M & G Consulting Engineers Pty Ltd (ABN 65 094 064 990)
Level 3, 50 Berry Street, North Sydney NSW 2060
PO Box 1656, North Sydney NSW 2059
T: (02) 8666 7888 Internet: www.mg.com.au

30 September 2021

Julia & Stephen Thomson

By email: < thompsonstephen14@gmail.com >

Attn: Mr Stephen Thomson

Dear Sir,

Re. Proposed seniors housing development, 27 Bellevue Ave, Avalon Beach – Schedule of amendments to civil drawings
Our Ref. 5281

Summary of amendments to civil drawings:

17th Sept 2021

Drawing C05 rev 6

- Stormwater drainage pits & drainage lines amended to minimise impact on Trees T21 & 33 and method of installation stormwater drainage system specified to minimise impact on the TPZ. Bio-retention basin location to Ground Floor level revised.

23rd Sept 2021

Drawings C05 rev 7, C06 rev 2, C10 rev 13 & C11 rev 3

- The "ears" have been removed from the drawing.
- The stormwater line adjacent to T33 has been moved to the northern boundary in the existing wall footing trench.
- The kerb on the east side of Wickham Lane has been relocated to allow the turning of a truck travelling south on Wickham Lane into Sanders Lane.

We trust this meets your requirements and please do not hesitate to contact ourselves if you require further advice or clarification.

Yours faithfully
M+G Consulting

Simon Matthews

27 BELLEVUE AVENUE AVALON

CIVIL & DRAINAGE NOTES

CIVIL NOTES:

GENERAL

G1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH PITTWATER COUNCIL'S DCP.

G2. ALL WORK SHALL BE DONE IN A SOUND, EFFICIENT AND WORKMANLIKE MANNER AND IN ACCORDANCE WITH SOUND ENGINEERING PRACTICE AND PRINCIPLES. ALL WORKS ARE TO BE COMPLETED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, ALSO WITH THE ENGINEERING PURPOSE AND INTENT OF THE DRAWINGS SPECIFICATIONS AND INSTRUCTIONS BY PROJECT MANAGER.

G3. LOCATION OF EXISTING SERVICES (IF SHOWN) IS APPROXIMATE ONLY. DESIGNER & CONTRACTOR SHALL CHECK LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORK AND ACCEPT FULL RESPONSIBILITY FOR THE COST OF REPAIRS AND CONSEQUENCES OF ANY DAMAGE WHICH MAY OCCUR TO THESE SERVICES AS A RESULT OF CONSTRUCTION WORKS OR ALTERATION OF DESIGN.

G4. ALL DISTURBED AREAS NOT SUBJECT TO NEW WORKS SHALL BE REINSTATED TO EXISTING CONDITION BY THE CONTRACTOR AT THE COMPLETION OF WORKS UNLESS OTHERWISE INSTRUCTED BY THE SUPERINTENDENT.

G5. DURING THE ROAD WORKS ALL TRAFFIC MANAGEMENT IS TO BE IN ACCORDANCE WITH THE RMS TRAFFIC CONTROL WORK SITES (CURRENT) AND AS REQUIRED BY COUNCIL.

SITE PREPARATION, CLEARING AND GRUBBING

S1. ALL WORK TO BE IN ACCORDANCE WITH AS 3798 U.N.O AND COUNCIL REQUIREMENTS.

S2. SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED BY COUNCIL SHALL BE CARRIED OUT FOR THE FULL DURATION OF THE WORKS BY THE CONTRACTOR.

EARTHWORKS

E1. ALL WORK TO BE IN ACCORDANCE WITH AS3798-2007 AND COUNCIL REQUIREMENTS.

E2. IN CUT AREAS:-
CUT TO LEVEL OF TOP OF SUBGRADE. REPLACE SOFT AREAS. TOP 200 OF SUBGRADE TO BE COMPACTED TO 100% STANDARD, AS PER FILLING NOTES UNO.

E3. IN FILL AREAS:-
REPLACE SOFT AREAS, PLACE AND COMPACT NEW FILL IN 200mm MAX. THICK LAYERS (LOOSE FILL), AT MOISTURE CONTENT IN RANGE OF ±2% OF STANDARD OPTIMUM (AS PER AS1289.5) AND COMPACT TO 98% OF STANDARD DRY DENSITY RATIO AS PER AS1289.5 TEST COMPACTED FILL UNO. TOP 200 OF SUB GRADE TO BE COMPACTED TO 100% STANDARD DRY DENSITY RATIO UNO.

E4. FILL MATERIAL- TO BE AS SPECIFIED IN AS3798-2007 CLAUSE 4.4 AND AS AGREED WITH THE SITE SUPERINTENDENT.

E5. REFER TO THE GEOTECHNICAL REPORT BY CROZIER GEOTECHNICAL CONSULTANTS PROJECT No.: 2019-151 DATED 25TH SEPTEMBER 2019.

NOTE B - IMPORTANT NOTICE

SERVICES IDENTIFIED HERE HAVE BEEN TAKEN FROM UTILITY PROVIDERS SERVICE MAPS WHICH HAVE BEEN PREPARED FOR THEIR OWN USE AND MAY NOT BE ACCURATE.

PRIOR TO THE COMMENCEMENT OF ANY WORK THE CONTRACTOR MUST LOCATE, IDENTIFY AND CONFIRM ALL EXISTING SERVICES INCLUDING THEIR DEPTH PARTICULARLY WHERE ANY NEW SERVICES MAY CROSSOVER EXISTING SERVICES. THIS SHALL APPLY TO ALL SERVICES IE. TELSTRA, GAS, WATER, FIBRE OPTIC, SEWER ETC.

IN THE EVENT A CLASH IS APPARENT OR NOMINATED CONNECTION LEVELS ARE UNOBTAINABLE NOTIFY THE DESIGN ENGINEER IMMEDIATELY.

THE CONTRACTOR SHALL ALLOW TO CARRY OUT ALL NECESSARY SEARCHES AND INVESTIGATIONS INCLUDING A 'DIAL-BEFORE-YOU DIG' APPLICATION. ALLOW TO POTHOLE WHERE NECESSARY.

DIAL BEFORE YOU DIG www.1100.com.au

DRAINAGE NOTES

1. ALL STORMWATER DRAINAGE WORK SHALL BE IN ACCORDANCE WITH AS3500.3 & NORTHERN BEACHES COUNCIL'S DOCUMENT 'PITTWATER COUNCIL 21 DCP SECTION B5: WATER MANAGEMENT'.
2. ALL PIPES TO BE CLASS SEWER GRADE SN4 (SEWER GRADE SN6 FOR 100Ø) UPVC TO AS1254 WITH SOLVENT WELDED JOINTS UNO.
3. ALL PIPES TO BE 150Ø UNO
4. ALL CONCRETE PIPES TO BE 225Ø CLASS 4 RRJ REINF CONC PIPES UNO
5. ALL CONCRETE PIPES SHALL HAVE TYPE HS2 BEDDING UNO. (NO SAND BEDDING OR BACKFILL).
6. ALL PIPES TO LAID AT A MINIMUM FALL OF 1% U.N.O.
7. ALL PITS TO HAVE CONCRETE BENCHING TO FACILITATE THE SMOOTH FLOW OF WATER THROUGH THE PIT.
8. THE CONTRACTOR SHALL CHECK THE LOCATIONS OF EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK AND ACCEPT FULL RESPONSIBILITY FOR THE COST OF REPAIRS AND CONSEQUENCES OF ANY DAMAGE WHICH MAY OCCUR TO THESE SERVICES AS A RESULT OF THE CONSTRUCTION WORKS. THE DESIGNER SHALL BE RESPONSIBLE TO REDESIGN TO AVOID SERVICES.
9. ALL DISTURBED AREAS BEYOND THE AREA OF THE WORKS SHALL BE REINSTATED TO THE EXISTING CONDITION BY THE CONTRACTOR AT THE COMPLETION OF THE WORKS.
10. ALL PIPES TO HAVE A MINIMUM OF 25mm THICKNESS OF OVERLAY BETWEEN TOP OF PIPE AND UNDERSIDE OF SLAB.
11. SUB-SOIL PIPES TO BE LAID IN 20mm CRUSHED AGGREGATE (0.1m^3 PER METRE OF PIPE). A SOCK OF APPROVED SYNTHETIC GEOTEXTILE SHALL BE LAID AROUND THE SUB-SOIL PIPE. WRAP A LAYER OF BIDIUM U14 GEOFABRIC (OR EQUIVALENT) AROUND AGGREGATE FILTER WITH 200mm OVERLAP AT JOINTS.
12. ALL HIGH POINTS OF THE SUB-SOIL DRAIN SHALL BE RAISED ABOVE THE FLOOR OR GROUND LEVEL. PLACE A CAST IRON INSPECTION COVER OVER EXPOSED PIPE AND SURROUND IN CONCRETE UNO.
13. PROVIDE ADDITIONAL SUB-SOIL DRAINAGE AS DIRECTED TO SUIT SITE CONDITIONS AND GROUNDWATER PRESENCE.
14. PROVIDE SUBSOIL DRAINAGE AT BASE OF RETAINING WALLS AND CONNECT TO STORMWATER DRAINAGE SYSTEMS.
15. REFERENCE SHALL BE MADE TO SITE SURVEY BY BEE & LETHBRIDGE REF JOB No. 21192 DWG. No. 21192B SHEETS 1 & 2 DATED 03-07-2020.
16. THIS CONCEPT STORMWATER DRAINAGE PLAN HAS BEEN DESIGNED USING "DRAINS" (ILSAX) SOFTWARE BY WATERCOM P/L. FOR STORMWATER DRAINAGE.

OSD/INFILTRATON TANK SIGNAGE

DANGER
CONFINED SPACE
NO ENTRY WITHOUT CONFINED SPACE TRAINING

CONFINED SPACE DANGER SIGN

A CONFINED SPACE DANGER SIGN SHALL BE POSITIONED IN A LOCATION AT ALL ACCESS POINTS, SUCH THAT IT IS CLEARLY VISIBLE TO PERSONS PROPOSING TO ENTER THE BELOW GROUND TANKS/S CONFINED SPACE.

COLOURS: 'DANGER' AND BACKGROUND - WHITE
ELLIPTICAL AREA - RED
RECTANGLE CONTAINING ELLIPSE - BLACK
OTHER LETTERING AND BORDER - BLACK

MINIMUM DIMENSIONS:- 300mm x 450mm (LARGE ENTRIES, SUCH AS DOORS)
- 250mm x 180mm (SMALL ENTRIES SUCH AS GRATES & MANHOLES)

MATERIAL: COLOUR BONDED ALUMINIUM OR POLYPROPYLENE.

FIXING: USE SCREWS AT EACH CORNER AND/OR SUITABLE EPOXY GLUE/CEMENT.

BIORETENTION BASIN/SWALE NOTES

B1. GENERAL:
THE FOLLOWING NOTES ARE INTENDED AS A SUMMARY ONLY TO ASSIST WITH THE CONSTRUCTION AND MAINTENANCE OF A BIORETENTION BASIN/SWALE. ALL WORKS ARE TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE RELEVANT INDUSTRY STANDARDS AND GUIDELINES INCLUDING BUT NOT LIMITED TO STORMWATER NEW SOUTH WALES GUIDELINES "FOR THE MAINTENANCE OF STORMWATER TREATMENT MEASURES" JANUARY 2020 AND WATER BY DESIGN - BIORETENTION TECHNICAL DESIGN GUIDLINES VERSION 1.1 OCT 2014.

ALL PLANTING TO BIOFILTRATION BASIN/SWALE TO LANDSCAPE ARCHITECT'S REQUIREMENTS AND ALSO TO BE A CORE FUNCTIONAL BIORETENTION PLANT SPECIES WITH EFFECTIVE NUTRIENT REMOVAL PROPERTIES.

THE BIOFILTRATION BASIN SHALL BE INSTALLED ONLY AFTER ALL CONSTRUCTION AND LANDSCAPING UPSTREAM HAS BEEN COMPLETED. IF THE FILTER MEDIA IS INSTALLED BEFORE LANDSCAPING IS COMPLETED, THE UN-VEGETATED BASIN MUST BE COVERED WITH A LAYER OF GEOFABRIC UNTIL ALL BARE SOFT SURFACES UPSTREAM HAVE BEEN TURFED OR APPROPRIATELY COVERED AND CONSTRUCTION DEBRIS/SEDIMENT IS NO LONGER EXPECTED TO ENTER THE STORMWATER SYSTEM.

BIORETENTION BASINS REQUIRE AN ESTABLISHMENT PERIOD OF APPROXIMATELY TWO YEARS TO ALLOW THE FILTER MEDIA TO SETTLE AND THE VEGETATION TO REACH ITS DESIGN CONDITIONS. REGULAR MAINTENANCE OF THE BASIN IS ESPECIALLY IMPORTANT DURING THIS INITIAL PERIOD TO ENSURE THE VEGETATION TAKES HOLD AND DOES NOT CHOKE FROM DEBRIS OR PERIODS OF MINIMAL RAINFALL.

ADEQUATE SCOUR PROTECTION IS TO BE PROVIDED AROUND ANY INLET ZONE(S), WITH CONSIDERATION GIVEN TO MINIMISING THE REQUIRED ON-GOING SYSTEM MAINTENANCE FOR THE END-CLIENT AND THE DAMAGING EFFECT OF HIGH VELOCITY STORMWATER.

