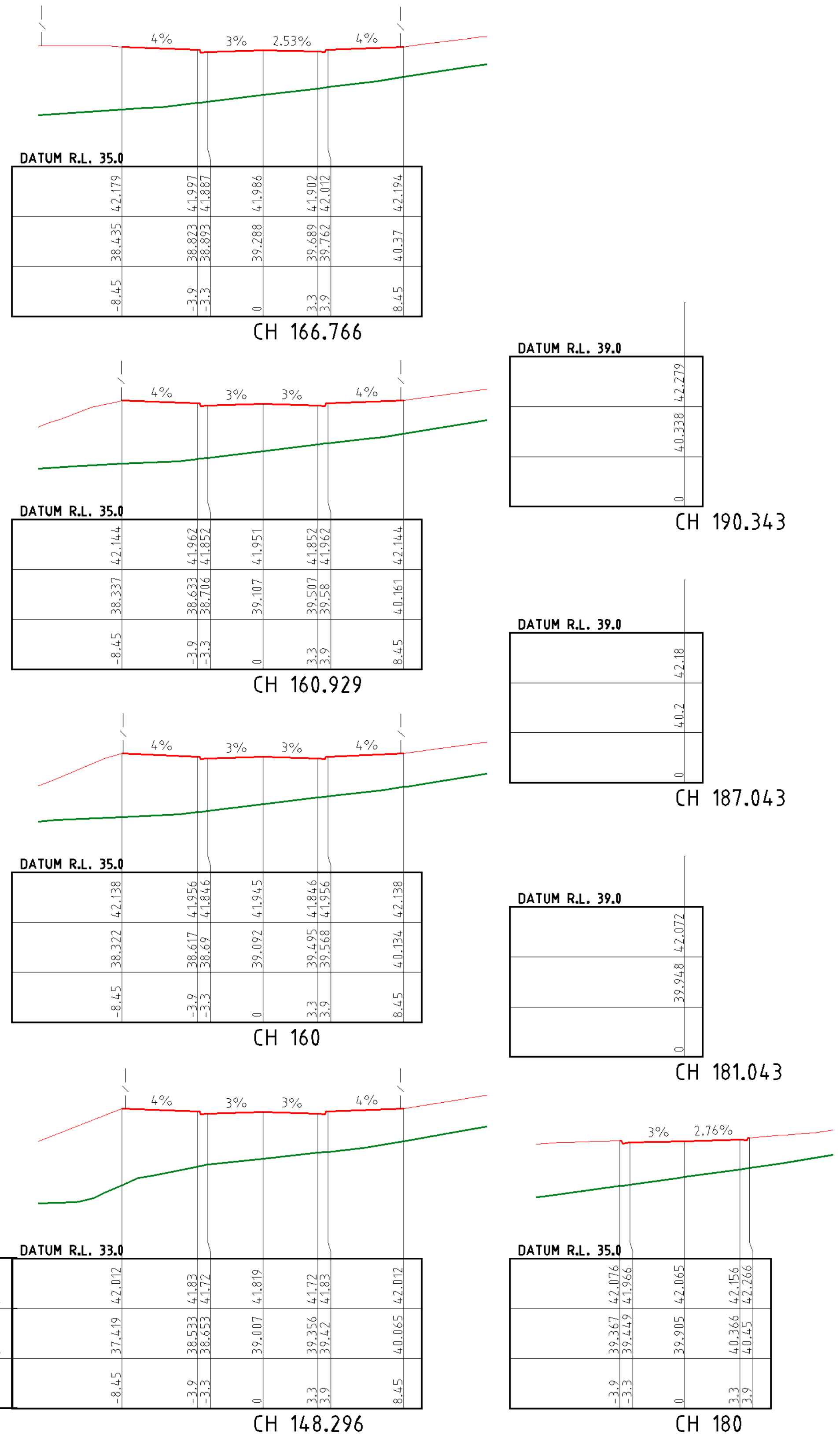
DRAWING NUMBER 41901-04-300
REV A

f:\autocad client\419 - hb land\01 - courtney drive\precinct-stage 04\engineering drawings\Current\41901-04-300.dwg, SHEET 01, 30/04/2024 12:37:05 PM, 1:2

NOTES:

1. REFER TO 080 SERIES FINAL SURFACE PLAN DWGS FOR EARTHWORKS BEYOND ROAD RESERVE.

2. CROSS SECTIONS WITH NO TEMPLATE REPRESENT CONTROL LINE LEVELS AT THAT CHAINAGE.



DATUM R.L. 35.0

DESIGN SURFACE LEVEL	42.179	41.997	41.887	41.986	41.902	42.012	42.194
EXISTING SURFACE LEVEL	38.435	38.823	38.893	39.288	39.689	39.762	40.37
OFFSET	-8.45	-3.9	-3.3	0	3.3	3.9	8.45

CH 166.766

DATUM R.L. 35.0

DESIGN SURFACE LEVEL	42.144	41.962	41.852	41.951	41.852	41.962	42.144
EXISTING SURFACE LEVEL	38.337	38.633	38.706	39.107	39.507	39.58	40.161
OFFSET	-8.45	-3.9	-3.3	0	3.3	3.9	8.45

CH 160.929

DATUM R.L. 35.0

DESIGN SURFACE LEVEL	42.138	41.956	41.846	41.945	41.846	41.956	42.138
EXISTING SURFACE LEVEL	38.322	38.617	38.69	39.092	39.495	39.568	40.134
OFFSET	-8.45	-3.9	-3.3	0	3.3	3.9	8.45

CH 160

DATUM R.L. 33.0

DESIGN SURFACE LEVEL	42.012	41.83	41.72	41.819	41.72	41.83	42.012
EXISTING SURFACE LEVEL	37.419	38.533	38.653	39.007	39.356	39.42	40.065
OFFSET	-8.45	-3.9	-3.3	0	3.3	3.9	8.45

CH 148.296

DATUM R.L. 39.0

DESIGN SURFACE LEVEL	42.279
EXISTING SURFACE LEVEL	40.338
OFFSET	0

CH 190.343

DATUM R.L. 39.0

DESIGN SURFACE LEVEL	42.18
EXISTING SURFACE LEVEL	40.2
OFFSET	0

CH 187.043

DATUM R.L. 39.0

DESIGN SURFACE LEVEL	42.072
EXISTING SURFACE LEVEL	39.948
OFFSET	0

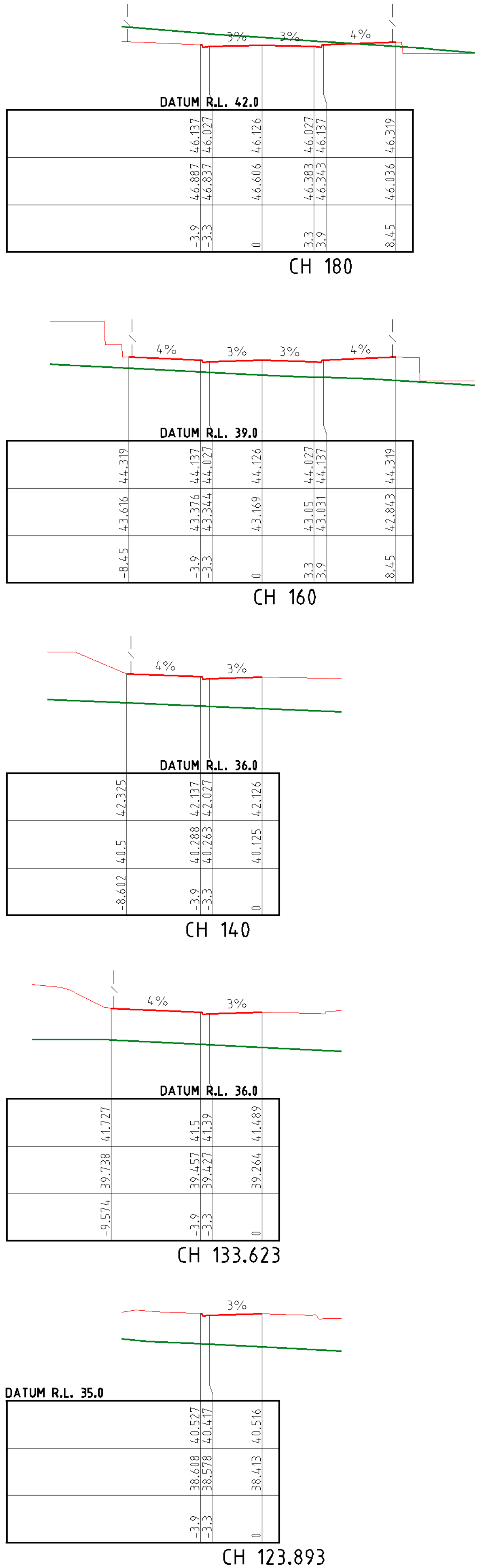
CH 181.043

DATUM R.L. 35.0

DESIGN SURFACE LEVEL	42.076	41.966	42.065	42.156	42.266
EXISTING SURFACE LEVEL	39.367	39.449	39.905	40.366	40.45
OFFSET	-3.9	-3.3	0	3.3	3.9

CH 180

ROAD 07



DATUM R.L. 42.0

DESIGN SURFACE LEVEL	46.137	46.027	46.126	46.027	46.137	46.319
EXISTING SURFACE LEVEL	46.887	46.837	46.606	46.383	46.343	46.036
OFFSET	-3.9	-3.3	0	3.3	3.9	8.45

CH 180

DATUM R.L. 39.0

DESIGN SURFACE LEVEL	44.319	44.137	44.027	44.126	44.027	44.137	44.319
EXISTING SURFACE LEVEL	43.616	43.376	43.344	43.169	43.05	43.031	42.843
OFFSET	-8.45	-3.9	-3.3	0	3.3	3.9	8.45

CH 160

DATUM R.L. 36.0

DESIGN SURFACE LEVEL	42.325	42.137	42.027	42.126
EXISTING SURFACE LEVEL	40.5	40.288	40.263	40.125
OFFSET	-8.602	-3.9	-3.3	0

CH 140

DATUM R.L. 36.0

DESIGN SURFACE LEVEL	41.727	41.5	41.39	41.489
EXISTING SURFACE LEVEL	39.738	39.457	39.427	39.264
OFFSET	-9.574	-3.9	-3.3	0

CH 133.623

DATUM R.L. 35.0

DESIGN SURFACE LEVEL	40.527	40.417	40.516
EXISTING SURFACE LEVEL	38.608	38.578	38.413
OFFSET	-3.9	-3.3	0

CH 123.893

ROAD 11

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PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

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& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

CROSS SECTIONS
ROAD 07 & ROAD 11

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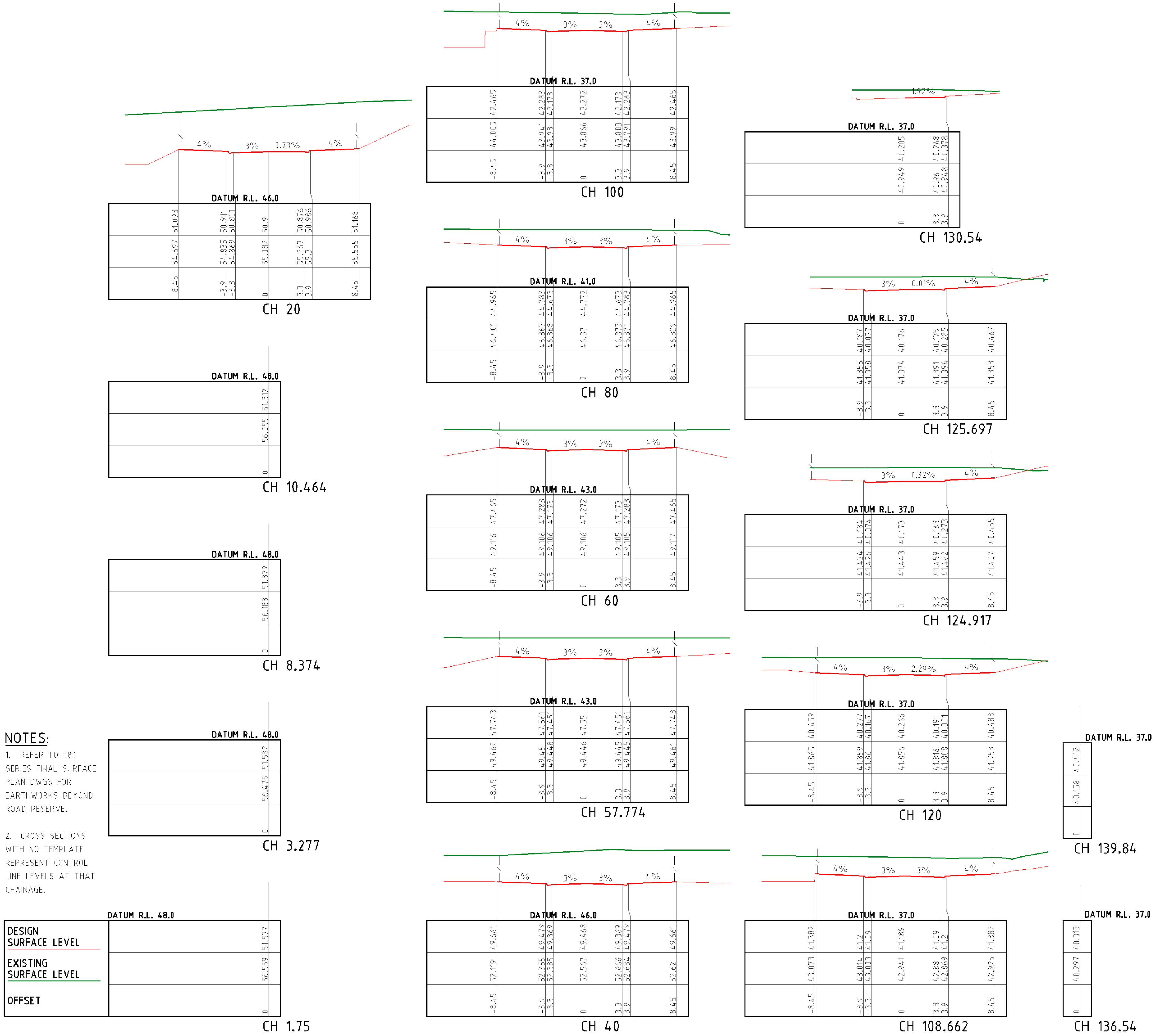
DRAWN BL
APPROVED M.K. Morton
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-301
REV A

NOTES:

1. REFER TO 080 SERIES FINAL SURFACE PLAN DWGS FOR EARTHWORKS BEYOND ROAD RESERVE.

2. CROSS SECTIONS WITH NO TEMPLATE REPRESENT CONTROL LINE LEVELS AT THAT CHAINAGE.



ROAD 10

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
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BENNETT + BENNETT

DRAWING TITLE

CROSS SECTIONS
ROAD 10

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Urban & Regional Planning
Civil Engineering
Project Coordination

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DESIGNED RB
DRAWN BL
APPROVED
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-302
REV A

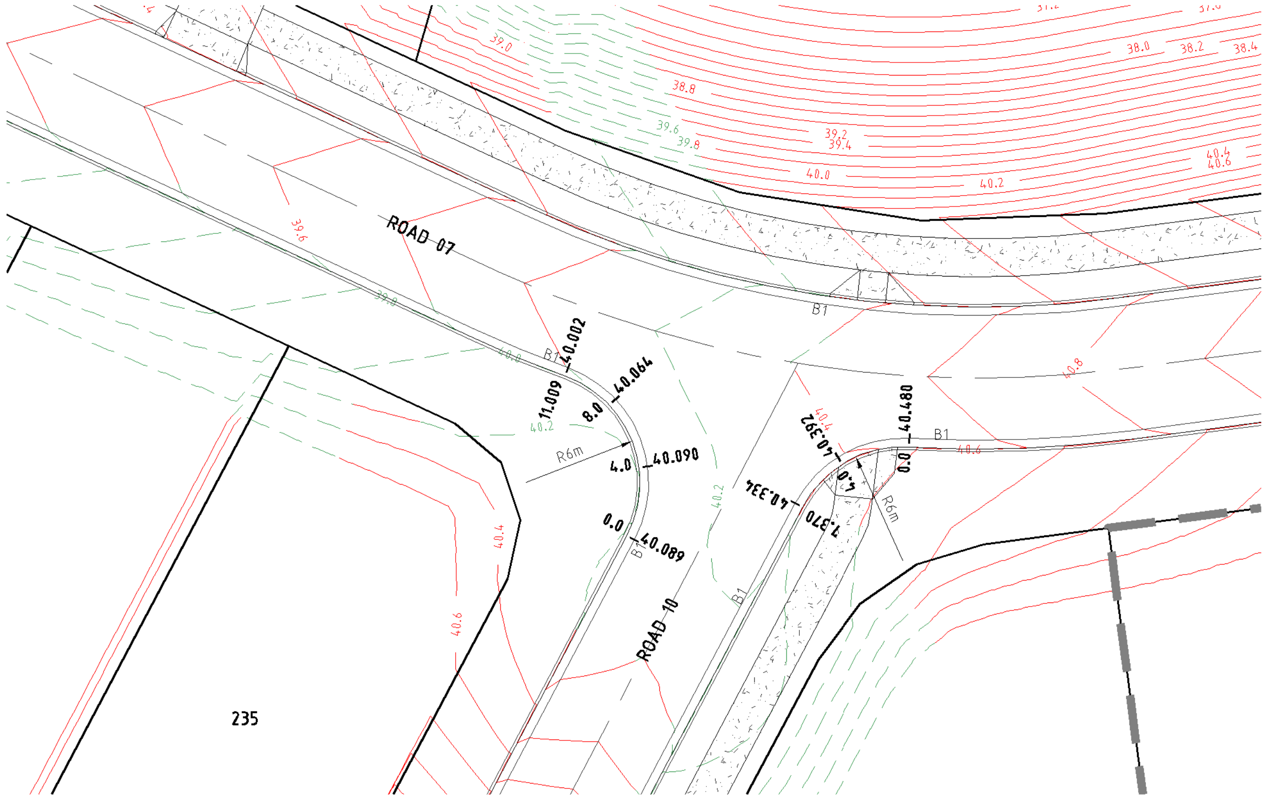
LEGEND

EXISTING KERB (INVERT)
EXISTING KERB (LIP & BACK)
EXISTING FOOTPATH
EXISTING PROPERTY LINE
1.0 EXISTING CONTOURS
FUTURE KERB
FUTURE FOOTPATH
FUTURE PROPERTY LINE
1.0 FUTURE CONTOURS
CONTROL LINE / CENTER OF ROAD
PROPOSED KERB (INVERT)
PROPOSED KERB (LIP & BACK)
PROPOSED FOOTPATH
PROPOSED PROPERTY LINE
SITE BOUNDARY
STAGE BOUNDARY
1.0 DESIGN CONTOURS
PROPOSED CONCRETE

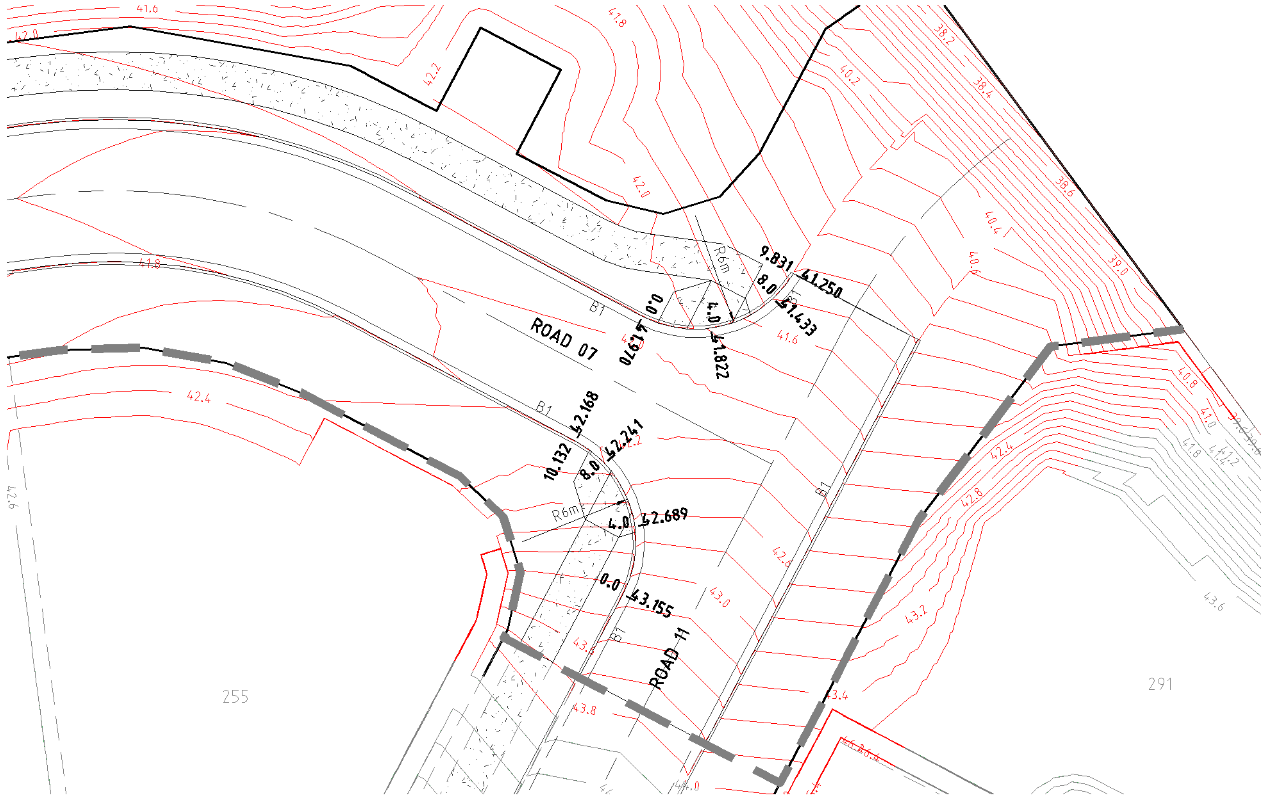
24.0 41.065 INTERSECTION CHAINAGE & LEVEL
B1 BARRIER KERB & CHANNEL
REFER TO DRG. 120 FOR KERB TYPES

NOTES:

1. SETOUT POINT DENOTES LIP OF KERB WHERE LIP OF KERB, OR FACE OF KERB WHERE NO LIP.
2. FOR KERB TYPES REFER TO SCHEDULE OF KERB TYPES ON DWG. 120



INTERSECTION
ROAD 07 & ROAD 10



INTERSECTION
ROAD 07 & ROAD 11

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING
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BENNETT+BENNETT

DRAWING TITLE

INTERSECTION
GRADING DETAILS
SHEET 01

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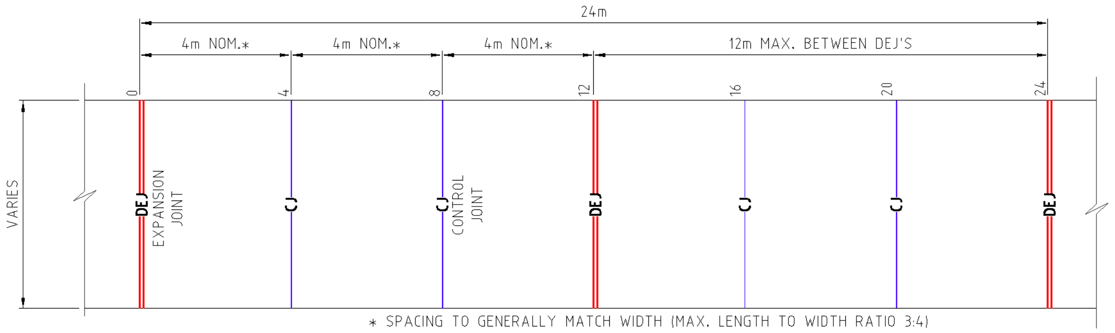
DESIGNED RB
DRAWN BL
APPROVED M.K. Morton
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-400
REV A

CONCRETE PAVEMENT DRIVEWAY:

1. **CONCRETE MIX**
   THE CONCRETE SHALL HAVE A MINIMUM 28 DAY CHARACTERISTIC COMPRESSIVE STRENGTH AS SPECIFIED IN THE SCHEDULE OF CONCRETE PAVEMENTS TABLE, MAXIMUM WATER/CEMENT RATIO OF 0.45 & A MINIMUM CEMENT CONTENT OF 300kg/m³.
2. **SUBGRADE PREPARATION**
   THE SUBGRADE TO THE CONCRETE PAVEMENT AREAS SHALL BE PREPARED THE SAME AS CONVENTIONAL ROADS. REFER TO SCHEDULE OF CONCRETE PAVEMENTS TABLE.
3. **TRAFFIC**
   TRAFFIC SHALL NOT BE ALLOWED ON THE FINISHED CONCRETE PAVEMENT FOR AT LEAST 14 DAYS AFTER COMPLETION OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING MEASURES TO PREVENT UNAUTHORISED ACCESS.
4. **JOINTS**
   ALL JOINTS SHALL BE LOCATED GENERALLY PERPENDICULAR TO THE CENTRELINE. ALL CONTROL JOINTS TO BE COMPLETED AS SOON AS CONCRETE HAS CURED SUFFICIENTLY SO AS NOT TO DAMAGE THE SLAB SURFACE.
   ALL JOINTS ARE TO BE INSTALLED AS DETAILED ON IPWEAQ STD DWG RS-065.
5. **GENERAL**
   THE GRAVEL PAVEMENT SHALL BE NEATLY PROFILED & TRIMMED TO ENSURE CONSTANT CONCRETE DEPTHS & PROFILES. ACTUAL CONSTRUCTION REQUIREMENTS MAY VARY FROM THE DETAILS SHOWN & THEREFORE ALL CONSTRUCTION DETAILS SHOULD BE VERIFIED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION COMMENCING. PROVIDE ABLEFLEX BETWEEN KERB & DRIVEWAY.
6. **COMPLIANCE ST&ARDS**
   SLIP RESISTANCE OF SURFACE MATERIALS IN ACCORDANCE WITH AUSTRALIAN STANDARDS.
   AS/NZS 4586: 2013 SLIP RESISTANCE OF NEW PEDESTRIAN SURFACE MATERIALS.
   AS/NZS 4663: 2013 SLIP RESISTANCE MEASUREMENT OF EXISTING PEDESTRIAN SURFACES
   HB:A:A 197: 1999 "AN INTRODUCTORY GUIDE TO THE SLIP RESISTANCE OF PEDESTRIAN SURFACE MATERIALS"

LEGEND

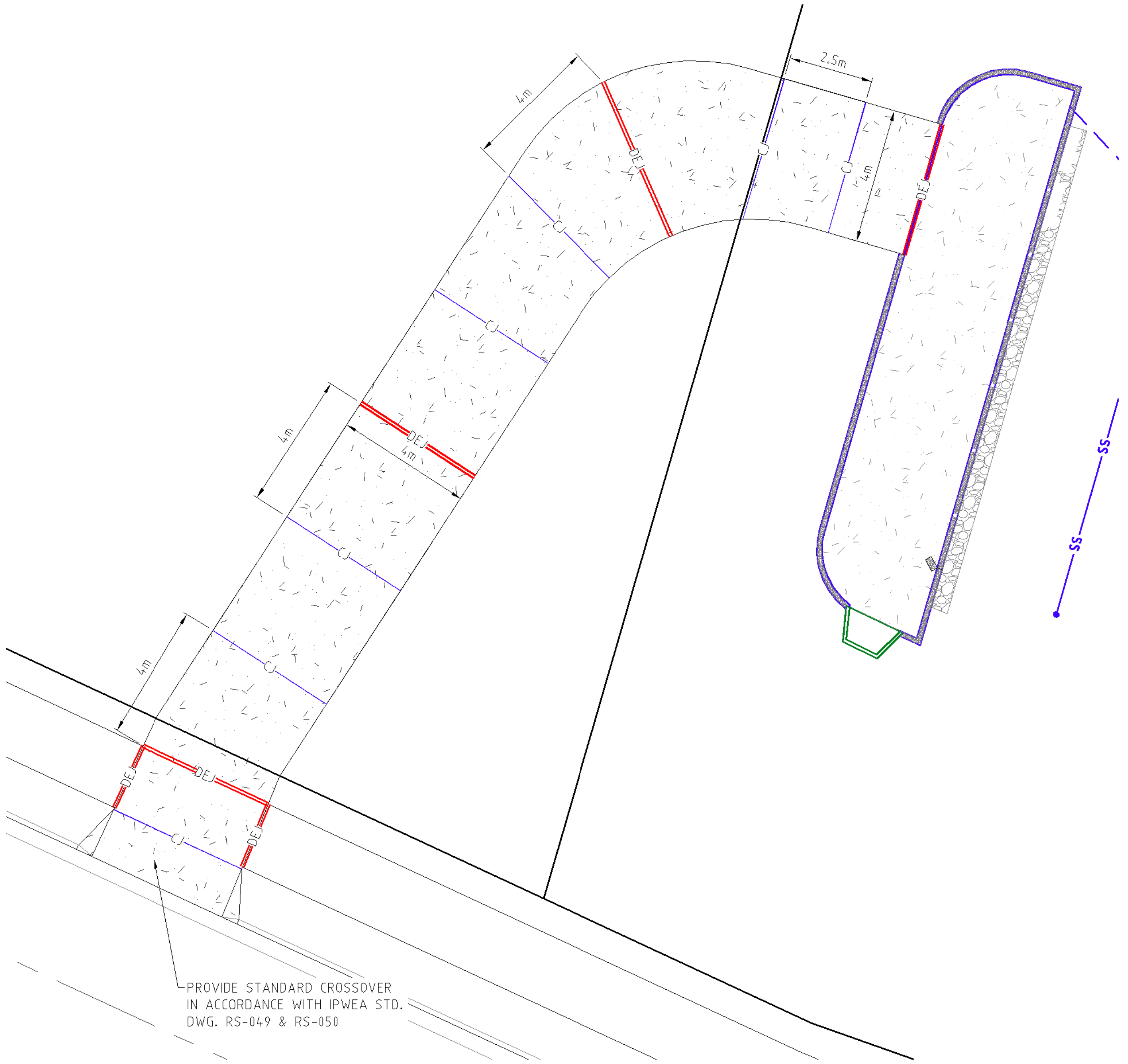
- EXISTING PROPERTY LINE
- EXISTING KERB
- FUTURE KERB
- FUTURE PROPERTY LINE
- PROPERTY LINE
- FACE OF KERB, FOOTPATHS
- LIP AND BACK OF KERB
- CONTROL LINE / CENTER OF ROAD
- SITE BOUNDARY
- STAGE BOUNDARY
- EJ — EXPANSION JOINT
- DEJ — DOWELED EXPANSION JOINT
- IJ — ISOLATION JOINT
- -SJ- — SAW JOINT
- CJ — CONTROL JOINT
- KJ — KEY JOINT
- 2xN12 BARS AROUND PENETRATIONS TYP.



