DELEGATED REPORT

TO: SENIOR PLANNER

FROM: Planning Officer **FILE:** OPW/20/0004

DATE: 9 December 2020

APPLICATION DETAILS

APPLICATION		PREMISES	
FILE NO:	OPW/20/0004	**ADDRESS:**	Emerald End Road, Mareeba
APPLICANT:	BTM & S Stankovich Pty Ltd	**RPD:**	Lot 114 on SP265014
LODGED BY:	Freshwater Planning Pty Ltd	**AREA:**	25.9 hectares
DATE LODGED:	9 November 2020	**OWNER:**	BTM & S Stankovich Pty Ltd
TYPE OF APPROVAL:	Development Permit		
PROPOSED DEVELOPMENT:	Operational Works (Roadworks, Stormwater, Water Infrastructure, Drainage, Earthworks, & Sewerage Infrastructure) for Development Permit RAL/20/0006 (Amaroo Stages 11 & 12)		
PLANNING SCHEME:	Mareeba Shire Council Planning Scheme 2016		
ZONE:	Low Density Residential zone		
LEVEL OF ASSESSMENT:	Code Assessment		

PREVIOUS APPLICATIONS & APPROVALS

RAL/20/0006 (Amaroo Stages 11 & 12)

DESCRIPTION OF PROPOSED DEVELOPMENT

The development application seeks a Development Permit for Operational Works (Roadworks, Stormwater, Water Infrastructure, Drainage, Earthworks, & Sewerage Infrastructure)

ASSESSMENT

State Planning Policy

Separate assessment against the State Planning Policy (SPP) is not required because the Mareeba Shire Council Planning Scheme appropriately integrates all relevant aspects of the SPP.

Relevant Development Codes

The following Development Codes are considered to be applicable to the assessment of the application:

6.2.6 Low density residential zone code
9.4.4 Reconfiguring a lot code
9.4.5 Works, services and infrastructure code

The application did not include a planning report and assessment against the planning scheme. An officer assessment has found that the application satisfies the relevant acceptable solutions (or probable solutions/performance criteria where no acceptable solution applies) of the relevant codes set out below.

Relevant Codes	Comments
Low density residential zone code	The application can be conditioned to comply with the relevant acceptable outcomes contained within the code.
Reconfiguring a lot code	The application can be conditioned to comply with the relevant acceptable outcomes contained within the code.
Works, services and infrastructure code	The application can be conditioned to comply with the relevant acceptable outcomes contained within the code.

Compliance with conditions of earlier related approval

RAL/20/0006 - Development Permit for Reconfiguring a Lot - Subdivision (1 into 39 Lots) in 2 Stages (Amaroo Stages 11 & 12)

Conditions:

1. Development must be carried out generally in accordance with the approved plans and the facts and circumstances of the use as submitted with the application, and subject to any alterations:
   - found necessary by the Council's delegated officer at the time of examination of the engineering plans or during construction of the development because of particular engineering requirements; and
   - to ensure compliance with the following conditions of approval.
2. Timing of Effect
   2.1 The conditions of the development permit must be complied with to the satisfaction of Council's delegated officer prior to the endorsement of the plan of survey of the development, or alternative documentation as approved by the Land Title Act, except where specified otherwise in these conditions of approval.
3. General
   3.1 The applicant/developer is responsible for the cost of necessary alterations to existing public utility mains, services or installations required by works in relation to the proposed development or any works required by condition(s) of this approval.
   3.2 All payments or bonds required to be made to the Council pursuant to any condition of this approval or the Adopted Infrastructure Charges Notice must be made prior to the endorsement of the plan of survey, or alternative documentation as approved by the Land Title Act and at the rate applicable at the time of payment.
   3.3 The developer must relocate (in accordance with FNQROC standards) any services such as water, sewer, drainage, telecommunications and electricity that are not wholly located within the lots that are being created/serviced where required by the relevant authority, unless approved by Council's delegated officer.
   3.4 Where utilities (such as sewers on non-standard alignments) traverse lots to service another lot, easements must be created in favour of Council for access and

maintenance purposes. The developer is to pay all costs (including Council's legal expenses) to prepare and register the easement documents.

3.5 All works must be designed, constructed and carried out in accordance with FNQROC Development Manual requirements (as amended) and to the satisfaction of Council's delegated officer.

3.6 The existing easement in favour of Lot 26 on SP265014 must be amended and reduced in size to that shown as Easement R on the approved plan.

The developer must relocate (in accordance with FNQROC standards) any services for Lot 26 on SP265014, such as water, sewer, drainage, telecommunications and electricity that are not wholly located within the proposed Easement R or Lot 26, where required by the relevant authority, unless approved otherwise by Council's delegated officer.

3.7 Proposed Lots 251, 252, 354 and 355 must each contain a building area of at least 400m² at a height of at least RL396. Each building area must be usable land that is less than 15% slope.

3.8 The following road names are approved:

- Dural Close - new cul-de-sac off Pontos Place; and
- Wandara Court - new cul-de-sac off Karobean Drive.

3.9 Charges

All outstanding rates, charges, and expenses pertaining to the land are to be paid in full.

4 Infrastructure Services and Standards

4.1 Access

(a) Access to each allotment must be constructed (from the edge of the road pavement to the property boundary of each lot) in accordance with the FNQROC Development Manual, to the satisfaction of Council's delegated officer.

The provision of roll-over kerb along the frontage of each allotment will satisfy this condition.

(b) An asphalt sealed, or concrete driveway shall be provided within the access handle of proposed Lot 213 to the satisfaction of Council's delegated officer. The driveway will:

- have a minimum formation width of 3 metres
- be constructed for the full length of the access handle
- be formed with one-way crossfall to cater for stormwater drainage such that any stormwater runoff is contained within the access handle
- service and utility conduits are to be provided for the full length of the concrete or sealed driveway constructed within the access handle.

4.2 Stormwater Drainage

(a) The applicant/developer must take all necessary steps to ensure a non-worsening effect on surrounding land as a consequence of the development.

(b) Prior to works commencing the applicant must submit a Stormwater Management Plan and Report prepared and certified by a suitably qualified design engineer (RPEQ) that meets or exceeds the standards of design and construction set out in the Queensland Urban Drainage Manual (QUDM) and the FNQROC Development Manual to the satisfaction of Council's delegated officer.

(c) Prior to works commencing the applicant must submit a Stormwater Quality Management Plan and Report prepared and certified by a suitably qualified design engineer (RPEQ) that meets or exceeds the standards of design and construction set out in the Urban Stormwater Quality Planning Guideline and the Queensland Water Quality Guideline to the satisfaction of Council's delegated officer.

(d) The Stormwater Quality Management Plan must include an Erosion and Sediment Control Plan that meets or exceeds the Soil Erosion and Sedimentation Control Guidelines (Institute of Engineers Australia) to the satisfaction of Council's delegated officer.

(e) The applicant/developer must construct the stormwater drainage infrastructure in accordance with the approved Stormwater Management Plan and/or Stormwater Quality Management Plan and Report.

(f) Temporary drainage is to be provided and maintained during the construction phase of the development, discharged to a lawful point and not onto the construction site.

(g) All stormwater channels through private property must be registered, with the easement for drainage purposes in favour of Council. All documentation leading to the registration of the easement must be completed at no cost to Council.

(h) The easement covering the watercourse within proposed Lots 251, 252, 354 and 355 is to be defined by Survey to include:

- a minimum of 10 metres in width;
- a minimum offset of 5 metres from the IL; and
- include all areas of Extreme Flood Hazard and High Flood Hazard as identified by the Flood Hazard Overlay mapping of the Mareeba Shire Council Planning Scheme 2016.

(i) All stormwater drainage collected from the site must be discharged to an approved legal point of discharge.

(j) The applicant (at their cost) must video all stormwater lines and submit the video for inspection by Council's delegated officer prior to the development being taken "off maintenance" to ensure that no defects have occurred during the 12 month maintenance period.

4.3 Earthworks

All earthworks must be carried out in accordance with the requirements of the FNQROC Development Manual (as amended) to the satisfaction of Council's delegated officer.