B2. MEDIA PROPERTIES:
A TYPICAL BIORETENTION SYSTEM HAS 3 LAYERS; A DRAINAGE LAYER, A TRANSITION LAYER AND THE FILTER MEDIA LAYER. GEOFABRIC IS NOT TO BE PLACED BETWEEN THE LAYERS OF MEDIA, OR SOCKS PLACED ON SUB-SOIL DRAINAGE.
THE MEDIA SHOULD BE PLACED IN LIFTS NO DEEPER THAN 250mm THICK AND LIGHTLY COMPACTED. A MAXIMUM OF ONE PASS WITH A SMALL VIBRATING COMPACTOR OR EQUIVALENT. EQUIPMENT SHOULD NOT BE USED FOR MEDIA PLACEMENT THAT WOULD INADVERTANTLY COMPACT THE LAYERS AND AFFECT THE INFILTRATION RATES OF WATER THROUGH THE MEDIA.

B3. FILTER MEDIA SPECIFICATIONS:
THE FILTER MEDIA IS THE TOP LAYER AND THE GROWING MEDIUM. MEDIA SHALL BE IN ACCORDANCE WITH THE PROPERTIES LISTED IN TABLE 3 ADOPTION GUIDELINES FOR STORMWATER BIOFILTRATION SYSTEMS (CRC FOR WSC, 2015). AS MODIFIED BELOW:

DEPTH	500mm TYP BUT VARIES DEPENDING ON SYSTEM SCALE AND SIZE
MATERIAL	EITHER AN ENGINEERED MATERIAL - A WASHED, WELL GRADED SAND - OR NATURALLY OCCURRING SAND, A MIXTURE IS PERMITTED. IT SHOULD BE FREE OF RUBBISH AND WEEDS AND NOT BE HYDROPHOBIC. AN APPROVED FILTER MEDIA IS THE (M165) MEDIA FROM BENEDICT SAND AND GRAVEL OR APPROVED EQUIVALENT.
HYDRAULIC CONDUCTIVITY	HYDRAULIC CONDUCTIVITY: A TARGET, AS BUILT OR IN-SITU SATURATED HYDRAULIC CONDUCTIVITY RATE OF THE FILTER MEDIA SHALL BE A MINIMUM OF 100mmHr. THE EX-SITU (EX BIN) RATE SHALL BE A MINIMUM OF 250mmHr AND VERIFIED, WITH INDEPENDENT NATA REGISTERED LABORATORY TEST DATA NO LONGER THAN ONE MONTH OLD. FOR ALL MUSIC MODELS ADOPT THE IN-SITU RATE OF 100mmHr. TESTING OF MEDIA SHALL CONFORM TO ASTM-F1815-11. EVERY 100m3 OF MEDIA SHALL BE TESTED FOR COMPLIANCE WITH ALL SPECIFIED CRITERIA IN THIS TABLE
PH	5.5 - 7 AS SPECIFIED FOR "NATURAL SOILS AND BLENDS" (PH : IN WATER)
ELECTRICAL CONDUCTIVITY	<1.2 DS/M AS SPECIFIED FOR "NATURAL SOILS AND BLENDS"
NUTRIENT CONTENT	LOW NUTRIENT CONTENT TOTAL NITROGEN (TN) 1000 mg/kg NITROGEN DRAWDOWN > 0.5 (NDI) AVAILABLE PHOSPHATE (COLWELL) < 80mg/kg ORTHOPHOSPHATE < 40 mg/kg (IN BOTH STANDARD OR SATURATED SYSTEMS)
GRADING OF PARTICLES	SMOOTH GRADING - ALL PARTICLE SIZE CLASSES SHOULD BE REPRESENTED ACROSS SIEVE SIZES FROM THE 0.05mm TO THE 3.4mm SIEVE AS PER ASTM F 1632-03 (2010). ACCEPTABLE RANGE CLAY & SILT (%WW) < 3% RETAINED (< 0.05mm) VERY FINE SAND 5-30% (0.05 - 0.15mm) FINE SAND 10-30% (0.15 - 0.25mm) MEDIUM SAND 40-60% (0.25 - 0.5mm) COURSE SAND < 25% (0.5 - 1.0mm) VERY COURSE SAND 0-10% (1.0 - 2.0mm) FINE GRAVEL < 3% (2.0 - 3.4mm) ORGANIC CONTENT ≤ 5% IMMIDIATELY PRIOR TO DELIVERY TO SITE A PSD TEST (AS1141) SHALL BE UNDERTAKEN. IF THE PSD DOES NOT COMPLY A HYDRAULIC CONDUCTIVITY TEST SHALL BE UNDERTAKEN. DELIVERY SHALL NOT BE APPROVED UNTIL THE MEDIA IS APPROVED. THERE SHOULD BE NO GAP IN THE PARTICLE SIZE GRADING AND THE COMPOSITION SHOULD NOT BE DOMINATED BY A SMALL PARTICLE SIZE RANGE. ORGANIC MATTER CONTENT SHALL BE 3% TO 5% TO SUPPORT VEGETATION.

B3. TO AVOID MIGRATION OF THE FILTER MEDIA INTO THE TRANSITION LAYER THE PARTICLE SIZE DISTRIBUTION SHOULD BE ASSESSED TO MEET BRIDGING CRITERIA. THE SMALLEST 15% (D_{15}) OF THE TRANSITION LAYER PARTICLES MUST BE NO GREATER THAN 5 TIMES THE SIZE OF THE LARGEST 15% (D_{85}) OF THE FILTER MEDIA PARTICLES THAT IS:
D_{15} (TRANSITION) ≤5 x D_{85} (FILTER).
ALTERNATIVE MEDIA MAY BE APPROVED AS A MINIMUM DETAILED MATERIAL TESTING AND DEMONSTRATED PERFORMANCE WILL BE REQUIRED. IF ANY RECYCLED MATERIAL IS TO BE USED IT MUST BE DEMONSTRATED AT THE CONTRACTOR'S EXPENSE THAT THE MATERIAL IS BOTH INERT AND FREE OF CONTAMINANTS.
THE CONTRACTOR SHALL ARRANGE FOR IN-SITU TESTING OF THE SPECIFIED HYDRAULIC CONDUCTIVITY AT A RATE OF 2 TESTS PER 50m2 OR PART OF & 1 TEST PER 200m2 THEREAFTER OF FILTER MEDIA AREA FOR COMPLIANCE WITH THE ABOVE SPECIFICATION.

B4. BATTERS:
BATTERS SHALL BE SCARIFIED WITH A ROTARY HOE TO LANDSCAPE ARCHITECT'S REQUIREMENT.
ALTERNATIVELY REMOVE TOP 200mm OF TOPSOIL AND REPLACE WITH AN IMPORTED TOPSOIL COMPLIANT WITH AS4419.

B5. TRANSITION LAYER (MIDDLE) SPECIFICATION:
THE PURPOSE OF THE TRANSITION LAYER IS TO PREVENT THE MIGRATION OF THE FILTER MEDIA INTO THE DRAINAGE LAYER. IT CREATES A LAYER BETWEEN THE FILTER MEDIA AND THE DRAINAGE LAYER. THE LAYER DEPTH IS TO BE A MIN OF 100mm NOM. THICK, IN A SATURATED SYSTEM.
THE MATERIAL MUST BE CLEAN, WELL GRADED SANDCOARSE MATERIAL CONTAINING LITTLE OR NO FINES. USE OF WELL WASHED RECYCLED GLASS IS ACCEPTABLE. AN INDICATIVE PARTICLE SIZE DISTRIBUTION IS BETWEEN 0.5mm AND 1.4mm. FINE PARTICLE CONTENT <2%. IN ADDITION TO BRIDGING CRITERIA, THE D15 (TRANSITION) ≥ D_{15} (FILTER) x 5, THIS CRITERIA ENSURES GREATER HYDRAULIC CONDUCTIVITY OF THE TRANSITION LAYER THAN THE MEDIA.
THE CONTRACTOR SHALL ARRANGE FOR TESTING OF THE PSD & COMPLIANCE WITH BRIDGING CRITERIA & HYDRAULIC CONDUCTIVITY OF A RATE OF 1 TEST PER 1000m^2 OF FILTER MEDIA AREA.

B6. DRAINAGE LAYER SPECIFICATION:
THIS LAYER COLLECTS STORES AND CONVEYS TREATED STORMWATER INTO A SLOTTED COLLECTION PIPE BEDDED INTO THE DRAINAGE LAYER. IT CONSISTS OF A CLEAN GRAVEL 5-7mm WASHED SCREENINGS (NOT SCORIA). THE LAYER DEPTH SHALL MAINTAIN A MINIMUM 50mm COVER OVER THE SUB SURFACE DRAINAGE PIPE. RECYCLED CONCRETE OR BRICK PRODUCTS WILL NOT BE ACCEPTED.

B7. VEGETATION, SHADING AND MULCHING:
PLANTS ARE AN ESSENTIAL COMPONENT OF THE BIORETENTION SYSTEM, REMOVING POLLUTANTS AND MAINTAINING THE HYDRAULIC CONDUCTIVITY OF THE FILTER MEDIA. PLANTS MUST BE CAPABLE OF SURVIVING IN THE FILTER MEDIA ENVIRONMENT (SANDY SOIL, DRY PERIODS WITH INTERMITTENT INUNDATION). A LIST OF SUITABLE SPECIES IS INCLUDED IN TABLE 19 OF WATER BY DESIGN - BIORETENTION TECHNICAL DESIGN GUIDELINES VERSION 1.1 OCT 2014.
PLANTS IN 50mm TUBES OR HIKO CELLS ARE SUITABLE FOR PLANTING IN BIORETENTION SYSTEMS. ESTABLISHMENT WATERING WILL BE REQUIRED.
PLANTS WILL NEED TO BE PRE-ORDERED EARLY IN THE DESIGN PROCESS TO ENSURE THEY ARE AVAILABLE AT THE DESIRED TIME. ALL PLANTS SHALL BE VIGOROUS AND HEALTHY AND FREE FROM ROOT BALLING AND WEEDS. THE PLANTS SHALL BE POTTED ON IF A DELAY OCCURS.
DESIGNS MUST CONSIDER SUNLIGHT AVAILABILITY FOR THE PLANTS. THE ORIENTATION OR DEPTH OF THE SYSTEM CAN CAUSE EXCESSIVE PLANT SHADING, ESPECIALLY IN WINTER.
BIORETENTION SYSTEMS SHALL NOT BE MULCHED. IF MULCH IS USED ON ADJACENT BATTERS IT SHALL BE PLACED SO THAT IT WILL NOT BE WASHED INTO THE BIORETENTION SYSTEM.
DURING ESTABLISHMENT EROSION OF THE BOTTOM OF ACCESS RAMPS & AROUND ALL SURCHARGE PITS SHALL BE CONTROLLED USING JUTE.

B8. MAINTENANCE
- BIORETENTION TREATMENTS SHOULD BE INSPECTED REGULARLY AFTER COMPLETION OF SEEDING/PLANTING UNTIL THE VEGETATION IS ESTABLISHED. IN THE FIRST YEAR OF OPERATION INSPECTIONS SHOULD OCCUR ON A MONTHLY BASIS AND FOLLOWING SIGNIFICANT STORM EVENTS TO EVALUATE AN APPROPRIATE INSPECTION FREQUENCY FOR A PARTICULAR SITE.
- TYPICALLY AN AVERAGE INSPECTION FREQUENCY OF 1 TO 2 MONTHS FOLLOWING STABILISATION OF VEGETATION WOULD BE APPROPRIATE. THE INSPECTIONS COULD COINCIDE WITH A REGULAR MAINTENANCE ACTIVITY (EG. GRASS CUTTING, WEEDING, LITTER REMOVAL, ETC).
- QUARTERLY INSPECTIONS ARE RECOMMENDED FOR ESTABLISHED SYSTEMS.

ALL MAINTENANCE OF THE BIORETENTION BASINS/SWALES ARE TO BE IN ACCORDANCE WITH STORMWATER NEW SOUTH WALES GUIDELINES "FOR THE MAINTENANCE OF STORMWATER TREATMENT MEASURES" JANUARY 2020. AND WATER BY DESIGN - BIORETENTION TECHNICAL DESIGN GUIDLINES VERSION 1.1 OCT 2014.