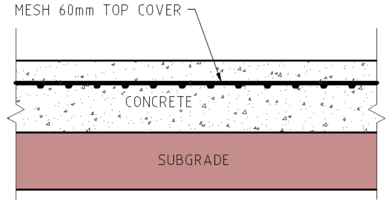
* SPACING TO GENERALLY MATCH WIDTH (MAX. LENGTH TO WIDTH RATIO 3:4)

TYPICAL CONCRETE PAVEMENT DETAIL FOR DRIVEWAYS AND ROADS

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

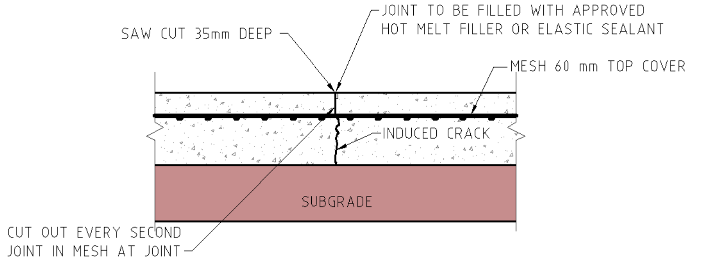


PROVIDE STANDARD CROSSOVER IN ACCORDANCE WITH IPWEA STD. DWG. RS-049 & RS-050



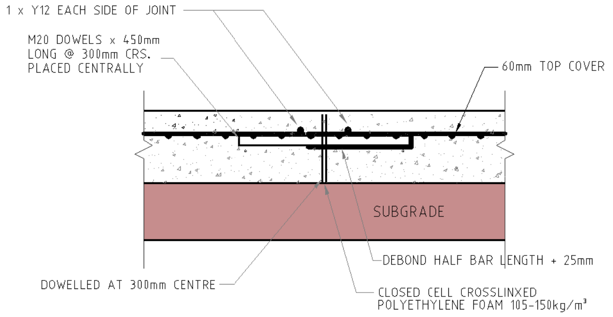
TYPICAL BROOM FINISHED CONCRETE PAVEMENT DETAIL

NOT TO SCALE


SAW CUT 35mm DEEP
JOINT TO BE FILLED WITH APPROVED HOT MELT FILLER OR ELASTIC SEALANT
MESH 60 mm TOP COVER
INDUCED CRACK
SUBGRADE
CUT OUT EVERY SECOND JOINT IN MESH AT JOINT

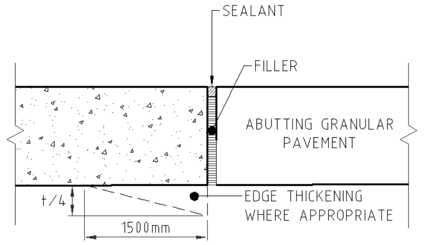
CONTROL JOINT (4m SPACING) (CJ)

NOT TO SCALE


1 x Y12 EACH SIDE OF JOINT
M20 DOWELS x 450mm LONG @ 300mm CRS. PLACED CENTRALLY
60mm TOP COVER
SUBGRADE
DEBOND HALF BAR LENGTH + 25mm
DOWELLED AT 300mm CENTRE
CLOSED CELL CROSSLINXED POLYETHYLENE FOAM 105-150kg/m³

DOWELLED EXPANSION JOINT DETAIL (24m SPACING) (DEJ)

NOT TO SCALE



ISOLATION JOINT (IJ)

NOT TO SCALE

SCHEDULE OF CONCRETE PAVEMENTS

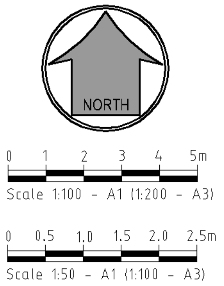
FUNCTION	SURFACING	SUBGRADE PREPARATION	THICKNESS 'T'	STRENGTH	REINFORCING
FOOTPATH 2.0M WIDE	HEAVY BROOM FINISH	50mm SAND BLINDING LAYER	100mm	32 mPa	SL 72 MESH
DRIVEWAY STORMWATER BASIN	HEAVY BROOM FINISH	100mm (CBR 15)	175mm	32 mPa	SL 72 MESH

NOTE: FOOTPATH JOINTING TO BE IN ACCORDANCE WITH IPWEAQ DWG RS-065
SUPERINTENDENT TO CONFIRM SUBGRADE PREPARATION

PROJECT NAME
COURTNEY DR
UPPER COOMERA
STAGE 04

RP DESCRIPTION
LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT
HB Land



REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS
BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE
CONCRETE JOINTING
DETAILS
SHEET 01

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DESIGNED RB
DRAWN BL
APPROVED M.K. Morton
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-410
REV A

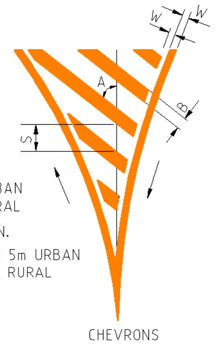
NOTES

1. LINEMARKING & SIGNAGE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES". ALL SIGNAGE SHOWN IS DIAGRAMMATIC ONLY, & MUST BE INSTALLED AT THE HEIGHT, ORIENTATION & WITH APPROPRIATE POLE SUPPORT AS SPECIFIED IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
2. ALL SIGN POSTS & SIGN RAILS TO BE GALVANISED UNLESS NOTED OTHERWISE.

PAVEMENT MARKING LEGEND

- EXISTING EDGE LINE - EL
- EXISTING EDGE LINE YELLOW - EL(Y)
- EXISTING CONTINUITY LINE - CL
- EXISTING TURN LINE - TL
- EXISTING BARRIER LINE - BL(B)
- EXISTING BARRIER LINE - BL
- EXISTING LANE LINE - LL
- EXISTING LANE LINE - LL(B)
- EXISTING GIVE WAY LINE - GWL
- EXISTING STOP LINE - SL
- EDGE LINE - EL
- EDGE LINE YELLOW - EL(Y)
- CONTINUITY LINE - CL
- TURN LINE - TL
- BARRIER LINE - BL(B)
- BARRIER LINE - BL
- LANE LINE - LL
- LANE LINE - LL(B)
- GIVE WAY LINE - GWL
- STOP LINE - SL

NOTE: REFER TO: MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR ALL LINEMARKING AND SIGN STANDARDS

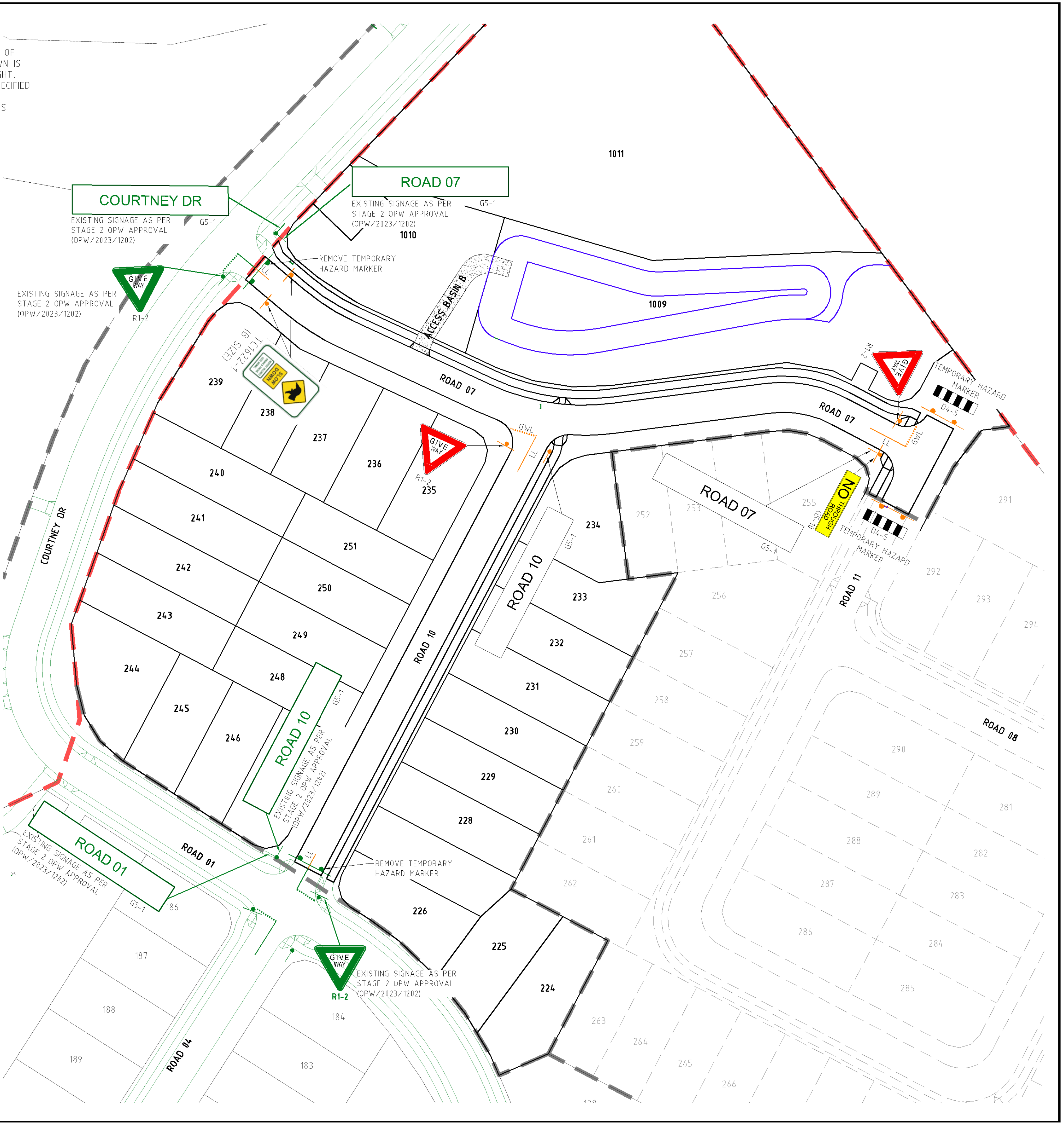


ANGLE A = 45° URBAN
30° RURAL
B = 1.0m MIN.
S = 1.5m TO 5m URBAN
3m MIN. RURAL
W = 150mm

CHEVRONS

LEGEND

- EXISTING KERB (INVERT)
- EXISTING PROPERTY LINE
- EXISTING FOOTPATH
- FUTURE KERB (INVERT)
- FUTURE FOOTPATH
- FUTURE PROPERTY LINE
- PROPOSED KERB (INVERT)
- PROPOSED FOOTPATH
- PROPOSED PROPERTY LINE
- SITE BOUNDARY
- STAGE BOUNDARY
- SIGN POST
- SIGN POST
- SIGN POST



PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

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WATER AND ENVIRONMENTAL CONSULTING

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& ASSOCIATES PTY. LTD.

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DRAWING TITLE

LINEMARKING & SIGNAGE PLAN SHEET 01

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DESIGNED RB		DRAWN BL	
APPROVED M.K. Morton		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER
41901-04-420

REV
A

SEQ CODE SEWER NOTES

SEQ CODE NOTES COPIED DIRECTLY FROM DRAWING SEQ-SEW-1101-3 (REV B).

VEGETATION PROTECTION

A. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
B. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8 m BATTENS CLOSELY SPACED & ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION & REMAIN UNTIL COMPLETION.
C. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
D. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

SOIL

A. TOPSOIL & SUBSOIL SHALL BE STOCKPILED SEPARATELY.
B. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.
C. IF ACID SULPHATE SOILS EXIST IN THE WORKS AREA. THE CONTRACTOR MUST PREPARE A RISK ASSESSMENT BASED ON THE QUEENSLAND ACID SULPHATE SOIL TECHNICAL MANUAL & MANAGE THE ACID SULPHATE SOILS AS PER THE MANUAL.

CREEK CROSSINGS

A. SILTATION CONTROL MEASURES SHALL BE PLACED DOWNSTREAM OF ANY EXCAVATION WORK.
B. APPROPRIATE SEDIMENT CONTROLS SHALL BE USED TO PREVENT SEDIMENT FROM ENTERING THE CREEK.
C. NO SOIL SHALL BE STOCKPILED WITHIN 5 m OF THE CREEK.

REHABILITATION

A. PREDISTURBANCE SOIL PROFILES & COMPACTION LEVELS SHALL BE REINSTATED.
B. PREDISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.

SAFETY

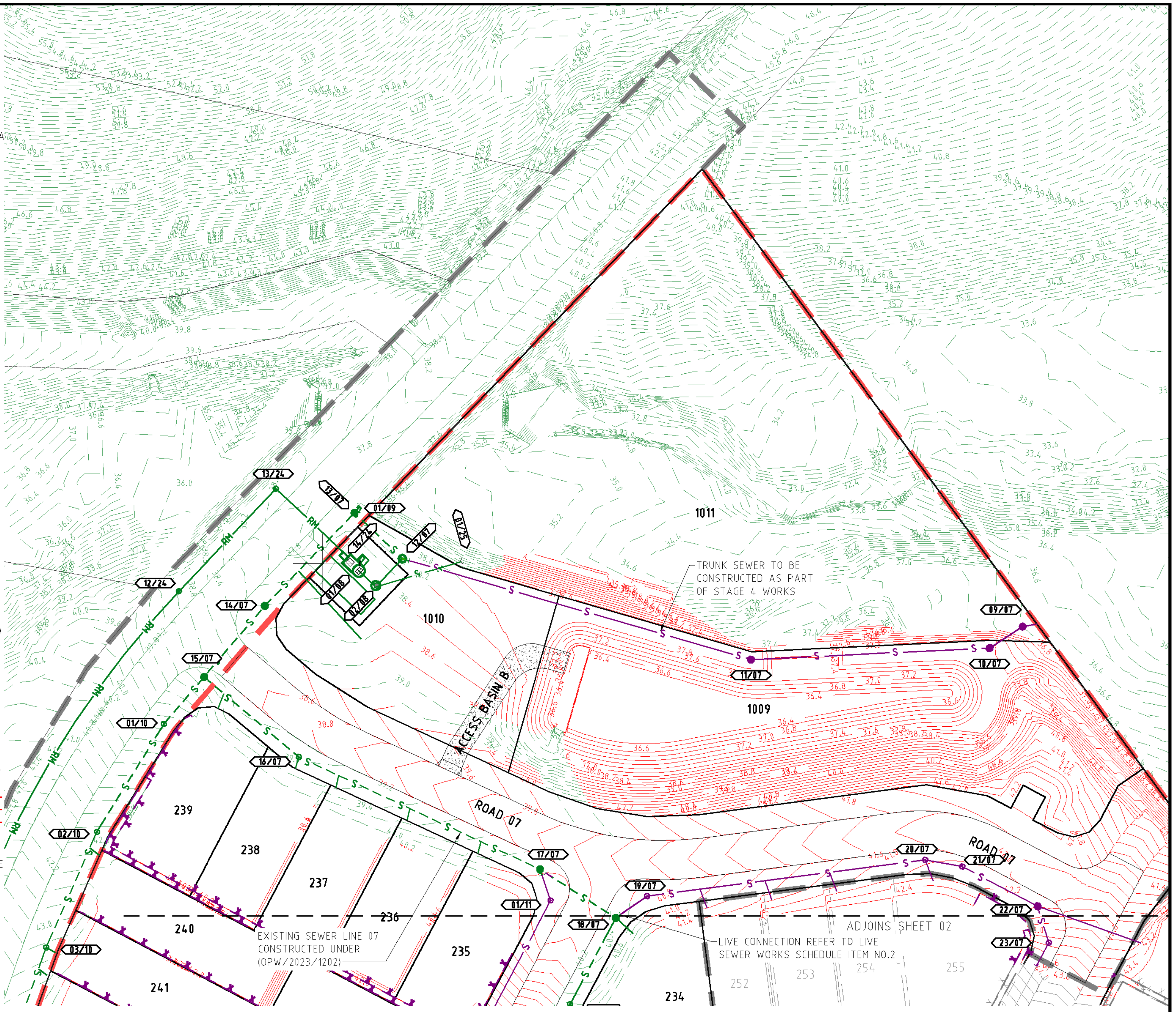
A. THE DESIGN & CONSTRUCTION OF THE WORKS SHALL COMPLY WITH ALL QUEENSLAND LEGISLATION.

GENERAL

1. ALL WORK & MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND SEWERAGE CODE SPECIFICATIONS & STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS & WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. THE CONSTRUCTION OF THE SEWERAGE WORK SHOWN ON THIS DRAWING SHALL BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. SEWERAGE WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO THE SEQ SERVICE PROVIDER SEWERAGE SYSTEM.
4. ALL WORK ASSOCIATED WITH LIVE SEWERS OR MAINTENANCE HOLES SHALL BE CARRIED OUT BY DEVELOPER'S APPROVED CONTRACTOR UNDER THE SUPERVISION OF SEQ'S AGENT AT THE DEVELOPER'S COST.
5. ALL PIPES & MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE "ACCEPTED PRODUCTS & MATERIALS" LIST.
6. EACH ALLOTMENT SHALL BE SERVED BY A DN100 PVC PROPERTY CONNECTION. FOR ALLOTMENTS OTHER THAN SINGLE RESIDENTIAL, A DN160 PE (OR DN150 PVC) PROPERTY CONNECTION SHALL BE PROVIDED.
7. PROPERTY CONNECTIONS SHALL BE LOCATED WITHIN THE PROPERTY AS SHOWN IN THE DRAWINGS.
8. PROPERTY CONNECTION BRANCHES SHALL EXTEND INTO THE PROPERTY A MINIMUM OF 300 mm AND A MAXIMUM OF 750 mm. UNITYWATER REQUIRES MINIMUM EXTENSION OF 500 mm INTO PROPERTY.
9. WHERE PIPES ARE LAID IN FILL, THE FILLING SHALL BE CARRIED OUT IN LAYERS NOT EXCEEDING 300 mm (LOOSE) IN DEPTH AND SHALL BE COMPACTED UNTIL THE COMPACTION IS NOT LESS THAN 95% OF THE MATERIALS MAXIMUM COMPACTION WHEN TESTED IN ACCORDANCE WITH A.S. 1289 (MODIFIED COMPACTION). TESTING SHALL BE CARRIED OUT AFTER EACH ALTERNATE LAYER. IN ALL SUCH CASES APPROVAL OF CONSTRUCTED SEWERS WILL NOT BE ISSUED BY THE SEQ SERVICE PROVIDER UNLESS CERTIFICATES ARE PRODUCED CERTIFYING THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.
10. WHERE SEWERS HAVE A GRADE OF 1 IN 20 OR STEEPER,BULKHEADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SEQ SEWER CODE.
11. THE CONTRACTOR SHALL VERIFY THE LOCATION & DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCING WORKS.
12. SEWERS SHALL BE DISUSED /ABANDONED IN ACCORDANCE WITH PROCEDURES SET OUT IN THE SEQ SEWER CODE.
13. BENCH MARK & LEVELS TO AHD.
14. ~~THE EXISTING DWELLING ON LOT 3, REFER SEQ-SEW-1100, SERVED BY A SEPTIC SYSTEM, SHALL BE CONNECTED TO THE NEW SEWER BY A LICENCED PLUMBER IN ACCORDANCE WITH THE RELEVANT STATUTORY & COUNCIL REQUIREMENTS. THE SEPTIC SYSTEM, INCLUDING TRENCHES,SHALL BE REMOVED AT THE DEVELOPER'S COST. ALL FIXTURES SHALL BE UPGRADED IF REQUIRED BY PLUMBING CODE.~~ STANDARD NOTE NOT APPLICABLE & THEREFORE DELETED.
15. EXISTING ALLOTMENTS REQUIRING A PROPERTY CONNECTION FROM EXISTING SEWERS SHALL BE PROVIDED BY THE SEQ SERVICE PROVIDER AT THE DEVELOPERS COST.

PROJECT SPECIFIC SEWER NOTES

a. ALL SEWER MAINS TO BE AS PER SEWER PIPE SPECIFICATIONS TABLE.
b. NOTWITHSTANDING THE STANDARD SEQ NOTES ABOVE, ALL MATERIALS & WORKS MUST BE IN ACCORDANCE WITH THE SERVICE PROVIDER'S APPROVAL CONDITIONS & THE SEQ WS&S D&C CODE.
c. THE CONTRACTOR IS TO INCLUDE ROCK EXCAVATION AS PART OF THEIR SEWER RATES UNLESS SCHEDULED OTHERWISE WITHIN THE CONTRACT.
d. THE CONTRACTOR TO PROVIDE CALCAREOUS CONCRETE WHERE SPECIFIED IN THE SEQ CODE BY THE RELEVANT AUTHORITY.
e. WATER & ELECTRICAL CROSSING LOCATIONS ARE INDICATIVE ONLY. REFER TO PLANS TO DETERMINE PRECISE CROSSING LOCATIONS. WHERE SERVICE INDICATES CLASH WITH SEWER, SEWER TO TAKE PRECEDENCE, SERVICE TO BE CONSTRUCTED OVER OR UNDER SEWER ACCORDING TO SUPERINTENDENT'S INSTRUCTION
f. ALL BENDS TO BE LONG RADIUS BEND TO MEET MANUFACTURER'S MINIMUM RADIUS REQUIREMENTS U.N.O.
g. CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LEVELS PRIOR TO COMMENCEMENT OF WORKS ON-SITE.
h. PROPERTY CONNECTIONS HAVE BEEN DESIGNED TO CONTROL THE REQUIRED SERVICE AREA OF EACH LOT AT A GRADE OF 1:60 & A MAXIMUM DEPTH OF PROPERTY CONNECTION AT 1.5m. UNLESS OTHERWISE STATED.
i. CONTRACTOR TO PAY ALL FEES & CHARGES ASSOCIATED WITH CONNECTIONS.



LEGEND

- EXISTING SEWER
- EXISTING RISING MAIN
- EXISTING KERB (INVERT)
- EXISTING PROPERTY LINE
- EXISTING RETAINING WALL
- EXISTING CONTOURS
- FUTURE SEWER
- FUTURE RISING MAIN
- FUTURE KERB (INVERT)
- FUTURE PROPERTY LINE
- FUTURE RETAINING WALL
- FUTURE CONTOURS
- SITE BOUNDARY
- STAGE BOUNDARY
- PROPOSED KERB (INVERT)
- PROPOSED PROPERTY LINE
- PROPOSED RETAINING WALL
- DESIGN CONTOURS
- PROPOSED SEWER
- PROPOSED RISING MAIN

- 04/22 SEWER ID
- ● SEWER MANHOLE
- ◐ SEWER RODDING END
- ► SEWER BEND
- ⊙ SEWER MAINTENANCE SHAFT
- ⊣ SEWER END CAP
- SEWER PUMP STATION

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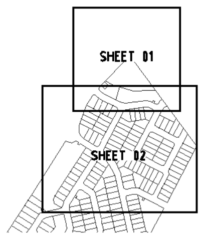
SHEET LAYOUT



SEWER PIPE SPECIFICATIONS

SEWER MAIN LOCATION	PIPE MATERIAL SPECIFICATION
GRAVITY VERGE	PVC-U SN8
GRAVITY ROAD CROSSING	PVC-U SN8
HOUSE CONNECTIONS	PVC-U SN10

ALL ENVIRONMENT PROTECTION MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.

SERVICE PROVIDER AND CONSTRUCTOR LIVE SEWER WORKS SCHEDULE

No.	Description	Dia. Sewer	MH No.	MH/MS Type	Cover Type	Lot no	F.S.L	E.S.L	I.L	Depth to invert
1(A)	CIVIL CONTRACTOR TO MAKE APPLICATION TO GOLD COAST WATER & WASTE FOR THE LIVE CONNECTION TO DOWNSTREAM SEWER MANHOLE AT EACH LOCATION LINE 7	150	18/7	A	B	234	40.460	40.460	39.140	1.320
1(B)	0.5m FROM STUB END CAP, CONTRACTOR TO LAY NEW LINE7. AFTER CLEANSING, TESTING AND INSPECTING, NOTIFY GOLD COAST WATER & WASTE.									
1(C)	CIVIL CONTRACTOR TO REMOVE TEMPORARY END CAPS ON STUB & LINE7 AND MAKE LIVE CONNECTION AFTER SUCCESSFUL "ON MAINTENANCE" INSPECTION.									
2(A)	CIVIL CONTRACTOR TO MAKE APPLICATION TO LOGAN WATER FOR THE LIVE CONNECTION TO DOWNSTREAM SEWER MANHOLE AT EACH LOCATION (LINE 11)	150	17/7	A	B	235	40.162	40.460	38.307	1.935
2(B)	0.5m FROM STUB END CAP, CONTRACTOR TO LAY NEW LINE11. AFTER CLEANSING, TESTING AND INSPECTING, NOTIFY GOLD COAST WATER & WASTE.									
2(C)	CIVIL CONTRACTOR TO REMOVE TEMPORARY END CAPS ON STUB & LINE 11 AND MAKE LIVE CONNECTION AFTER SUCCESSFUL "ON MAINTENANCE" INSPECTION.									

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

SEWER RETICULATION
PLAN
SHEET 01

MORTONS urbansolutions
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APPROVED W.K. Morton
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-500
REV A

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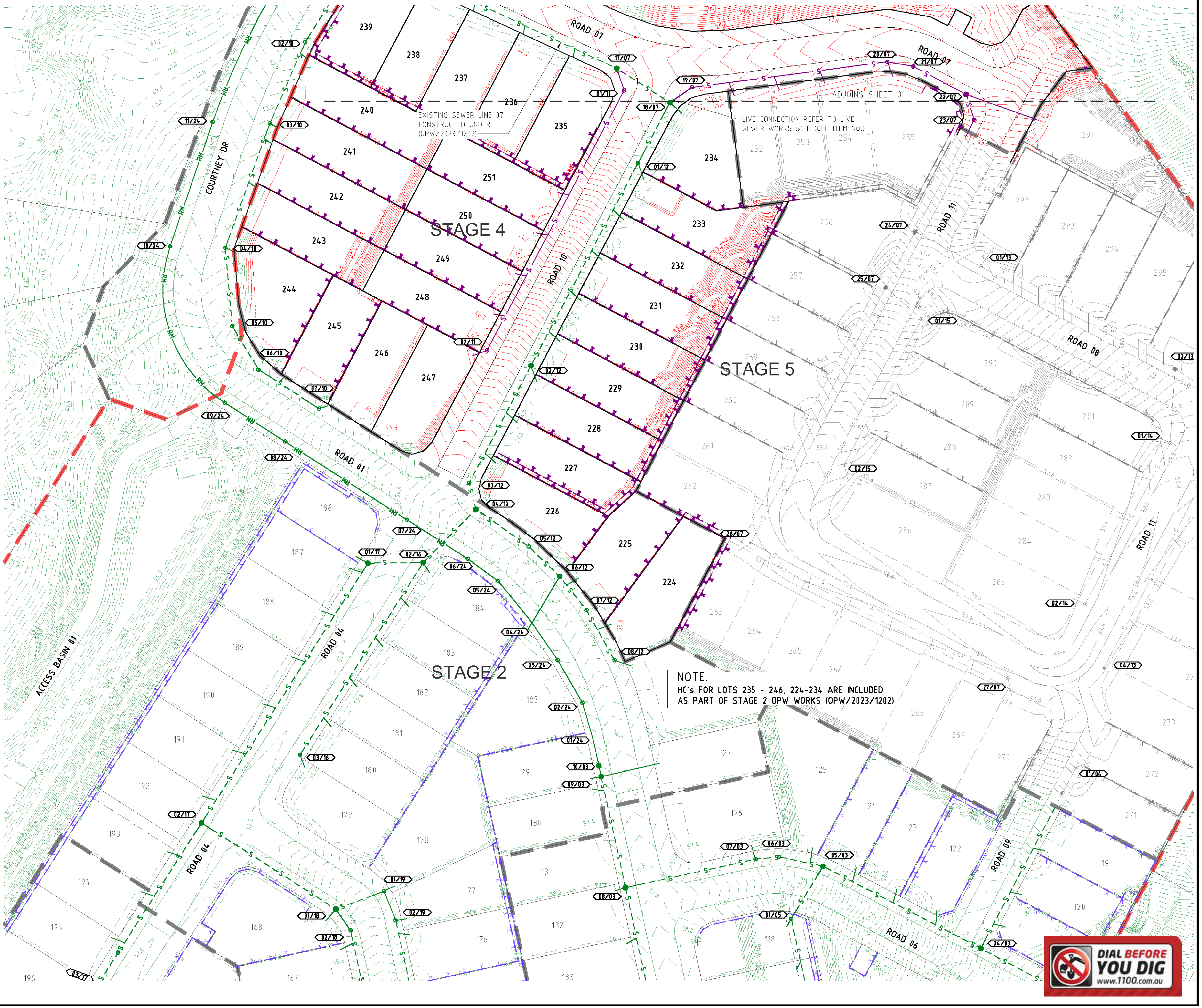

NOTE:
HC's FOR LOTS 235 - 246, 224-234 ARE INCLUDED
AS PART OF STAGE 2 OPW WORKS (OPW/2023/1202)

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

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DRAWING TITLE

SEWER RETICULATION PLAN SHEET 02

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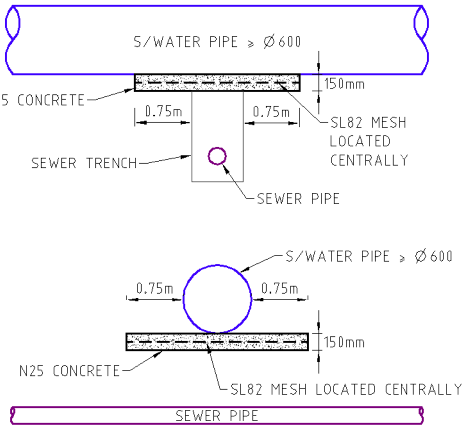
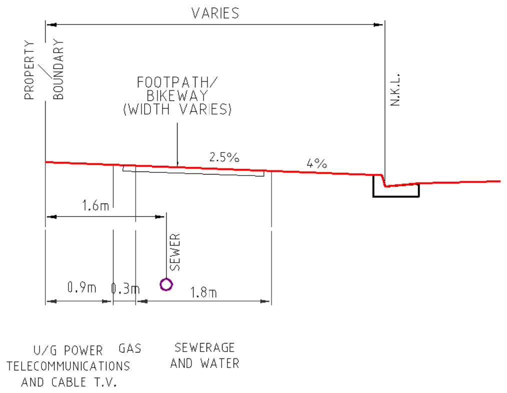
DESIGNED RB		DRAWN BL	
APPROVED W.K. Morton	RPEQ 4706	DATE 27-04-24	
DRAWING NUMBER 41901-04-501		REV A	



BRIDGING DETAILS FOR STORMWATER PIPES > Ø600

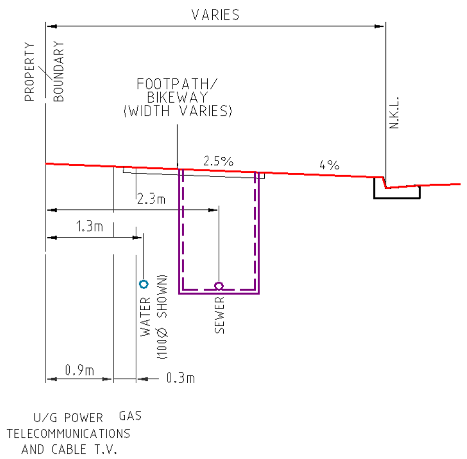
NOT TO SCALE



C.O.G.C. TYPICAL SERVICES SEWER RETICULATION ONLY

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

1. PUBLIC UTILITIES ALLOCATIONS ARE MEASURED FROM THE REAL PROPERTY BOUNDARY.
2. LIGHT POLE, TREE ALLOCATIONS AND FOOTPATHS ARE MEASURED FROM THE NOMINAL KERB LINE.