All formed batters must be located outside the easement/s required under Condition 4.2(h) and all road reserves.

Any earthworks within the waterway must be supported by appropriate modelling which demonstrates that there will be no adverse impact on the upstream drainage network and properties.

4.4 Roadworks - Internal

(a) Karobean Drive is to be extended to service Lots 253 and 332 and is to be constructed to Collector Road standard (of the same width as the existing section of Karobean Drive) in accordance with the FNQROC Development Manual (as amended) to the satisfaction of Council's delegated officer.

(b) Pontos Place, Dural Close and Wandara Court are to be constructed to Access Street standard in accordance with the FNQROC Development Manual (as amended) to the satisfaction of Council's delegated officer.

(c) Temporary turnaround areas, with a bitumen and/or gravel surface, must be provided at the northern end of Pontos Place and Karobean Drive to allow traffic manoeuvring.

(d) The existing concrete footpath is to be extended along the eastern and northern sides of the proposed Karobean Drive extension in accordance with the FNQROC Development Manual.

(e) A new concrete footpath is to be built linking the cul de sac heads of Dural Close and Wandara Court in accordance with the FNQROC Development Manual to the satisfaction of Council's delegated officer.

4.5 Water Supply

(a) Where the existing reticulated water supply does not currently service the site or is not at an adequate capacity, the developer is required to extend or upgrade the reticulated water supply infrastructure to connect the site to Council's existing infrastructure at a point that has sufficient capacity to service the development in accordance with FNQROC Development Manual standards (as amended).

(b) A water service connection must be provided to each proposed lot in accordance with FNQROC Development Manual standards (as amended) to the satisfaction of Council's delegated officer.

4.6 Sewerage Connection

The developer must connect the proposed development to Council's reticulated sewerage system in accordance with FNQROC Development Manual standards (as amended) to the satisfaction of Council's delegated officer.

Where sewerage connections are not available to the site, or where existing connections are not satisfactory for the proposed development, the developer is required to extend or upgrade the reticulated sewerage infrastructure to connect the site to Council's existing infrastructure at a point that has sufficient capacity to service the development in accordance with FNQROC Development Manual standards (as amended).

4.7 Electricity provision/supply

The applicant/developer must ensure that an appropriate level of electricity supply is provided to each allotment in accordance with FNQROC Development Manual standards (as amended) to the satisfaction of Council's delegated officer.

Written advice from an Electricity Service Provider is to be provided to Council indicating that an agreement has been made for the provision of **underground** power reticulation.

4.8 Telecommunications

The applicant/developer must enter into an agreement with a telecommunication carrier to provide telecommunication services to each allotment and arrange provision of necessary conduits and enveloping pipes.

4.9 Lighting

Street lighting must be provided to all roads in accordance with FNQROC Development requirements (as amended) and to the satisfaction of Council's delegated officer.

FNQROC Regional Development Manual

Drawings have been checked against the FNQROC Development Manual.

Some discrepancies exist between the Stage 12 Plans and the FNQROC Development Manual standard drawings.

While these discrepancies are being resolved, the applicant/developer has advised Council officers to proceed with the issue of a approval in part for Stage 11 works only, which are compliant.

REFERRALS

Internal Consultation

Technical Services

OFFICER'S RECOMMENDATION

1. That in relation to this operational works development application:

APPLICATION		PREMISES	
APPLICANT:	BTM & S Stankovich Pty Ltd	**ADDRESS:**	Emerald End Road, Mareeba
DATE LODGED	9 November 2020	**RPD:**	Lot 114 on SP265014
TYPE OF APPROVAL	Development Permit		
PROPOSED DEVELOPMENT	Operational Works (Roadworks, Stormwater, Water Infrastructure, Drainage, Earthworks, & Sewerage Infrastructure) for Development Permit RAL/20/0006 (Amaroo Stages 11 & 12)		

and in accordance with the Planning Act 2016, as amended, the applicant be notified that the application for operational works is:

Approved **in part only** subject to the following:

(A) APPROVED DEVELOPMENT: Development Permit for Operational Works (Roadworks, Stormwater, Water Infrastructure, Drainage, Earthworks, & Sewerage Infrastructure) for Development Permit RAL/20/0006 for **Stage 11 Only**

(B) APPROVED PLANS:

Plan/Document Number	Plan/Document Title	Prepared by	Dated
AP18-018-C01 Rev A	Cover Sheet	Benchmark Survey & Design	30/10/20
AP18-018-C02 Rev B	Site Plan	Benchmark Survey & Design	30/10/20
AP18-018-C03 Rev B	Layout Plan	Benchmark Survey & Design	
AP18-018-C05 Rev A	Intersection & Cul-de-sac Details	Benchmark Survey & Design	15/08/20
AP18-018-C06 Rev A	Intersection & Cul-de-sac Setout Details	Benchmark Survey & Design	15/08/20
AP18-018-C07 Rev A	Typical Cross Sections	Benchmark Survey & Design	15/08/20
AP18-018-C08 Rev A	Ponto's Place - Longitudinal Section	Benchmark Survey & Design	15/08/20
AP18-018-C09 Rev A	Ponto's Place - Cross Sections Ch. 13.621 to Ch. 70.00	Benchmark Survey & Design	15/08/20
AP18-018-C10 Rev A	Ponto's Place - Cross Sections Ch. 75.254 to TP136.962	Benchmark Survey & Design	15/08/20
AP18-018-C11 Rev A	Dural Close - Longitudinal Section	Benchmark Survey & Design	15/08/20
AP18-018-C12 Rev A	Dural Close - Cross Sections Ch.14.261 to Ch.89.267	Benchmark Survey & Design	15/08/20
AP18-018-C18 Rev B	CL01 - Pedestrian Link - Longitudinal & Cross Sections	Benchmark Survey & Design	30/10/20
AP18-018-C19 Rev A	Earthworks Layout Plan - Sheet 1 of 2	Benchmark Survey & Design	15/08/20
AP18-018-C21 Rev B	Stormwater Reticulation Layout Plan - Sheet 1 of 2	Benchmark Survey & Design	30/10/20
AAP18-018-C22 Rev A	Stormwater Reticulation Layout Plan - Sheet 2 of 2	Benchmark Survey & Design	15/08/20
AP18-018-C23 Rev A	Stormwater Reticulation - Watershed Areas	Benchmark Survey & Design	15/08/20
AP18-018-C24 Rev A	Stormwater Drainage Longitudinal Sections - Sheet 1 of 2	Benchmark Survey & Design	15/08/20
AP18-018-C25 Rev A	Stormwater Drainage Longitudinal Sections - Sheet 2 of 2	Benchmark Survey & Design	15/08/20
AP18-018-C26 Rev B	Sewerage Reticulation Layout Plan - Sheet 1 of 2	Benchmark Survey & Design	22/10/20
AP18-018-C27 Rev A	Sewerage Reticulation Layout Plan - Sheet 2 of 2	Benchmark Survey & Design	15/10/20
AP18-018-C28 Rev A	Sewerage Longitudinal Sections - Sheet 1 of 3	Benchmark Survey & Design	15/08/20
AP18-018-C29 Rev A	Sewerage Longitudinal Sections - Sheet 2 of 3	Benchmark Survey & Design	15/08/20
AP18-018-C30 Rev A	Sewerage Longitudinal Sections - Sheet 3 of 3	Benchmark Survey & Design	15/08/20
AP18-018-C31 Rev A	Sewerage Pump Station - Layout Plan	Benchmark Survey & Design	15/08/20
AP18-018-C32 Rev A	Sewerage Master Plan	Benchmark Survey & Design	15/08/20
AP18-018-C33 Rev B	Water Reticulation Layout Plan - Sheet 1 of 2	Benchmark Survey & Design	30/10/20
AP18-018-C34 Rev B	Water Reticulation Layout Plan - Sheet 2 of 2	Benchmark Survey & Design	30/10/20
AP18-018-C35 Rev A	Erosion & Sediment Control Plan - Sheet 1 of 2	Benchmark Survey & Design	15/08/20
AP18-018-C36 Rev A	Erosion & Sediment Control Plan - Sheet 2 of 2	Benchmark Survey & Design	15/08/20

(C) ASSESSMENT MANAGER'S CONDITIONS (COUNCIL)

For Stage 11 Only

(a) General

(i) All operational works must be designed and constructed in accordance with the standards and procedures as set out in the FNQROC Development Manual.