DRAINAGE LEGEND

1.56	EXISTING SURFACE/PAVEMENT LEVEL
8.05	PROPOSED SURFACE/PAVEMENT LEVEL
	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING STORMWATER PIPE AND PIT
	PROPOSED STORMWATER PIPE AND JUNCTION PIT
	PROPOSED STOMWATER PIPE AND SURFACE INLET PIT
	PROPOSED RAINWATER PIPE
	PROPOSED 100Ø SUBSOIL PIPE
DP	PROPOSED DOWNPIPE
IL	INVERT LEVEL OF PIPE
OF	GUTTER OVERFLOW (SPITTER) INTO COURTYARD
	OVERLAND FLOW PATH
	GRATED DRAIN
	DIRECTION OF FALL
FFL	FINISHED FLOOR LEVEL
RWO	RAINWATER OUTLET
C.O.S	CONFIRM ON SITE
	PROPOSED SEDIMENT FENCE
	GEOTEXTILE FABRIC TO PIT

DRAWING LIST

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

THIS DRAWING IS ISSUED FOR AUTHORITY APPROVAL ONLY

No.	REVISION	DATE	No.	REVISION	DATE
1	ISSUED FOR AUTHORITY APPROVAL	08-09-20			

ARCHITECT
T +612 9360 7570
ABN 75155117516

SHED

PROJECT
27 BELLEVUE AVENUE AVALON

CLIENT
CONSTRUCT BY DESIGN

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990
Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)
Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE
CIVIL AND DRAINAGE NOTES

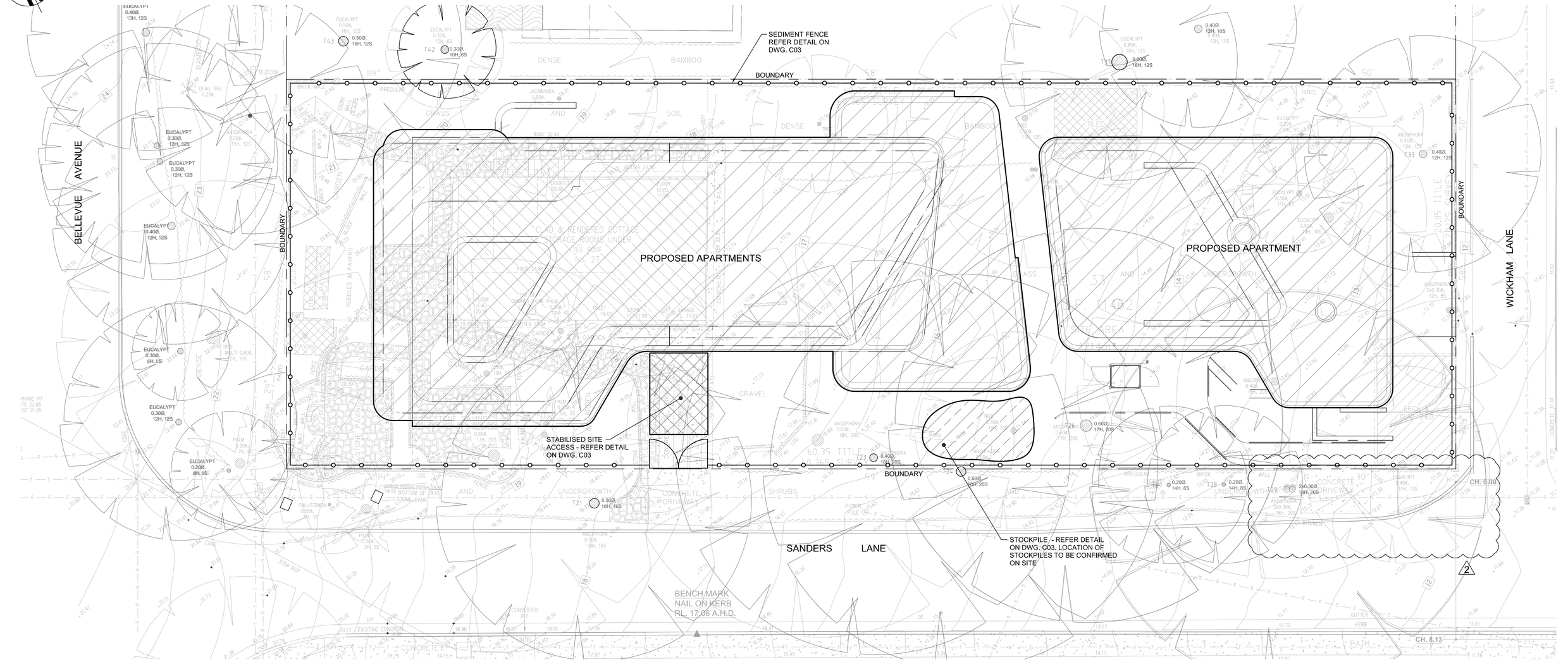
DRAWN	DESIGNED	REVIEWED	DATE	SCALE
JDW	NN	SM	AUG 2020	AS SHOWN

JOB No.	DRAWING No.	ISSUE
5281	C01	1

164

A1

FOR CIVIL & STORMWATER NOTES REFER DRAWING No. C01



SEDIMENT AND EROSION CONTROL PLAN

SCALE 1:100

SOIL AND WATER MANAGEMENT NOTES

INTRODUCTORY NOTES

1. THIS IS A CONCEPTUAL SOIL AND WATER MANAGEMENT PLAN (SWMP). IT IS INTENDED TO INDCIATE THAT THE CIVIL WORKS REQUIRED FOR THE DEVELOPMENT OF THE SITE CAN BE UNDERTAKEN WITHOUT POLLUTION TO RECEIVING WATERS DURING THE CONSTRUCTION PHASE. THE LOCATIONS, SIZES AND TYPES OF CONTROL MEASURES SHOWN ARE SUGGESTED OPTIONS ONLY.
2. ALL REFERENCES OF DETAILS, TESTING AND PROCEDURES ARE TO BE FOLLOWED AS SPECIFIED IN THE DEPARTMENT OF HOUSING "MANAGING URBAN STORMWATER SOILS CONSTRUCTION" MANUAL, MARCH 2004, HERE IN REFERRED TO AS THE "'BLUE BOOK".
3. THESE CONCEPT PLANS ARE TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS AND OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO THE DEVELOPMENT OF THE SITE.
4. ALL CONTRACTORS SHALL FULLY RESEARCH AND UNDERSTAND THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSTREAM LANDS AND WATERWAYS.

EROSION CONTROL

1. CLEARLY VISIBLE BARRIER FENCING SHALL BE INSTALLED AT THE DISCRETION OF THE SUPERINTENDENT TO ENSURE TRAFFIC CONTROL AND PROHIBIT UNNECESSARY SITE DISTURBANCE. VEHICULAR ACCESS TO THE SITE SHALL BE LIMITED TO ONLY THOSE ESSENTIAL FOR CONSTRUCTION WORK AND THEY SHALL ENTER SITE ONLY THROUGH THE STABILISED ACCESS POINTS.
2. WHERE PRACTICAL, FOOT AND VEHICULAR TRAFFIC WILL BE KEPT AWAY FROM ALL RECENTLY STABLISED AREAS.
3. AT ALL TIMES, AND IN PARTICULAR DURING WINDY AND DRY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.

SEDIMENT CONTROL

1. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE (I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED/STABLISED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE). PROVIDE FLOCULANT TO EARTH BASIN AS REQ'D.
2. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED/ REHABILITATED.

OTHER MATTERS

1. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
(A) PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE.
(B) ENSURING THAT NOTHING IS NAILED TO THEM.
(C) PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE.
2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN REGULARLY AND AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.
3. THE CONTRACTOR SHALL PROVIDE ALL MONITORING CONTROLS & TESTING.
4. SITE REVEGETATION AND REHABILIATION SHALL BE UNDERTAKEN AS SOON AS PRACTICABLE THROUGHOUT CONSTRUCTION OPERATIONS.
5. CONSTRUCTION SHALL BE PROGRAMMED SO THAT THE TIME OF EXPOSURE OF WORKING SURFACES IS MINIMISED.
6. ALL SPOIL DEPOSITED DURING CARTAGE OF MATERIALS FROM OR TO THE SITE SHALL BE REMOVED IMMEDIATELY TO THE SATISFACTION OF COUNCIL (PUBLIC ROADS) AND THE OWNER (PRIVATE ROADS).
7. WHERE REQUIRED GUTTERS AND ROADWORKS SHALL BE SWEPT REGULARLY TO MAINTAIN THEM FREE FROM SEDIMENT.

LEGEND

PROPOSED SEDIMENT FENCE

SITE BOUNDARY

NOTE:

REFER DRAWING C03 FOR SEDIMENT CONTROL DETAILS.

THIS DRAWING IS ISSUED FOR AUTHORITY APPROVAL ONLY

No.	REVISION	DATE	No.	REVISION	DATE
2	REVISED KERB RETURN	16-03-21			
1	ISSUED FOR AUTHORITY APPROVAL	08-09-20			

ARCHITECT

SHED

T +612 9360 7570
ABN 75155117516

PROJECT

27 BELLEVUE AVENUE
AVALON

CLIENT

CONSTRUCT BY DESIGN

M+G Consulting

M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990

Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)

Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE

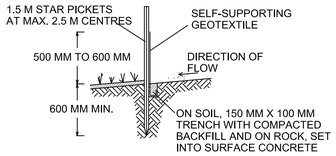
SEDIMENT AND EROSION CONTROL PLAN

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
JDW	NN	SM	AUG 2020	AS SHOWN

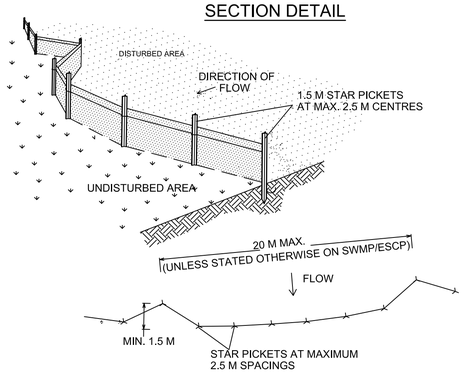
JOB No.	DRAWING No.	ISSUE
5281	C02	2

165

A1



SECTION DETAIL

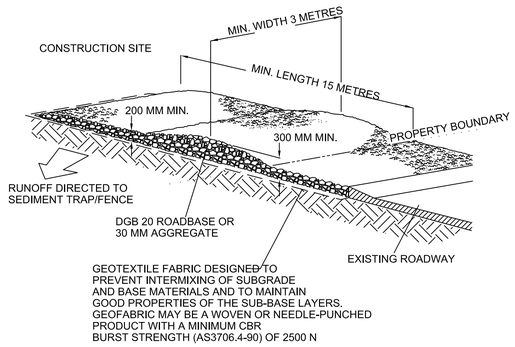


SEDIMENT FENCE

PLAN

CONSTRUCTION NOTES:

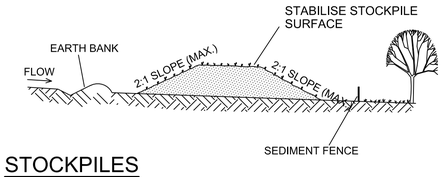
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150-MM DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150-MM OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



STABILISED SITE ACCESS

CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200 MM THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30 MM AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE



STOCKPILES

CONSTRUCTION NOTES:

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

THIS DRAWING IS ISSUED FOR AUTHORITY APPROVAL ONLY

No.	REVISION	DATE	No.	REVISION	DATE
1	ISSUED FOR AUTHORITY APPROVAL	08-09-20			

ARCHITECT
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ABN 75155117516

SHED

PROJECT
27 BELLEVUE AVENUE
AVALON

CLIENT
CONSTRUCT BY DESIGN

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990
Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)
Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE
SEDIMENT AND EROSION
CONTROL DETAILS

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
JDW	NN	SCM	OCT19	NTS

JOB No.	DRAWING No.	ISSUE
5281	C03	1

166

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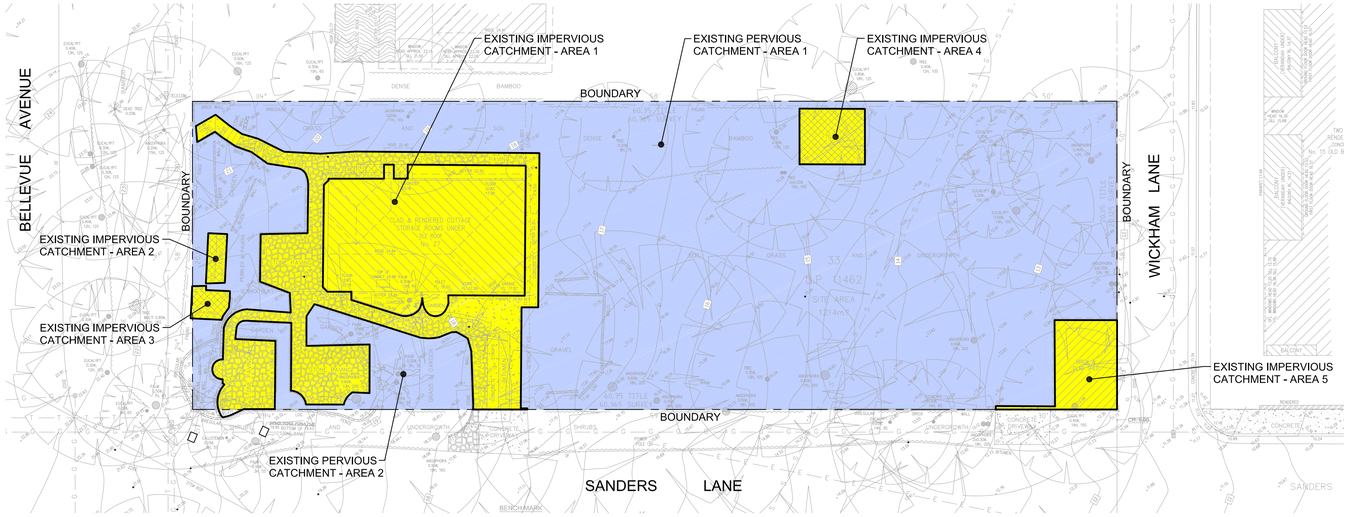
FOR CIVIL & STORMWATER NOTES REFER DRAWING No. C01



PREDEVELOPMENT CATCHMENT PLAN

SCALE 1:200

POST DEVELOPMENT CATCHMENT PLAN

SCALE 1:200

PRE-DEVELOPMENT CATCHMENT

TOTAL IMPERVIOUS AREAS 1 TO 5 ..... 296.5m^2
PERVIOUS AREA..... 918.5m^2

TOTAL CATCHMENT AREA..... 1215m^2

POST DEVELOPMENT CATCHMENT

IMPERVIOUS AREAS (INCLUDING ROOF)..... 815m^2
PERVIOUS AREA ..... 400m^2

TOTAL CATCHMENT AREA ..... 1215m^2

CATCHMENT LEGEND

PERVIOUS AREAS

- DENOTES EXTENT OF PERVIOUS AREA

IMPERVIOUS AREAS

- DENOTES EXTENT OF IMPERVIOUS AREA

- DENOTES EXTENT OF IMPERVIOUS ROOF CATCHMENT AREA

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

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1	ISSUED FOR AUTHORITY APPROVAL	08-09-20			

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Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE

STORMWATER CATCHMENT PLANS

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
JDW	NN	SM	AUG 2020	AS SHOWN