C.O.G.C. TYPICAL POTABLE WATER AND SEWER RETICULATION (SAME SIDE)

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

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
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LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 0.5 1.0 1.5 2.0 2.5m
Scale 1:50 - A1 (1:100 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT+BENNETT

DRAWING TITLE

SEWER RETICULATION DETAILS SHEET 01

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DRAWN BL
APPROVED
RPEQ **4706**
DATE **27-04-24**
DRAWING NUMBER 41901-04-510
REV A

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SEWER STRUCTURE LIDS

D	TRAFFICABLE LID
B	NON-TRAFFICABLE LID
M	'M' PREFIX DESIGNATES BOLT DOWN LID

RIGS STRUCTURE TYPES

P(x)	PRECAST CONCRETE SEWER MAINTENANCE STRUCTURE REFER TO SEQ STD DWG SEQ-SEW-1300-1
A	TYPE 'A' 1050mm DIA. MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1307-1
B	TYPE 'B' 1200mm DIA. MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1307-1
C	TYPE 'C' 1500mm DIA. MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1307-1
J1	TYPE 'J1' MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1314-2
BND	BEND REFER TO SEQ STD DWGS SEQ-SEW-1314-3
RE	RODDING END MAINTENANCE STRUCTURE REFER TO SEQ STD DWGS SEQ-SEW-1314-1
END	PROPRIETORY END CAP
PS	SEWER PUMP STATION REFER TO RELEVANT SEQ STD DWGS
RCM	RECEIVING MAINTENANCE STRUCTURE REFER TO RELEVANT SEQ STD SEWER PUMP STATION DWGS
G6	TYPE 'G6' TERMINAL MAINTENANCE SHAFT REFER TO SEQ STD DWGS SEQ-SEW-1314-1

RIGS STRUCTURE DROPS

V	STRAIGHT THROUGH SEWER REFER TO SEQ STD DWG SEQ-SEW-1303-1
W	OBLIQUE BACKDROP REFER TO SEQ STD DWG SEQ-SEW-1303-1
X	INTERNAL BACKDROP REFER TO SEQ STD DWG SEQ-SEW-1303-1
Y	EXTERNAL BACKDROP REFER TO SEQ STD DWG SEQ-SEW-1303-1

STRUCTURE TYPE
LID CLASS
DROP TYPE

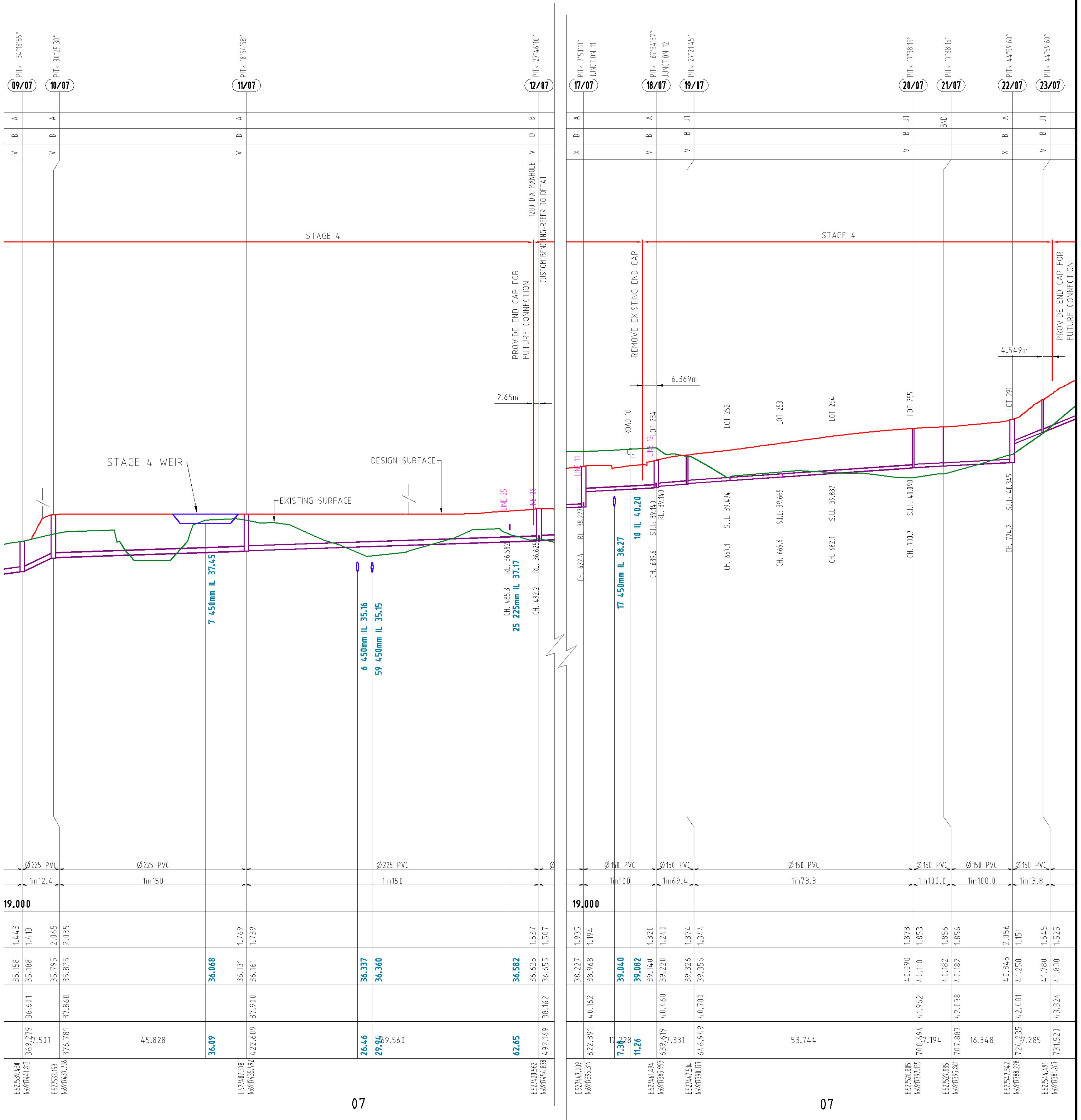
✱ CONSTRUCT BRIDGING STRUCTURE SPANNING THE SEWER TRENCH REFER TYPICAL SECTIONS & DETAILS FOR BRIDGING STRUCTURE DETAILS

| TRENCHSTOPS, BULKHEADS & CONCRETE ENCASEMENTS TO BE INSTALLED IN ACCORDANCE WITH SEQ SEWER CODE

NOTES

1. IF SHOWN, WATER AND ELECTRICAL CROSSING LOCATIONS ARE INDICATIVE ONLY. REFER TO PLANS TO DETERMINE CROSSING LOCATIONS. WHERE SERVICE INDICATES CLASH WITH SEWER, SEWER TO TAKE PRECEDENCE, SERVICE TO BE CONSTRUCTED OVER OR UNDER SEWER ACCORDING TO SUPERINTENDENTS INSTRUCTION
2. ALL GRAVITY uPVC SEWER PIPE TO BE CLASS SN8 U.N.O.
3. ALL PRESSURE MAINS PE100 PN16 SDR11
4. ALL EMBEDMENT TYPE IS TO BE TYPE 3 U.N.O
5. ALL BENDS TO BE LONG RADIUS BEND, 1.2m RADIUS MIN.
6. CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LEVELS PRIOR TO COMMENCEMENT OF PIPEWORK
7. PROTECTIVE COATING IS TO BE INSTALLED TO MAINTENANCE STRUCTURES (WHERE REQUIRED) IN ACCORDANCE WITH CLAUSE 4.7.2 OF SEQ SEWERAGE CODE.
8. TRENCHSTOPS IN ACCORDANCE WITHSEQ-WAT-1209-1

PIPE DIAMETER (mm)
PIPE GRADE
DATUM R.L.
DEPTH TO INVERT
PIPE INVERT LEVELS
DESIGN SURFACE LEVELS
CHAINAGE
LINE NO.



PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)

0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

SEWER RETICULATION
PROFILES
SHEET 01

MORTONS
urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination
MUS Pty Ltd T/As:
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DESIGNED	RB	DRAWN	BL		
APPROVED		RPEQ	4706	DATE	27-04-24

DRAWING NUMBER
41901-04-530

REV
A

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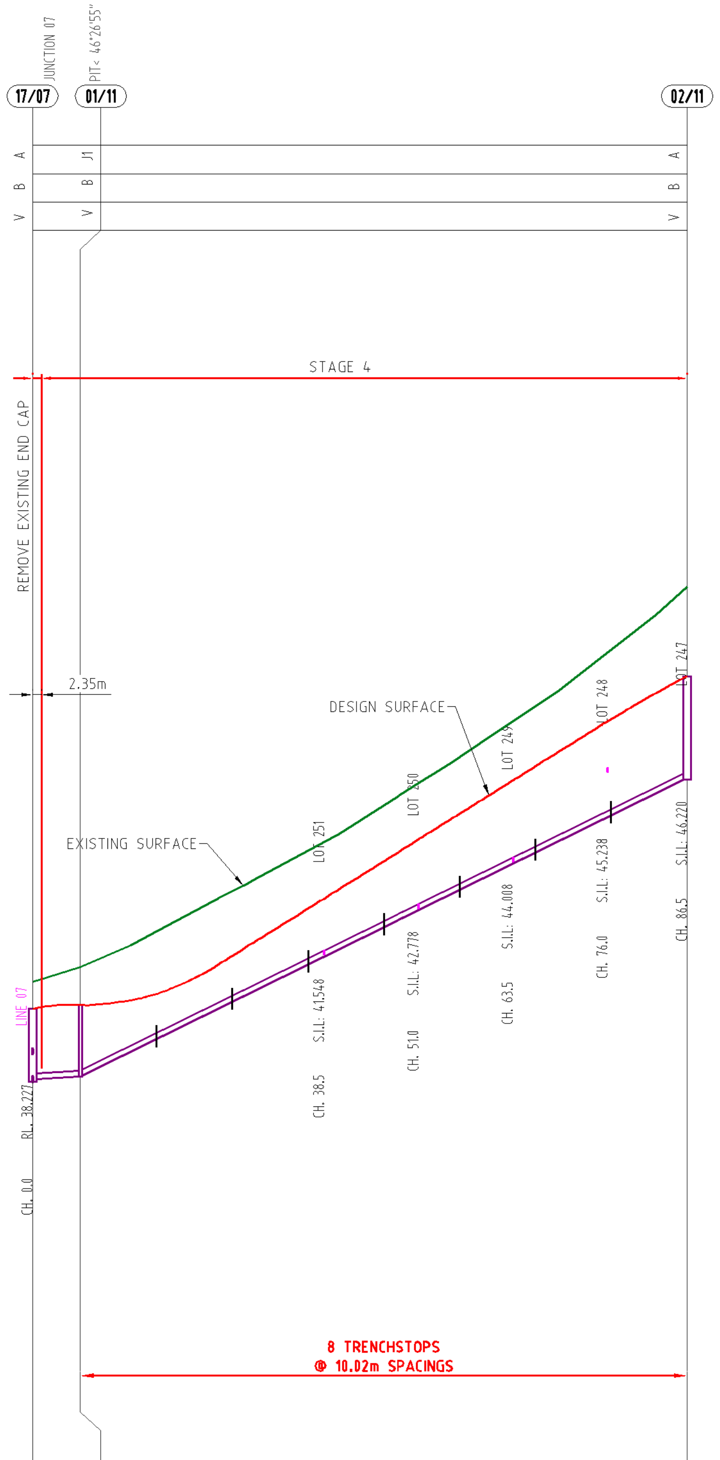


STRUCTURE TYPE
LID CLASS
DROP TYPE

* CONSTRUCT BRIDGING STRUCTURE SPANNING THE SEWER TRENCH REFER TYPICAL SECTIONS & DETAILS FOR BRIDGING STRUCTURE DETAILS

| TRENCHSTOPS, BULKHEADS & CONCRETE ENCASEMENTS TO BE INSTALLED IN ACCORDANCE WITH SEQ SEWER CODE

NOTES

1. IF SHOWN, WATER AND ELECTRICAL CROSSING LOCATIONS ARE INDICATIVE ONLY. REFER TO PLANS TO DETERMINE CROSSING LOCATIONS. WHERE SERVICE INDICATES CLASH WITH SEWER, SEWER TO TAKE PRECEDENCE, SERVICE TO BE CONSTRUCTED OVER OR UNDER SEWER ACCORDING TO SUPERINTENDENTS INSTRUCTION
2. ALL GRAVITY uPVC SEWER PIPE TO BE CLASS SN8 U.N.O.
3. ALL PRESSURE MAINS PE100 PN16 SDR11
4. ALL EMBEDMENT TYPE IS TO BE TYPE 3 U.N.O
5. ALL BENDS TO BE LONG RADIUS BEND, 1.2m RADIUS MIN.
6. CONTRACTOR TO VERIFY DOWNSTREAM EXISTING PIPE LEVELS PRIOR TO COMMENCEMENT OF PIPEWORK
7. PROTECTIVE COATING IS TO BE INSTALLED TO MAINTENANCE STRUCTURES (WHERE REQUIRED) IN ACCORDANCE WITH CLAUSE 4.7.2 OF SEQ SEWERAGE CODE.
8. TRENCHSTOPS IN ACCORDANCE WITHSEQ-WAT-1209-1

PIPE DIAMETER (mm)		Ø150_PVC		Ø150_PVC		
PIPE GRADE		1in99.9		1in10.3		
DATUM R.L.		25.000				
DEPTH TO INVERT	1.935	1.855	1.892	1.862	2.737	
PIPE INVERT LEVELS	38.227	38.307	38.370	38.400	46.220	
DESIGN SURFACE LEVELS		40.162		40.262		48.956
CHAINAGE		0.000	6.297	6.297	80.198	86.495

E:527447.009
N:6917395.319

E:527449.019
N:6917389.352

E:527411.571
N:6917318.433

LINE NO. 11

P R O J E C T N A M E

COURTNEY DR UPPER COOMERA

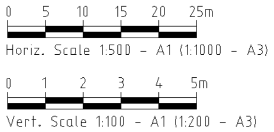
STAGE 04

R P D E S C R I P T I O N

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

C L I E N T

HB Land


0
5
10
15
20
25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)
0
1
2
3
4
5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

A S S O C I A T E D C O N S U L T A N T S

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

D R A W I N G T I T L E

SEWER RETICULATION PROFILES SHEET 02

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Urban & Regional Planning
Civil Engineering
Project Coordination

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DESIGNED RB
DRAWN BL
APPROVED M.K. Morton
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-531
REV A

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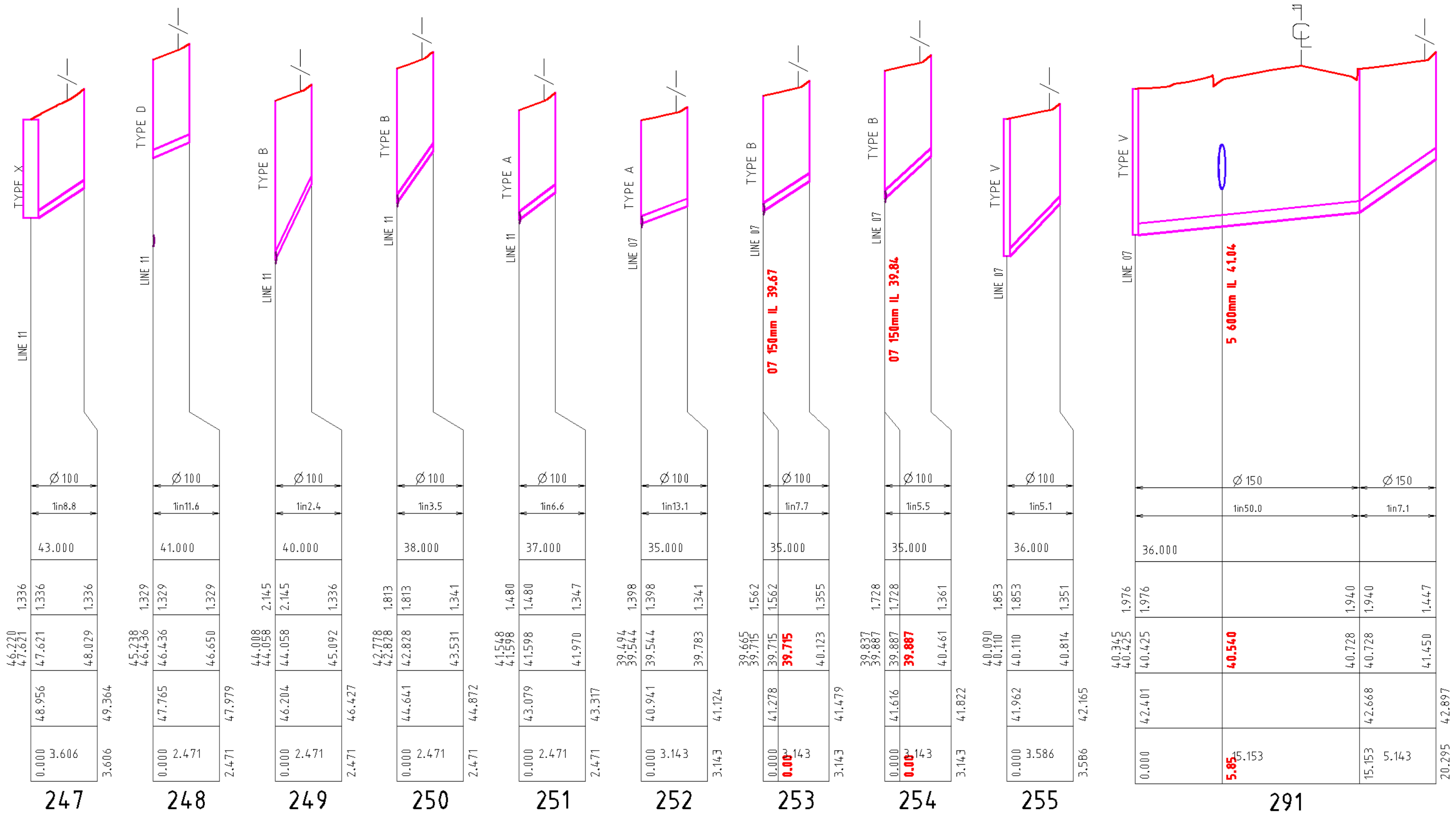
	RIGS STRUCTURE DROPS
A	SEWER PROPERTY CONNECTION (STANDARD & EXTENDED) REFER TO SEQ STD DWGS SEQ-SEW-1104-1
B	SEWER PROPERTY CONNECTION (SLOPED CONNECTION) REFER TO SEQ STD DWGS SEQ-SEW-1104-1
D	SEWER PROPERTY CONNECTION (VERTICAL RISER) REFER TO SEQ STD DWG SEQ-SEW-1105-1
V	SEWER PROPERTY CONNECTION (STRAIGHT THROUGH SEWER) REFER TO SEQ STD DWG SEQ-SEW-1303-1
X	SEWER PROPERTY CONNECTION (INTERNAL BACKDROP) REFER TO SEQ STD DWG SEQ-SEW-1303-1
Z	RISER CONNECTION TO PORTION OF MAINTENANCE SHAFT

NOTES

1. WATER AND ELECTRICAL CROSSING LOCATIONS ARE INDICATIVE ONLY. REFER TO PLANS TO DETERMINE PRECISE CROSSING LOCATIONS. WHERE SERVICE INDICATES CLASH WITH SEWER, SEWER TO TAKE PRECEDENCE, SERVICE TO BE CONSTRUCTED OVER OR UNDER SEWER ACCORDING TO SUPERINTENDANTS INSTRUCTION.

2. ALL HOUSE CONNECTIONS TO BE 100Ø CLASS SN10 UNLESS NOTED OTHERWISE



LOT NO.	PIPE DIAMETER (mm)	PIPE GRADE	DATUM R.L.	DEPTH TO INVERT	PIPE INVERT LEVELS	DESIGN SURFACE LEVELS	CHAINAGE
247	Ø100	1in8.8	43.000	1.336 1.336 1.336	46.220 47.621 47.621 48.029	48.956 49.364	0.000 3.606 3.606
248	Ø100	1in11.6	41.000	1.329 1.329 1.329	45.238 46.436 46.436 46.650	47.765 47.979	0.000 2.471 2.471
249	Ø100	1in2.4	40.000	2.145 2.145 1.336	44.008 44.058 44.058 45.092	46.204 46.427	0.000 2.471 2.471
250	Ø100	1in3.5	38.000	1.813 1.813 1.341	42.778 42.828 42.828 43.531	44.641 44.872	0.000 2.471 2.471
251	Ø100	1in6.6	37.000	1.480 1.480 1.347	41.548 41.598 41.598 41.970	43.079 43.317	0.000 2.471 2.471
252	Ø100	1in13.1	35.000	1.398 1.398 1.341	39.494 39.544 39.544 39.783	40.941 41.124	0.000 3.143 3.143
253	Ø100	1in7.7	35.000	1.562 1.562 1.355	39.665 39.715 39.715 **39.715** 40.123	41.278 41.479	0.000 **0.00** 3.143 3.143
254	Ø100	1in5.5	35.000	1.728 1.728 1.361	39.837 39.887 39.887 **39.887** 40.461	41.616 41.822	0.000 **0.00** 3.143 3.143
255	Ø100	1in5.1	36.000	1.853 1.853 1.351	40.090 40.110 40.110 40.814	41.962 42.165	0.000 3.586 3.586
291	Ø150 Ø150	1in50.0 1in7.1	36.000	1.976 1.976 1.940 1.940 1.447	40.345 40.425 40.425 **40.540** 40.728 40.728 41.450	42.401 42.668 42.897	0.000 **5.85** 15.153 15.153 5.143 20.295

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 2.5 5 7.5 10 12.5m
Horiz. Scale 1:250 - A1 (1:500 - A3)

0 0.5 1.0 1.5 2.0 2.5m
Vert. Scale 1:50 - A1 (1:100 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

SEWER RETICULATION
HOUSE CONNECTION
PROFILES
SHEET 01

MORTONS urbansolutions
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DESIGNED RB
DRAWN BL
APPROVED M.K. Morton
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-550
REV A

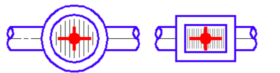
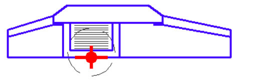
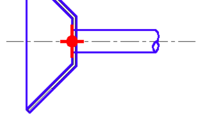
STORMWATER

1. ALL FIELD GULLIES SHALL CONTAIN A 150mm DIA STUB 600mm BELOW GRADE LEVEL FOR FUTURE ROOFWATER DRAINAGE.
2. MANHOLES TO BE IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING No DS-010, DS-015, DS-018, DS-019, DS-020, DS-021 OR STRUCTURAL DRAWINGS (STRUCTURAL DRAWINGS TAKE PRECEDENCE).
3. OUTLET HEADWALLS TO BE IN ACCORDANCE WITH LOCAL COUNCIL STANDARD DRAWINGS.
4. ALL HEADWALLS WITH A FALL GREATER THAN 900mm HIGH REQUIRE INSTALLATION OF PEDESTRIAN SAFETY FENCES.
5. PIPE JOINT TYPES TO BE IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS.
6. ALL ALLOTMENTS TO BE GRADED SUCH THAT FUTURE ROOFWATER DRAINAGE DISCHARGES TO KERB OR TO PIPED DRAINAGE SYSTEM.
7. ALL PIPE 300mm DIA & GREATER SHALL BE CONSTRUCTED USING SRC OR FRC PIPES. CONTRACTOR MAY ELECT TO USE PVC PIPES WITHIN ALLOTMENTS FOR PIPES SMALLER THAN 300mm DIA.
8. FOR SETOUT DETAILS REFER TO 640 SERIES DRAWINGS (PROFILES & PIT DETAILS).
9. GULLY PITS TO BE IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING No DS-060, DS-061, DS-062, DS-063. WHERE PITS ARE CONSTRUCTED AS DRAINWAY PITS, TO BE IN ACCORDANCE WITH IPWEAQ STANDARD DRAWINGS No 05-068.
10. LOTS WHICH CAN DRAIN OVERLAND FLOW TO THE STREET SWALE / DRAINAGE WITHOUT FLOWING THROUGH ADJOINING PROPERTIES NEED TO PROVIDE FOR Q100 OVERLAND FLOW TO THE ROAD
11. LOT EARTHWORKS DURING BUILDING CONSTRUCTION MUST NOT CHANGE FLOW PATH DIRECTION UNLESS IT IS REPLACED WITH ANOTHER FLOW PATH DRAINING TO THE ROAD SWALE / DRAINAGE.
12. THE CONTRACTOR IS TO INCLUDE ROCK EXCAVATION AS PART OF THEIR STORMWATER RATE.
13. PIPE CLASS - PIPE CLASSES/TRENCH BEDDING SHOWN ON THE DRAWINGS ARE SUBJECT TO THE CONTRACTORS PREFERRED INSTALLATION METHOD. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE APPROPRIATE PIPE CLASSES & BEDDING, & CONSIDERING CONSTRUCTION LOADING.
14. KERB ADAPTORS ARE TO BE INSTALLED TO AUTHORITIES REQUIREMENTS.
15. ALL RCBC SLABS ARE TO BE CAST INSITU.
16. ALL STORMWATER PITS ARE TO BE BENCHED TO ALLOW FREE DRAINING FLOW.
17. ALL PIPES TO BE LAID IN ACCORDANCE WITH LOCAL AUTHORITY STANDARDS.