(ii) Development must be carried out substantially in accordance with the approved plans and the facts and circumstances of the use as submitted with the application, and subject to any alterations:

- found necessary by the Council's Delegated Officer at the time of examination of the engineering plans or during construction of the development because of particular engineering requirements;
- to ensure the works comply in all respects with the requirements and procedures of the FNQROC Development Manual and good engineering practice; and
- to ensure compliance with the following conditions of approval.

(iii) Council's examination of the documents should not be taken to mean that the documents have been checked in detail and Council takes no responsibility for their accuracy. If during construction, inadequacies of the design are discovered, it is the responsibility of the Principal Consulting Engineer to resubmit amended plans to Council for approval and rectify works accordingly.

(b) Pre-start Meeting

(i) Prior to the pre-start meeting occurring, the applicant/developer must ensure Plans AP18-018-C18 and AAP18-018-C22 are endorsed by the principal consulting engineer and submitted to Council.

(ii) In addition to the requirements of Clause CP1.07 and CP1.08 of the FNQROC Development Manual; after documentation has been approved by Council, a pre-start meeting is to be held on site prior to the commencement of work. Part 1 of the **attached** pre-start meeting pro-forma is to be completed and returned prior to the meeting including clause 1.u 'Request for Meeting' together with the prescribed Construction Monitoring Fee as set out in Council's Schedule of Fees.

(c) Inspections

(i) Inspections are to be carried out as detailed in the FNQROC Manual unless advised otherwise at the pre-start meeting.

(d) Construction Security Bond and Defects Liability Bond

(i) In addition to Clauses CP1.06 and CP1.20 of the FNQROC Development Manual; the Construction Security Bond and Defects Liability Bond shall each be a minimum of $1000 and Bank Guarantees shall have no termination date.

(ii) During the Defects Liability period, it is the responsibility of the developer to rectify any works found to be defective due to design faults and or found to exhibit faults attributed to the performance of the construction activities in terms of quality and conformance with design and specifications. The bond will be returned on satisfactory correction of any defective work and after expiration of the maintenance period. Failure to comply with a Council issued instruction to correct defective work may result in the call up of the bond to have the work completed.

(e) Hours of Work

(i) Work involving the operation of construction plant and equipment of any description, shall only be carried out on site during the following times:

- 7.00am to 6.00pm, Monday to Friday;
- 7.00am to 1.00pm Saturdays;
- No work is permitted on Sundays or Public Holidays.

(ii) No variation to the above working hours is allowed unless otherwise agreed in writing by Council.

(f) Transportation of Soil

(i) All soil transported to or from the site must be covered to prevent dust or spillage during transport. If soil is tracked or spilt onto the road pavement from works on the subject land, it must be removed no later than at the end of each working day. Sediment must not enter Council's stormwater drainage network.

(D) RELEVANT PERIOD

When approval lapses if development not started (s.85)

- Two (2) years (starting the day the approval takes effect).

(E) OTHER NECESSARY DEVELOPMENT PERMITS AND/OR COMPLIANCE PERMITS

- Nil

DECISION BY DELEGATE

DECISION

Having considered the Planning Officer's report detailed above, I approve, as delegate of Council, the application subject to the conditions listed in the report.

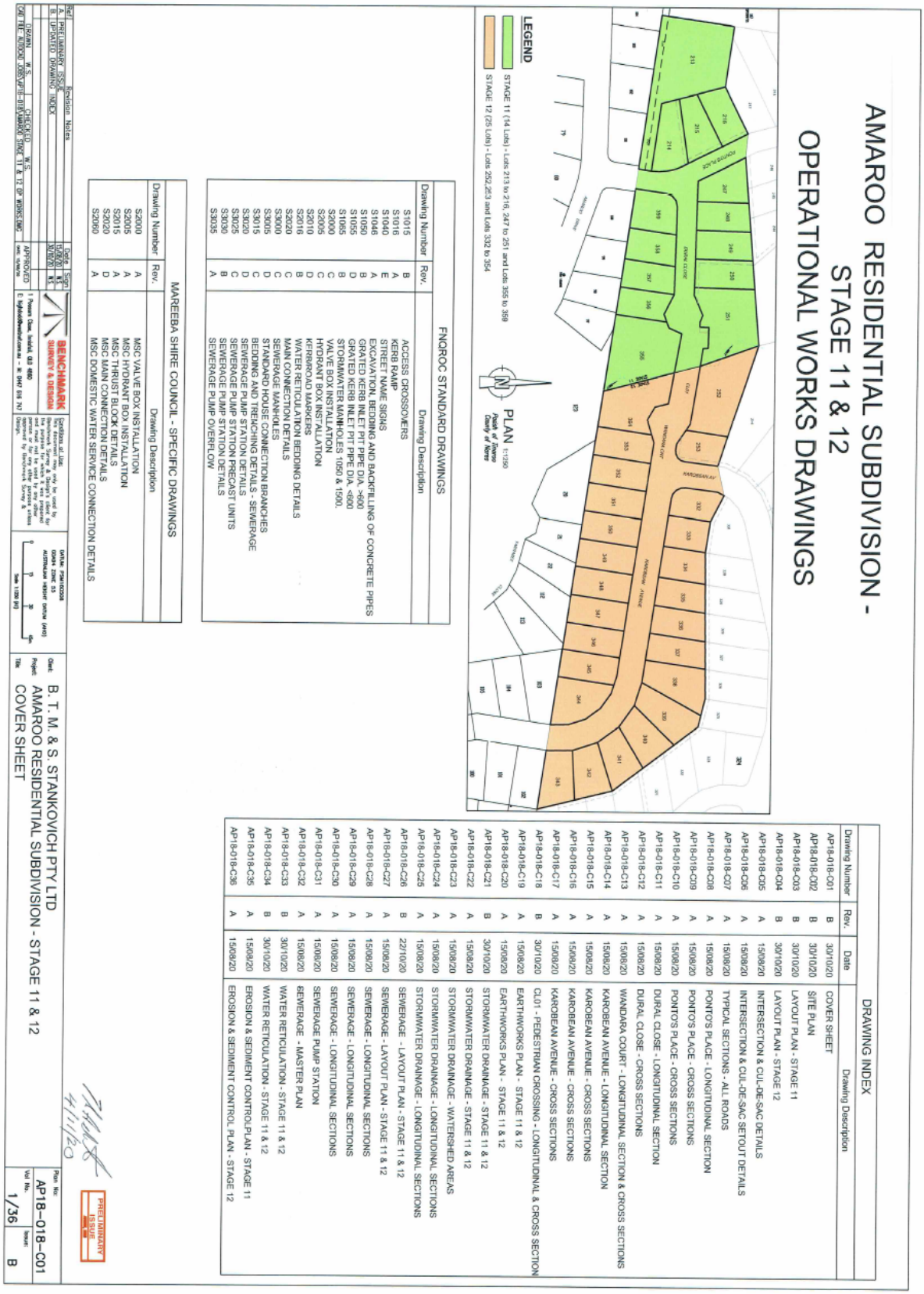
Dated the 9TH day of DECEMBER 2020

BRIAN MILLARD
SENIOR PLANNER

MAREEBA SHIRE
AS DELEGATE OF THE COUNCIL

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020

ATTACHMENT 1



AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12 OPERATIONAL WORKS DRAWINGS