JOB No.	DRAWING No.	ISSUE
5281	C04 167	1

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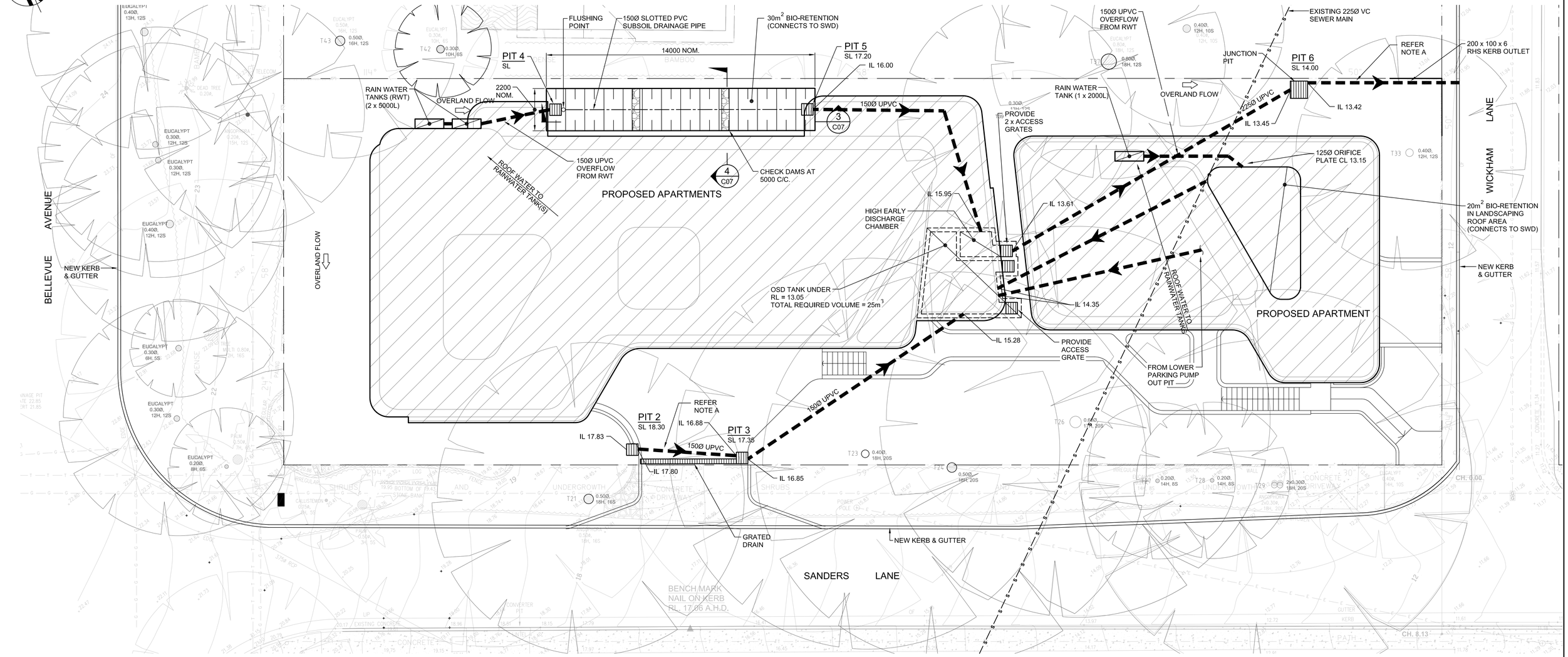
FOR CIVIL & STORMWATER NOTES REFER DRAWING No. C01



STORMWATER DRAINAGE CONCEPT PLAN

SCALE 1:100

DRAINAGE NOTES:

1. FOR DRAINAGE NOTES REFER DWG. C01.

PIT SCHEDULE		
PIT No.	SIZE	LID TYPE (TO AS.3996)
1	450 x 450	NOT USED
2	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'A'
3	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'D'
4	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'A'
5	900 x 900	SURFACE INLET PIT FLUSH GRATE CLASS 'A'
6	450 x 450	SURFACE INLET PIT FLUSH GRATE CLASS 'A'

PIT NOTES:

1. PITS DEEPER THAN 1000 TO HAVE STEP IRONS.
2. ALL GRATES TO BE CAST INTO NEW SLABS.
3. ALL OSD/PIT/TRENCH DRAIN LIDS AND GRATES TO BE TO AS 3996. REFER TO PLANS/SECTIONS FOR CLASS OF PIT/GRATE.
4. ALL PIT SURFACE LEVELS TO BE CONFIRMED ON SITE. ANY SIGNIFICANT VARIATIONS FROM PROVIDED SURFACE LEVELS, ENGINEER TO BE ADVISED FOR ANY CHANGES TO THE PIPE INVERT LEVELS.

NOTE A:

ALL EXCAVATION FOR INSTALLATION OF THE STORMWATER DRAINAGE SYSTEM IN THE VICINITY OF A TREE PROTECTION ZONE (TPZ) IS TO USE HAND EXCAVATION METHODS TO ENSURE NO DAMAGE TO EXISTING TREE ROOTS IN ACCORDANCE WITH ARBORIST REQUIREMENTS. ENGINEER TO BE ADVISED IF ANY ADJUSTMENTS ARE REQUIRED TO THE ALIGMENT OF THE STORMWATER DRAIN LINES TO COMPLY WITH THE ABOVE.

THIS DRAWING IS ISSUED FOR AUTHORITY APPROVAL ONLY

No.	REVISION	DATE	No.	REVISION	DATE
5	SWD AMENDED FOR T21 & T33	06-09-21			
4	OSD TANK LOCATION REVISED	18-08-21			
3	GENERALLY REVISED, OSD RELOCATED	16-03-21	7	MINOR REVISIONS	23-09-21
2	ISSUED FOR AUTHORITY APPROVAL	08-09-20	6	BIO-RETENTION BASIN LOCATION	14-09-21
1	ISSUED FOR COORDINATION	28-08-20		REVISED	

ARCHITECT
T +612 9360 7570
ABN 75155117516

PROJECT
27 BELLEVUE AVENUE
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Email:ad@mg.com.au

TITLE
STORMWATER DRAINAGE CONCEPT PLAN

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
JDW	NN	SM	AUG 2020	AS SHOWN

JOB No.	DRAWING No.	ISSUE
5281	C05	7

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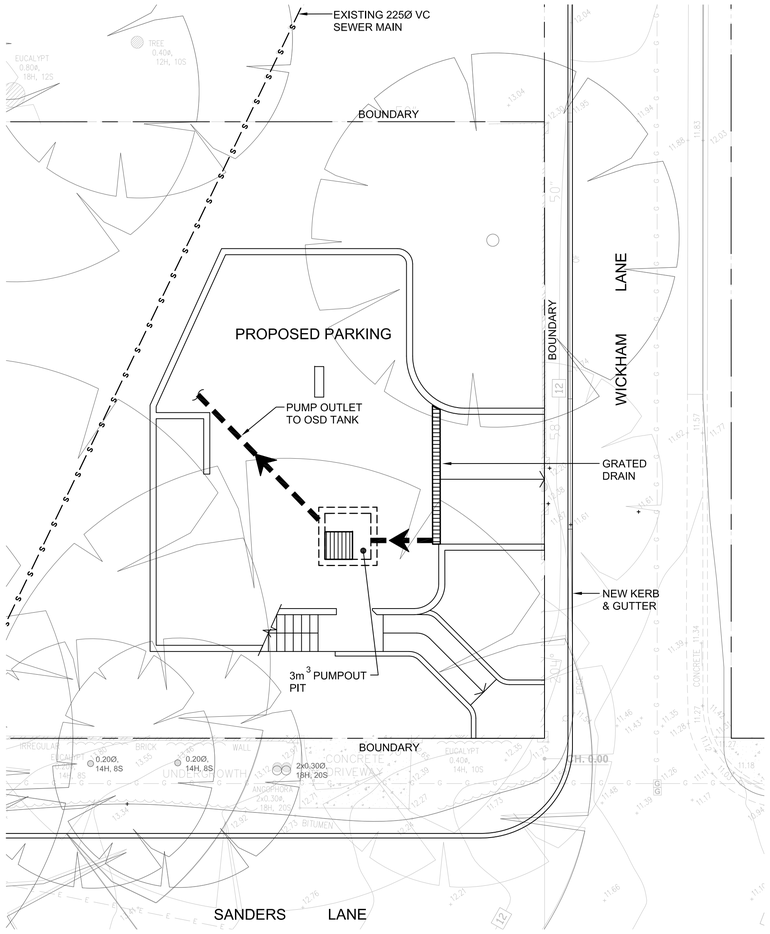
EXISTING 225Ø VC SEWER MAIN
BOUNDARY
PROPOSED PARKING
PUMP OUTLET TO OSD TANK
GRATED DRAIN
NEW KERB & GUTTER
3m³ PUMPOUT PIT
BOUNDARY
WICKHAM LANE
BOUNDARY
SANDERS LANE
TREE 0.40Ø, 12H, 10S
EUCALYPT 0.80Ø, 18H, 12S
0.20Ø, 14H, 8S
0.20Ø, 14H, 8S
2x0.30Ø, 18H, 20S
EUCALYPT 0.40Ø, 14H, 10S
IRREGULAR BRICK WALL
UNDERGROWTH
CONCRETE DRIVEWAY
ANGOPHORA 2x0.50Ø, 18H, 30S
BRICK WALL
BITUMEN
CONCRETE
GRID
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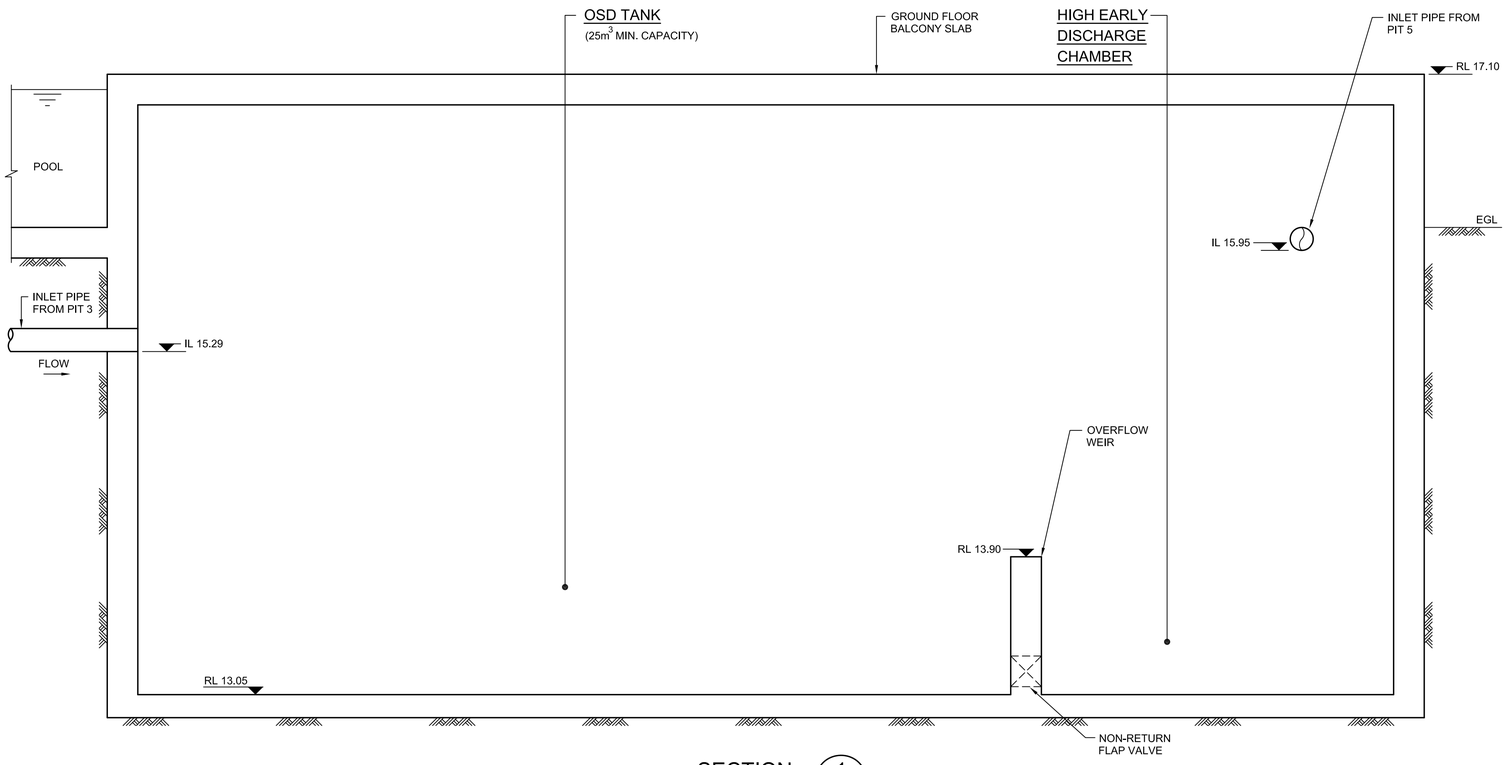
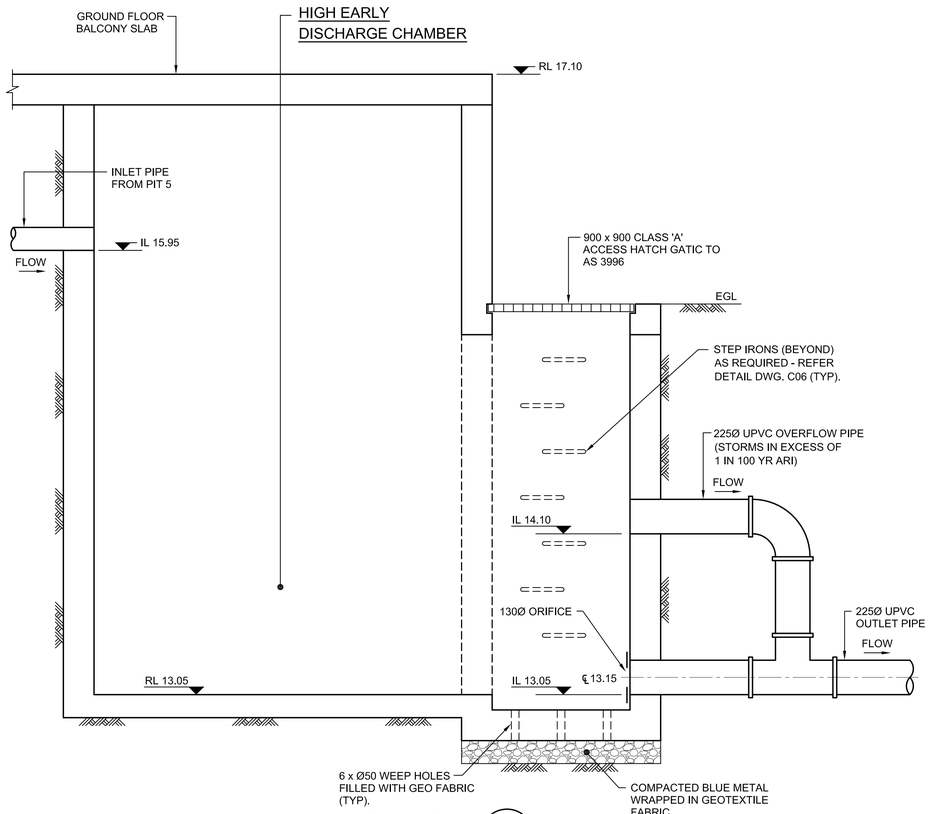
FOR CIVIL & STORMWATER NOTES REFER DRAWING No. C01