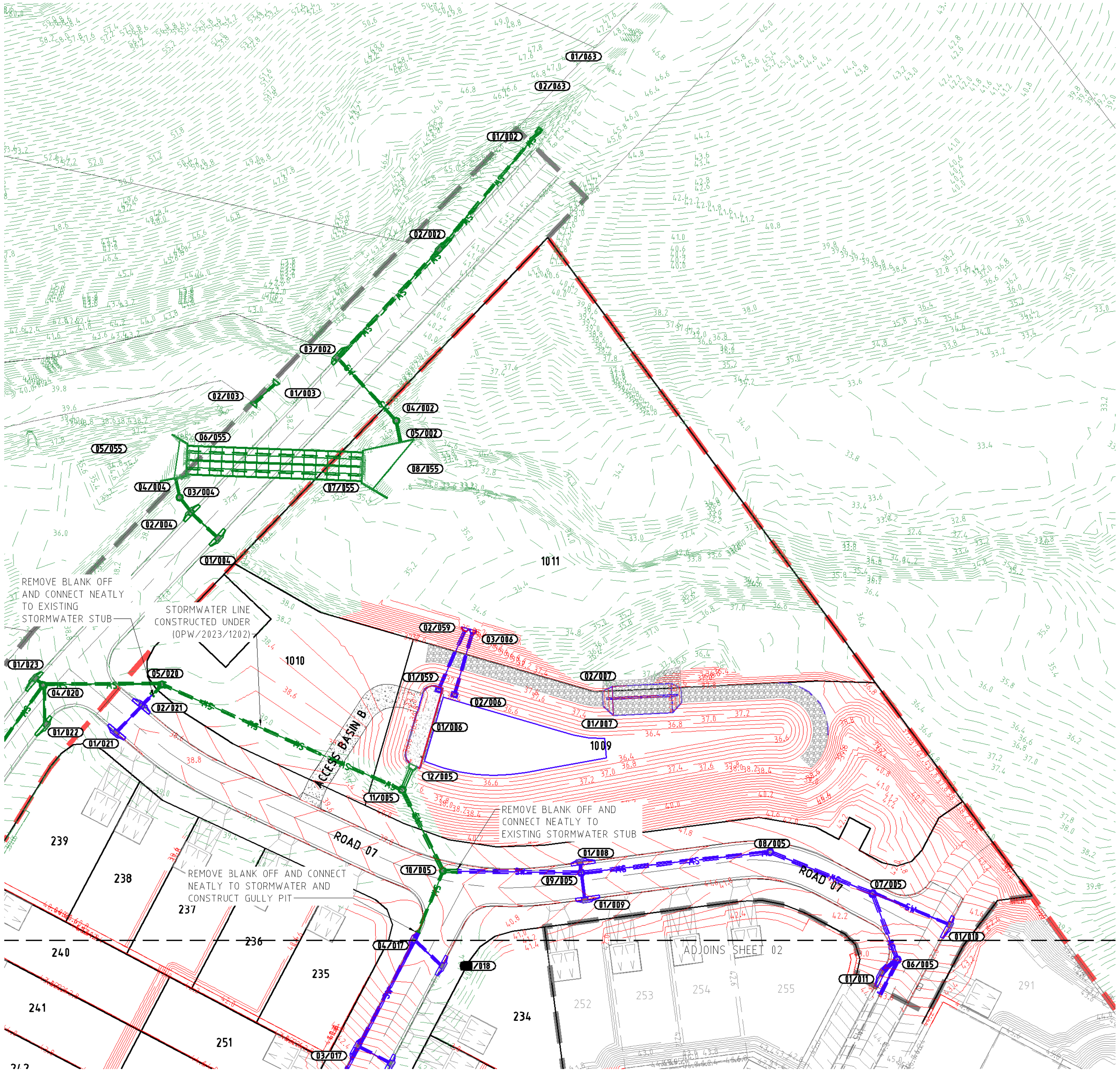
LEGEND

EXISTING KERB (INVERT)
EXISTING KERB (LIP & BACK)
EXISTING PROPERTY LINE
EXISTING RETAINING WALL
EXISTING STORMWATER
EXISTING ROOFWATER
EXISTING SUBSOIL
EXISTING CONTOURS
FUTURE KERB
FUTURE PROPERTY LINE
FUTURE RETAINING WALL
FUTURE STORMWATER
FUTURE ROOFWATER
FUTURE SUBSOIL
EXISTING CONTOURS
SITE BOUNDARY
STAGE BOUNDARY
CONTROL LINE / CENTER OF ROAD
PROPOSED KERB (INVERT)
PROPOSED KERB (LIP & BACK)
PROPOSED PROPERTY LINE
PROPOSED RETAINING WALL
DESIGN CONTOURS
PROPOSED STORMWATER
PROPOSED ROOFWATER
PROPOSED SUBSOIL
MANHOLE
FIELD INLET
KERB INLET (ON GRADE) PIT
KERB INLET (SAG) PIT
HEADWALL
SCOUR PROTECTION
01/39 STORMWATER ID

REFERENCE POINT LOCATION FOR DRAINAGE STRUCTURES

STRUCTURE TYPE	HORIZONTAL CONTROL (Reference Point Location)	VERTICAL CONTROL (Reference Level)
MANHOLE / GRATED PIT	 CENTRE OF MANHOLE / PIT	FINISHED SURFACE LEVEL
GULLY PIT	 LIP AT CENTRE OF PIT	FINISHED SURFACE LEVEL (LIP OF CHANNEL)
HEADWALL	INTERSECTION OF HEADWALL FACE & PIPE CENTRELINE 	INVERT LEVEL

REFER TO DWG SERIES 640 FOR ALL DRAINAGE STRUCTURE SETOUT AND/OR CUSTOM DETAILS.



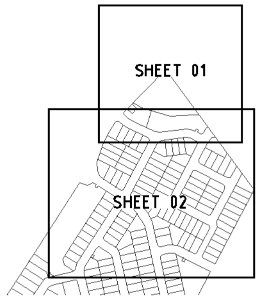
REMOVE BLANK OFF AND CONNECT NEATLY TO EXISTING STORMWATER STUB

STORMWATER LINE CONSTRUCTED UNDER (OPW/2023/1202)

REMOVE BLANK OFF AND CONNECT NEATLY TO EXISTING STORMWATER STUB

REMOVE BLANK OFF AND CONNECT NEATLY TO STORMWATER AND CONSTRUCT GULLY PIT

SHEET LAYOUT



PROJECT NAME

COURTNEY DR
UPPER COOMERA

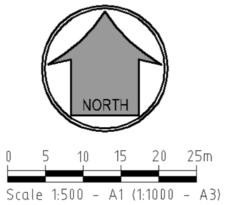
STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land



Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

BENNETT+BENNETT

DRAWING TITLE

STORMWATER
DRAINAGE
PLAN
SHEET 01

MORTONS
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Urban & Regional Planning
Civil Engineering
Project Coordination

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DESIGNED RB		DRAWN BL	
APPROVED M.K. Morton		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER
41901-04-600

REV
A

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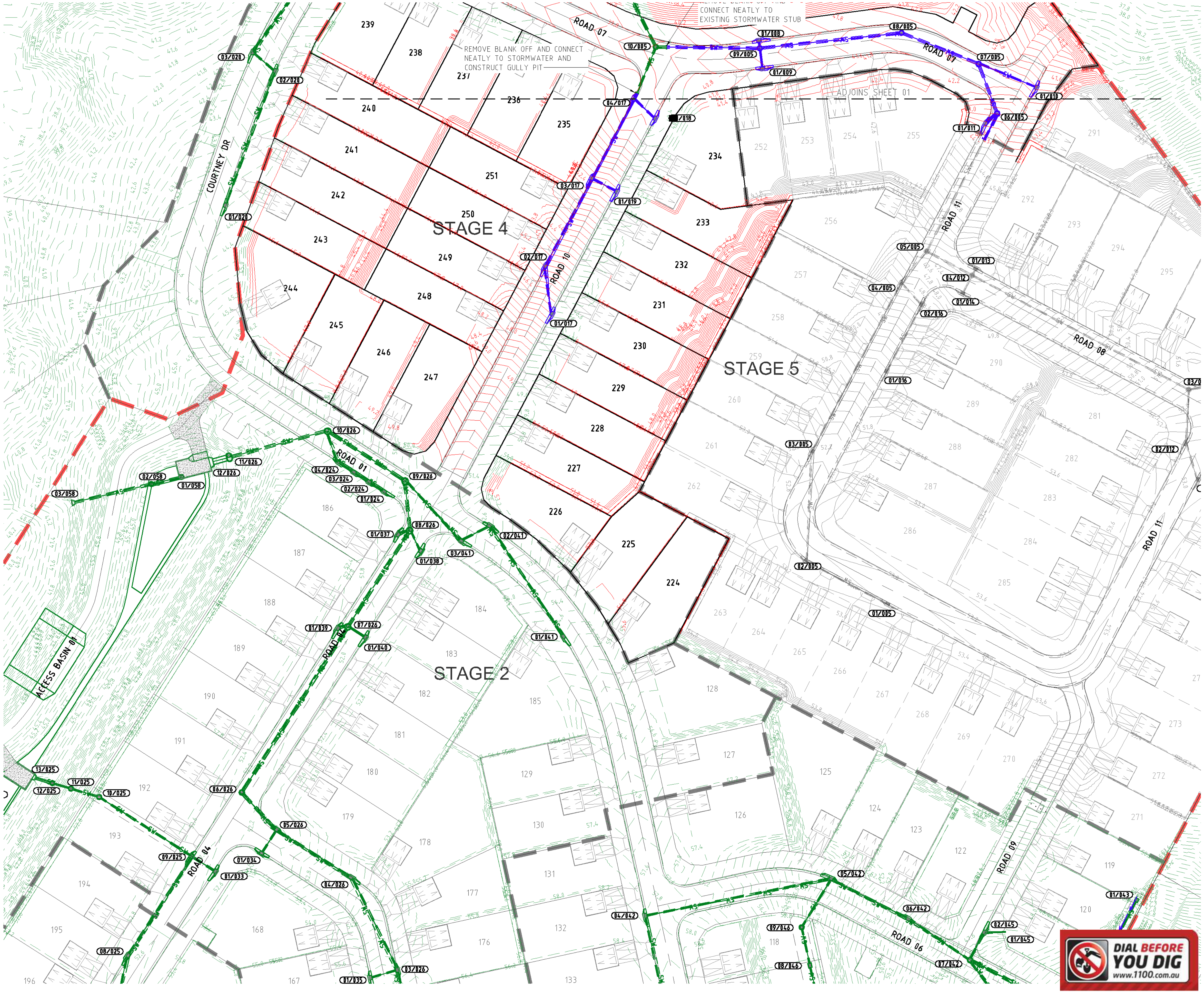

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

STORMWATER DRAINAGE PLAN SHEET 02

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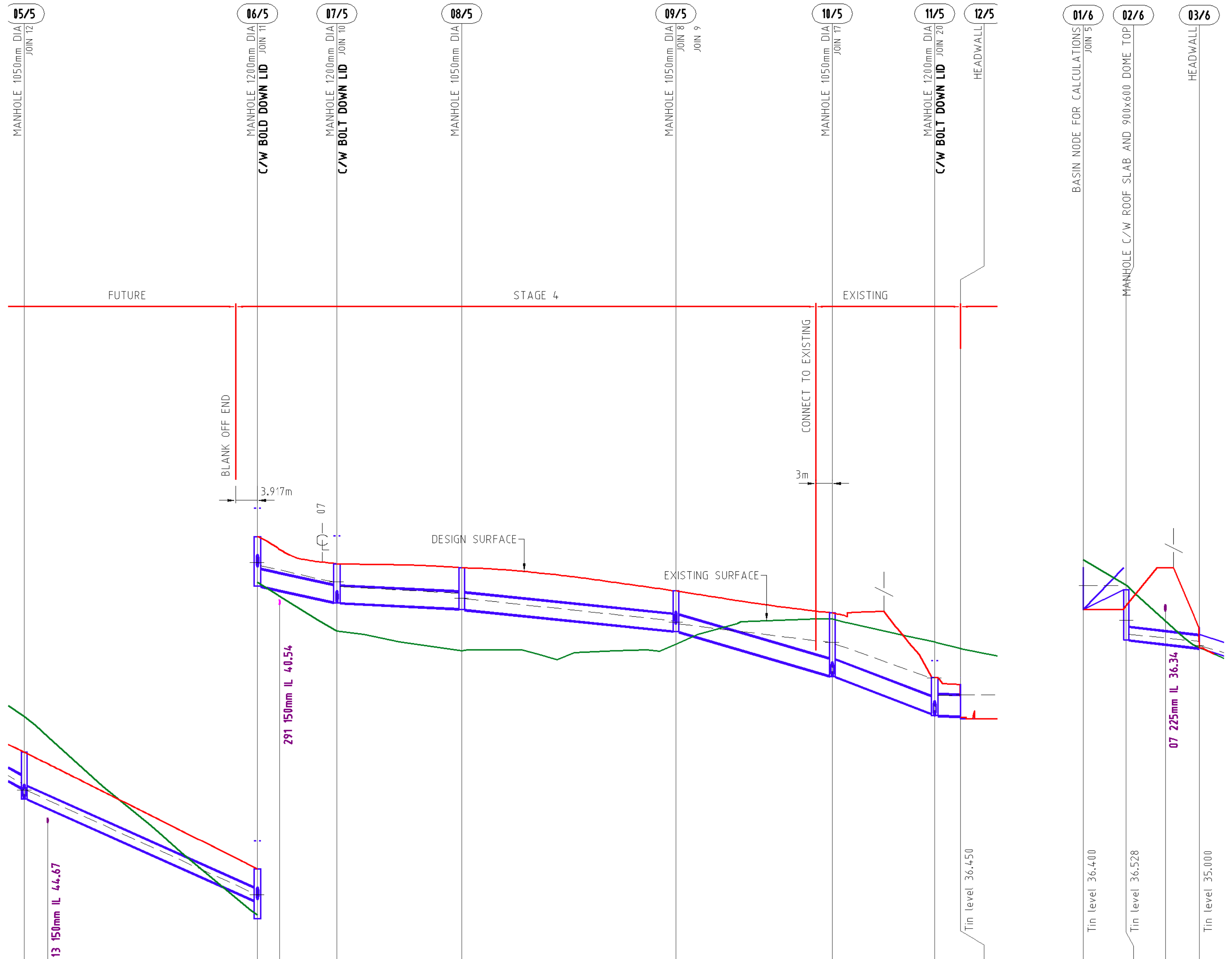
DESIGNED	RB	DRAWN	BL
APPROVED	W.K. morto	RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-601
REV A



NOTES
1. WHERE STRUCTURE DEPTHS ARE 0m TO 3m REFER TO IPWEA STANDARD DRAWINGS FOR STRUCTURE DETAILS.
WHERE STRUCTURE DEPTHS ARE 3m TO 5m REFER TO TMR STANDARD DRAWINGS FOR STRUCTURE DETAILS.
WHERE STRUCTURE DEPTHS EXCEED 5m STRUCTURES ARE NON-STANDARD AND STRUCTURAL DESIGN IS REQUIRED.
2. STRUCTURAL DESIGN IS NOT PROVIDED AS PART OF THE TENDER DOCUMENTS. THE CONTRACTOR SHALL INCLUDE IN THEIR PRICE THE STRUCTURAL DESIGN AND CERTIFICATION OF THESE STRUCTURES.

DRAINAGE LINE 5

STRUCTURE NAME	STRUCTURE DESCRIPTION	PIPE GRADE (%)	PIPE DIAMETER (mm)	VELOCITY (m/s)	PIPE FLOW (m3/s)	PIPE CLASS	DATUM R.L.	DEPTH TO INVERT	HYDRAULIC GRADE LINE	PIPE INVERT LEVELS	DESIGN SURFACE LEVELS	EXISTING SURFACE LEVELS	CHAINAGE	
05/5	MANHOLE 1050mm DIA JOIN 12							1.294 1.688	45.830 45.810	45.911 45.516 45.186	47.204	48.484	116.598 4.20	E: 527530.144 N: 6917345.102
		8.736	450	6.530	0.697	3							42.003	
06/5	MANHOLE 1200mm DIA C/W BOLD DOWN LID JOIN 11						22.000	1.135 1.788	42.107 42.051 41.927	41.847 41.194 41.045	42.982	41.329	158.601 4.02	E: 527549.265 N: 6917382.500
		4.000	600	2.790	0.727	3							14.376	
07/5	MANHOLE 1200mm DIA C/W BOLT DOWN LID JOIN 10							1.377 1.407	41.341 41.175	40.619 40.589	41.996	39.564	172.977	E: 527544.200 N: 6917395.954
		0.930	600	2.850	0.787	3							22.49	
08/5	MANHOLE 1050mm DIA							1.473 1.503	40.933 40.759 40.748	40.380 40.350	41.853	38.860	195.467	E: 527523.344 N: 6917404.368
		2.000	600	4.060	0.779	3							38.671	
09/5	MANHOLE 1050mm DIA JOIN 8 JOIN 9							1.444 1.474	39.943 39.899 39.829	39.576 39.546	41.020	39.097	234.138	E: 527484.901 N: 6917400.169
		5.614	600	4.960	0.853	3							28.207	
10/5	MANHOLE 1050mm DIA JOIN 17							2.264 2.294	39.165 39.105	37.963 37.933	40.227	40.008	262.345	E: 527456.696 N: 6917400.518
		7.225	600	4.530	1.181	3							18.455	
11/5	MANHOLE 1200mm DIA C/W BOLT DOWN LID JOIN 20							1.301 1.376	37.871 37.254	36.599 36.524	37.900	39.174	280.800	E: 527448.381 N: 6917416.994
		0.522	750	3.400	1.493	3							4.674	
12/5	HEADWALL							-0.050 0.050	37.263	36.500 36.400	37.645	38.941	285.474	E: 527450.578 N: 6917421.119
						REF								

6

STRUCTURE NAME	STRUCTURE DESCRIPTION	PIPE GRADE (%)	PIPE DIAMETER (mm)	VELOCITY (m/s)	PIPE FLOW (m3/s)	PIPE CLASS	DATUM R.L.	DEPTH TO INVERT	HYDRAULIC GRADE LINE	PIPE INVERT LEVELS	DESIGN SURFACE LEVELS	EXISTING SURFACE LEVELS	CHAINAGE	
01/6	BASIN NODE FOR CALCULATIONS JOIN 5						18.000	0.000 -1.372	37.263 37.263 36.011	36.400 37.900	37.900	38.194	0.000	E: 527458.674 N: 6917428.705
		-19.439	1		0.329	REFERENCE							7.717	
02/6	MANHOLE C/W ROOF SLAB AND 900x600 DOME TOP							1.228	35.498	35.300	37.100	37.268	7.717	E: 527459.023 N: 6917436.414
		2.288	450	2.520	0.329	3				35.145			13.114 7.00	
03/6	HEADWALL							0.000 0.000	35.241 35.099	35.000 35.000	35.740	35.017	20.830	E: 527462.660 N: 6917449.013

PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION
LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT
HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)
0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS
BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT+BENNETT

DRAWING TITLE

STORMWATER PROFILES SHEET 01

MORTONS urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

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DESIGNED RB
DRAWN BL
APPROVED M.K. Morton
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-620
REV A

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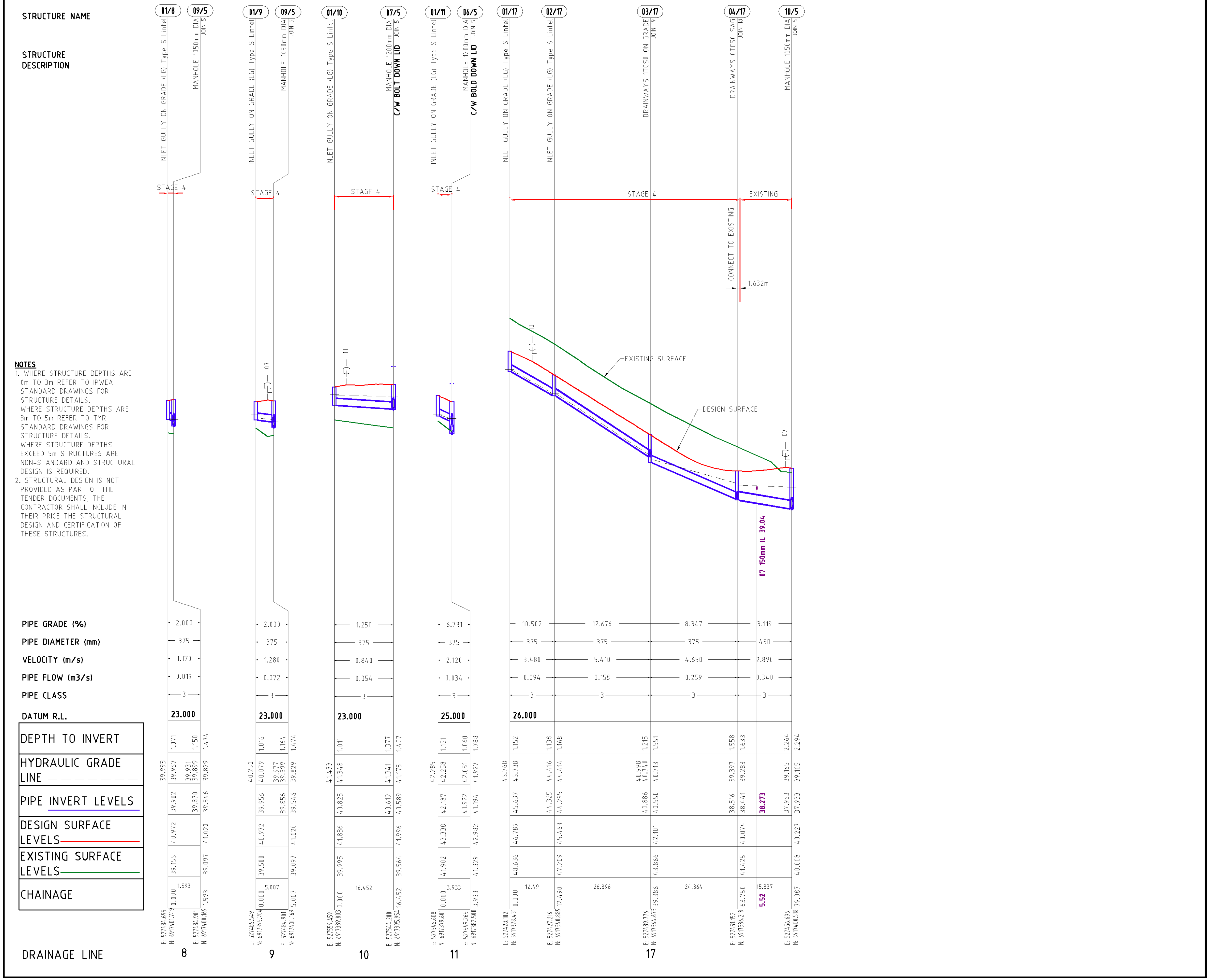

NOTES

1. WHERE STRUCTURE DEPTHS ARE 0m TO 3m REFER TO IPWEA STANDARD DRAWINGS FOR STRUCTURE DETAILS.
   WHERE STRUCTURE DEPTHS ARE 3m TO 5m REFER TO TMR STANDARD DRAWINGS FOR STRUCTURE DETAILS.
   WHERE STRUCTURE DEPTHS EXCEED 5m STRUCTURES ARE NON-STANDARD AND STRUCTURAL DESIGN IS REQUIRED.
2. STRUCTURAL DESIGN IS NOT PROVIDED AS PART OF THE TENDER DOCUMENTS, THE CONTRACTOR SHALL INCLUDE IN THEIR PRICE THE STRUCTURAL DESIGN AND CERTIFICATION OF THESE STRUCTURES.

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)

0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

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WATER AND ENVIRONMENTAL CONSULTING

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& ASSOCIATES PTY. LTD.

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DRAWING TITLE

STORMWATER
PROFILES
SHEET 02

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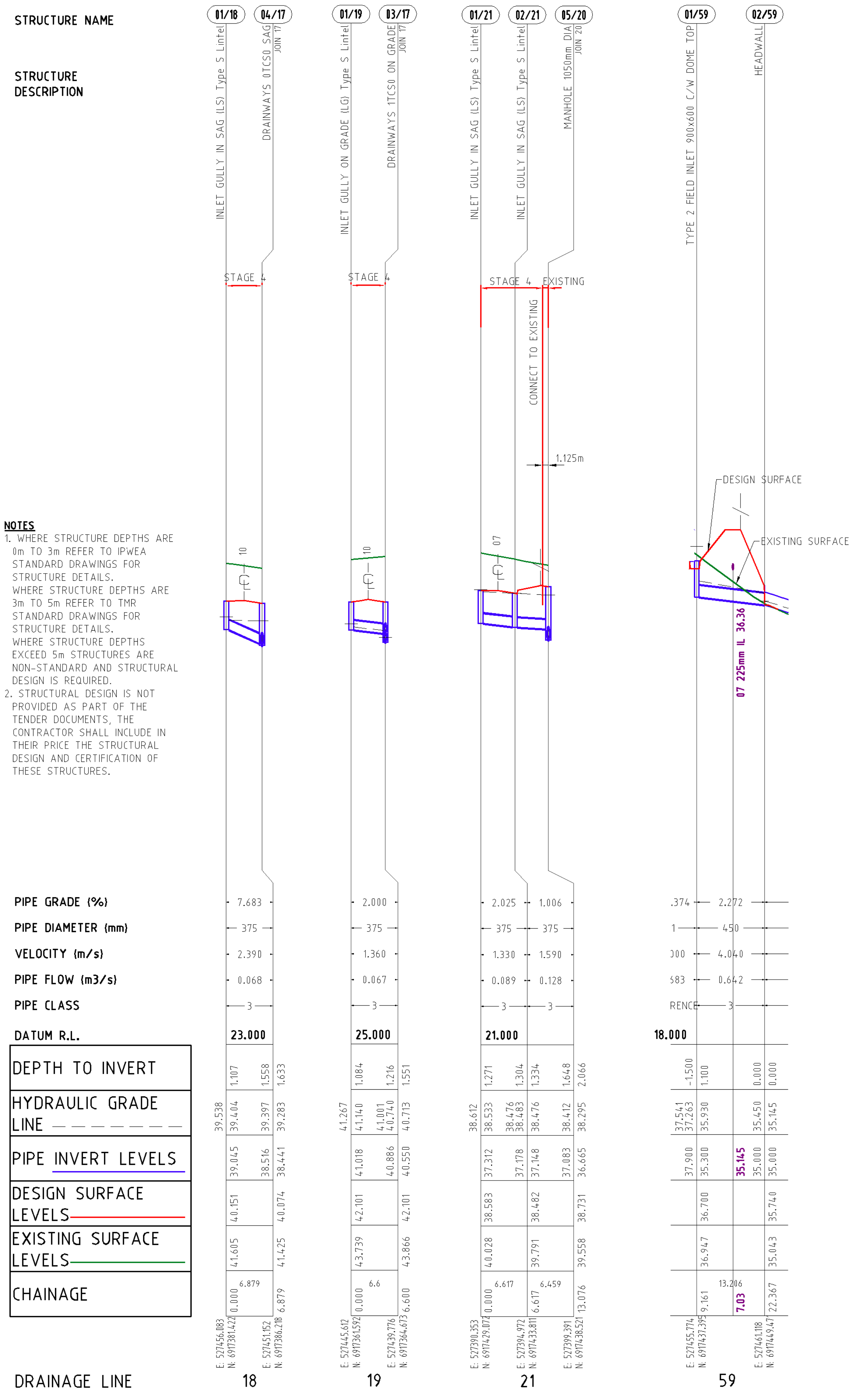
DRAWN BL
APPROVED M.K.
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-621
REV A



NOTES

1. WHERE STRUCTURE DEPTHS ARE 0m TO 3m REFER TO IPWEA STANDARD DRAWINGS FOR STRUCTURE DETAILS. WHERE STRUCTURE DEPTHS ARE 3m TO 5m REFER TO TMR STANDARD DRAWINGS FOR STRUCTURE DETAILS. WHERE STRUCTURE DEPTHS EXCEED 5m STRUCTURES ARE NON-STANDARD AND STRUCTURAL DESIGN IS REQUIRED.
2. STRUCTURAL DESIGN IS NOT PROVIDED AS PART OF THE TENDER DOCUMENTS, THE CONTRACTOR SHALL INCLUDE IN THEIR PRICE THE STRUCTURAL DESIGN AND CERTIFICATION OF THESE STRUCTURES.

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

0 5 10 15 20 25m
Horiz. Scale 1:500 - A1 (1:1000 - A3)

0 1 2 3 4 5m
Vert. Scale 1:100 - A1 (1:200 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

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WATER AND ENVIRONMENTAL CONSULTING

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& ASSOCIATES PTY. LTD.