LEGEND

STAGE 11 (14 Lots) - Lots 213 to 216, 247 to 251 and Lots 355 to 359

STAGE 12 (25 Lots) - Lots 252,253 and Lots 332 to 354

PLAN 1:1250

Datum of Drawing: County of Ross

DRAWING INDEX

Drawing Number	Rev.	Date	Drawing Description
AP18-018-C01	B	30/10/20	COVER SHEET
AP18-018-C02	B	30/10/20	SITE PLAN
AP18-018-C03	B	30/10/20	LAYOUT PLAN - STAGE 11
AP18-018-C04	B	30/10/20	LAYOUT PLAN - STAGE 12
AP18-018-C05	A	15/08/20	INTERSECTION & CUL-DE-SAC DETAILS
AP18-018-C06	A	15/08/20	INTERSECTION & CUL-DE-SAC SETOUT DETAILS
AP18-018-C07	A	15/08/20	TYPICAL SECTIONS - ALL ROADS
AP18-018-C08	A	15/08/20	PONTO'S PLACE - LONGITUDINAL SECTION
AP18-018-C09	A	15/08/20	PONTO'S PLACE - CROSS SECTIONS
AP18-018-C10	A	15/08/20	PONTO'S PLACE - CROSS SECTIONS
AP18-018-C11	A	15/08/20	DURAL CLOSE - LONGITUDINAL SECTION
AP18-018-C12	A	15/08/20	DURAL CLOSE - CROSS SECTIONS
AP18-018-C13	A	15/08/20	WANDARA COURT - LONGITUDINAL SECTION & CROSS SECTIONS
AP18-018-C14	A	15/08/20	KAROBEAN AVENUE - LONGITUDINAL SECTION
AP18-018-C15	A	15/08/20	KAROBEAN AVENUE - CROSS SECTIONS
AP18-018-C16	A	15/08/20	KAROBEAN AVENUE - CROSS SECTIONS
AP18-018-C17	A	15/08/20	KAROBEAN AVENUE - CROSS SECTIONS
AP18-018-C18	B	30/10/20	CL01 - PEDESTRIAN CROSSING - LONGITUDINAL & CROSS SECTION
AP18-018-C19	A	15/08/20	EARTHWORKS PLAN - STAGE 11 & 12
AP18-018-C20	A	15/08/20	EARTHWORKS PLAN - STAGE 11 & 12
AP18-018-C21	B	30/10/20	STORMWATER DRAINAGE - STAGE 11 & 12
AP18-018-C22	A	15/08/20	STORMWATER DRAINAGE - STAGE 11 & 12
AP18-018-C23	A	15/08/20	STORMWATER DRAINAGE - WATERSHED AREAS
AP18-018-C24	A	15/08/20	STORMWATER DRAINAGE - LONGITUDINAL SECTIONS
AP18-018-C25	A	15/08/20	STORMWATER DRAINAGE - LONGITUDINAL SECTIONS
AP18-018-C26	B	22/10/20	SEWERAGE - LAYOUT PLAN - STAGE 11 & 12
AP18-018-C27	A	15/08/20	SEWERAGE - LAYOUT PLAN - STAGE 11 & 12
AP18-018-C28	A	15/08/20	SEWERAGE - LONGITUDINAL SECTIONS
AP18-018-C29	A	15/08/20	SEWERAGE - LONGITUDINAL SECTIONS
AP18-018-C30	A	15/08/20	SEWERAGE - LONGITUDINAL SECTIONS
AP18-018-C31	A	15/08/20	SEWERAGE PUMP STATION
AP18-018-C32	A	15/08/20	SEWERAGE - MASTER PLAN
AP18-018-C33	B	30/10/20	WATER RETICULATION - STAGE 11 & 12
AP18-018-C34	B	30/10/20	WATER RETICULATION - STAGE 11 & 12
AP18-018-C35	A	15/08/20	EROSION & SEDIMENT CONTROL PLAN - STAGE 11
AP18-018-C36	A	15/08/20	EROSION & SEDIMENT CONTROL PLAN - STAGE 12

FNQROC STANDARD DRAWINGS

Drawing Number	Rev.	Drawing Description
S1015	B	ACCESS CROSSOVERS
S1016	A	KERB RAMP
S1040	E	STREET NAME SIGNS
S1046	A	EXCAVATION, BEDDING AND BACKFILLING OF CONCRETE PIPES
S1050	B	GRATED KERB INLET PIT PIPE DIA. <600
S1055	D	GRATED KERB INLET PIT PIPE DIA. <600
S1065	B	STORMWATER MANHOLES 1050 & 1500.
S2000	C	VALVE BOX INSTALLATION
S2005	C	HYDRANT BOX INSTALLATION
S2010	D	KERB/ROAD MARKERS
S2016	B	WATER RETICULATION BEDDING DETAILS
S2020	C	MAIN CONNECTION DETAILS
S3000	C	SEWERAGE MANHOLES
S3005	D	STANDARD HOUSE CONNECTION BRANCHES
S3015	C	BEDDING AND TRENCHING DETAILS - SEWERAGE
S3020	D	SEWERAGE PUMP STATION DETAILS
S3025	C	SEWERAGE PUMP STATION PRECAST UNITS
S3030	B	SEWERAGE PUMP STATION DETAILS
S3035	A	SEWERAGE PUMP OVERFLOW

MAREEBA SHIRE COUNCIL - SPECIFIC DRAWINGS

Drawing Number	Rev.	Drawing Description
S2000	A	MSC VALVE BOX INSTALLATION
S2005	A	MSC HYDRANT BOX INSTALLATION
S2015	A	MSC THRUST BLOCK DETAILS
S2020	D	MSC MAIN CONNECTION DETAILS
S2060	A	MSC DOMESTIC WATER SERVICE CONNECTION DETAILS

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	15/08/20	N.S.
B	UPDATED DRAWING INDEX	30/10/20	N.S.

DRAWN: M.S. CHECKED: N.S. APPROVED: N.S.

CAD FILE: K:\DOC\ 1085\AP18-018\AMAROO STAGE 11 & 12\ DP WORKS.DWG

BENCHMARK SURVEY & DESIGN

1 Present Close, Innisfail, QLD 4860

E: highlandsurveys@bigpond.com.au – M: 0447 974 767

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DATUM: PSM100208 GDA94 ZONE 55 AUSTRALIAN HEIGHT DATUM (AHD)

0 10 20 30 40m Scale 1:1250 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD

Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12

Title: COVER SHEET

4/11/20

PRELIMINARY ISSUE

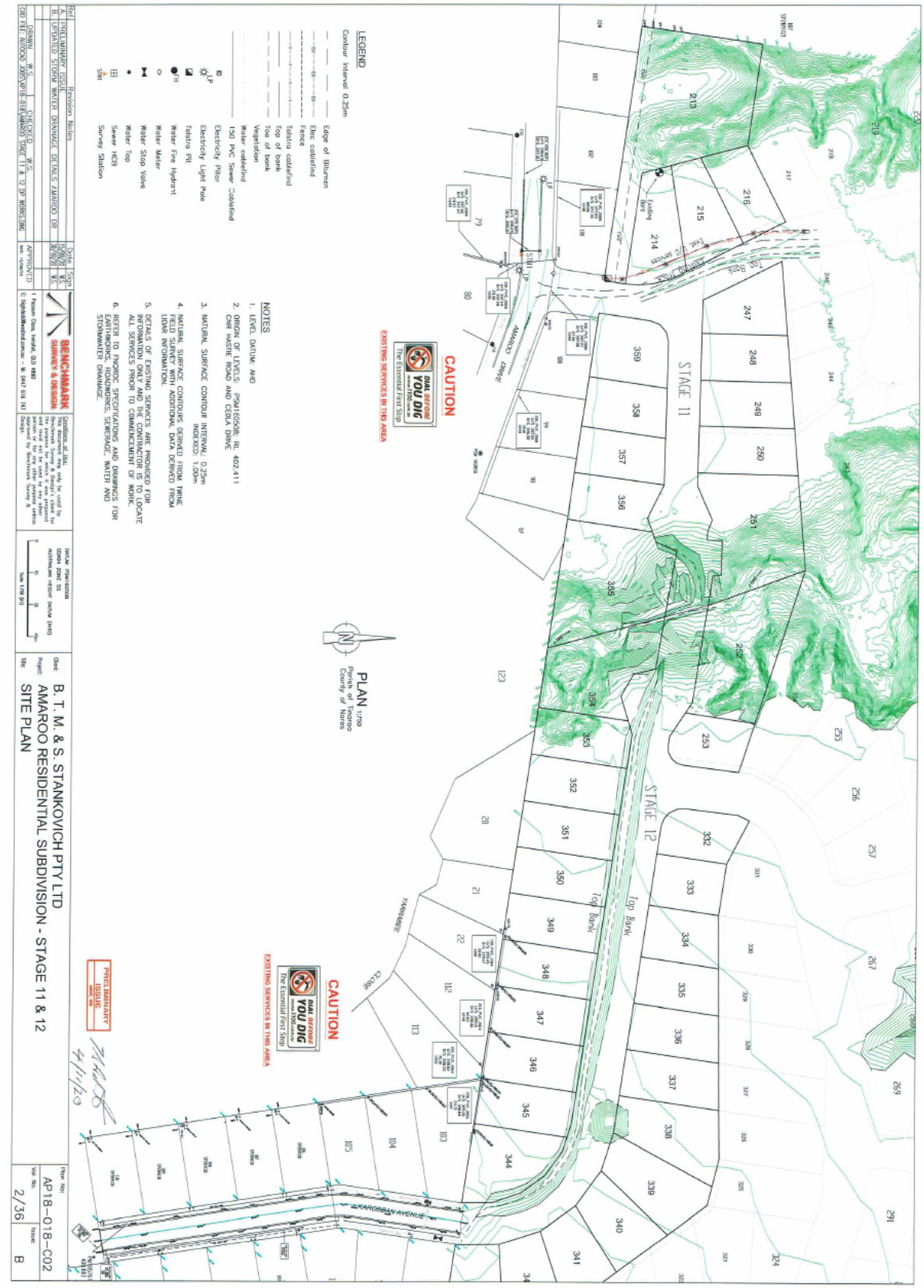
Plan No: AP18–018–C01

Vol No. 1/36

Issue: B

Document Set ID: 3889115
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	10/9/20	MC
B	UPDATED STORM WATER DRAINAGE DETAILS AMAROO DR	9/11/20	MC
		APPROVED	

DRAWN: W.S. | CHECKED: W.S. | DATE: AUTOCAD JOB: AP18-018 AMAROO STAGE 11 & 12 SP WORKS.DWG | FILE:

BENCHMARK SURVEY & DESIGN
1 Paxton Close, Innisfail, QLD 4860
E: highlands@benchmark.com.au M: 0447 691 741

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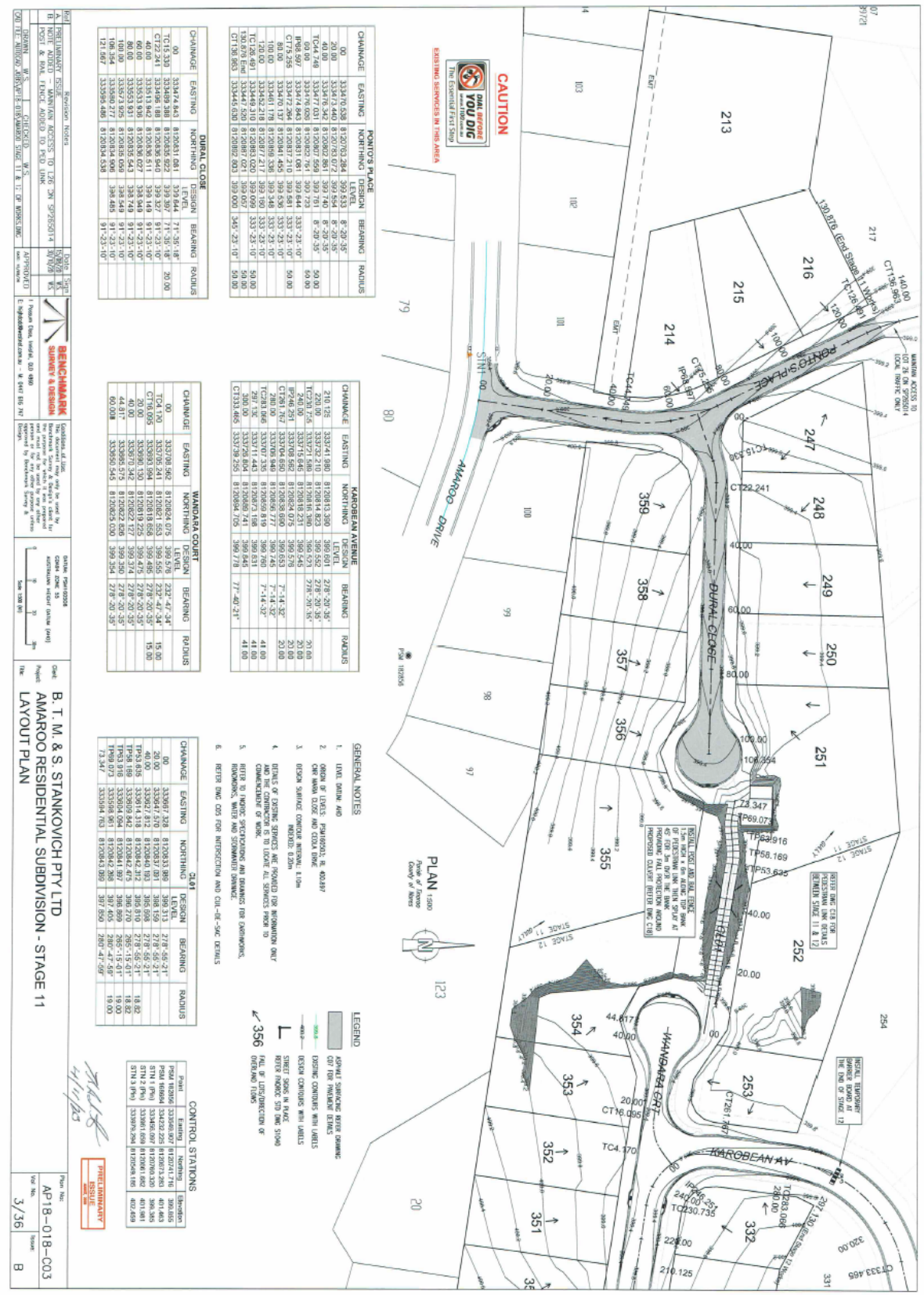
DATUM: GDA94/MGA94 ZONE 55
AUSTRALIAN HEIGHT DATUM (AHD)
0 5 10 15 20 25m
Scale 1:750 @ A1