SECTION 1
SCALE 1:20

LONG SECTION THROUGH OSD TANK/HIGH EARLY DISCHARGE CHAMBER



SECTION 2
SCALE 1:20

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No.	REVISION	DATE	No.	REVISION	DATE
2	OSD REVISED	16-03-21			
1	ISSUED FOR AUTHORITY APPROVAL	08-09-20			

ARCHITECT
T +612 9360 7570
ABN 75155117516

PROJECT
27 BELLEVUE AVENUE
AVALON

CLIENT
CONSTRUCT BY DESIGN

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990
Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)
Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

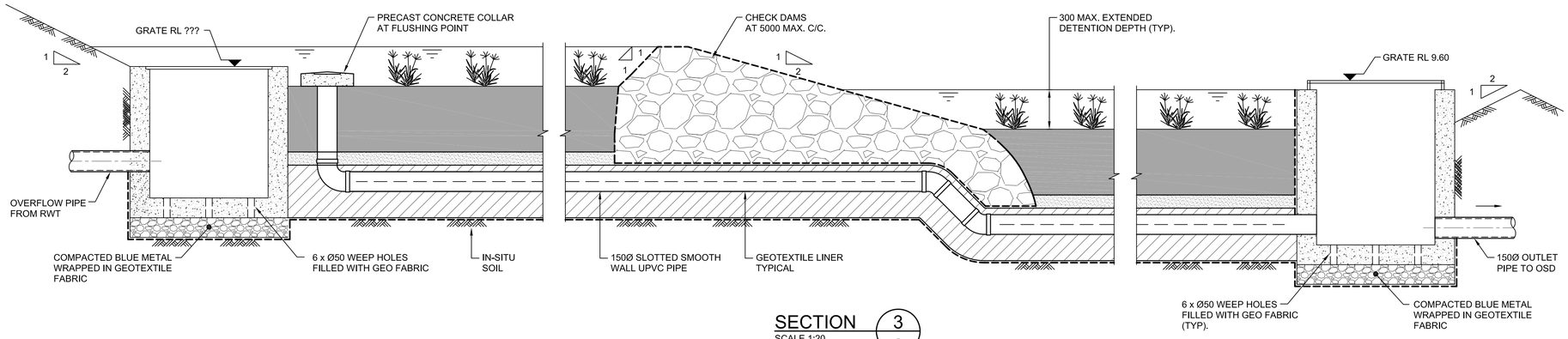
TITLE
STORMWATER DRAINAGE DETAILS SHEET 2

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
JDW	NN	SCM	SEPT 2020	NOTED AT A1

JOB No.	DRAWING No.	ISSUE
5281	C07	2

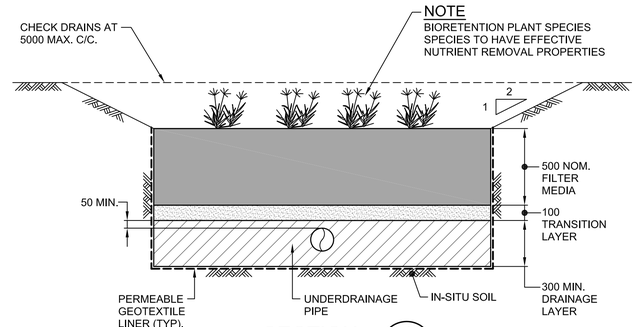
170

A1



SECTION 3
SCALE 1:20

LONG SECTION THROUGH BIORETENTION BASIN

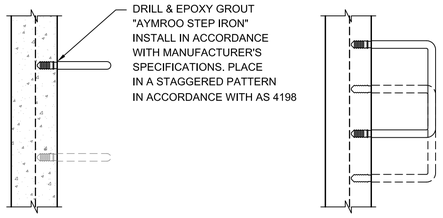


SECTION 4
SCALE 1:20

TYPICAL BIORETENTION DRAINAGE DETAIL

NOTE:

REFER TO CIVIL NOTES & DETAILS OF FILTER MEDIA, TRANSITION AND DRAINAGE LAYERS ON DWG. C01.



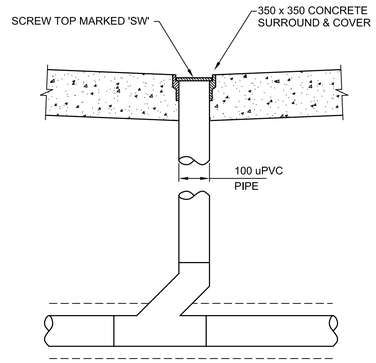
ELEVATION PLAN

DETAILS OF STEP IRONS

SCALE 1:10

NOTE:

1. WHEN POSITIONED IN STRAIGHT ALIGNMENT, STEP TO BE 400 WIDE.
2. STAGGERED STEPS TO BE 200 WIDE, STEPS TO BE STAGGERED 200. CENTRE TO CENTRE FOR ALTERNATE STEPS.
3. SPACING OF STEPS TO BE UNIFORM TO WITHIN ±8mm IN EACH PIT.



TYPICAL CLEANING EYE DETAIL

NTS

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No.	REVISION	DATE	No.	REVISION	DATE
1	ISSUED FOR AUTHORITY APPROVAL	16-03-21			

ARCHITECT
T +612 9360 7570
ABN 75155117516

SHED

PROJECT
27 BELLEVUE AVENUE
AVALON

CLIENT
CONSTRUCT BY DESIGN

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990
Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)
Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE
STORMWATER DRAINAGE DETAILS SHEET 3

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
JDW	NN	SCM	SEPT 2020	NOTED AT A1

JOB No.	DRAWING No.	ISSUE
5281	C08	1

A1

PROVIDE SWALE DRAIN TO RE-DIRECT RUNOFF INTO KERB GUTTER EXTENT TO BE DETERMINED ON SITE

PROPOSED APARTMENTS

PROPOSED KERB & GUTTER AS PER NORTHERN BEACHES COUNCIL STANDARD KERB & GUTTER DETAIL A4 2276/A (REFER TO DRAWING C35)

ADJUST EXISTING GROUND LEVEL 150mm MAX DEPTH (TYP)

GUTTER CROSSING AS PER NORTHERN BEACHES COUNCIL STANDARD GUTTER CROSSING DETAIL A4 2276/B (REFER TO DRAWING C36)

GUTTER CROSSING AS PER NORTHERN BEACHES COUNCIL STANDARD GUTTER CROSSING DETAIL A4 2276/B (REFER TO DRAWING C36)

INSTALL KERB ACCESS RAMP AS PER NORTHERN BEACHES COUNCIL STANDARD KERB RAMP ACCESS RAMP DETAIL A4 7284 (REFER TO DRAWING C35)

NEW KERB & GUTTER FOR EXTENT OF SITE BOUNDARY

K&G

GUTTER CROSSING

REFER DRAWING C11 FOR CONTINUATION

BENCH MARK TOP OF KERB RL 17.06 A.H.D.

D.P. 9151

D.P. 11482

CIVIL WORKS PLAN

SCALE 1:100

LEGEND

- DENOTES EXTENT OF HALF ROAD RECONSTRUCTION.

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

THIS DRAWING IS ISSUED FOR AUTHORITY APPROVAL ONLY

No.	REVISION	DATE	No.	REVISION	DATE
3	MINOR REVISIONS	23-09-21			
2	REVISED KERB RETURN	16-03-21			
1	ISSUED FOR AUTHORITY APPROVAL	08-09-20			

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ABN 75155117516

PROJECT

27 BELLEVUE AVENUE
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M+G Consulting

M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990

Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)

Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE

CIVIL WORKS PLAN
SHEET 1

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
MW	MW	SM	JULY 2020	1:100 @A1

JOB No.	DRAWING No.	ISSUE
5281	C10	3

172

A1

KERB TO WICKHAM LANE TO BE RELOCATED TO ALLOW THE TURNING OF A TRUCK TRAVELLING SOUTH ON WICKHAM LANE INTO SANDERS LANE

INSTALL KERB ACCESS RAMP AS PER NORTHERN BEACHES COUNCIL STANDARD KERB ACCESS RAMP DETAIL A4 7284 (REFER TO DRAWING C35)

EXIT FROM BASEMENT

GUTTER CROSSING

FOOTPATH LEVEL TO MATCH EXITING EXIT FROM BASEMENT

NEW FOOTPATH (DDA COMPLIANT GRADES)

GUTTER CROSSING AS PER NORTHERN BEACHES COUNCIL STANDARD GUTTER CROSSING DETAIL A4 2276/B (REFER TO DRAWING C36)

TRANSITION NEW FOOTPATH TO EXISTING

FENCE WHERE KERB IS RAISED ABOVE 200mm

TRANSITION NEW ROAD TO EXISTING

REFER DRAWING C10 FOR CONTINUATION

CIVIL WORKS PLAN

SCALE 1:100

LEGEND

- DENOTES EXTENT OF HALF ROAD RECONSTRUCTION.

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

THIS DRAWING IS ISSUED FOR AUTHORITY APPROVAL ONLY

No.	REVISION	DATE	No.	REVISION	DATE
3	KERB TO WICKHAM LANE RELOCATED	23-09-21			
2	REVISED KERB RETURN	16-03-21			
1	ISSUED FOR AUTHORITY APPROVAL	08-09-20			

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ABN 75155117516

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M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990

Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)

Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

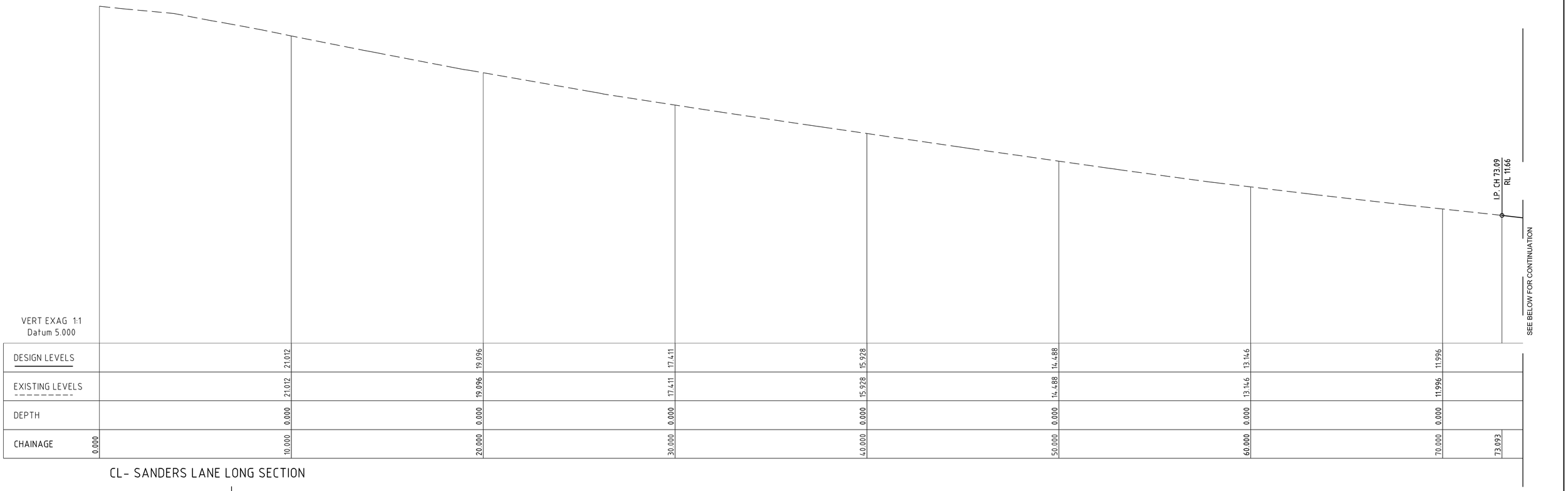
TITLE

CIVIL WORKS PLAN
SHEET 2

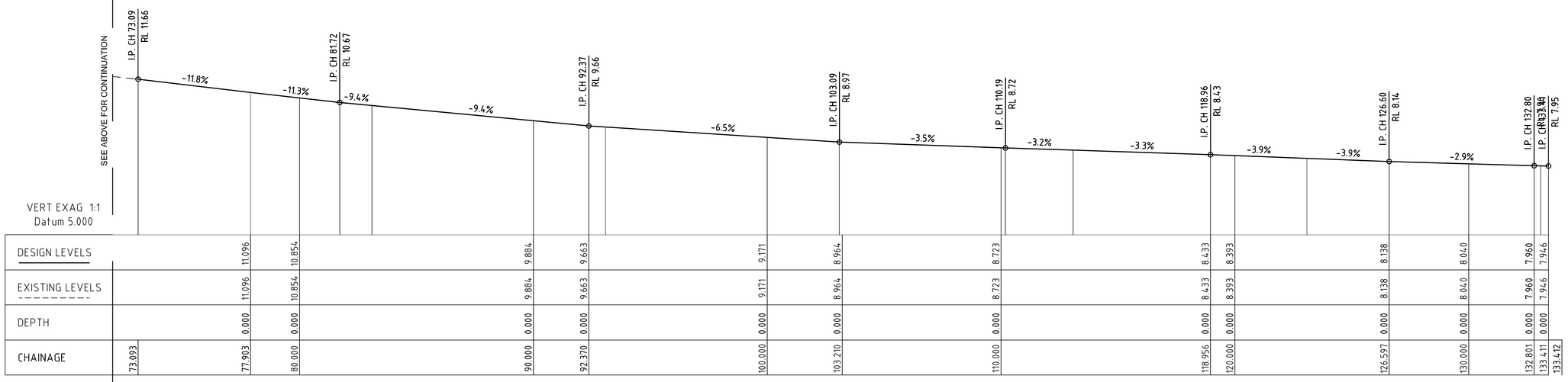
DRAWN	DESIGNED	REVIEWED	DATE	SCALE
MW	MW	SM	JULY 2020	1:100 @A1

JOB No.	DRAWING No.	ISSUE
5281	C11	3

A1



CL- SANDERS LANE LONG SECTION



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No.	REVISION	DATE	No.	REVISION	DATE
2	ISSUED FOR AUTHORITY APPROVAL	08-09-20			
1	ISSUED FOR INFORMATION	31/07/20			

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T +612 9360 7570
ABN 75155117516

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PROJECT

27 BELLEVUE AVENUE
AVALON

CLIENT

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M+G Consulting

M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990

Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)

Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE

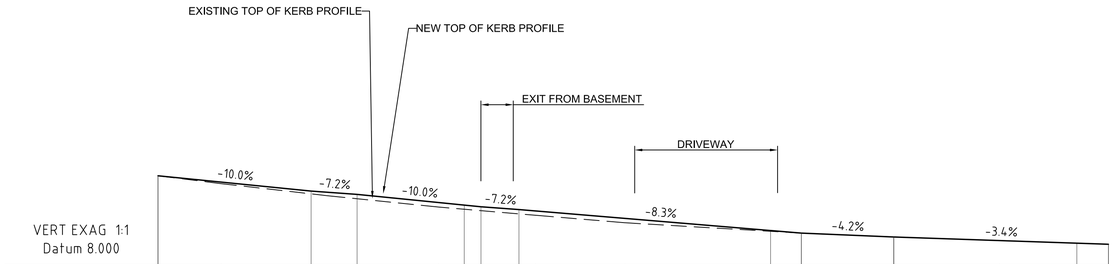
CIVIL WORKS LONGITUDINAL SECTIONS SHEET 1

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
MW	SM		JULY 2020	AS SHOWN

JOB No.	DRAWING No.	ISSUE
5281	C12	2

174

A1



VERT EXAG 1:1
Datum 8.000

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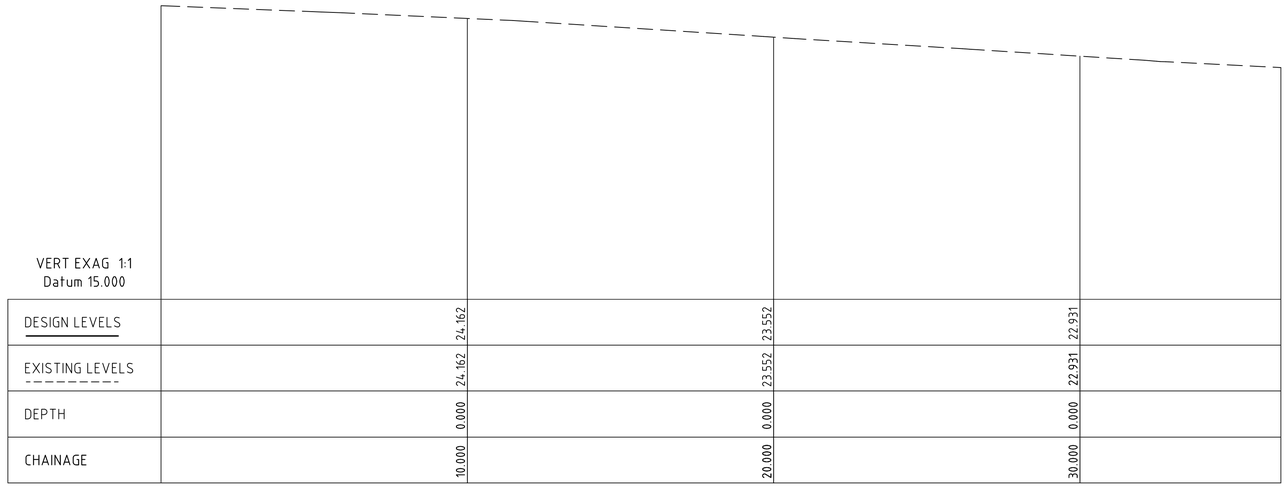
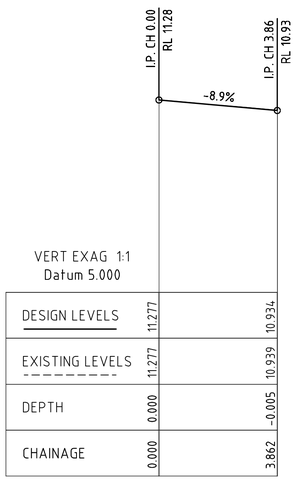
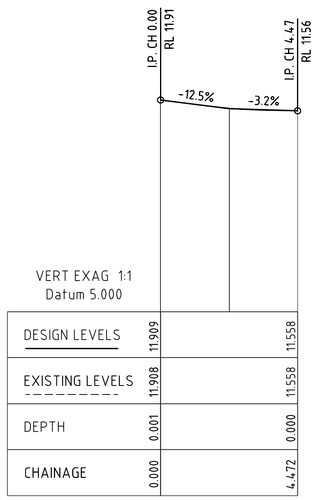


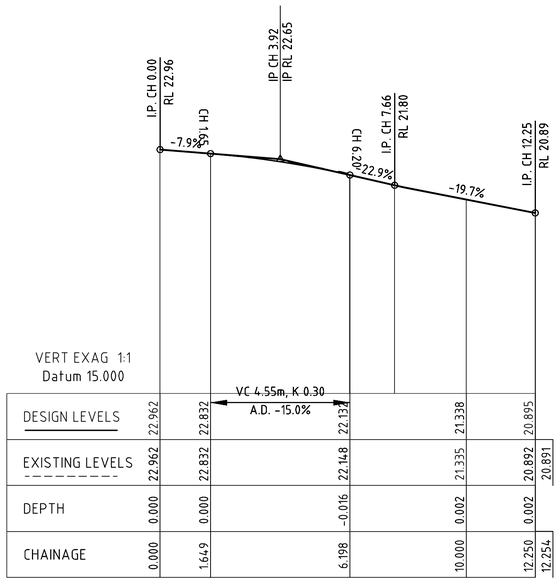
CL- BELLEVUE AVE LONG SECTION



KR-1 LONG SECTION



KR-2 LONG SECTION



KR-3 LONG SECTION

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No.	REVISION	DATE	No.	REVISION	DATE
2	ISSUED FOR AUTHORITY APPROVAL	08-09-20			
1	ISSUED FOR INFORMATION	31/07/20			

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SHED

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ABN 75155117516

PROJECT

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AVALON

CLIENT

CONSTRUCT BY DESIGN

M+G Consulting

M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990

Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)

Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE

CIVIL WORKS LONGITUDINAL SECTIONS SHEET 3

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
MW	SM		JULY 2020	AS SHOWN

JOB No. 5281

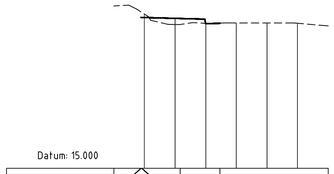
DRAWING No. C14

176

2 ISSUE

A1

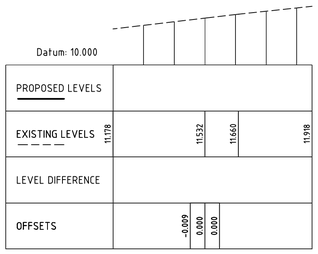
CROSS SECTIONS - SANDERS LANE



Datum: 15.000

| | | |

CROSS SECTIONS - WICKHAM LANE



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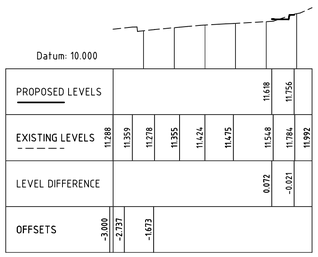
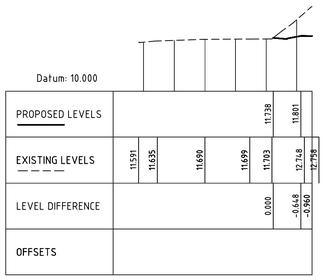


Chainage 20.000



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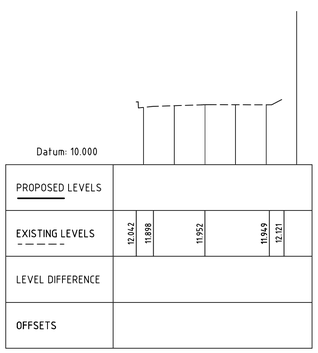

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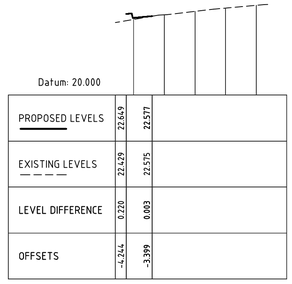
CROSS SECTIONS - BELLEVUE AVE



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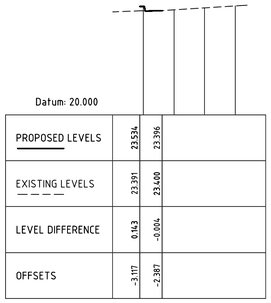

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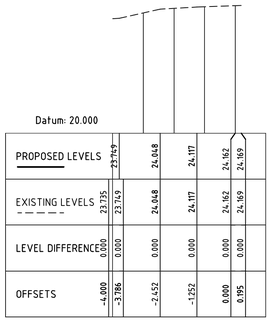

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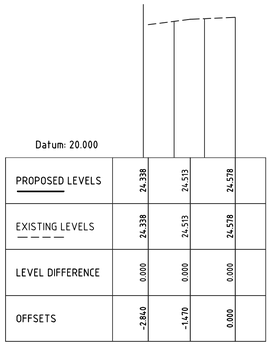

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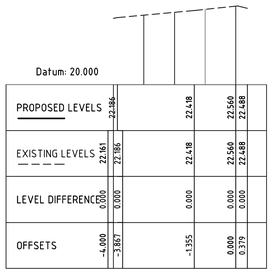

Chainage 36.558

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1	ISSUED FOR AUTHORITY APPROVAL	08-09-20			

ARCHITECT

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ABN 75155117516

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27 BELLEVUE AVENUE
AVALON

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M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990

Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)

Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:cad@mg.com.au

TITLE

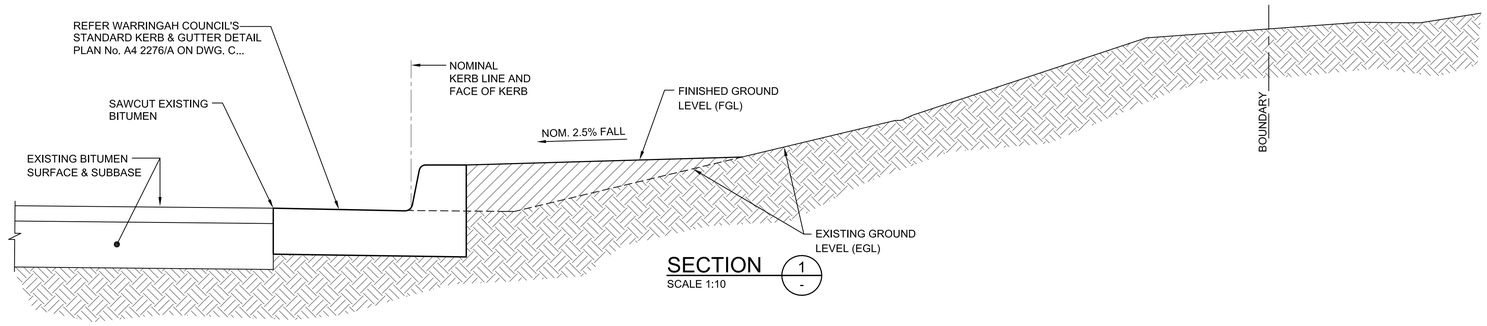
CIVIL WORKS CROSS SECTIONS - SHEET 1

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
MW	SM		JULY 2020	AS SHOWN

JOB No.	DRAWING No.		ISSUE
5281	C21	178	1

A1

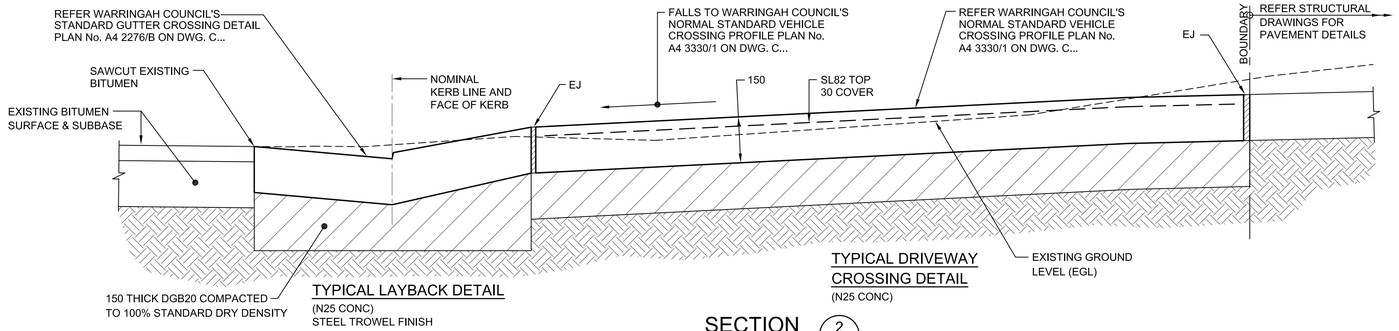
FOR CIVIL & STORMWATER NOTES REFER DRAWING No. C01