BENNETT+BENNETT

DRAWING TITLE

STORMWATER
PROFILES
SHEET 03

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DESIGNED RB
DRAWN BL
APPROVED
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-622
REV A

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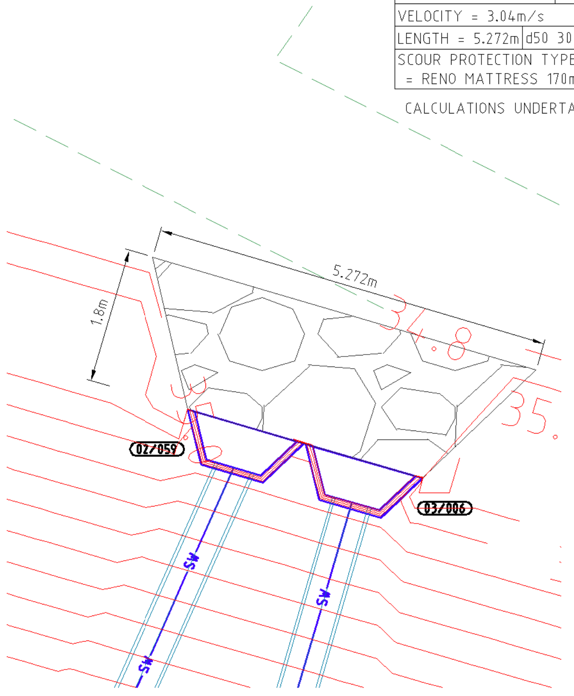
SCOUR PROTECTION DESIGN	
HW 02/059 & 03/006	SIZE 2x450mm
VELOCITY = 3.04m/s	
LENGTH = 5.272m	d50 300mm
SCOUR PROTECTION TYPE = RENO MATTRESS 170mm THICK	

CALCULATIONS UNDERTAKEN USING PROPRIETARY PRODUCT DATA

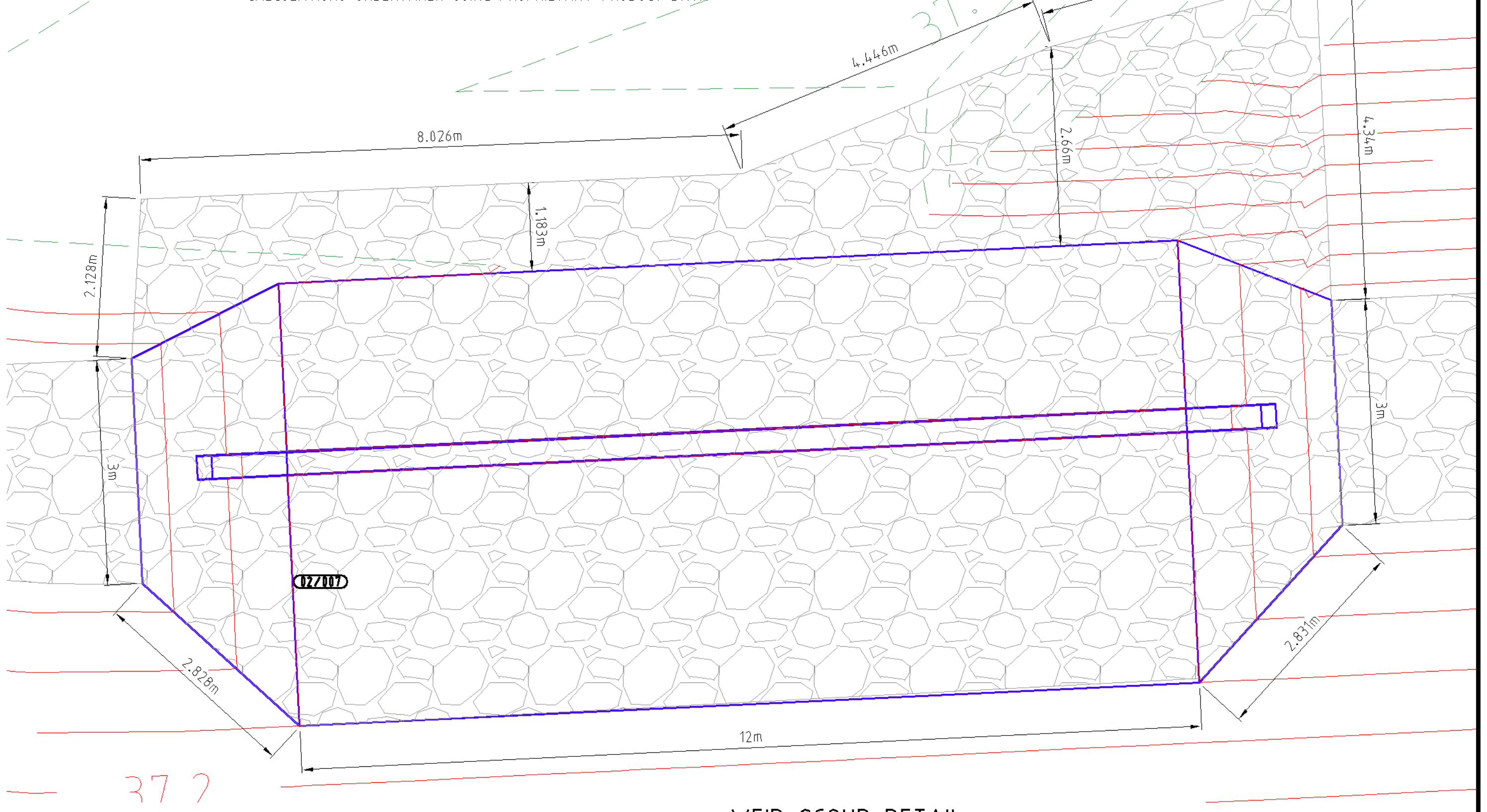


HEADWALL SCOUR DETAIL

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

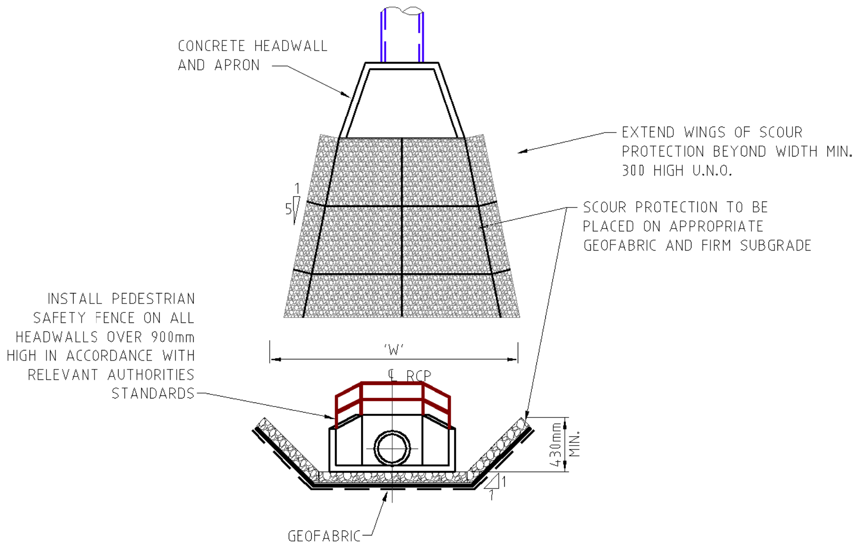
SCOUR PROTECTION DESIGN	
WEIR 02/007	SIZE VARIES-Refer dimensions below
LENGTH = 12m	d50 200mm
SCOUR PROTECTION TYPE = D50=200mm ROCK GROUTED	

CALCULATIONS UNDERTAKEN USING PROPRIETARY PRODUCT DATA



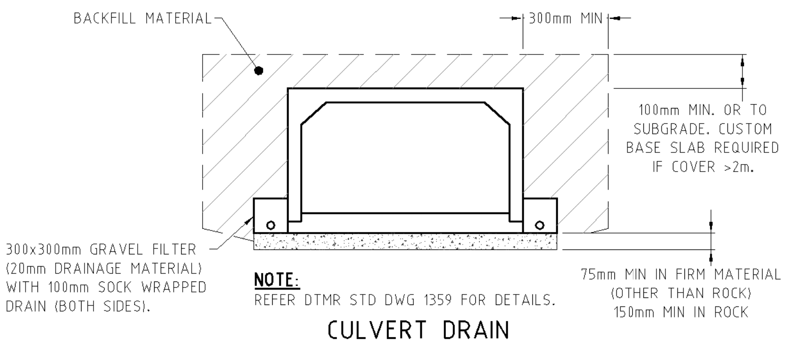
WEIR SCOUR DETAIL

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



TYPICAL OUTLET AND SCOUR PROTECTION DETAIL

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



NOTE:
REFER DTMR STD DWG 1359 FOR DETAILS.

CULVERT DRAIN

SCALE NTS

PROJECT NAME

COURTNEY DR
UPPER COOMERA

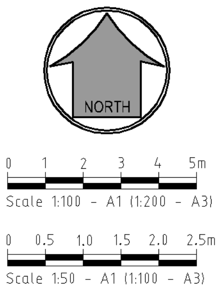
STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land



A	27-04-24	COUNCIL ISSUE	BL
REV	DATE	DESCRIPTION	INT

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT+BENNETT

DRAWING TITLE

STORMWATER
OUTLETS AND
TYPICAL DETAILS
SHEET 01

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DESIGNED RB
DRAWN BL
APPROVED
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-640
REV A

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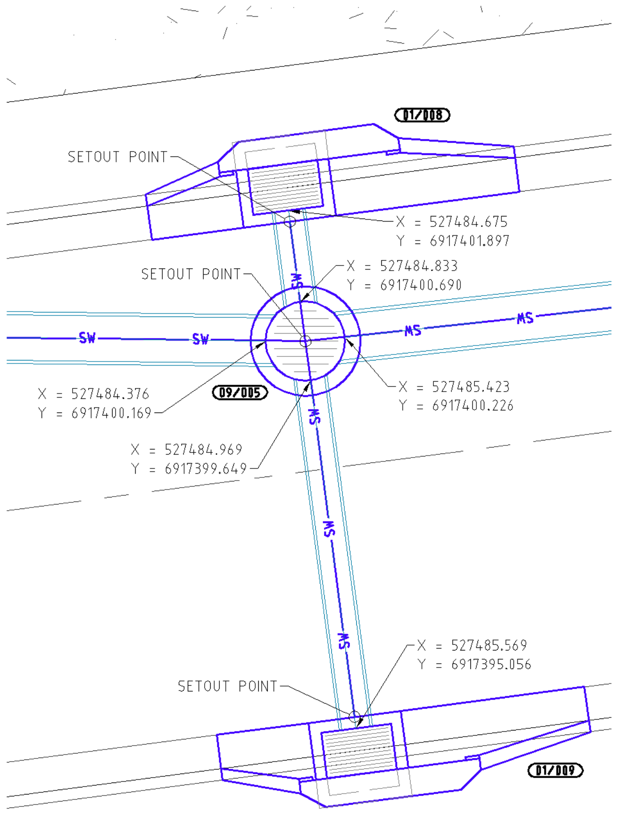
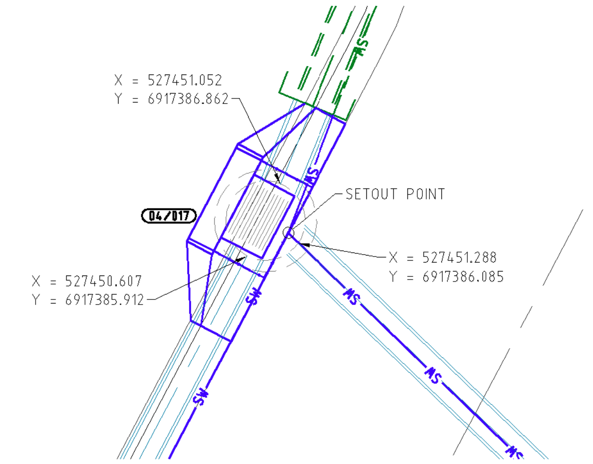
LEGEND

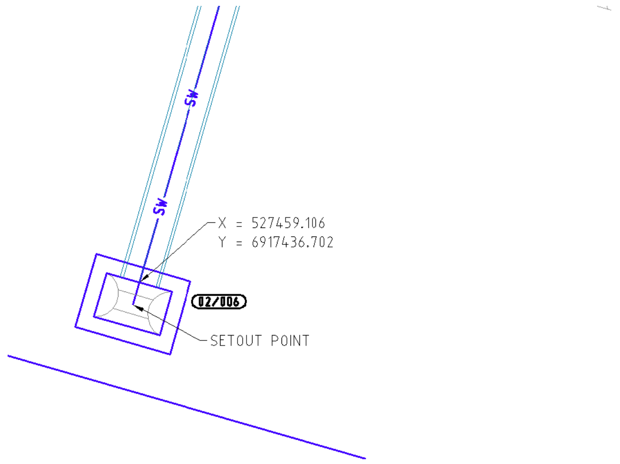
—	EXISTING KERB (INVERT)
—	EXISTING KERB (LIP & BACK)
—	EXISTING FOOTPATH
—	EXISTING PROPERTY LINE
—SW— — —SW— —	EXISTING STORMWATER
—RW— — —RW— —	EXISTING ROOFWATER
═ ═ ═	EXISTING STORMWATER PIPES
═ ═ ═	EXISTING ROOFWATER PIPES
— — —	FUTURE KERB (INVERT)
— — —	FUTURE KERB (LIP & BACK)
— — —	FUTURE FOOTPATH
— — —	FUTURE PROPERTY LINE
—SW—	FUTURE STORMWATER
—RW—	FUTURE ROOFWATER
═ ═ ═	FUTURE STORMWATER PIPES
═ ═ ═	FUTURE ROOFWATER PIPES
— —	CONTROL LINE / CENTER OF ROAD
—	PROPOSED KERB (INVERT)
—	PROPOSED KERB (LIP & BACK)
—	PROPOSED FOOTPATH
—	PROPOSED PROPERTY LINE
—SW—	PROPOSED STORMWATER
—RW—	PROPOSED ROOFWATER
═	PROPOSED STORMWATER PIPES
═	PROPOSED ROOFWATER PIPES
●	MANHOLE
■	FIELD INLET
▬	KERB INLET (ON GRADE) PIT
▬	KERB INLET (SAG) PIT
▽	HEADWALL
▨	SCOUR PROTECTION
10/001	DRAINAGE PIT & LINE NO.
▨	CONCRETE

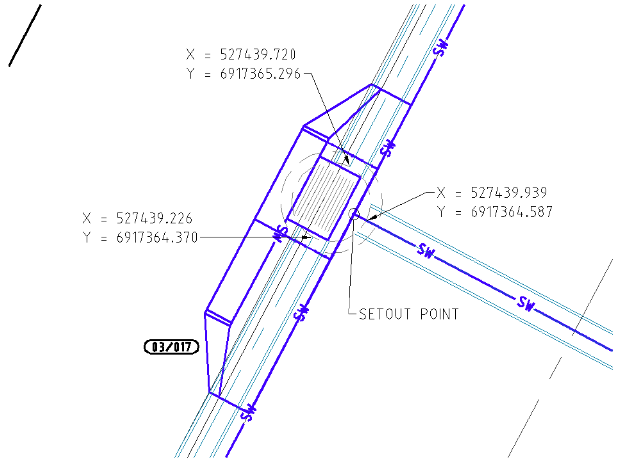
NOTE

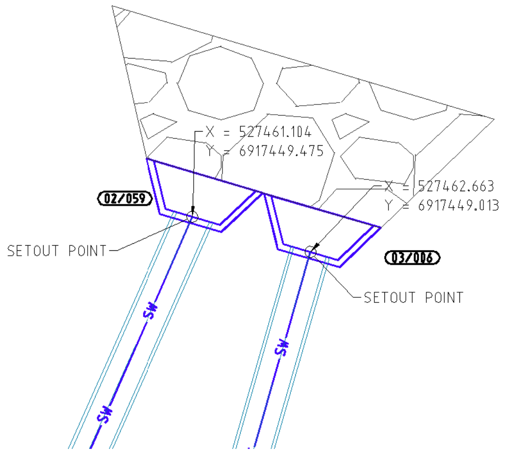
THE STORMWATER PIT IMAGE ARE DIAGRAMATIC ONLY & THE CONTRACTOR MUST ENSURE THEY MATCH NEATLY INTO THE WORKS

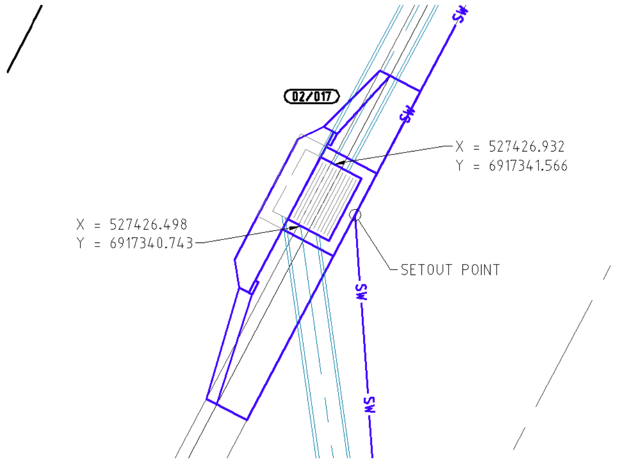


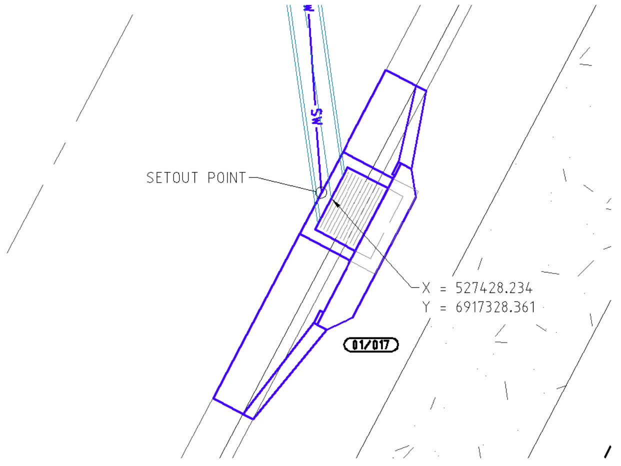


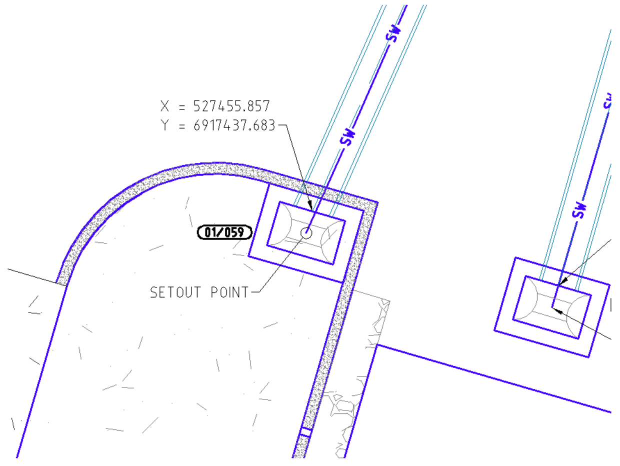


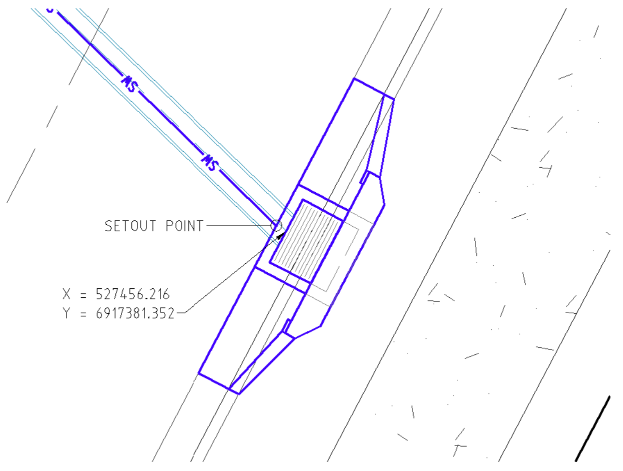


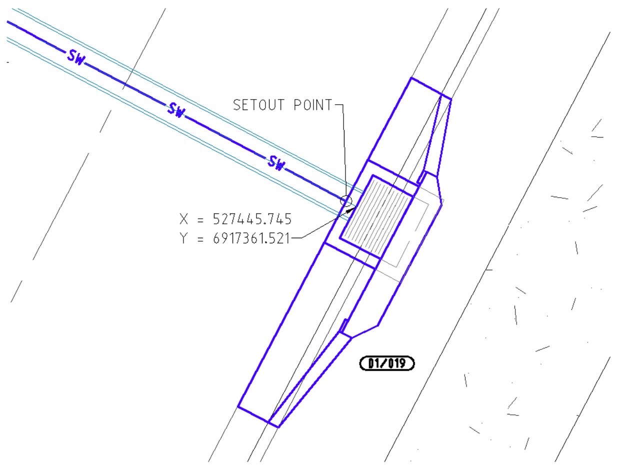


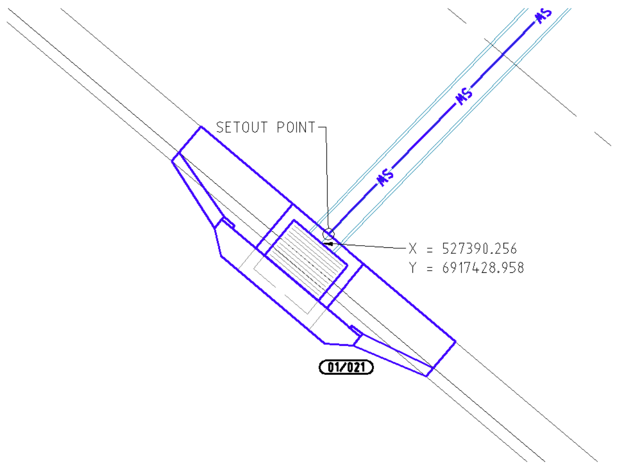


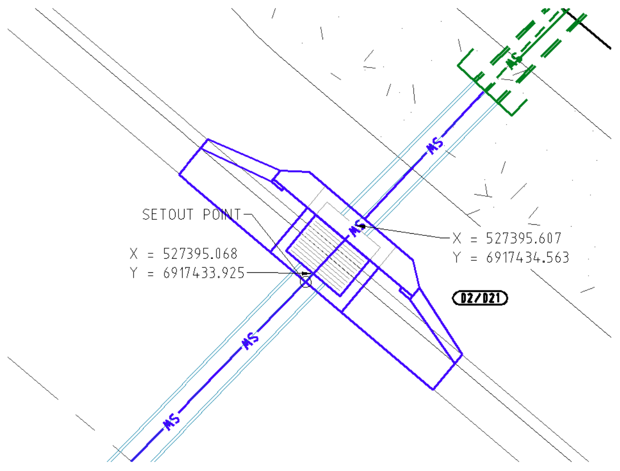












PROJECT NAME

COURTNEY DR UPPER COOMERA

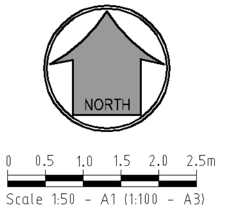
STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land



REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

STORMWATER
PIT DETAILS
SHEET 01

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DESIGNED RB		DRAWN BL	
APPROVED		RPEQ 4706	DATE 27-04-24

DRAWING NUMBER 41901-04-650
REV A

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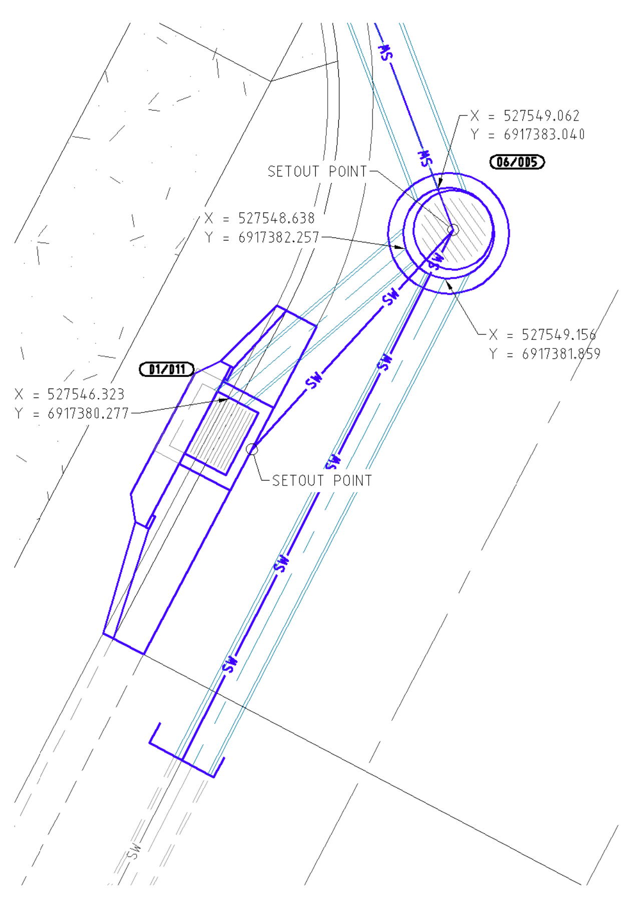
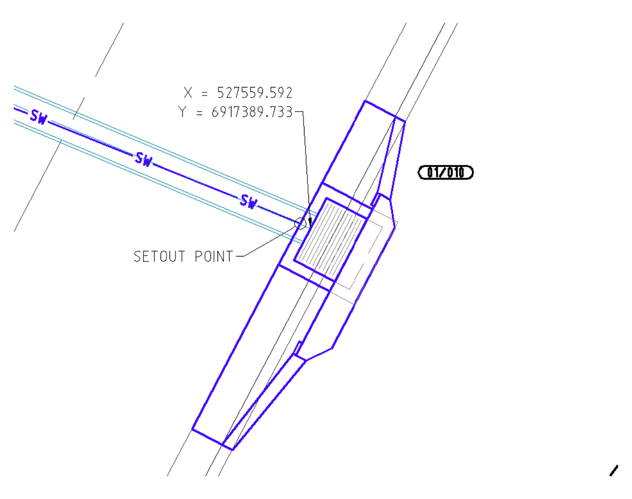
LEGEND

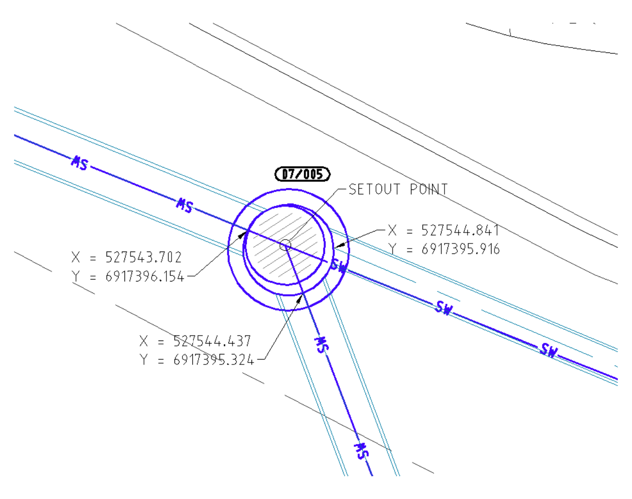
- EXISTING KERB (INVERT)
- EXISTING KERB (LIP & BACK)
- EXISTING FOOTPATH
- EXISTING PROPERTY LINE
- SW — — SW — — EXISTING STORMWATER
- RW — — RW — — EXISTING ROOFWATER
- EXISTING STORMWATER PIPES
- EXISTING ROOFWATER PIPES
- FUTURE KERB (INVERT)
- FUTURE KERB (LIP & BACK)
- FUTURE FOOTPATH
- FUTURE PROPERTY LINE
- SW FUTURE STORMWATER
- RW FUTURE ROOFWATER
- FUTURE STORMWATER PIPES
- FUTURE ROOFWATER PIPES
- CONTROL LINE / CENTER OF ROAD
- PROPOSED KERB (INVERT)
- PROPOSED KERB (LIP & BACK)
- PROPOSED FOOTPATH
- PROPOSED PROPERTY LINE
- SW PROPOSED STORMWATER
- RW PROPOSED ROOFWATER
- PROPOSED STORMWATER PIPES
- PROPOSED ROOFWATER PIPES
- ● MANHOLE
- ■ FIELD INLET
- KERB INLET (ON GRADE) PIT
- KERB INLET (SAG) PIT
- HEADWALL
- SCOUR PROTECTION
- 10/001 DRAINAGE PIT & LINE NO.
- CONCRETE

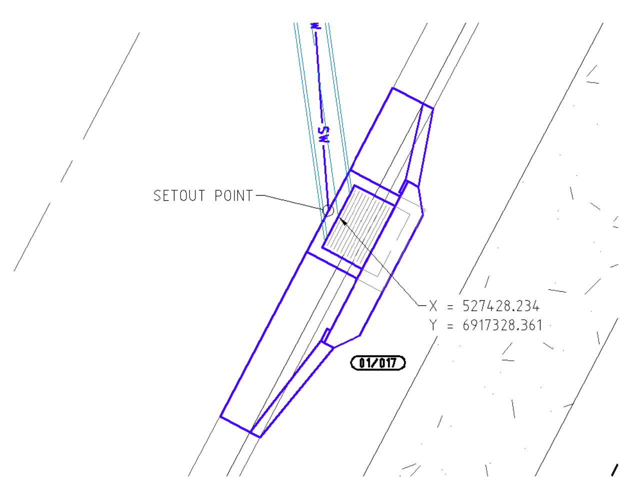
NOTE

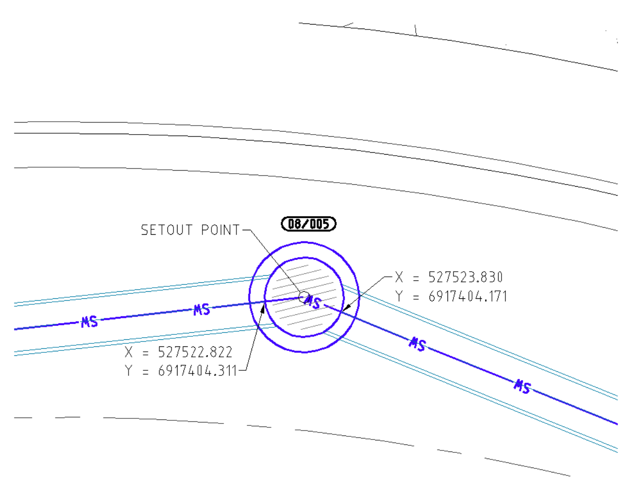
THE STORMWATER PIT IMAGE ARE DIAGRAMATIC ONLY & THE CONTRACTOR MUST ENSURE THEY MATCH NEATLY INTO THE WORKS

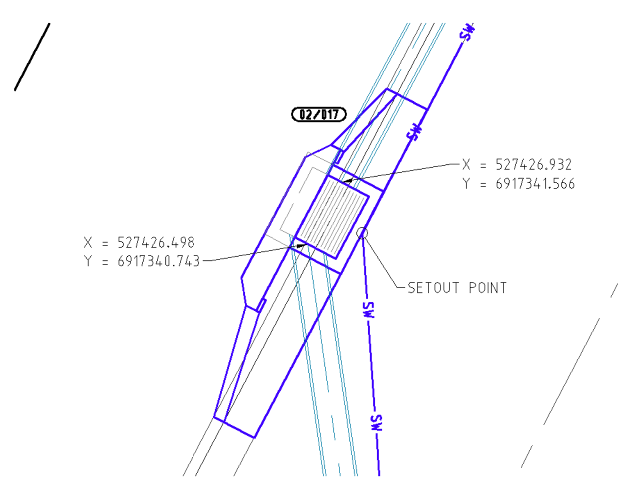












PROJECT NAME

COURTNEY DR UPPER COOMERA

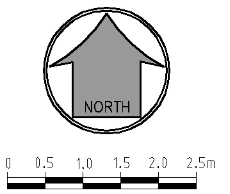
STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land