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
Title: SITE PLAN

Plan No: AP18-018-C02
Sht No: 2/36
Issue: B

Document Set ID: 3889115
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



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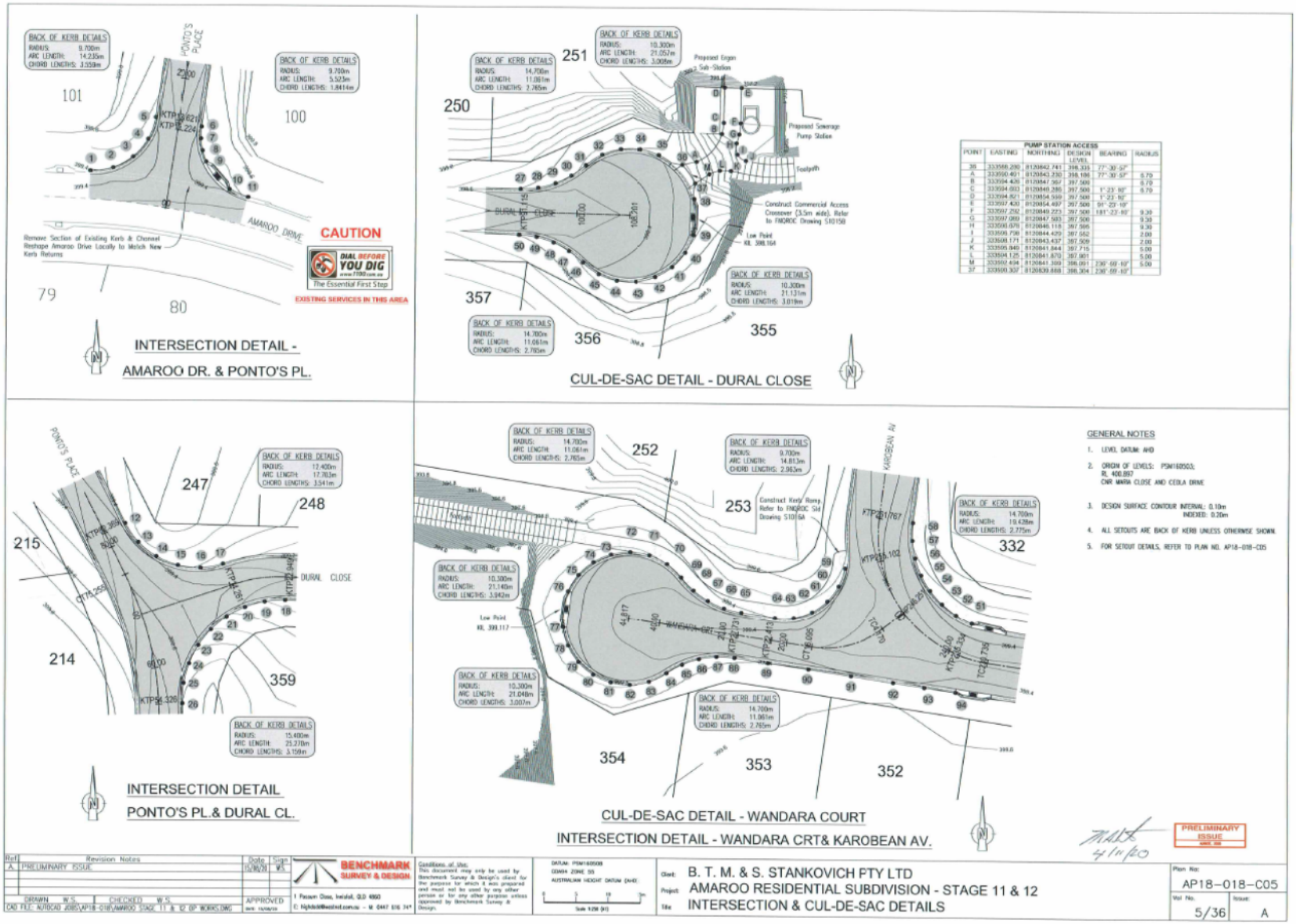
Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



Document Set ID: 3889115

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020

C	NO	EASTING	NORTHING	LEVEL
AMAROO DRIVE & PONTO'S PLACE INTERSECTION DETAILS	1	333458.994	8120768.992	399.403
	2	333462.498	8120769.489	399.419
	3	333465.590	8120771.211	399.434
	4	333467.858	8120773.927	399.450
	5	333469.002	8120777.276	399.465
	6	333475.969	8120775.853	399.461
	7	333475.876	8120774.017	399.452
	8	333476.131	8120772.196	399.443
	9	333476.726	8120770.458	399.434
	10	333480.365	8120766.258	399.468
	11	333483.149	8120765.031	399.527
	12	333487.252	8120838.953	399.456
PONTO'S PLACE & DURAL CLOSE INTERSECTION DETAILS	13	333483.780	8120838.326	399.476
	14	333480.271	8120838.703	399.465
	15	333477.011	8120840.052	399.427
	16	333474.263	8120842.266	399.387
	17	333472.250	8120845.163	399.349
	18	333496.810	8120833.374	399.262
	19	333493.667	8120833.127	399.302
	20	333490.639	8120832.245	399.355
	21	333487.855	8120830.765	399.421
	22	333485.431	8120828.749	399.501
	23	333483.468	8120826.282	399.578
	24	333482.048	8120823.466	399.637
	25	333481.232	8120820.420	399.677
	26	333481.054	8120817.272	399.699
DURAL CLOSE CUL-DE-SAC DETAILS	27	333563.281	8120838.868	398.598
	28	333566.036	8120839.061	398.569
	29	333568.706	8120839.765	398.540
	30	333571.197	8120840.956	398.511
	31	333573.421	8120842.593	398.482
	32	333575.925	8120844.241	398.453
	33	333578.797	8120845.099	398.425
	34	333581.794	8120845.093	398.396
	35	333584.663	8120844.225	398.368
	36	333588.280	8120842.741	398.334
	37	333590.307	8120839.888	398.304
	38	333590.244	8120837.501	398.282
	39	333590.129	8120831.902	398.282
	40	333588.841	8120829.184	398.311
	41	333586.823	8120826.954	398.339
	42	333584.247	8120825.401	398.368
	43	333581.331	8120824.660	398.396
	44	333578.326	8120824.792	398.425
	45	333575.488	8120825.787	398.453
	46	333573.057	8120827.559	398.482
	47	333570.915	8120829.301	398.511
	48	333568.484	8120830.611	398.540
	49	333565.852	8120831.444	398.569
	50	333563.110	8120831.770	398.598

CONTROL STATIONS	NO	EASTING	NORTHING	LEVEL
WANDARA CRT.& KAROBEAN AV. INTERSECTION & CUL-DE-SAC DETAILS	51	333719.099	8120822.493	399.400
	52	333716.628	8120823.748	399.418
	53	333714.437	8120825.445	399.436
	54	333712.603	8120827.522	399.454
	55	333711.191	8120829.907	399.471
	56	333710.252	8120832.515	399.489
	57	333709.819	8120835.252	399.507
	58	333709.908	8120838.022	399.525
	59	333699.191	8120830.860	399.488
	60	333698.202	8120828.080	399.471
	61	333696.422	8120825.726	399.454
	62	333694.016	8120824.016	399.438
	63	333691.208	8120823.109	399.421
	64	333688.257	8120823.088	399.405
	65	333682.996	8120823.859	399.378
	66	333680.313	8120824.515	399.364
	67	333677.801	8120825.660	399.349
	68	333675.547	8120827.255	399.335
	69	333673.631	8120829.244	399.320
	70	333671.433	8120831.298	399.306
	71	333668.734	8120832.630	399.292
	72	333665.766	8120833.124	399.278
	73	333662.781	8120832.740	399.264
	74	333660.035	8120831.509	399.249
	75	333657.762	8120829.537	399.235
	76	333656.156	8120826.993	399.221
	77	333655.368	8120821.448	399.221
	78	333656.196	8120818.569	399.235
	79	333657.818	8120816.050	399.249
	80	333660.097	8120814.104	399.264
	81	333662.839	8120812.896	399.278
	82	333665.812	8120812.529	399.292
	83	333668.766	8120813.033	399.306
	84	333671.449	8120814.365	399.320
	85	333673.847	8120815.724	399.335
	86	333676.464	8120816.605	399.349
	87	333679.200	8120816.981	399.364
	88	333681.966	8120816.834	399.378
	89	333687.227	8120816.063	399.405
	90	333693.478	8120815.146	399.437
	91	333700.220	8120814.157	399.471
	92	333706.962	8120813.168	399.505
	93	333711.796	8120812.459	399.450
	94	333716.632	8120811.750	399.395
	182856	333549.907	8120741.716	399.855
	168684	334232.225	8120673.283	401.463
	STN 1	333456.097	8120760.320	399.385
	STN 2	333961.659	8120661.682	401.981
	STN 3	333979.294	8120549.185	402.459

Rev | Revision Notes | Date | Sign
A | PRELIMINARY ISSUE | 10/8/21 | W.S.