SECTION 1
SCALE 1:10

TYPICAL KERB AND GUTTER DETAIL

DENOTED K & J ON PLAN
(N25 CONC)
STEEL TROWEL FINISH



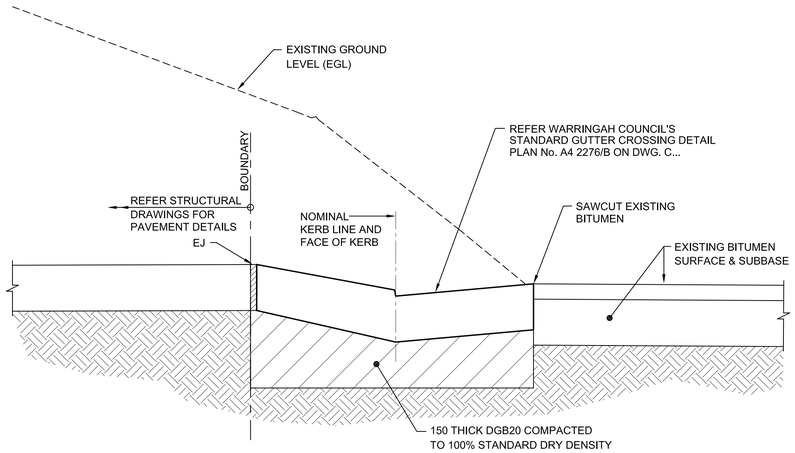
TYPICAL LAYBACK DETAIL

(N25 CONC)
STEEL TROWEL FINISH

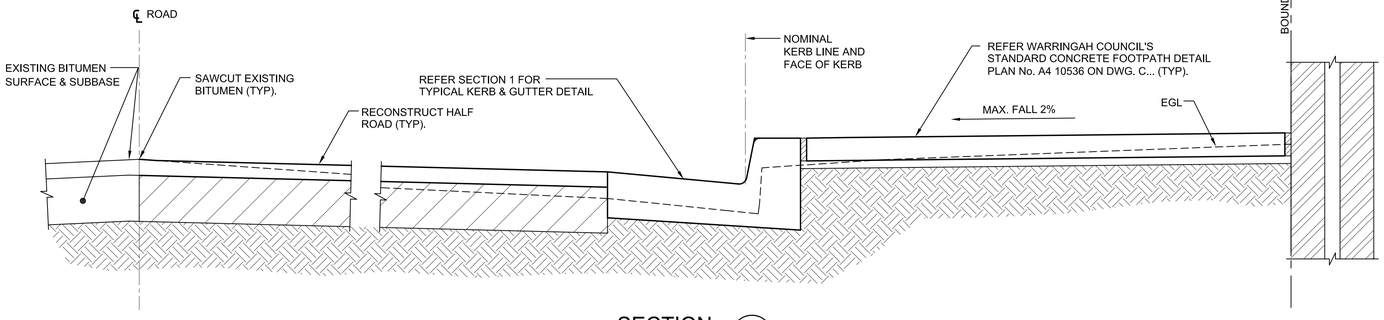
TYPICAL DRIVEWAY CROSSING DETAIL

(N25 CONC)

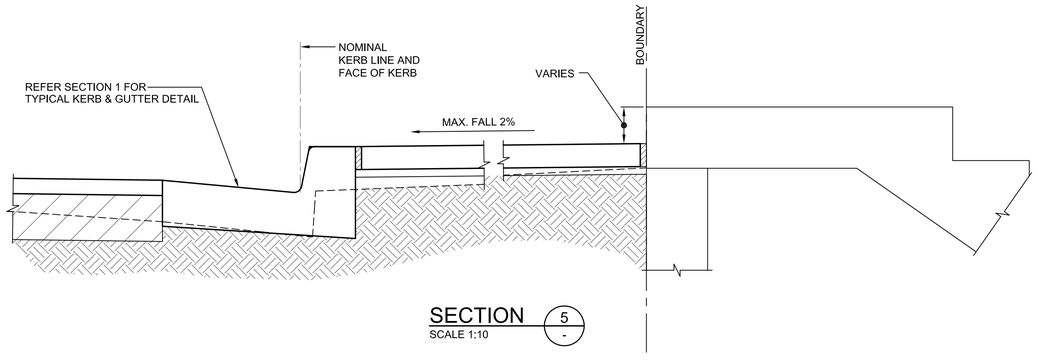
SECTION 2
SCALE 1:10



SECTION 3
SCALE 1:10



SECTION 4
SCALE 1:10



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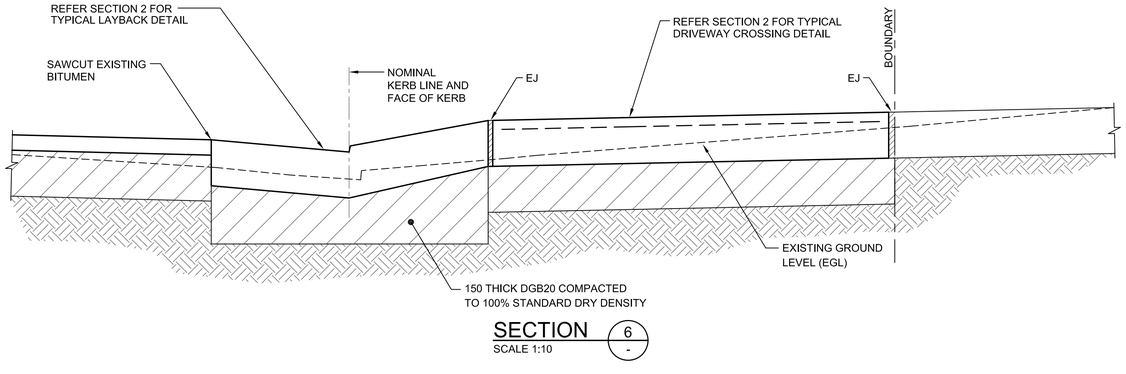
SCALE 1:10



SECTION 6
SCALE 1:10

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No.	REVISION	DATE	No.	REVISION	DATE
1	ISSUED FOR AUTHORITY APPROVAL	08-09-20			

ARCHITECT

SHED

T +612 9360 7570
ABN 75155117516

PROJECT

27 BELLEVUE AVENUE
AVALON

CLIENT

CONSTRUCT BY DESIGN

M+G Consulting

M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990

Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)

Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

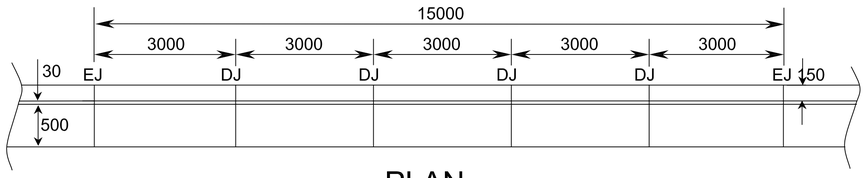
TITLE

CIVIL WORKS DETAILS
SHEET 1

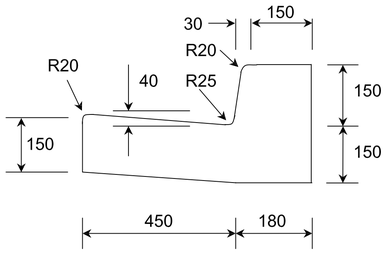
DRAWN	DESIGNED	REVIEWED	DATE	SCALE
JDW	NN	SCM	SEPT 2020	NOTED AT A1

JOB No.	DRAWING No.	ISSUE
5281	C30 179	1

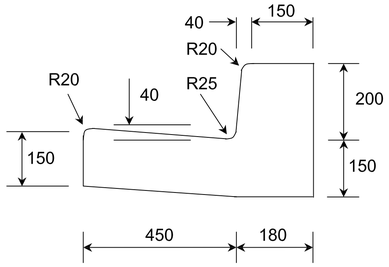
A1



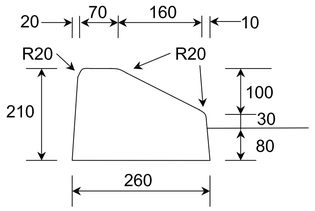
PLAN



150mm KERB & GUTTER



200mm KERB & GUTTER



MOUNTABLE TYPE KERB

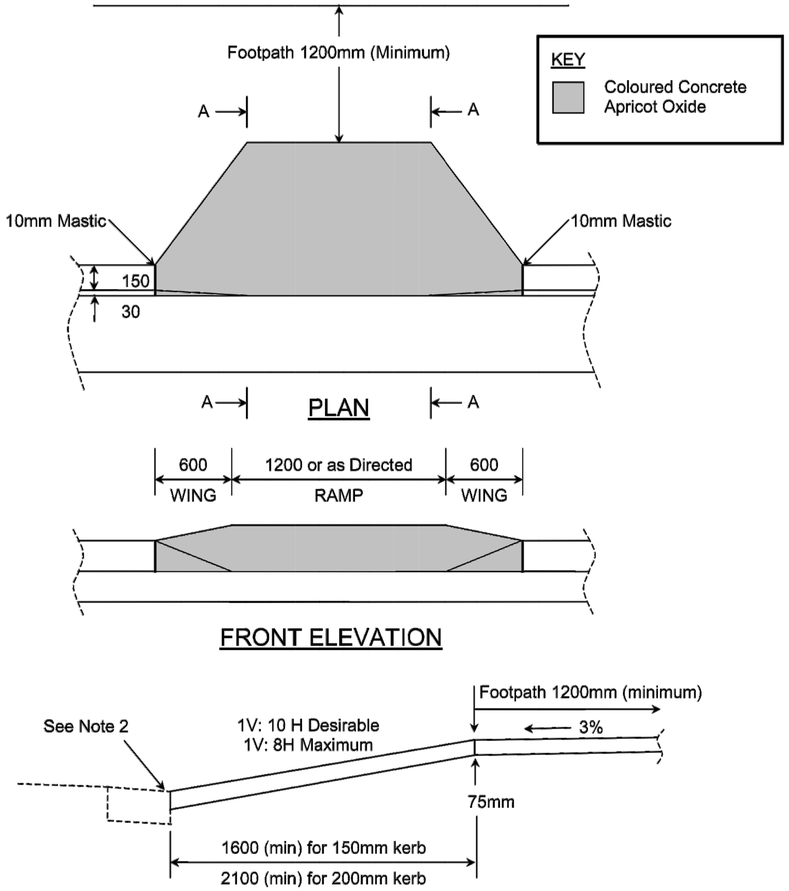
NOTES:

1. Kerb and gutter shall be poured in PLAIN CONCRETE and finished with a steel trowel. Minimum compressive strength of concrete shall be 25MPa at 28 days.
2. The subgrade shall be thoroughly compacted by the use of vibratory compaction equipment until it shows no signs of movement, or as directed by Council.
3. Where Council or an Accredited Certifier (Civil Woks) directs that the gutter be retained, the contractor shall place a 75mm deep saw cut in the gutter invert and remove kerb and/or layback.
4. Where Council or an Accredited Certifier (Civil Woks) directs that the gutter be removed, a Road Opening Permit must be obtained from Council's Customer Service Centre prior to commencing work. Once the permit is established the contactor may commence vehicle crossing works. Upon completion of the works, temporary restoration shall be provided as set out in the 'Specification *For Trench Construction Within Council Roads'.*
5. The construction of all vehicle crossings and associated works on the road reserve must be completed by a Council approved concrete contractor.
6. EJ – Expansion Joint – 10mm Mastic.
   R – Radius
   DJ – Dummy Joint

AMENDED: October 1990, December 2006

Not to Scale. All Dimensions in Millimetres.