Scale 1:50 - A1 (1:100 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

STORMWATER PIT DETAILS SHEET 02

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Urban & Regional Planning
Civil Engineering
Project Coordination

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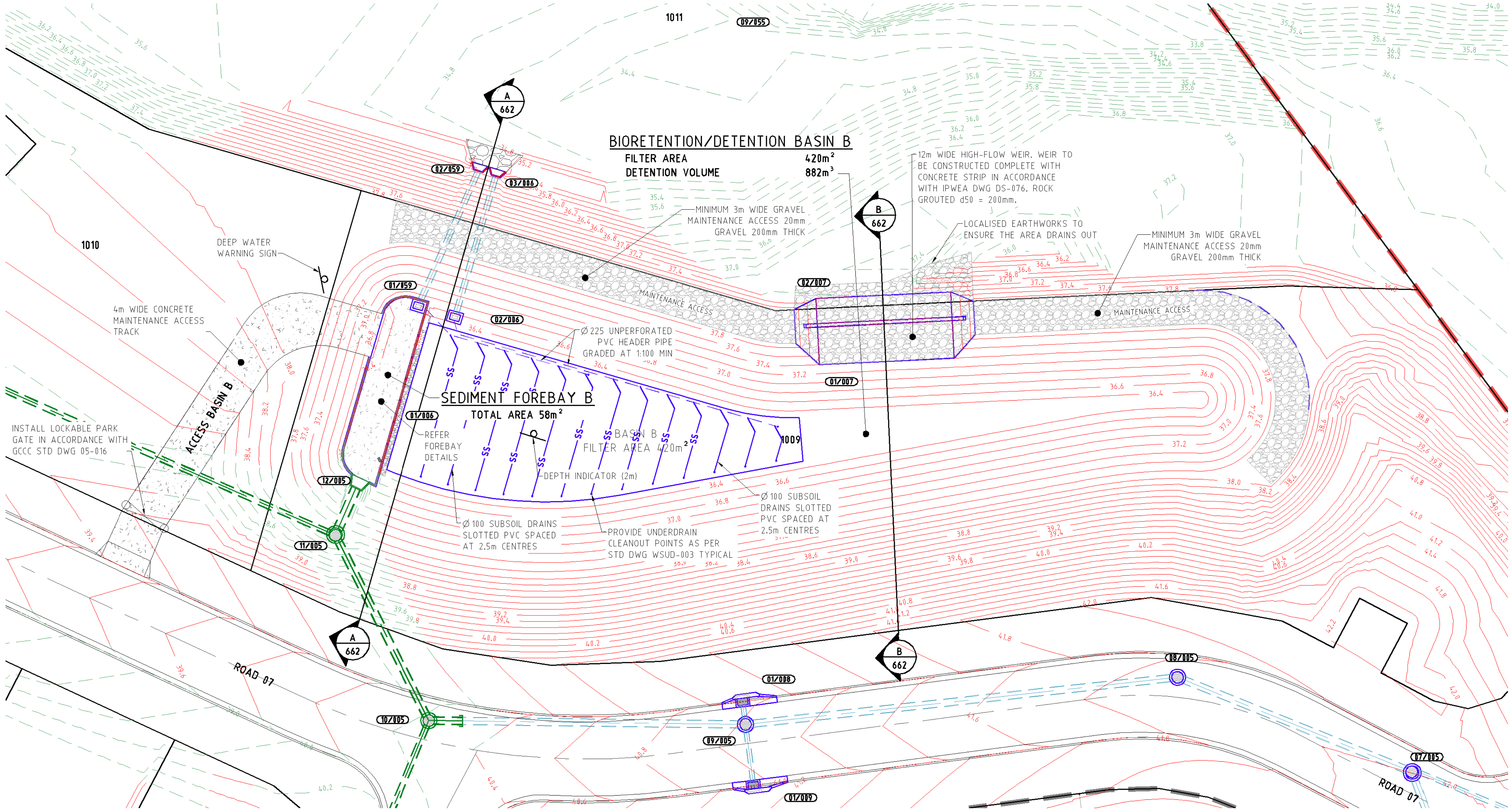
DESIGNED RB
DRAWN BL
APPROVED M.K. morto
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-651
REV A


1011
09/055
1010
DEEP WATER WARNING SIGN
4m WIDE CONCRETE MAINTENANCE ACCESS TRACK
INSTALL LOCKABLE PARK GATE IN ACCORDANCE WITH GCCC STD DWG 05-016
ACCESS BASIN B
A 662
02/059
03/006
01/059
02/006
01/006
12/005
11/005
BIORETENTION/DETENTION BASIN B
FILTER AREA 420m²
DETENTION VOLUME 882m³
MINIMUM 3m WIDE GRAVEL MAINTENANCE ACCESS 20mm GRAVEL 200mm THICK
MAINTENANCE ACCESS
B 662
12m WIDE HIGH-FLOW WEIR. WEIR TO BE CONSTRUCTED COMPLETE WITH CONCRETE STRIP IN ACCORDANCE WITH IPWEA DWG DS-076. ROCK GROUTED d50 = 200mm.
LOCALISED EARTHWORKS TO ENSURE THE AREA DRAINS OUT
MINIMUM 3m WIDE GRAVEL MAINTENANCE ACCESS 20mm GRAVEL 200mm THICK
02/007
01/007
Ø 225 UNPERFORATED PVC HEADER PIPE GRADED AT 1:100 MIN
SEDIMENT FOREBAY B
TOTAL AREA 58m²
REFER FOREBAY DETAILS
SS
BASIN B FILTER AREA 420m²
1009
DEPTH INDICATOR (2m)
Ø 100 SUBSOIL DRAINS SLOTTED PVC SPACED AT 2.5m CENTRES
PROVIDE UNDERDRAIN CLEANOUT POINTS AS PER STD DWG WSUD-003 TYPICAL
Ø 100 SUBSOIL DRAINS SLOTTED PVC SPACED AT 2.5m CENTRES
ROAD 07
10/005
01/008
09/005
01/009
08/005
07/005
ROAD 07

BASIN PLAN

SCALE 1:200 - A1 (1:400 - A3)

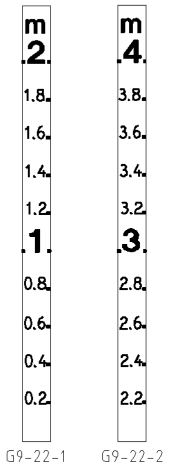
BASIN CONSTRUCTION

1. PRIOR TO COMMENCING CONSTRUCTION OF THE DETENTION BASIN THE DIVERSION OF SURFACE WATER FROM THE PROPOSED WORKS AREA, USING MEASURES SUCH AS OPEN DRAINS/SUMPS, ARE REQUIRED TO AID IN SITE DEWATERING.
2. FOR THE ENTIRE EMBANKMENT AREA STRIPPING OF VEGETATION & ANY HIGHLY ORGANIC TOP SOILS & ANY SOFT CLAYS TO DEPTHS OF APPROXIMATELY 0.3m IS REQUIRED.
3. THE STRIPPED SURFACE IS TO BE INSPECTED & TESTED BY A GEOTECHNICAL ENGINEER.
4. SUBJECT TO GEOTECHNICAL ENGINEER'S INSPECTION EXCAVATION OF A CUTOFF KEY ALONG THE EMBANKMENT CENTERLINE AT LEAST 0.5m - 1.0m INTO THE FOUNDATION MATERIALS SHALL BE REQUIRED.
5. THE CLAY FILLING FOR THE BASIN WALLS SHALL BE PLACED IN HORIZONTAL LAYERS OF 200mm THICKNESS & COMPACTED TO A DENSITY RATIO WITHIN THE RANGE 98% - 102% STANDARD COMPACTION (AS 1289.5.1.1). PLACEMENT MOISTURE CONTENTS SHOULD BE WITHIN THE RANGE OMC -1% TO OMC +2% (WHERE OMC = OPTIMUM MOISTURE CONTENT FOR STANDARD COMPACTION).
6. IF THE CIVIL CONTRACTOR IS CONSTRUCTING THE BIO BASIN FILTER MEDIA AFTER THE CONSTRUCTION OF THE BASIN INLET & OUTLET STRUCTURES, THE CIVIL CONTRACTOR IS TO CONFIRM THE LEVELS OF THE INLET & OUTLET STRUCTURES PRIOR TO COMMENCING BASIN CONSTRUCTION.

WALL DETAILS CONTAINED WITH THIS SET ARE INDICATIVE ONLY.
ALL RETAINING WALLS AND FOOTINGS ARE SUBJECT TO DETAILED DESIGN AND CERTIFICATION BY AN APPROPRIATELY QUALIFIED R.P.E.Q CERTIFIED ENGINEER.

LEGEND

—	EXISTING PROPERTY LINE
— 1.0 —	EXISTING CONTOURS
— SW —	EXISTING STORMWATER
— —	FUTURE PROPERTY LINE
— SW —	FUTURE STORMWATER
— —	SITE BOUNDARY
— —	STAGE BOUNDARY
—	PROPERTY LINE
—	PROPOSED KERB
— 1.0 —	DESIGN CONTOURS
— SW —	PROPOSED STORMWATER
●	MANHOLE
▪	FIELD INLET
	KERB INLET (ON GRADE) PIT
	KERB INLET (SAG) PIT
	HEADWALL
▨	SCOUR PROTECTION
10/001	STORMWATER PIT & LINE NO.



FLOOD DEPTH INDICATORS

NOT TO SCALE

WARNING SIGN

NOT TO SCALE

BIO FILTRATION BASIN NOTES

- BIO FILTRATION BASIN TO BE EXCAVATED TO LEVEL BELOW FILTRATION MEDIA
- UNSUITABLE MATERIAL TO BE REMOVED OFF SITE AND BASIN TRIMMED TO FINAL PROFILE PRIOR TO PLACEMENT OF FILTER MEDIA AT 80% COMPLETION OF HOUSING

PROJECT NAME

COURTNEY DR UPPER COOMERA

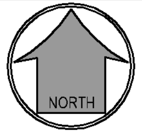
STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land



0 0.5 1.0 1.5 2.0 2.5m
Scale 1:50 - A1 (1:100 - A3)
0 2 4 6 8 10m
Scale 1:200 - A1 (1:400 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

BENNETT+BENNETT

DRAWING TITLE

STORMWATER
BASIN
PLAN AND DETAILS
SHEET 01

MORTONS urbansolutions
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Suite 9, 19 Short St
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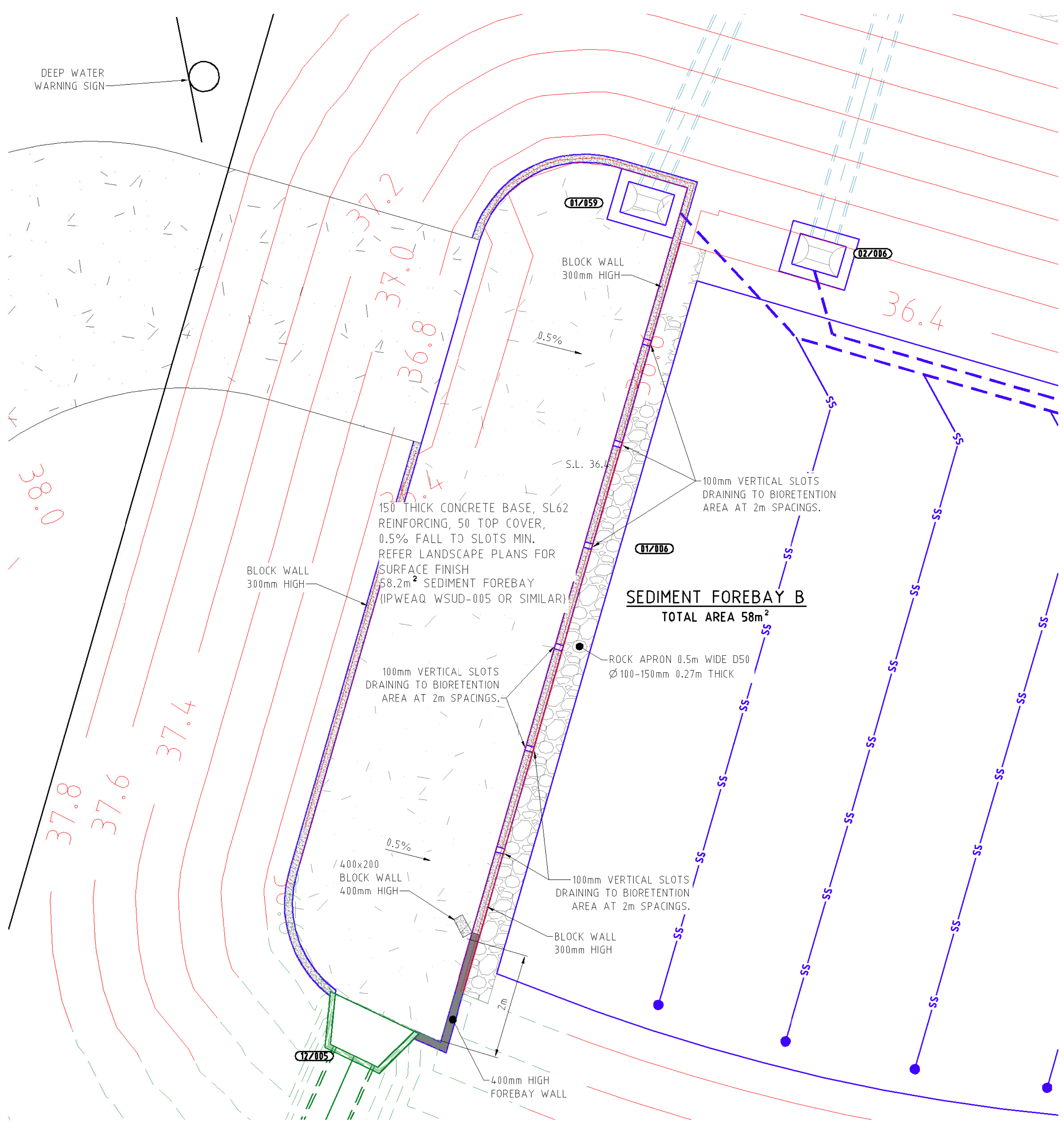
DESIGNED RB		DRAWN BL	
APPROVED W.K. Morton	RPEQ **4706**	DATE **27-04-24**	

DRAWING NUMBER
41901-04-660

REV
A

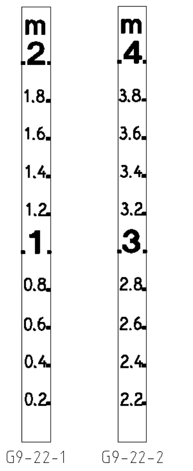


FOREBAY B DETAIL

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

LEGEND

——	EXISTING PROPERTY LINE
— 1.0 —	EXISTING CONTOURS
═SW═	EXISTING STORMWATER
— — —	FUTURE PROPERTY LINE
═SW═	FUTURE STORMWATER
🟥 🟥 🟥	SITE BOUNDARY
▬ ▬ ▬	STAGE BOUNDARY
——	PROPERTY LINE
——	PROPOSED KERB
— 1.0 —	DESIGN CONTOURS
═SW═	PROPOSED STORMWATER
●	MANHOLE
▣	FIELD INLET
⏢	KERB INLET (ON GRADE) PIT
⏢	KERB INLET (SAG) PIT
▽	HEADWALL
▨	SCOUR PROTECTION
10/001	STORMWATER PIT & LINE NO.



FLOOD DEPTH INDICATORS

NOT TO SCALE

WARNING SIGN

NOT TO SCALE

PROJECT NAME

COURTNEY DR UPPER COOMERA

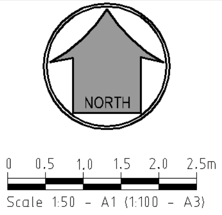
STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land



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A	27-04-24	COUNCIL ISSUE	BL

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WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

STORMWATER BASIN FOREBAY DETAILS SHEET 01

MORTONS
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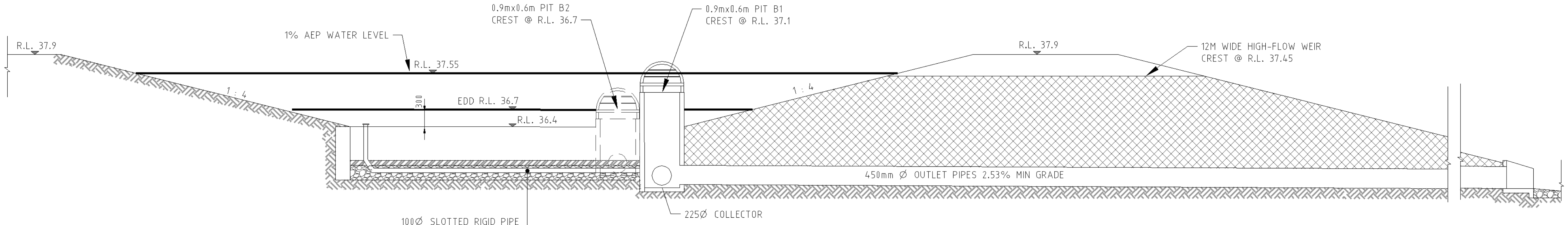
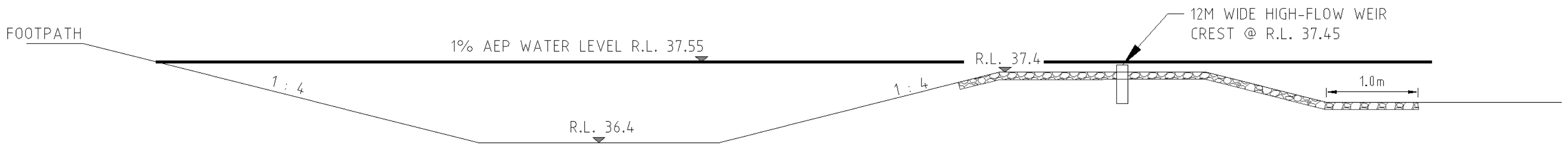
DESIGNED RB		DRAWN BL	
APPROVED M.K. Morton	RPEQ 4706	DATE 27-04-24	

DRAWING NUMBER	REV
41901-04-661	A



A-A CROSS SECTION

N.T.S.



B-B CROSS SECTION

N.T.S.

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

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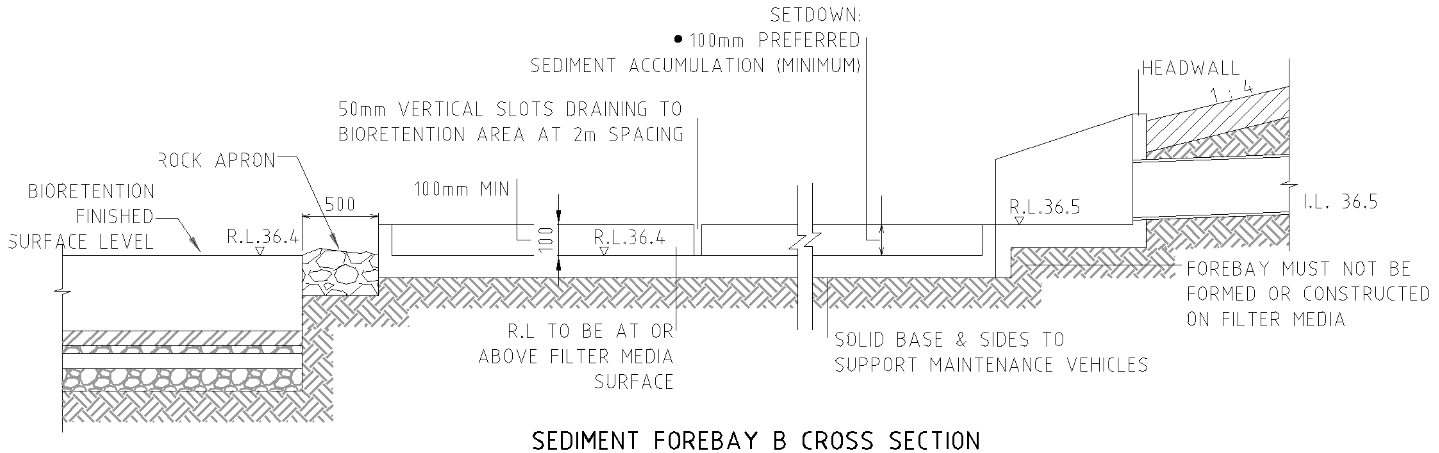
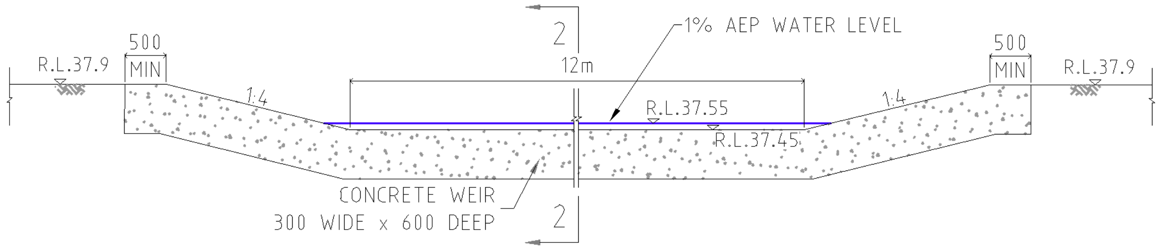


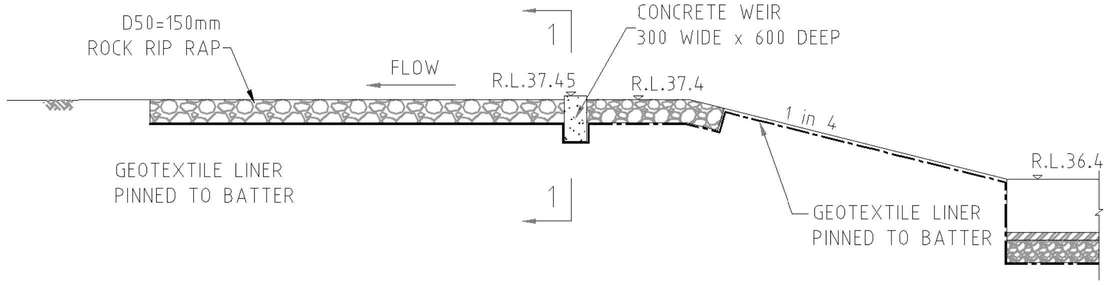
SEDIMENT FOREBAY B CROSS SECTION

N.T.S.



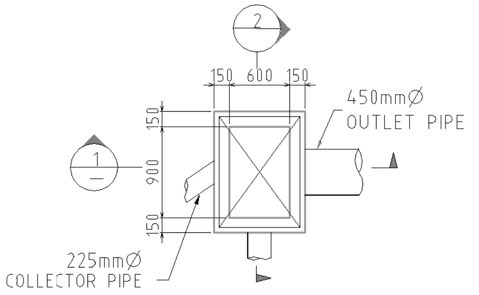
WEIR DETAIL SECTION 1-1

N.T.S.



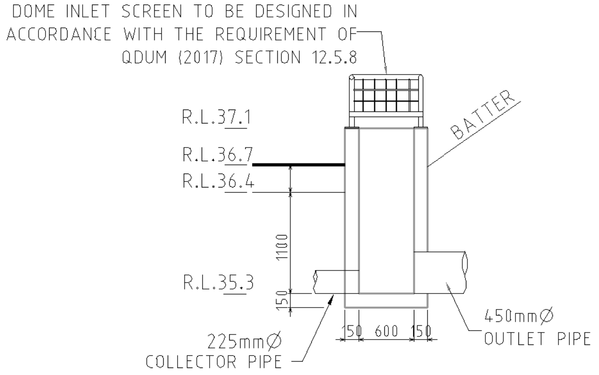
WEIR DETAIL SECTION 2-2

N.T.S.



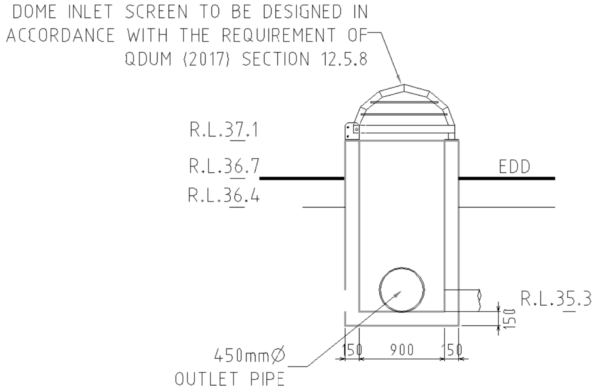
OVERFLOW STRUCTURE PLAN - 2/06

N.T.S.


DOME INLET SCREEN TO BE DESIGNED IN
ACCORDANCE WITH THE REQUIREMENT OF
QDUM (2017) SECTION 12.5.8
BATTER
R.L.37.1
R.L.36.7
R.L.36.4
1100
R.L.35.3
150
150 600 150
450mmØ
OUTLET PIPE
225mmØ
COLLECTOR PIPE

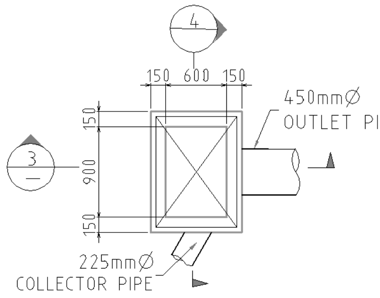
SECTION 1-1

N.T.S.


DOME INLET SCREEN TO BE DESIGNED IN
ACCORDANCE WITH THE REQUIREMENT OF
QDUM (2017) SECTION 12.5.8
R.L.37.1
R.L.36.7
EDD
R.L.36.4
R.L.35.3
150
450mmØ
OUTLET PIPE
150 900 150

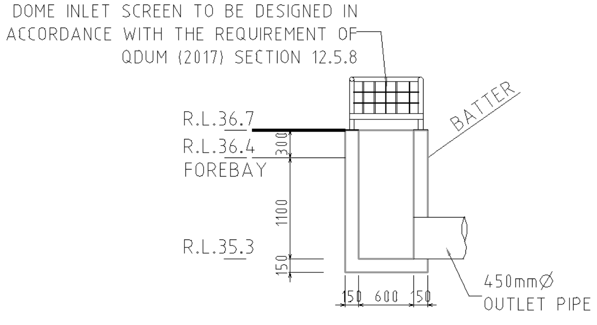
SECTION 2-2

N.T.S.



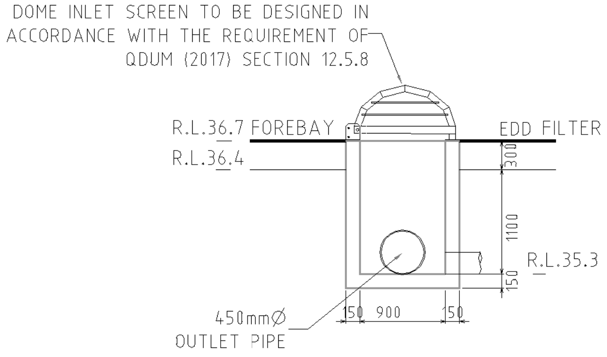
OVERFLOW STRUCTURE PLAN - PIT 1/59

N.T.S.


DOME INLET SCREEN TO BE DESIGNED IN
ACCORDANCE WITH THE REQUIREMENT OF
QDUM (2017) SECTION 12.5.8
BATTER
R.L.36.7
R.L.36.4
FOREBAY
300
1100
R.L.35.3
150
150 600 150
450mmØ
OUTLET PIPE

SECTION 3-3

N.T.S.


DOME INLET SCREEN TO BE DESIGNED IN
ACCORDANCE WITH THE REQUIREMENT OF
QDUM (2017) SECTION 12.5.8
R.L.36.7 FOREBAY
EDD FILTER
R.L.36.4
300
1100
R.L.35.3
150
450mmØ
OUTLET PIPE
150 900 150

SECTION 4-4

N.T.S.

OUTLET DETAILS

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

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DRAWING TITLE

STORMWATER
BASIN
SECTIONS
SHEET 01

MORTONS urbansolutions
Urban & Regional Planning
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APPROVED
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER
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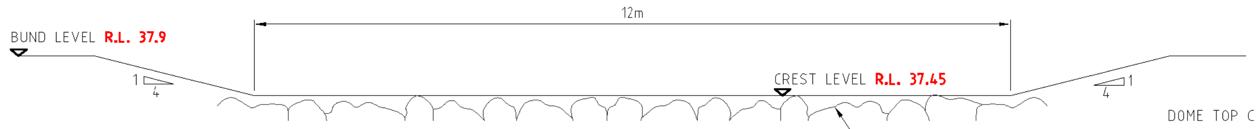
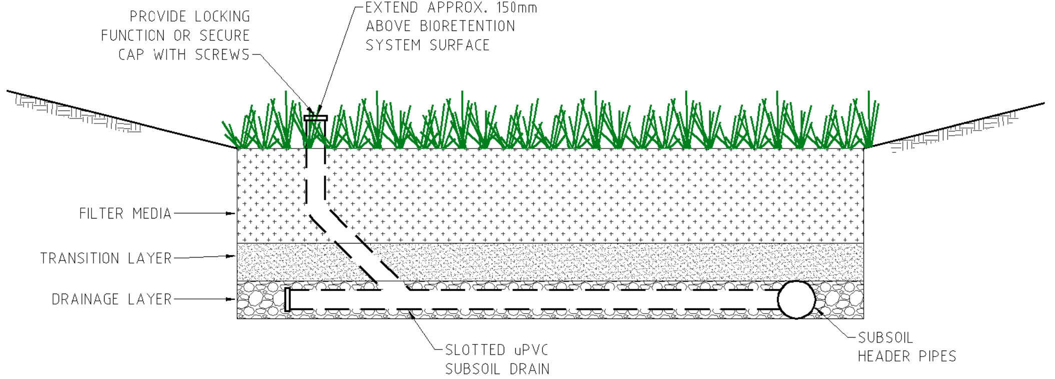
NOTES:
1. STRUCTURAL STABILITY AND PERMEABILITY OF WATER RETENTION BUNDS TO BE DESIGNED BY GEOTECHNICAL ENGINEER.
2. CONSTRUCTION TIMING OF BIO-RETENTION MEDIA DETAILED IN CONTRACT. PLANTING OF MEDIA TO OCCUR AFTER 80% DWELLING COMPLETION.