DRAWN W.S. | CHECKED W.S. | APPROVED

CAD FILE: AUTOCAD 2018\AP18-018\AMAROO STAGE 11 & 12 OF WORKING

BENCHMARK SURVEY & DESIGN

7 Mount Ommaney Drive, Jindalee, QLD 4074
E: highfield@benchmark.com.au — M: 0447 185 747

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DATUM: PRINTOUSE
ZONE: 56
AUSTRALIAN HEIGHT DATUM (AHD)

Scale 1:250 (A1)

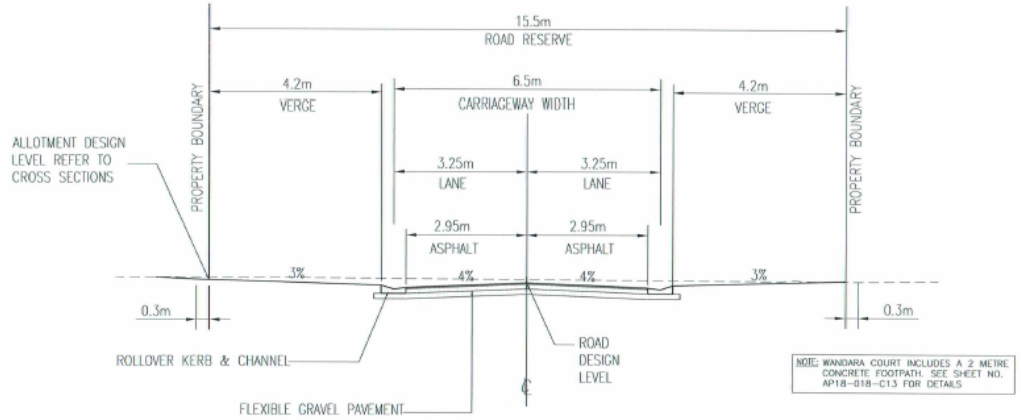
Client:
Project:
Title: B. T. M. & S. STANKOVICH PTY LTD
AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
INTERSECTION & CUL-DE-SAC SETOUT DETAILS

Prior No: AP18-018-C06
Vol No: 6/36
Issue: A

PRELIMINARY ISSUE

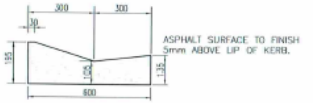
Document Set ID: 3889115

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



TYPICAL CROSS SECTION-WANDARA CRT, DURAL CL. & PONTO'S PLACE

Scale 1:50 (A1)



ROLLOVER KERB AND CHANNEL

SCALE 1:10 (A1)

30mm ASPHALT

110mm BASE, TYPE 2.2 MINIMUM CBR 60% COMPACTED TO 100% SRDD.

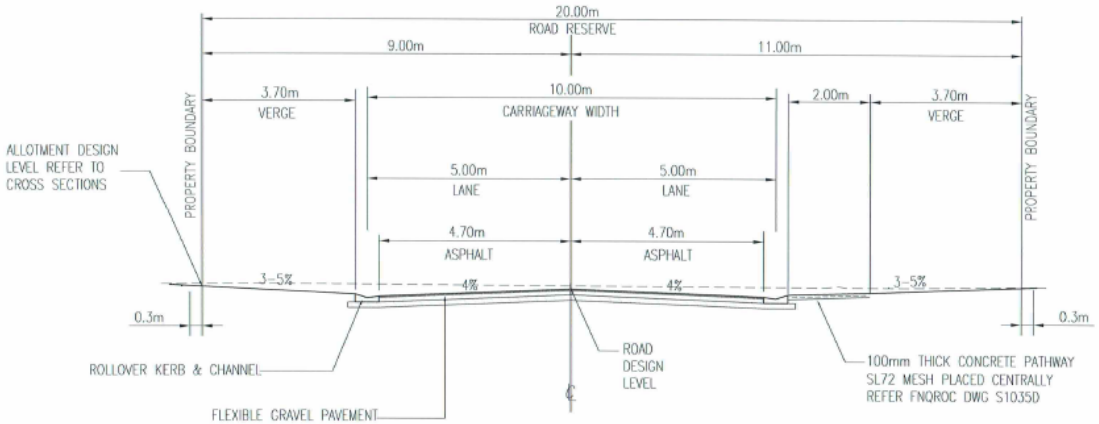
140mm SUB BASE, TYPE 2.3 MINIMUM CBR 45% COMPACTED TO 100% SRDD.

SUB-GRADE CBR 7% (ASSUMED) COMPACTED TO 98% SRDD. (CBR TO BE CONFIRMED BY TAKING SAMPLES AT 100m INTERVALS, MINIMUM OF 3).

NOTE: SUBGRADE CBR RESULTS AND FINAL PAVEMENT DESIGN ARE TO BE SUBMITTED TO COUNCIL FOR APPROVAL PRIOR TO PLACEMENT OF GRAVEL.

PAVEMENT DETAIL

N.T.S.



TYPICAL CROSS SECTION-KAROBEAN DRIVE

Scale 1:50 (A1)

PRELIMINARY ISSUE

4/11/20

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	25/08/20	WS

DRAWN W.S. CHECKED W.S. APPROVED

CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 DP WORKS.DWG

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1 Possum Close, Kirkwhal, QLD 4880

E: highcliff@westnet.com.au - M: 0447 516 747

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DATUM: PSM160305 (GDA94 ZONE 55 AUSTRALIAN HEIGHT DATUM (AHD))

Scale 1:50 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD

Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12

Title: TYPICAL CROSS SECTIONS

Plan No: AP18-018-C07

Vol No. 7/36

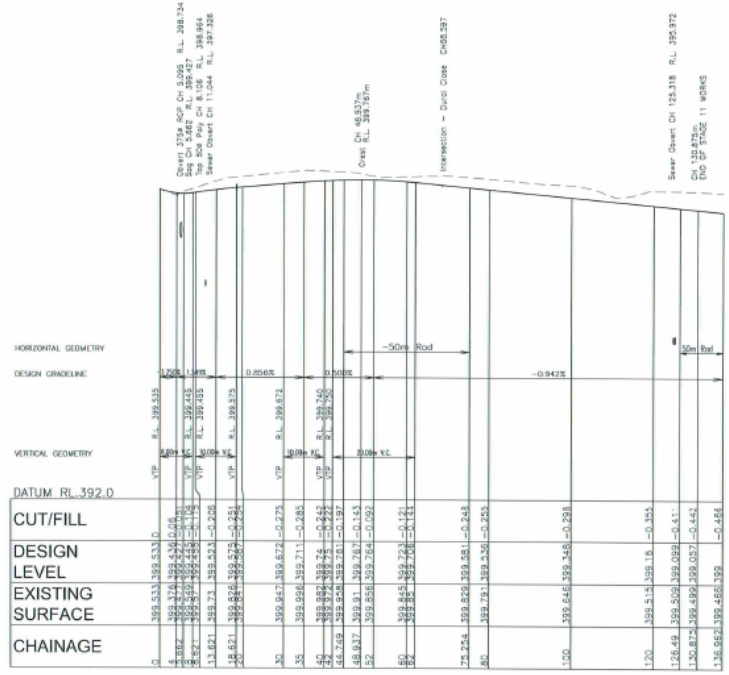
Issue: A

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020

CAUTION

DIAL BEFORE YOU DIG www.1100.com.au The Essential First Step

EXISTING SERVICES IN THIS AREA



LONGITUDINAL SECTION - PONTO'S PLACE

Horz 1:500
Vert 1:50

4/11/20

PRELIMINARY ISSUE

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	15/05/20	W.S.

DRAWN W.S. CHECKED W.S. APPROVED

CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 DP WORKS.DWG

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DATUM: PSM160908 GDA94 ZONE 55 AUSTRALIAN HEIGHT DATUM (AHD)

0 10 20 30m Scale 1:500 [A1]