WARRINGAH COUNCIL	Plan No.
Standard Kerb & Gutter Detail	**A4 2276/A**



FRONT ELEVATION

CROSS SECTION A-A

NOTES:

1. Surface finish of the pedestrian kerb ramp shall be rough broom finished **APRICOT COLOURED** concrete, except if there is coloured paving adjacent, then the finish shall be rough broom finished plain concrete. All exposed edges shall be neatly rounded with a proper edging tool forming a 50mm margin. Concrete shall have a minimum compressive strength of 25MPa at 28 days.
2. The contractor shall place a 75mm deep saw cut in the gutter invert and remove kerb, unless directed by Council or Accredited Certifier (Civil Works) to remove integral kerb and gutter.
3. The subgrade shall be thoroughly compacted by the use of vibratory compaction equipment until it shows no signs of movement, or as directed by Council.
4. When considering kerb ramp locations the number and position of ramps is to be determined after considering the general movement of pedestrians, location of marked foot crossings and the position of any existing obstacles such as traffic signals, gully pits, etc. The location of kerb ramps must ensure that users are not put at risk from traffic of any kind, bearing in mind that a disabled person's crossing time may be longer than that of persons having full mobility.
5. Kerbing and guttering to be constructed in accordance with Council Plan A4 2276A
6. Where the existing footpath alignment is at the rear of kerb the wing shall be extended to 1200mm for 150mm high kerb, and 1600mm for 200mm high kerb, or as directed by Council.

AMENDED: Nov 1994, Feb 2000, Dec 2006

Not to Scale. All Dimensions in Millimetres.

WARRINGAH COUNCIL	Plan No.
Standard Kerb Access Ramp Detail	**A4 7284**

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ARCHITECT
T +612 9360 7570
ABN 75155117516

PROJECT
27 BELLEVUE AVENUE
AVALON

CLIENT
CONSTRUCT BY DESIGN

M+G Consulting
M & G CONSULTING ENGINEERS PTY LTD
ABN 65 094 064 990
Level 3
50 Berry Street
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)
Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

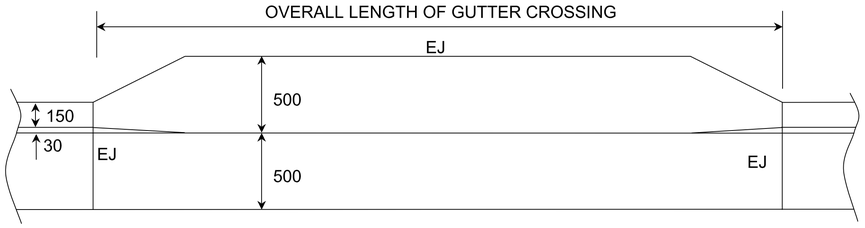
TITLE
CIVIL WORKS STANDARD DETAILS - SHEET 1

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
MW	MW	SM	JULY 2020	AS SHOWN

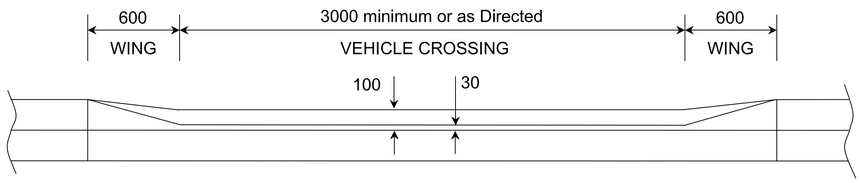
JOB No.	DRAWING No.	ISSUE
5281	C35	1

180

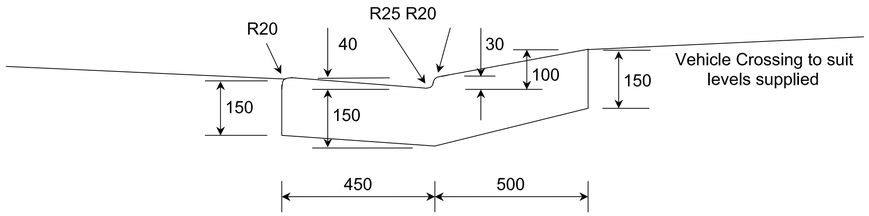
A1



PLAN



FRONT ELEVATION



TYPICAL CROSS SECTION

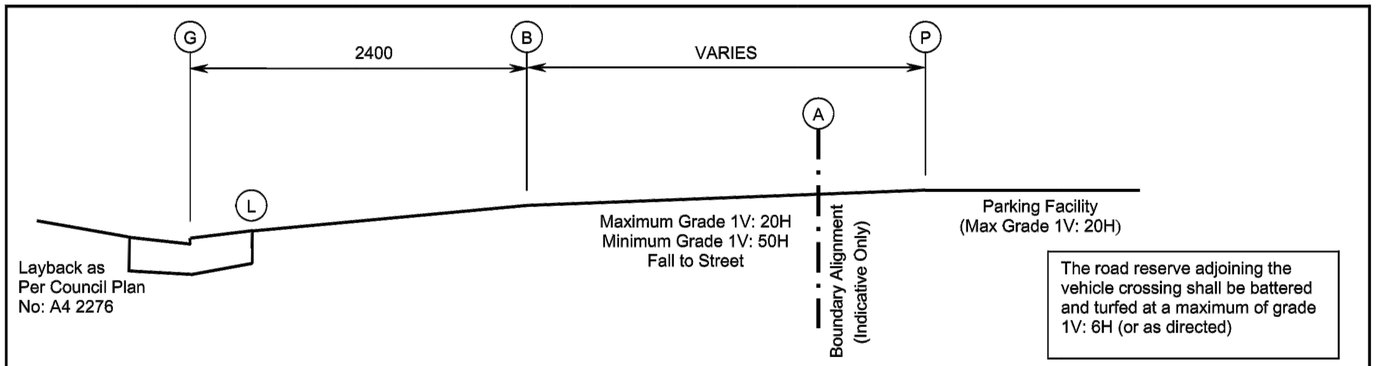
NOTES:

1. Layback and gutter shall be poured in PLAIN CONCRETE and finished with a steel trowel. Minimum compressive strength of concrete shall be 25MPa at 28 days. Industrial/commercial properties shall increase the depth of concrete to 180mm and provide SL82 mesh with 30mm top cover.
2. The subgrade shall be thoroughly compacted by the use of vibratory compaction equipment until it shows no signs of movement, or as directed by Council.
3. Vehicle crossing to be constructed in accordance with levels and specifications issued by Council.
4. Kerbing to be constructed in accordance with Council Plan A4 2276/A and specifications.
5. Where Council or an Accredited Certifier (Civil Woks) directs that the gutter be retained, the contractor shall place a 75mm deep saw cut in the gutter invert and remove kerb and/or layback.
6. Where Council or an Accredited Certifier (Civil Woks) directs that the gutter be removed, a Road Opening Permit must be obtained from Council's Customer Service Centre prior to commencing work. Once the permit is established the contactor may commence vehicle crossing works. Upon completion of the works, temporary restoration shall be provided as set out in the 'Specification *For Trench Construction Within Council Roads'*.
7. The construction of all vehicle crossings and associated works on the road reserve must be completed by a Council approved concrete contractor.
8. EJ – Expansion Joint – 10mm Mastic.
   R – Radius

AMENDED: October 1990, December 2006

Not to Scale. All Dimensions in Millimetres.

WARRINGAH COUNCIL	Plan No.
Standard Gutter Crossing Detail	**A4 2276/B**



POINT	REMARK	LEVELS
G	Gutter Invert	Roaming datum for vehicle crossing setout.
L	Rear of Layback	100mm above gutter invert and may be altered at the direction of Council 's Development Engineer. Place 10mm expansion joint.
B	2400mm Behind Gutter Invert	200mm above gutter invert.
A	Boundary Alignment	Place 10mm expansion joint.
P	Parking Facility	Maximum grade parallel to the angle of parking 1V: 20H otherwise, 1V: 16H in any other direction.

NOTES:

1. At least 48 hours notice of intention to place concrete within the road reserve shall be given to the Development Engineer and **NO CONCRETE SHALL BE PLACED UNTIL THE FORMWORK HAS BEEN APPROVED AND INSPECTION NOTICE ISSUED (Phone** 9942 2111 8.30am – 5.00pm, Monday – Friday).
2. All disturbed areas of the footpath adjacent the vehicle crossing shall be turfed and finished level with the concrete surface. Raised edgings are prohibited.
3. Concrete footpath adjustments shall be in accordance with Council's footpath specification and to Council's satisfaction.
4. The subgrade shall be thoroughly compacted by the use of vibratory compaction equipment until it shows no signs of movement, or as directed by Council.
5. Vehicle crossing slabs shall be poured in **PLAIN CONCRETE.** Slab surface to be broom finished (or equivalent) and edges to be finished with a 50mm margin. All changes in grade shall be screeded to ensure no rigid transitions.
6. Minimum compressive strength of concrete shall be 25MPa at 28 days. Minimum concrete depth shall be:
   (a) Single Residential Dwelling – 130mm reinforced with SL72 mesh placed 30mm below top of concrete
   (b) Multi-Unit Residential – 150mm reinforced with SL82 mesh placed 30mm below top of concrete
   (c) Commercial/Industrial – 180mm reinforced with SL82 mesh placed 30mm below top of concrete
7. The vehicle crossing to 2400mm behind the gutter invert shall be graded parallel with the road centreline grading.
8. The vehicle crossing shall be constructed perpendicular to the road pavement unless directed by Council.
9. The construction of all vehicular crossings and associated works on the road reserve must be completed by a Council approved concrete contractor

AMENDED: March 1991, February 1996, December 1996, February 2006, and December 2006

Not to Scale. All Dimensions in Millimetres.

WARRINGAH COUNCIL	Plan No.
Normal Standard Vehicle Crossing Profile	**A4 3330/1 N**

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ARCHITECT
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T +612 9360 7570
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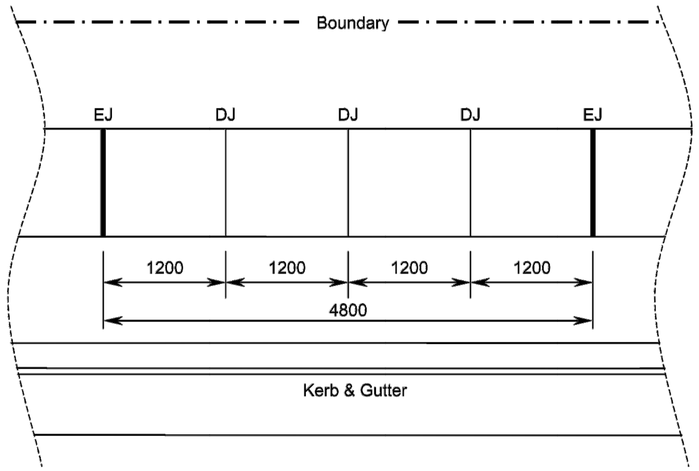
North Sydney NSW 2060
(PO Box 1656 North Sydney NSW 2059)
Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE
CIVIL WORKS STANDARD DETAILS - SHEET 2

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
MW	MW	SM	JULY 2020	AS SHOWN

JOB No.	DRAWING No.	ISSUE
5281	C36	1

A1



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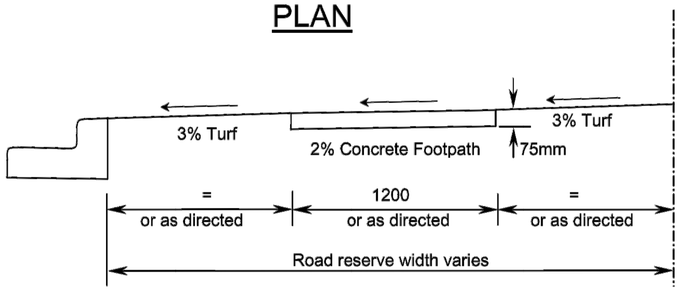

TYPICAL CROSS SECTION

NOTES:

1. The width of the concrete footpath shall be 1200mm except where placed against the kerb, where with footpath width shall be increased to 1500mm. The location of the concrete footpath shall be generally located centrally within the road reserve and parallel to the street alignment, or as directed either by Council or and Accredited Certifier (Civil Works). Consideration should be given to avoiding existing obstacles such as traffic signals, street trees, etc.
2. The concrete shall be tamped and screeded, and lightly broom finished. All exposed edges shall be neatly rounded with a proper edging tool forming a 50mm margin. Concrete shall have a depth of 75mm, minimum compressive strength of 25MPa at 28 days.
3. The subgrade shall be thoroughly compacted by the use of vibratory compaction equipment until it shows no signs of movement, or as directed either by Council or an Accredited Certifier (Civil Works).
4. Batters in cut and fill situations shall have slopes desirably not exceeding 1V: 5H and up to 1V: 3H where so determined either by Council or an Accredited Certifier (Civil Works). The top and lower edge of the cutting shall be neatly rounded. In any circumstance where the batter slope will exceed that which can be maintained with a domestic lawn mover, the batter shall be treated in a manner other than turf to the satisfaction of Council.
5. On completion of works, grassed footways are to be restored to a condition at least equivalent to that which existed prior to commencement. Any bare ground arising from the construction works is to be returfed. Minor differences in levels, up to 20mm, may be accommodated by top dressing where the existing turf is in good condition.
6. Kerb and gutter to be constructed in accordance with Council Plan A4 2276/A and specifications.
7. The construction of concrete footpath on the road reserve must be completed by a Council approved concrete contractor.
8. EJ – Expansion Joint (10mm Mastic).
   DJ – Dummy Joint

Not to Scale. All Dimensions in Millimetres.

WARRINGAH COUNCIL	Plan No.
Standard Concrete Footpath Detail	**A4 10536.**

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T +612 9360 7570
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27 BELLEVUE AVENUE
AVALON

CLIENT
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ABN 65 094 064 990
Level 3
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(PO Box 1656 North Sydney NSW 2059)
Tel: +61 (0)2 8666 7888
Fax: +61 (0)2 8666 7878
Email:ad@mg.com.au

TITLE
CIVIL WORKS STANDARD DETAILS - SHEET 3

DRAWN	DESIGNED	REVIEWED	DATE	SCALE
MW	MW	SM	JULY 2020	AS SHOWN

JOB No.	DRAWING No.	ISSUE
5281	C37	1

A1