RENO MATTRESS
THICKNESS = 230mm
ROCK SIZE = 100-150mm

OUTLET WEIR DETAIL

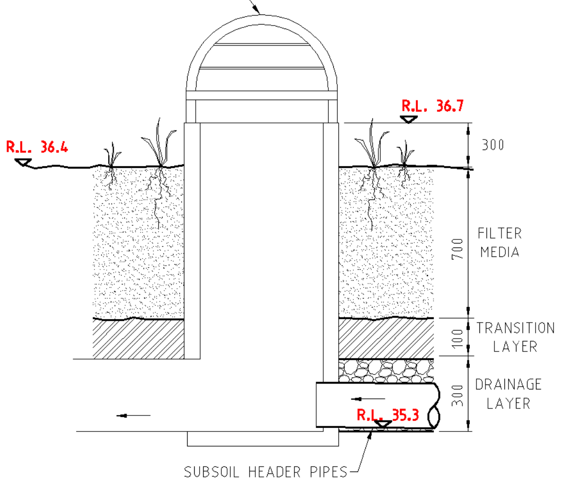
NOT TO SCALE


PROVIDE LOCKING FUNCTION OR SECURE CAP WITH SCREWS
EXTEND APPROX. 150mm ABOVE BIORETENTION SYSTEM SURFACE
FILTER MEDIA
TRANSITION LAYER
DRAINAGE LAYER
SLOTTED uPVC SUBSOIL DRAIN
SUBSOIL HEADER PIPES

BIORETENTION FILTER TYPICAL SECTION

N.T.S.

DOME TOP COVER

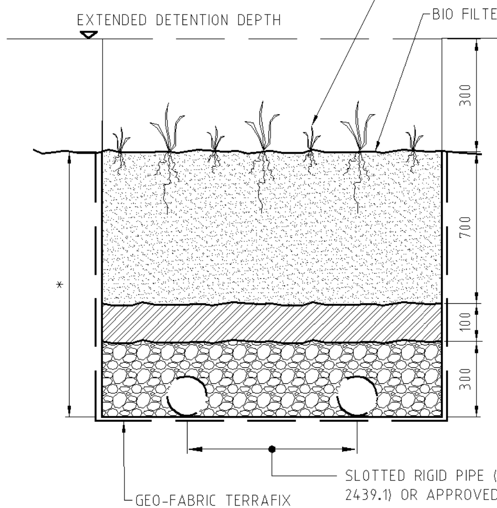


HEADER PIPE CONNECTION DETAIL

N.T.S.

PROVIDE VEGETATION IN ACCORDANCE WITH THE APPROVED LANDSCAPE STATEMENT OF INTENT

BIO FILTER MEDIA SURFACE TO BE FLAT



FILTER MEDIA
SANDY LOAM WITH 400-500mm/hr SATURATED HYDRAULIC CONDUCTIVITY. IN-SITU HYDRAULIC CONDUCTIVITY TO REACH 180mm/hr ONCE SETTLEMENT AND COMPACTION HAS TAKEN PLACE.
ORGANIC CONTENT 5% (w/w) MAX.
PARTICLE SIZE <3% PASSING 0.05mm (w/w)
>97% PASSING 2mm (w/w)
pH. BETWEEN 5.5-7.5
PHOSPHORUS CONCENTRATION <100mg/kg

TRANSITION LAYER
1mm COARSE SAND
(DESIGNED IAW WSUD TDG SECTION 5.3.4.3)

DRAINAGE LAYER
2-5mm SCREENINGS COARSE SAND/GRAVEL
(DESIGNED IAW WSUD TDG SECTION 5.3.4.2)

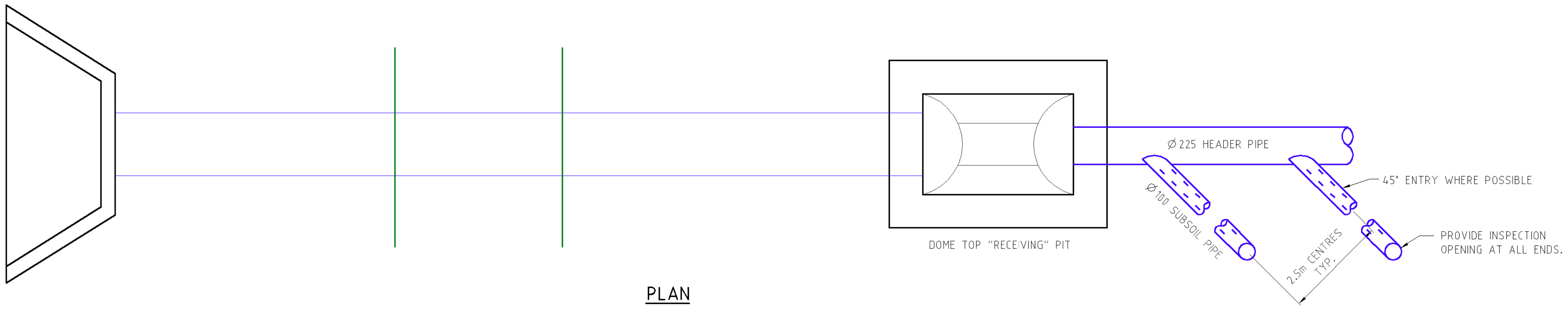
GEO-FABRIC TERRAFIX 360R GEOTEXTILE

SLOTTED RIGID PIPE (uPVC OR SIMILAR TO AS 2439.1) OR APPROVED EQUIVALENT, SPACED EQUALLY AT 2.5m CENTRES (REFER IPWEAQ STANDARD DRAWING WSUD-001)

BIO-RETENTION MEDIA CROSS SECTION

N.T.S.

* LAYER THICKNESSES AND MATERIAL SPECIFICATIONS ARE INDICATIVE ONLY, REFER TO APPROVED STORMWATER MANAGEMENT PLAN.



PLAN

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27Date24	COUNCIL ISSUE	Bk

ASSOCIATED CONSULTANTS

BIOME
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& ASSOCIATES PTY. LTD.

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SHEET 01

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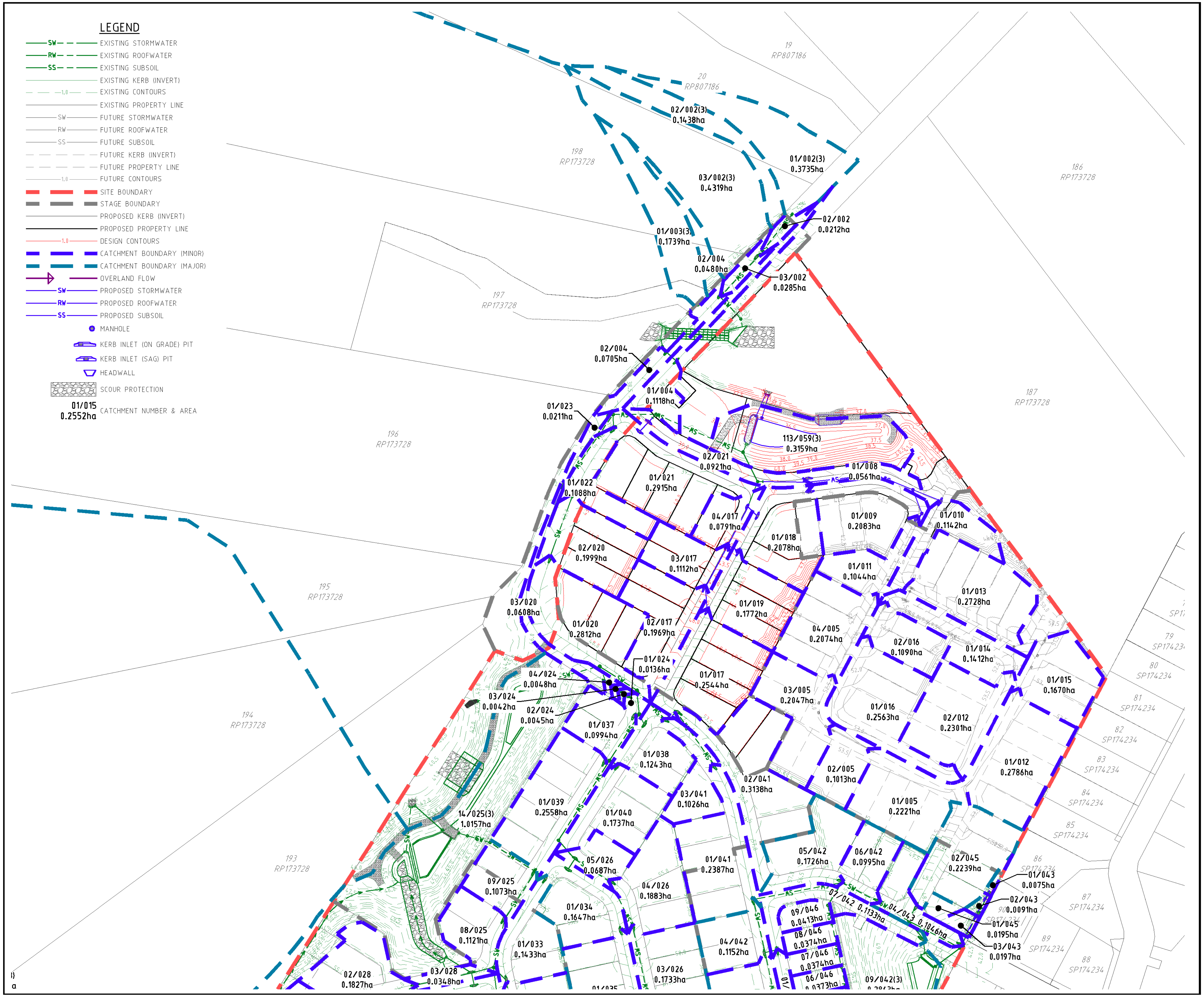
LEGEND

—SW—	EXISTING STORMWATER
—RW—	EXISTING ROOFWATER
—SS—	EXISTING SUBSOIL
——	EXISTING KERB (INVERT)
—1.0—	EXISTING CONTOURS
——	EXISTING PROPERTY LINE
—SW—	FUTURE STORMWATER
—RW—	FUTURE ROOFWATER
—SS—	FUTURE SUBSOIL
— —	FUTURE KERB (INVERT)
— —	FUTURE PROPERTY LINE
—1.0—	FUTURE CONTOURS
🟥 🟥 🟥	SITE BOUNDARY
▬ ▬ ▬	STAGE BOUNDARY
——	PROPOSED KERB (INVERT)
——	PROPOSED PROPERTY LINE
—1.0—	DESIGN CONTOURS
▬ ▬ ▬	CATCHMENT BOUNDARY (MINOR)
▬ ▬ ▬	CATCHMENT BOUNDARY (MAJOR)
—▷—	OVERLAND FLOW
—SW—	PROPOSED STORMWATER
—RW—	PROPOSED ROOFWATER
—SS—	PROPOSED SUBSOIL
●	MANHOLE
	KERB INLET (ON GRADE) PIT
	KERB INLET (SAG) PIT
▽	HEADWALL
▨	SCOUR PROTECTION
01/015 0.2552ha	CATCHMENT NUMBER & AREA



PROJECT NAME

COURTNEY DR UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY – GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 10 20 30 40 50m
Scale 1:1000 – A1 (1:2000 – A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

STORMWATER CATCHMENT PLAN SHEET 01

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APPROVED M.K. Morton	RPEQ 4706	DATE 27-04-24	

DRAWING NUMBER	REV
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CALCULATION TABLES-MINOR 2YR ARI

0.5 ARI (Q2) MINOR FLOW - 12D DYNAMIC DRAINAGE RESULTS

* REFER TO IFD TABLE FOR MAXIMUM INTENSITY DURING STORM

NOTE: NEGATIVE FLOW VALUES INDICATE REVERSE FLOWS			CATCHMENT AREA			RAINFALL VOLUME*		RAINFALL Coef.		CATCHMENT FLOW				APPROACH FLOW				FLOW AT PIT				PIT		HGL					PIPE	HEADLOSSES						
NODE		NODE TYPE	A1	A.2	A.3	CRITICAL	INTENSITY		CURRENT	A.1	A.2	A.3	CRITICAL	GRADE	FLOW			CAPTURED	BYPASS			GRADE	GRATE	PIT	PIPE		GRADE	FLOW	COEFFICIENT		HEADLOSS		CAPACITY	VELOCITY	NODE
FROM:	TO:		HA	HA	HA	STORM	MM/HR	10 YR	Storm	HA	HA	HA	ARI MIN.	%	L/S	WIDTH	DxV	L/S	L/S	DxV	NODE	%	RL.	RL	U/S RL.	D/S RL.	%	M3/S	Ku	Kw	Ku	Kw	RATIO	M/S	
01/5	02/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.222			90	61.3	0.877	0.830	0.073			60	1.0	73	1.07	0.00	72	0	0.00	02/5	1.000	53.037	52.15	52.09	51.77	1.30	0.07	9.7	0.0	0.1	0.0	0.28	1.42	01/5
02/5	03/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.101			90	61.3	0.877	0.830	0.033			60	1.0	33	1.07	0.00	33	0	0.00	03/5	1.000	52.886	51.77	51.76	51.33	1.49	0.11	1.9	0.0	0.0	0.0	0.38	2.08	02/5
03/5	04/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.205			90	61.3	0.877	0.830	0.067			60	1.0	67	0.00	0.00	67	0	0.00	04/5	1.000	52.252	51.26	51.26	47.23	7.82	0.17	2.0	0.0	0.0	0.0	0.27	4.6	03/5
04/5	05/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.207			90	61.3	0.877	0.830	0.068			60	1.0	68	0.00	0.00	68	0	0.00	01/11	1.000	48.247	47.23	47.20	46.08	10.21	0.36	1.3	0.0	0.0	0.0	0.3	5.4	04/5
05/5	06/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	47.204	45.83	45.81	42.11	8.82	0.70	1.0	0.0	0.0	0.0	0.64	6.53	05/5
06/5	07/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	42.982	42.05	41.93	41.34	4.08	0.73	2.0	0.0	0.1	0.0	0.46	2.79	06/5
07/5	08/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	41.996	41.34	41.17	40.93	1.08	0.79	0.7	0.0	0.2	0.0	1.02	2.85	07/5
08/5	09/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.853	40.76	40.75	39.94	2.08	0.78	0.4	0.0	0.0	0.0	0.69	4.06	08/5
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	39.90	39.83	39.17	2.35	0.85	0.3	0.0	0.1	0.0	0.45	4.96	09/5
10/5	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	40.227	39.17	39.11	37.87	6.69	1.18	1.1	0.0	0.4	0.0	0.54	4.53	10/5
11/5	12/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	37.900	37.87	37.25	37.26	-0.19	1.49	1.2	0.0	0.6	0.0	1.43	3.4	11/5
12/5	01/6	HEADWALL											25	1.0	0			0				1.000	37.645	37.26	37.26	37.26	0.00	1.49	0.0	0.0	0.0	0.0			12/5
01/6	02/6	BASIN NODE FOR CALCULATIONS											60	1.0	66			66				1.000	37.900	37.26											01/6
01/6	02/6	BASIN NODE FOR CALCULATIONS											60	1.0	66			66				1.000	37.900	37.26	37.26	37.26	0.00	0.33	0.0	0.0	0.0	0.0			01/6
02/6	03/6	MANHOLE C/W ROOF SLAB AND 900x600 DOME TOP											60	1.0	329	0.00	0.00	329	0	0.00	08/55	1.000	37.100	36.01	35.50	35.24	2.16	0.33	8.2	0.0	0.5	0.0	0.56	2.52	02/6
03/6	08/55	HEADWALL											25	1.0	0			0				1.000	35.740	35.10	35.10	33.29	5.74	0.33	0.0	0.0	0.0	0.0	0.05	0.63	03/6
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.29											08/55
01/6	02/6	BASIN NODE FOR CALCULATIONS											60	1.0	66			66				1.000	37.900	37.26	37.45	37.45	0.00	0.00	0.0	0.0	0.0	0.0			01/6
01/7	02/7	WEIR FOR CALCULATIONS											25	1.0	0			0				1.000	37.900	37.45	37.45	37.45	0.00	0.00	0.0	0.0	0.0	0.0	0	0	01/7
02/7	08/55	WEIR FOR CALCULATIONS											25	1.0	0			0				1.000	37.900	37.45	37.45	33.29	9.17	0.00	0.0	0.0	0.0	0.0	0	0	02/7
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.29											08/55
01/8	09/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.056			90	61.3	0.877	0.830	0.018			60	2.7	18	0.00	0.00	18	0	0.00	02/21	2.725	40.972	39.99	39.97	39.93	2.26	0.02	7.0	0.0	0.0	0.0	0.06	1.17	01/8
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	39.90											09/5
01/9	09/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.208			90	61.3	0.877	0.830	0.069			60	2.7	69	0.00	0.00	69	0	0.00	04/17	2.725	40.972	40.25	40.08	39.98	2.04	0.07	9.7	0.0	0.2	0.0	0.22	1.28	01/9
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	39.90											09/5
01/17	02/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.254			90	61.3	0.877	0.830	0.084			60	1.0	107	1.25	0.01	94	10	0.01	01/19	1.000	46.789	45.77	45.74	44.42	10.58	0.09	9.1	0.0	0.0	0.0	0.13	3.48	01/17
02/17	03/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.197			90	61.3	0.877	0.830	0.065			60	1.0	65	0.00	0.00	65	0	0.00	03/17	1.000	45.463	44.42	44.41	41.00	12.70	0.16	2.0	0.0	0.0	0.0	0.19	5.41	02/17
03/17	04/17	DRAINWAYS 1TCS0 ON GRADE	0.111			90	61.3	0.877	0.830	0.037			60	1.0	37	0.00	0.00	37	0	0.00	04/17	1.000	42.101	40.74	40.71	39.40	5.40	0.26	1.3	0.0	0.0	0.0	0.39	4.65	03/17
04/17	10/5	DRAINWAYS 0TCS0 SAG	0.079			90	61.3	0.877	0.830	0.026			60	1.0	28	1.12	0.00	27	1	0.00	01/21	1.000	40.074	39.40	39.28	39.17	0.77	0.34	0.7	0.0	0.2	0.0	0.52	2.89	04/17
10/5	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	40.227	39.17											10/5
01/18	04/17	INLET GULLY IN SAG (LS) Type S Lintel	0.208			90	61.3	0.877	0.830	0.069			60	1.0	69	1.25	0.00	66	2	0.00	04/17	1.000	40.151	39.54	39.40	39.40	0.10	0.07	9.7	0.0	0.2	0.0	0.11	2.39	01/18
04/17	10/5	DRAINWAYS 0TCS0 SAG	0.079			90	61.3	0.877	0.830	0.026			60	1.0	28	1.12	0.00	27	1	0.00	01/21	1.000	40.074	39.40											04/17
01/19	03/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.177			90	61.3	0.877	0.830	0.058			60	1.0	67	0.00	0.00	67	0	0.00	01/18	1.000	42.101	41.27	41.14	41.00	2.11	0.07	9.7	0.0	0.1	0.0	0.21	1.36	01/19
03/17	04/17	DRAINWAYS 1TCS0 ON GRADE	0.111			90	61.3	0.877	0.830	0.037			60	1.0	37	0.00	0.00	37	0	0.00	04/17	1.000	42.101	40.74											03/17
01/21	02/21	INLET GULLY IN SAG (LS) Type S Lintel	0.291			90	61.3	0.877	0.830	0.096			60	0.6	97	1.47	0.01	85	9	0.01	02/21	0.561	38.583	38.61	38.53	38.48	0.86	0.09	9.7	0.0	0.1	0.0	0.28	1.33	01/21
02/21	05/20	INLET GULLY IN SAG (LS) Type S Lintel	0.092			90	61.3	0.877	0.830	0.030			60	0.7	38	1.07	0.00	38	0	0.00	01/4	0.698	38.482	38.48	38.48	38.41	0.99	0.13	1.7	0.0	0.0	0.0	0.56	1.59	02/21
05/20	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	38.731	38.41											05/20
01/59	02/59	TYPE 2 FIELD INLET 900x600 C/W DOME TOP			0.316							0.066	60	1.0	642	0.00	0.00	642	0	0.00	08/55	1.000	36.700	37.26	35.93	35.45	3.63	0.64	1.9	0.0	1.3	0.0	1.15	4.04	01/59
02/59	08/55	HEADWALL											25	1.0	0			0				1.000	35.740	35.15	35.15	33.29	5.85	0.64	0.0	0.0	0.0	0.0	0.09	1.69	02/59
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.29											08/55

INTENSITY - FREQUENCY - DURATION (IFD) TABLE

DURATION	ARI INTENSITY (YEAR)							
MINUTES	TREAT	1	2	5	10	20	50	100
5	59.5	119.0	151.0	186.0	206.0	234.0	270.0	298.0
6	55.5	111.0	141.0	174.0	193.0	219.0	253.0	279.0
10	45.5	91.0	116.0	143.0	159.0	181.0	209.0	231.0
20	33.4	66.8	85.1	106.0	117.0	134.0	155.0	171.0
30	27.3	54.5	69.4	86.4	96.2	110.0	127.0	141.0
60	18.4	36.7	46.8	58.6	65.5	74.8	87.1	96.5
120	11.7	23.4	30.0	37.8	42.4	48.6	56.9	63.2
180	8.9	17.7	22.7	28.8	32.4	37.3	43.7	48.6
360	5.5	10.9	14.0	18.0	20.3	23.5	27.7	30.9
720	3.4	6.9	8.9	11.4	13.0	15.0	17.8	20.0
1440	2.2	4.5	5.8	7.5	8.6	9.9	11.8	13.2
2880	1.5	2.9	3.8	4.9	5.6	6.5	7.7	8.7
4320	1.1	2.2	2.8	3.7	4.2	4.9	5.8	6.6

DERIVED FROM BUREAU OF METEOROLOGY

NOTES:

1. THESE CALCULATIONS ARE BASED ON ILSAX2 DYNAMIC DRAINAGE ANALYSIS USING 12D SOFTWARE ANALYSIS.
2. INDIVIDUAL TIMES OF CONCENTRATION ARE GENERATED FOR EACH NODE & CATCHMENT TYPE USING TEMPORAL PATTERNS DETERMINED FROM THE RELEVANT AUTHORITY.
3. "TREAT" IN THE IFD TABLE REFERS TO 0.5x1 YEAR ARI, USED TO DETERMINE WATER QUALITY TREATMENT FLOWS.
4. CATCHMENT 1 REFERS TO TYPICAL URBANISED CATCHMENTS WITH LOTS <1000m2. THE IMPERVIOUS PORTION OF THE CATCHMENT TIME OF CONCENTRATION (TC) IS TYPICALLY 5 MINUTES & THE PERVIOUS PORTION OF THE CATCHMENT TYPICALLY HAS AN 8 MINUTE TC.
5. CATCHMENT 2 IS TYPICALLY USED TO MODEL LOTS >1000m2, WITH INDIVIDUAL PERCENTAGES OF IMPERVIOUS SURFACE & TC'S.
6. CATCHMENT 3 IS TYPICALLY USED TO MODEL OPEN SPACE & RURAL CATCHMENTS WITH INDIVIDUAL PERCENTAGES OF IMPERVIOUS SURFACE & TC'S.

FLOW CAPACITY m3/s 7.5m RD (KERB AND CHANNEL)

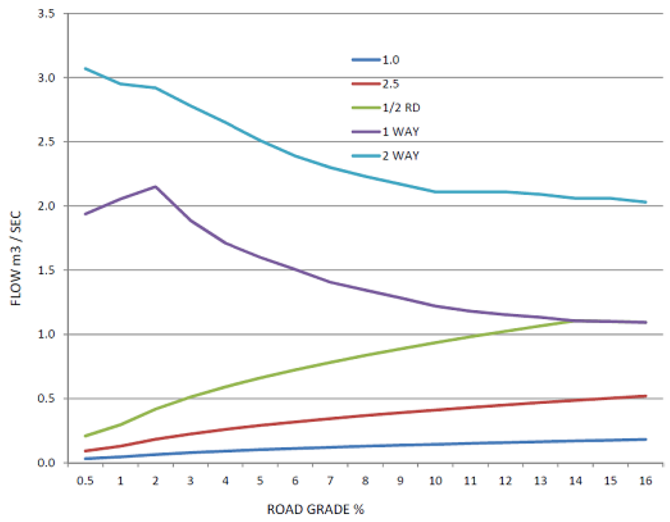
	KR	LANE	1/2 RD	1 WAY	2 WAY
MAX. WIDTH	1.0	2.5	3.75	11.175	14.8
MAX. AREA m2	0.021	0.101	0.219	1.421	2.104
Rd Grade %					
0.5	0.032	0.092	0.209	1.938	3.070
1	0.046	0.130	0.296	2.054	2.950
2	0.064	0.184	0.418	2.150	2.920
3	0.079	0.225	0.512	1.886	2.780
4	0.091	0.260	0.591	1.711	2.650
5	0.102	0.291	0.661	1.600	2.510
6	0.112	0.318	0.724	1.505	2.390
7	0.120	0.344	0.782	1.407	2.300
8	0.129	0.368	0.836	1.345	2.230
9	0.137	0.390	0.887	1.285	2.170
10	0.144	0.411	0.935	1.220	2.110
11	0.151	0.431	0.981	1.180	2.110
12	0.158	0.450	1.024	1.154	2.110
13	0.164	0.469	1.066	1.133	2.090
14	0.170	0.486	1.106	1.105	2.060
15	0.176	0.503	1.101	1.101	2.060
16	0.182	0.520	1.093	1.093	2.030

NOTES:

FLOW CONSTRAINED TO 0.4 DxV

FLOW CONSTRAINED TO 250mm DEEP MAX.

CAPACITY COMPOUND CROSS SECTION (ARR 1987 , 4.38) (n varies)



PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell
& ASSOCIATES PTY. LTD.

BENNETT+BENNETT

DRAWING TITLE

STORMWATER
CALCULATION TABLES
MINOR STORM EVENT
SHEET 01

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DESIGNED	RB	DRAWN	BL
APPROVED		RPEQ 4706	DATE 27-04-24
DRAWING NUMBER	41901-04-680	REV	A

CALCULATION TABLES-MAJOR 100YR ARI

0.01 ARI (Q100) Major FLOW - 12D DYNAMIC DRAINAGE RESULTS

* REFER TO IFD TABLE FOR MAXIMUM INTENSITY DURING STORM

NOTE: NEGATIVE FLOW VALUES INDICATE REVERSE FLOWS			CATCHMENT AREA			RAINFALL VOLUME*		RAINFALL Coef.		CATCHMENT FLOW				APPROACH FLOW				FLOW AT PIT				PIT		HGL				PIPE	HEADLOSSES						
NODE			A1	A.2	A.3	CRITICAL	INTENSITY		CURRENT	A.1	A.2	A.3	CRITICAL	GRADE	FLOW			CAPTURED	BYPASS			GRADE	GRATE	PIT	PIPE		GRADE	FLOW	COEFFICIENT		HEADLOSS		CAPACITY	VELOCITY	NODE
FROM:	TO:	NODE TYPE	HA	HA	HA	STORM	MM/HR	10 YR	Storm	HA	HA	HA	ARI MIN.	%	L/S	WIDTH	DxV	L/S	L/S	DxV	NODE	%	RL.	RL	U/S RL.	D/S RL.	%	M3/S	Ku	Kw	Ku	Kw	RATIO	M/S	
01/5	02/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.222			120	133.6	0.877	0.916	0.124			25	1.0	124	2.47	0.01	98	24	0.02	02/5	1.000	53.037	52.29	52.20	51.87	1.30	0.10	8.8	0.0	0.1	0.0	0.38	1.4	01/5
02/5	03/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.101			120	133.6	0.877	0.916	0.056			25	1.0	80	1.36	0.01	71	8	0.01	03/5	1.000	52.886	51.87	51.83	51.38	1.54	0.17	2.0	0.0	0.0	0.0	0.62	2.15	02/5
03/5	04/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.205			120	133.6	0.877	0.916	0.114			25	1.0	118	1.45	0.02	95	23	0.02	04/5	1.000	52.252	51.29	51.29	47.90	6.57	0.26	1.9	0.0	0.0	0.0	0.41	4.6	03/5
04/5	05/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.207			120	133.6	0.877	0.916	0.115			25	1.0	137	1.50	0.02	106	31	0.02	01/11	1.000	48.247	47.91	47.74	47.06	6.16	0.56	1.1	0.0	0.3	0.0	0.48	5.54	04/5
05/5	06/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	47.204	47.06	46.95	43.16	9.01	0.89	1.0	0.0	0.2	0.0	0.81	6.52	05/5
06/5	07/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	42.982	43.16	42.73	42.05	4.70	0.97	1.5	0.0	0.4	0.0	0.61	3.43	06/5
07/5	08/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	41.996	42.05	41.73	41.31	1.85	0.98	0.9	0.0	0.3	0.0	1.28	3.48	07/5
08/5	09/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.853	41.32	41.29	40.62	1.76	0.96	0.4	0.0	0.1	0.0	0.85	4.06	08/5
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	40.62	40.45	39.99	1.62	1.04	0.2	0.0	0.2	0.0	0.55	4.88	09/5
10/5	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	40.227	39.99	39.75	38.29	7.88	1.45	1.1	0.0	0.5	0.0	0.66	5.14	10/5
11/5	12/5	MANHOLE 1200mm DIA											25	1.0	0			0				1.000	37.900	38.30	37.61	37.54	1.56	1.81	1.0	0.0	0.9	0.0	1.73	4.09	11/5
12/5	01/6	HEADWALL											25	1.0	0			0				1.000	37.645	37.54	37.54	37.54	0.00	1.81	0.0	0.0	0.0	0.0			12/5
01/6	02/6	BASIN NODE FOR CALCULATIONS											25	1.0	141			141				1.000	37.900	37.54											01/6
01/6	02/6	BASIN NODE FOR CALCULATIONS											25	1.0	141			141				1.000	37.900	37.54	37.54	37.54	0.00	0.69	0.0	0.0	0.0	0.0			01/6
02/6	03/6	MANHOLE C/W ROOF SLAB AND 900x600 DOME TOP											60	1.0	693	0.00	0.00	693	0	0.00	08/55	1.000	37.100	37.54	35.96	35.45	4.31	0.69	1.9	0.0	1.6	0.0	1.18	4.35	02/6
03/6	08/55	HEADWALL											25	1.0	0			0				1.000	35.740	35.15	35.15	33.56	5.06	0.69	0.0	0.0	0.0	0.0	0.1	0.67	03/6
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.56											08/55
01/6	02/6	BASIN NODE FOR CALCULATIONS											25	1.0	141			141				1.000	37.900	37.54	37.54	37.54	0.00	0.30	0.0	0.0	0.0	0.0			01/6
01/7	02/7	WEIR FOR CALCULATIONS											25	1.0	0			0				1.000	37.900	37.54	37.54	37.49	0.91	0.30	0.0	0.0	0.0	0.0	0.33	0.37	01/7
02/7	08/55	WEIR FOR CALCULATIONS											25	1.0	0			0				1.000	37.900	37.48	37.48	33.56	8.64	0.30	0.0	0.0	0.0	0.0	0.01	0.09	02/7
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.56											08/55
01/8	09/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.056			120	133.6	0.877	0.916	0.031			25	2.7	31	0.00	0.00	31	0	0.00	02/21	2.725	40.972	40.63	40.62	40.62	0.19	0.03	7.0	0.0	0.0	0.0	0.1	1.48	01/8
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	40.62											09/5
01/9	09/5	INLET GULLY ON GRADE (LG) Type S Lintel	0.208			120	133.6	0.877	0.916	0.116			25	2.7	120	1.66	0.02	94	26	0.01	04/17	2.725	40.972	40.79	40.72	40.62	2.06	0.09	9.7	0.0	0.2	0.0	0.29	1.55	01/9
09/5	10/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	41.020	40.62											09/5
01/17	02/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.254			120	133.6	0.877	0.916	0.142			25	1.0	213	1.74	0.05	142	69	0.05	01/19	1.000	46.789	45.81	45.76	44.44	10.61	0.14	6.7	0.0	0.0	0.0	0.19	3.66	01/17
02/17	03/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.197			120	133.6	0.877	0.916	0.110			25	1.0	110	1.36	0.02	90	20	0.02	03/17	1.000	45.463	44.44	44.44	41.88	9.50	0.23	1.9	0.0	0.0	0.0	0.28	5.74	02/17
03/17	04/17	DRAINWAYS 1TCS0 ON GRADE	0.111			120	133.6	0.877	0.916	0.062			25	1.0	81	1.25	0.01	72	8	0.00	04/17	1.000	42.101	41.88	41.70	40.23	6.04	0.42	1.3	0.0	0.6	0.0	0.64	4.68	03/17
04/17	10/5	DRAINWAYS 0TCS0 SAG	0.079			120	133.6	0.877	0.916	0.044			25	1.0	177	3.48	0.13	-168	315	0.12	01/21	1.000	40.074	40.23	40.14	39.99	1.00	0.44	1.0	0.0	0.2	0.0	0.67	2.88	04/17
10/5	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	40.227	39.99											10/5
01/18	04/17	INLET GULLY IN SAG (LS) Type S Lintel	0.208			120	133.6	0.877	0.916	0.116			25	1.0	159	3.05	0.05	84	104	0.05	04/17	1.000	40.151	40.26	40.23	40.23	0.00	0.08	9.7	0.0	0.2	0.0	0.13	2.38	01/18
04/17	10/5	DRAINWAYS 0TCS0 SAG	0.079			120	133.6	0.877	0.916	0.044			25	1.0	177	3.48	0.13	-168	315	0.12	01/21	1.000	40.074	40.23											04/17
01/19	03/17	INLET GULLY ON GRADE (LG) Type S Lintel	0.177			120	133.6	0.877	0.916	0.099			25	1.0	166	1.64	0.03	120	46	0.02	01/18	1.000	42.101	42.14	42.02	41.88	2.11	0.12	8.7	0.0	0.3	0.0	0.37	1.53	01/19
03/17	04/17	DRAINWAYS 1TCS0 ON GRADE	0.111			120	133.6	0.877	0.916	0.062			25	1.0	81	1.25	0.01	72	8	0.00	04/17	1.000	42.101	41.88											03/17
01/21	02/21	INLET GULLY IN SAG (LS) Type S Lintel	0.291			120	133.6	0.877	0.916	0.162			60	0.6	490	3.90	0.15	102	395	0.15	02/21	0.561	38.583	38.77	38.72	38.69	0.47	0.10	9.7	0.0	0.1	0.0	0.3	1.35	01/21
02/21	05/20	INLET GULLY IN SAG (LS) Type S Lintel	0.092			120	133.6	0.877	0.916	0.051			60	0.7	438	4.57	0.18	-113	506	0.19	01/4	0.698	38.482	38.69	38.69	38.68	0.03	0.13	2.7	0.0	0.1	0.0	0.59	1.52	02/21
05/20	11/5	MANHOLE 1050mm DIA											25	1.0	0			0				1.000	38.731	38.68											05/20
01/59	02/59	TYPE 2 FIELD INLET 900x600 C/W DOME TOP			0.316							0.141	60	1.0	683	0.00	0.00	683	0	0.00	08/55	1.000	36.700	37.54	36.00	35.45	4.20	0.68	1.9	0.0	1.5	0.0	1.22	4.3	01/59
02/59	08/55	HEADWALL											25	1.0	0			0				1.000	35.740	35.15	35.15	33.56	5.02	0.68	0.0	0.0	0.0	0.0	0.1	1.54	02/59
08/55	09/55	100% CAPTURE FOR FUTURE EXTENSION											25	1.0	0			0				1.000	34.000	33.56											08/55

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING

Robin Russell & ASSOCIATES PTY. LTD.

BENNETT + BENNETT

DRAWING TITLE

STORMWATER
CALCULATION TABLES
MAJOR STORM EVENT
SHEET 01

MORTONS
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DESIGNED RB
DRAWN BL
APPROVED
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER 41901-04-681
REV A

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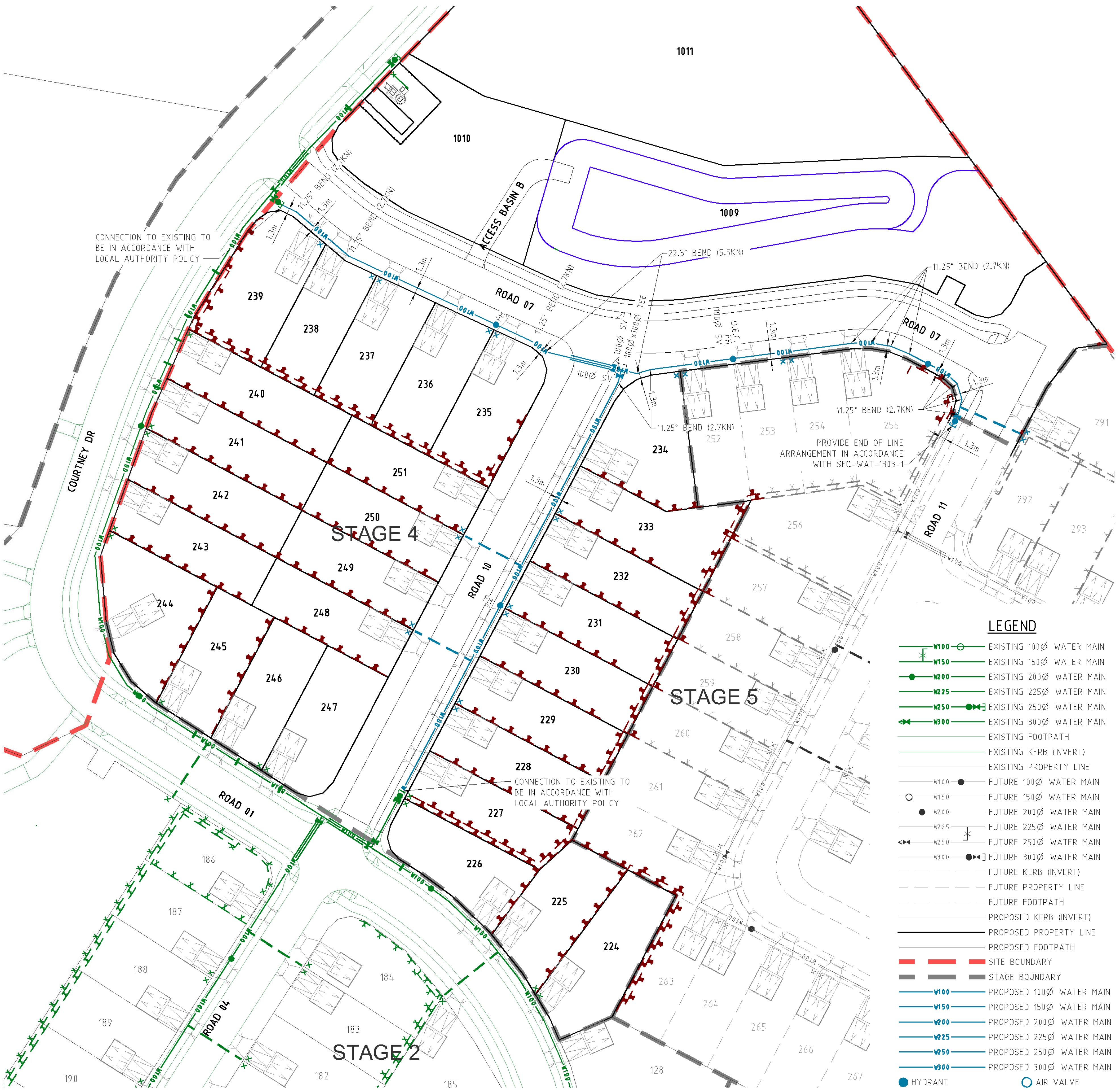

SEQ CODE WATER NOTES

SEQ CODE NOTES COPIED DIRECTLY FROM DRAWING SEQ-WAT-1101-3 (REV A).

VEGETATION PROTECTION

A. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
B. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8m BATTENS CLOSELY SPACED & ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION & REMAIN UNTIL COMPLETION.
C. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
D. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

SOIL

A. TOPSOIL & SUBSOIL SHALL BE STOCKPILED SEPARATELY.
B. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.
C. IF ACID SULPHATE SOILS EXIST IN THE WORKS AREA. THE CONTRACTOR MUST PREPARE A RISK ASSESSMENT BASED ON THE QUEENSLAND ACID SULPHATE SOIL TECHNICAL MANUAL & MANAGE THE ACID SULPHATE SOILS AS PER THE MANUAL.

CREEK CROSSINGS

A. SILTATION CONTROL MEASURES SHALL BE PLACED DOWNSTREAM OF ANY EXCAVATION WORK.
B. APPROPRIATE SEDIMENT CONTROLS SHALL BE USED TO PREVENT SEDIMENT FROM ENTERING THE CREEK.
C. NO SOIL SHALL BE STOCKPILED WITHIN 5m OF THE CREEK.

REHABILITATION

A. PREDISTURBANCE SOIL PROFILES & COMPACTION LEVELS SHALL BE REINSTATED.
B. PREDISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.

GENERAL NOTES

1. ALL WORK & MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND WATER SUPPLY CODE SPECIFICATIONS & STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS & WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. ADOPT LIP OF KERB OR SHOULDER OF ROAD AS PERMANENT LEVEL.
4. COVER ON MAINS FROM PERMANENT LEVEL TO BE AS SHOWN IN SEQ-WAT-1200-2.
5. CONDUITS TO BE INSTALLED IN ACCORDANCE WITH THE STANDARD DRAWINGS.
6. A WATER METER SUPPLIED AT THE DEVELOPER'S COST, IS TO BE INSTALLED AT THE SERVICE POINT OF EACH LOT IN ACCORDANCE WITH THE STANDARD DRAWING FOR THE SEQ-SP.
7. ALL MATERIALS USED IN THE WORKS SHALL COMPLY WITH THE SEQ-SP's ACCEPTED PRODUCTS & MATERIALS LIST OR BE APPROPRIATELY SHOWN, LISTED & DEFINED IN THE ENGINEERING SUBMISSION SO THAT THE ALTERNATIVE PRODUCT OR MATERIAL CAN BE ASSESSED & IF APPROPRIATE, APPROVED BY THE SEQ-SP.
8. ALL CONCRETE FOOTPATHS TO BE CLEAR OF WATER MAINS.
9. TEST/CHLORINATION POINTS TO BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWING NO.SEQ-WAT-1410-1.
10. THE CONSTRUCTION OF THE WATER RETICULATION WORK SHOWN ON THIS DRAWING MUST BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT TO THE RETICULATION SYSTEM.

ALL ENVIRONMENT PROTECTION MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.

PROJECT SPECIFIC WATER NOTES

a. ALL PROPERTY CONNECTION ROAD CROSSINGS TO BE SLEEVED WITH DN100 uPVC FOR COGC CONDUIT.
b. ALL MATERIALS ARE TO BE SUPPLIED & CONSTRUCTED IN ACCORDANCE WITH SEQ CODE.
c. WATER METERS ARE TO BE SUPPLIED & INSTALLED AT ALL WATER SERVICE / CONNECTION POINTS IN ACCORDANCE WITH SEQ-WAT-1106-1
d. THRUST BLOCKS TO BE LOCATED & INSTALLED BY CONTRACTOR IN ACCORDANCE WITH SEQ CODE.
e. TRENCH STOPS & BULKHEADS TO BE IN ACCORDANCE WITH WATER AUTHORITY REQUIREMENTS.
f. THE CONTRACTOR IS TO INCLUDE ROCK EXCAVATION AS PART OF THEIR WATER RATES UNLESS SCHEDULED OTHERWISE WITHIN THE CONTRACT.
g. FOOTPATHS SHOWN FOR INFORMATION PURPOSES ONLY.
h. ALL WATER CONSTRUCTION WORK UNDERTAKEN BY THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE WORKPLACE HEALTH & SAFETY LEGISLATION.
i. MINIMUM WATERMAIN COVER TO BE IN ACCORDANCE WITH SECTION 7.4.2 TABLE 7.2 OF THE SEQ AMENDMENT TO WATER SUPPLY CODE OF AUSTRALIA.
j. CONTRACTOR TO PAY ALL FEES & CHARGES ASSOCIATED WITH CONNECTIONS.
k. END OF LINE ARRANGEMENTS (EG. CUL-DE-SAC HEADS) TO BE CONSTRUCTED IN ACCORDANCE WITH SEQ-WAT-1104-1.
l. TEMPORARY CONSTRUCTION HYDRANTS TO BE PROVIDED IN ACCORDANCE WITH SEQ-WAT-1303-1 AT ALL CONNECTIONS.
m. ALL LIVE CONNECTIONS ARE TO BE ORGANISED BY THE CIVIL CONTRACTOR & UNDERTAKEN BY COUNCIL AT THE DEVELOPERS EXPENSE.

LEGEND

W100	EXISTING 100Ø WATER MAIN
W150	EXISTING 150Ø WATER MAIN
W200	EXISTING 200Ø WATER MAIN
W225	EXISTING 225Ø WATER MAIN
W250	EXISTING 250Ø WATER MAIN
W300	EXISTING 300Ø WATER MAIN
	EXISTING FOOTPATH
	EXISTING KERB (INVERT)
	EXISTING PROPERTY LINE
W100	FUTURE 100Ø WATER MAIN
W150	FUTURE 150Ø WATER MAIN
W200	FUTURE 200Ø WATER MAIN
W225	FUTURE 225Ø WATER MAIN
W250	FUTURE 250Ø WATER MAIN
W300	FUTURE 300Ø WATER MAIN
	FUTURE KERB (INVERT)
	FUTURE PROPERTY LINE
	FUTURE FOOTPATH
	PROPOSED KERB (INVERT)
	PROPOSED PROPERTY LINE
	PROPOSED FOOTPATH
	SITE BOUNDARY
	STAGE BOUNDARY
W100	PROPOSED 100Ø WATER MAIN
W150	PROPOSED 150Ø WATER MAIN
W200	PROPOSED 200Ø WATER MAIN
W225	PROPOSED 225Ø WATER MAIN
W250	PROPOSED 250Ø WATER MAIN
W300	PROPOSED 300Ø WATER MAIN
●	HYDRANT
┤	TEE
>	REDUCER
⋈	SLUICE VALVE
[	ENDCAP
✕	SCOUR VALVE
○	AIR VALVE
×	METER LOCATION
▬	TRENCH STOP
— — —	SERVICE CONDUIT
═	DICL ROAD CROSSING

WATER PIPE SPECIFICATIONS

WATER MAIN LOCATION	PIPE MATERIAL SPECIFICATION
FOOTPATH VERGE	PVC-M SERIES 2 PN16
ROAD CROSSING	DICL PN35

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

NORTH

0 5 10 15 20 25m
Scale 1:500 - A1 (1:1000 - A3)

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME
WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

WATER
RETICULATION
PLAN
SHEET 01

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APPROVED W.K. Morton
RPEQ 4706
DATE 27-04-24

DRAWING NUMBER
41901-04-700

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THRUST BLOCK LENGTH

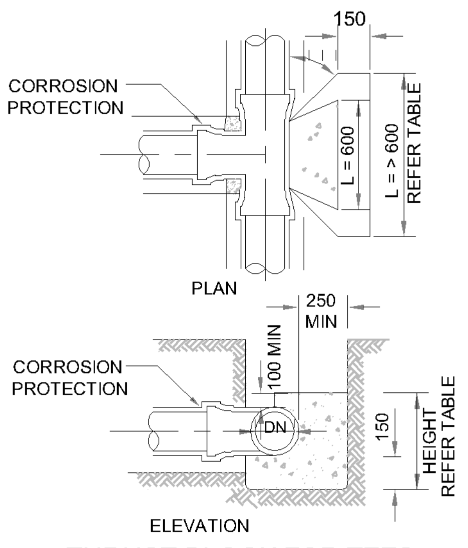
PIPE DN.	FITTING	MAX. THRUST IN KN	THRUST BLOCK HEIGHT	STIFF CLAY 50 KPa.	VERY STIFF CLAY SANDY LOAM 100KPa.	SAND & GRAVEL HARDCLAY 150KPa.	SAND & GRAVEL CEMENTED WITH CLAY 200KPa.	ROCK 240kPa
100	90° BEND	19.8	400	1000	●	●	●	●
	60° BEND	14.0		700	●	●	●	●
	45° BEND	10.7		●	●	●	●	●
	22.5° BEND	5.5		●	●	●	●	●
	11.25° BEND	2.7		●	●	●	●	●
	TEE OR CLOSED END	14.0		700	●	●	●	●
150	90° BEND	41.7	450	1860	930	●	●	●
	60° BEND	29.5		1320	660	●	●	●
	45° BEND	22.6		1000	●	●	●	●
	22.5° BEND	11.5		●	●	●	●	●
	11.25° BEND	5.8		●	●	●	●	●
	TEE OR CLOSED END	29.5		1300	660	●	●	●
200	90° BEND	71.7	550	*	1300	870	650	●
	60° BEND	50.7		1850	920	●	●	●
	45° BEND	38.8		1410	700	●	●	●
	22.5° BEND	19.8		720	●	●	●	●
	11.25° BEND	9.9		●	●	●	●	●
	TEE OR CLOSED END	50.7		1850	920	●	●	●
225	90° BEND	89.4	600	*	1500	1000	750	●
	60° BEND	63.2		2110	1060	700	●	●
	45° BEND	48.4		1620	810	●	●	●
	22.5° BEND	24.6		830	●	●	●	●
	11.25° BEND	12.4		●	●	●	●	●
	TEE OR CLOSED END	63.2		210	1060	700	●	●
250	90° BEND	109.0	650	*	1700	1120	840	700
	60° BEND	77.1		2400	1200	800	●	●
	45° BEND	59.0		1820	910	●	●	●
	22.5° BEND	30.1		930	●	●	●	●
	11.25° BEND	15.1		●	●	●	●	●
	TEE OR CLOSED END	77.1		2400	1200	800	●	●
300	90° BEND	158.6	700	*	2270	1510	1140	950
	60° BEND	112.2		*	1600	1070	800	670
	45° BEND	85.9		2453	1230	820	●	●
	22.5° BEND	43.8		1250	630	●	●	●
	11.25° BEND	22.0		630	●	●	●	●
	TEE OR CLOSED END	112.2		*	1600	1070	800	750

THRUST BLOCK LENGTH

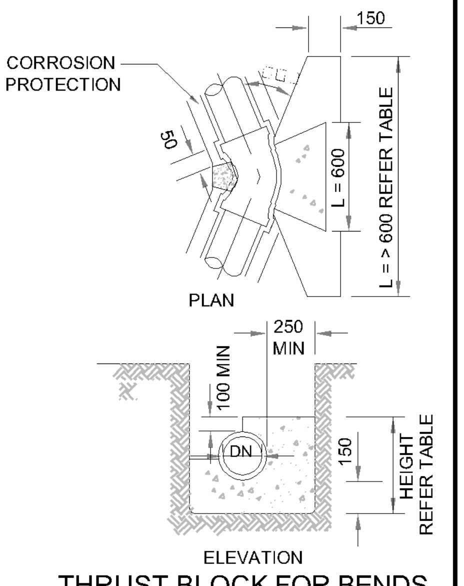
PIPE DN.	FITTING	MAX. THRUST IN KN	THRUST BLOCK HEIGHT	STIFF CLAY 50 KPa.	VERY STIFF CLAY SANDY LOAM 100KPa.	SAND & GRAVEL HARDCLAY 150KPa.	SAND & GRAVEL CEMENTED WITH CLAY 200KPa.	ROCK 240kPa
375	90° BEND	241.9	800	*	*	2220	1510	1260
	60° BEND	171.0		*	2140	1430	1070	890
	45° BEND	130.9		*	1640	1090	820	680
	22.5° BEND	66.7		1670	840	●	●	●
	11.25° BEND	33.5		840	●	●	●	●
	TEE OR CLOSED END	171.0		*	2140	1430	1070	890
450	90° BEND	342.6	900	*	*	2540	1900	1590
	60° BEND	242.3		*	2690	1800	1350	1120
	45° BEND	185.4		*	2060	1375	1030	860
	22.5° BEND	94.5		2100	1050	700	●	●
	11.25° BEND	47.5		1060	●	●	●	●
	TEE OR CLOSED END	242.3		*	2690	1800	1350	1120
500	90° BEND	418	1000	*	*	2790	2090	1740
	60° BEND	295.6		*	*	1970	1480	1230
	45° BEND	226.2		*	2260	1510	1130	940
	22.5° BEND	115.3		2310	1150	770	●	●
	11.25° BEND	58.0		1160	●	●	●	●
	TEE OR CLOSED END	295.5		*	*	1970	1480	1230
600	90° BEND	593	1100	*	*	*	2700	2250
	60° BEND	419		*	*	2540	1910	1590
	45° BEND	320		*	2920	1950	1460	1220
	22.5° BEND	164		2980	1490	990	750	620
	11.25° BEND	82.2		1500	750	●	●	●
	TEE OR CLOSED END	419		*	*	2540	1910	1590
750	90° BEND	909	1300	*	*	*	*	2920
	60° BEND	643		*	*	*	2480	2060
	45° BEND	492		*	*	2530	1890	1580
	22.5° BEND	251		*	1930	1290	970	810
	11.25° BEND	126.1		1940	970	650	●	●
	TEE OR CLOSED END	643		*	*	*	2480	2060
900 (Ø960 MSCL)	90° BEND	1.228	1500	*	*	*	*	3420
	60° BEND	868		*	*	*	2900	2420
	45° BEND	664		*	*	2960	2220	1850
	22.5° BEND	339		*	2260	1510	1130	940
	11.25° BEND	170		2270	1140	760	●	●
	TEE OR CLOSED END	868		*	*	*	3300	2650

THRUST BLOCK DIMENSIONS - 1200kPa

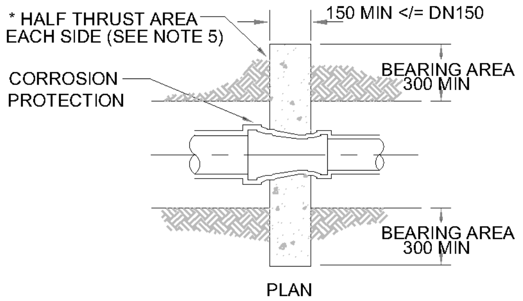
● INDICATES BLOCK LENGTH OF 600
* = SPECIAL DESIGN



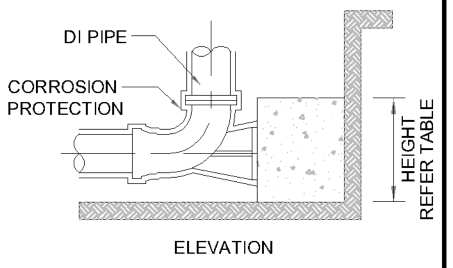
THRUST BLOCK FOR TEES
(FOR HORIZONTAL THRUST)



THRUST BLOCK FOR BENDS
(FOR HORIZONTAL THRUST)



TAPER THRUST BLOCK
(FOR HORIZONTAL THRUST)



FLUSHING/WASHOUT BEND THRUST BLOCK
(FOR HORIZONTAL THRUST) (MINIMUM REQUIRED THRUST AREA AS PER TEE OR CLOSED END)

NOTES

1. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. CAST THE THRUST AREA OF ALL THRUST BLOCKS AGAINST A CLEAN FACE OF UNDISTURBED NATURAL SOIL. SOIL CLASSIFICATIONS USED ON THIS DRAWING ARE EXPLAINED IN SEQ-WAT-12110-1. DO NOT USE STANDARD THRUST BLOCKS AS SPECIFIED IN THIS DRAWING IN SOILS WITH < 50kPa BEARING CAPACITY EG;
   –VERY SOFT, SOFT OR FIRM CLAY.
   –LOOSE CLEAN SAND.
   –UNCOMPACTED FILL OR REFUSE.
   A GEOTECHNICAL ASSESSMENT AND INDIVIDUAL DESIGN IS REQUIRED FOR THESE SOILS.
3. THRUST BLOCKS NOT TO INTERFERE WITH OTHER SERVICES OR BE LOCATED OUTSIDE THE WATER MAIN ALLOCATION WITHOUT WATER AGENCY APPROVAL.
4. ALL CONCRETE GRADE N20. TABLE OF DIMENSIONS BASED ON REQUIRED TEST PRESSURE OF 1200kPa AND ACTUAL DICL PIPE DIAMETERS.
5. THE MINIMUM THRUST AREA FOR TAPER THRUST BLOCKS TO BE EQUAL TO THE DIFFERENCE BETWEEN THE THRUST AREAS FOR TEES OR CLOSED ENDS OF EQUIVALENT DIAMETER TO THOSE EACH SIDE OF TAPER. THE DETAIL SHOWN IS FOR < OR = DN150 MAINS. FOR LARGER MAINS, THE TAPER THRUST BLOCK SHALL BE REINFORCED AND OF A SIZE AS SHOWN IN SEQ-WAT-1206-1.
6. FOR DOWNWARD VERTICAL THRUST, THE ALLOWABLE BEARING PRESSURE FOR VARIOUS SOILS MAY BE TAKEN AS TWICE THAT FOR HORIZONTAL THRUST SHOWN.
7. WHEN POURING CONCRETE AGAINST FITTINGS PLACE A MEMBRANE OF POLYETHYLENE, PVC OR FELT BETWEEN THE FITTING AND CONCRETE TO PREVENT DAMAGE TO THE FITTING. PIPE JOINTS TO BE CLEAR OF CONCRETE.
8. CONCRETE THRUST BLOCK ANCHORS FOR VALVES TO BE AS DETAILED ON SEQ-WAT-1206-1.

PROJECT NAME

COURTNEY DR
UPPER COOMERA

STAGE 04

RP DESCRIPTION

LOT 188, 189, 190, 191 & 192 ON RP173728
COURTNEY DRIVE
LOCALITY OF UPPER COOMERA
LOCAL AUTHORITY - GOLD COAST CITY COUNCIL

CLIENT

HB Land

REV	DATE	DESCRIPTION	INT
A	27-04-24	COUNCIL ISSUE	BL

ASSOCIATED CONSULTANTS

BIOME WATER AND ENVIRONMENTAL CONSULTING
Robin Russell & ASSOCIATES PTY. LTD.
BENNETT + BENNETT

DRAWING TITLE

WATER
RETICULATION
DETAILS

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Civil Engineering
Project Coordination

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APPROVED w.K. m
RPEQ 4706
DATE 27-04-24
DRAWING NUMBER 41901-04-710
REV A