Client: B. T. M. & S. STANKOVICH PTY LTD

Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11

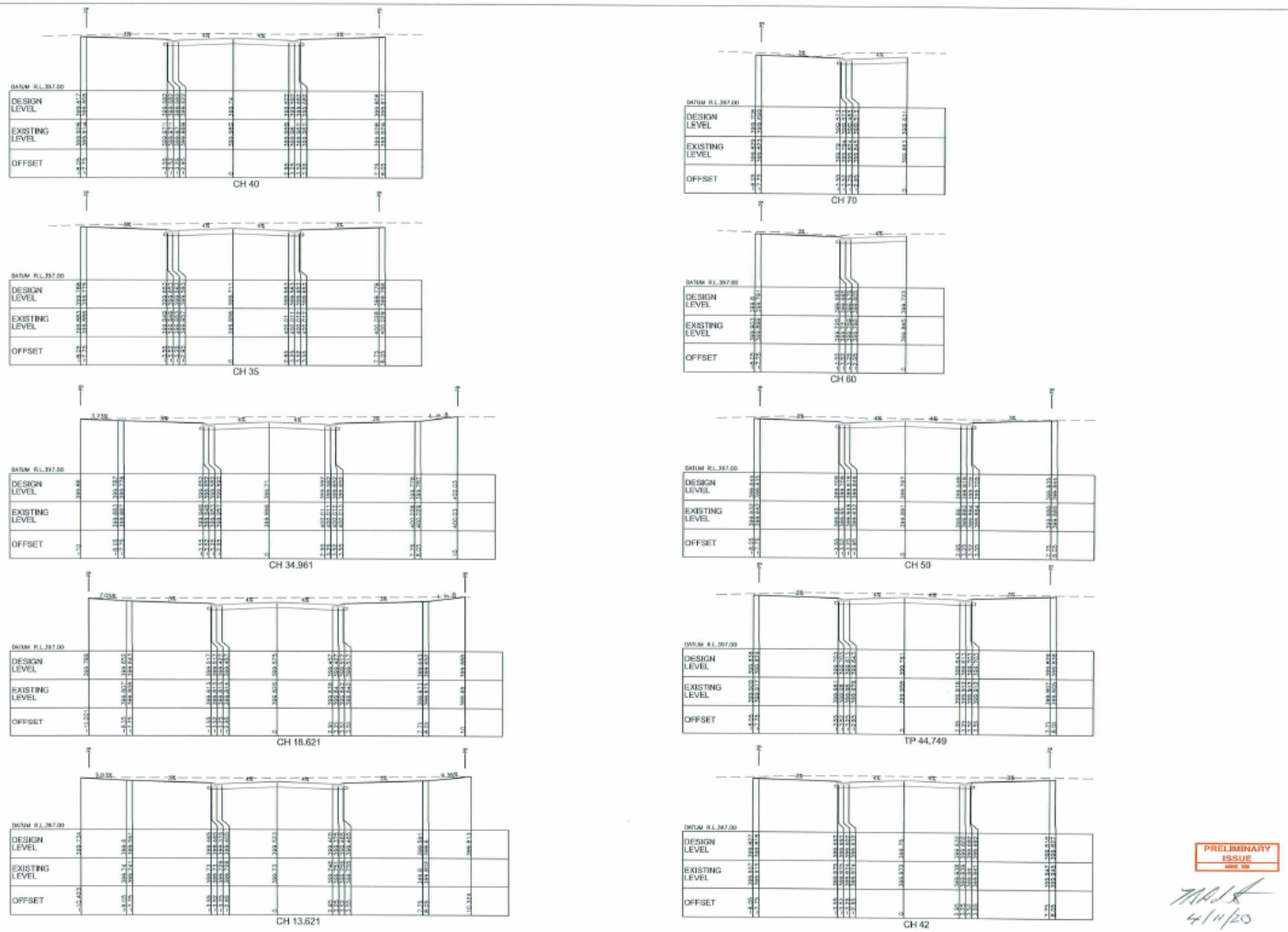
Title: PONTO'S PLACE - LONGITUDINAL SECTION

Plan No: AP18-018-C08

Vol No. 8/36

Issue: A

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



PRELIMINARY ISSUE

4/11/20

CROSS SECTIONS - PONTO'S PLACE Ch13.621 to Ch.70.00

Scale 1:100 (A1)

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	15/08/20	WS

DRAWN W.S. CHECKED W.S. APPROVED

CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 OP WORKS.DWG

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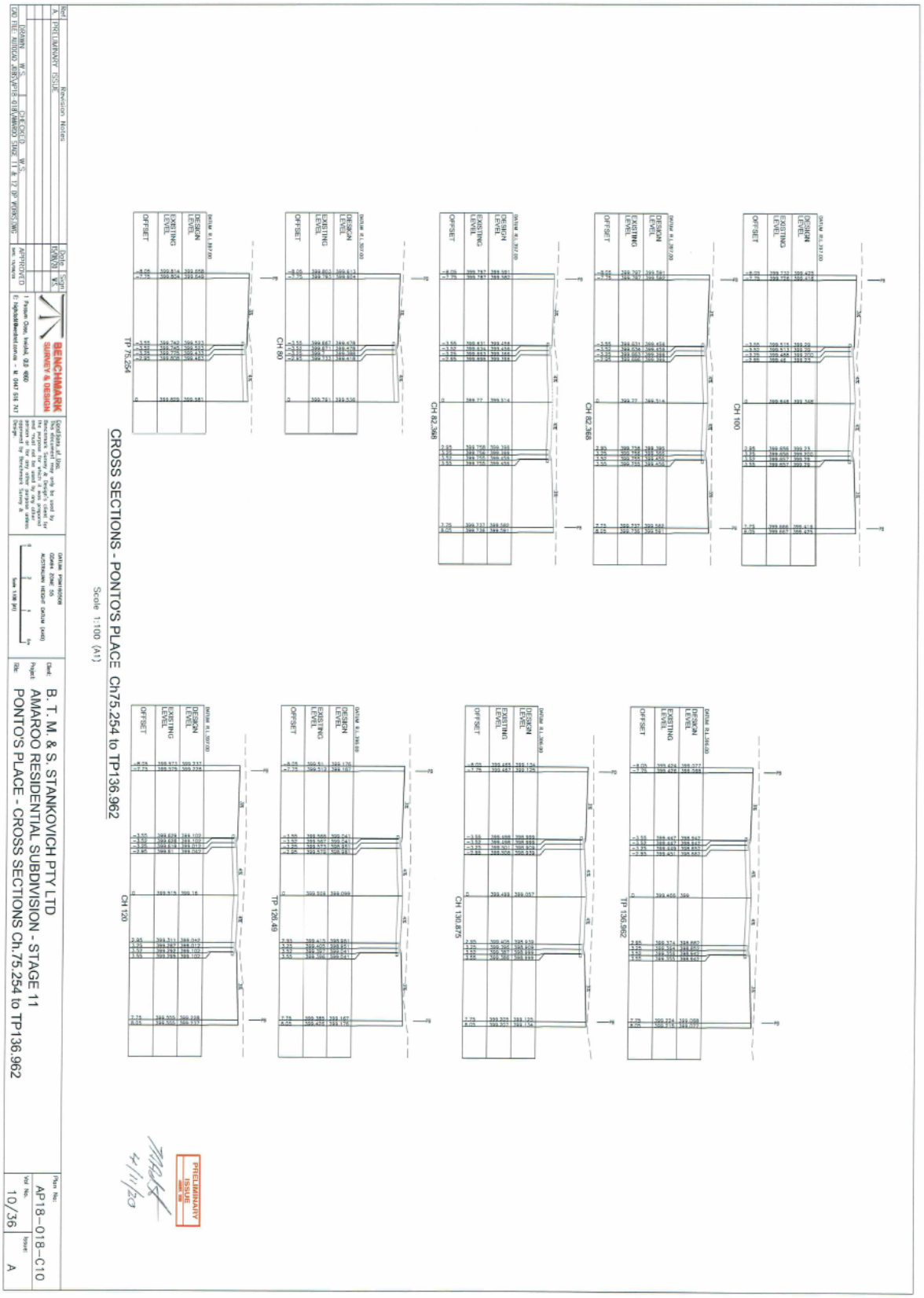
DATUM: PSM1923DB
GDA94 ZONE 55
AUSTRALIAN HEIGHT DATUM (AHD)

Scale 1:100 (M)

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11
File: PONTO'S PLACE - CROSS SECTIONS Ch.13.621 to Ch.70.00

Plan No: AP18–018–C09
Vol No. 9/36
Issue: A

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



Document Set ID: 3889115
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	06/11/20	

DRAWN W.S.
CHECKED W.S.
APPROVED

C:\FILE_AMAROO JOBS\AP18-018\AMAROO STAGE 11 & 12 OF WORKS.DWG

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1 Hooper Close, Innisfail, QLD 4860
E: bigmick@bigpond.com.au M: 0447 815 747

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DRAWN FROM DATUM AUSTRALIAN HEIGHT DATUM (AHD)
Scale 1:500 (A1)

Client
Project
Title

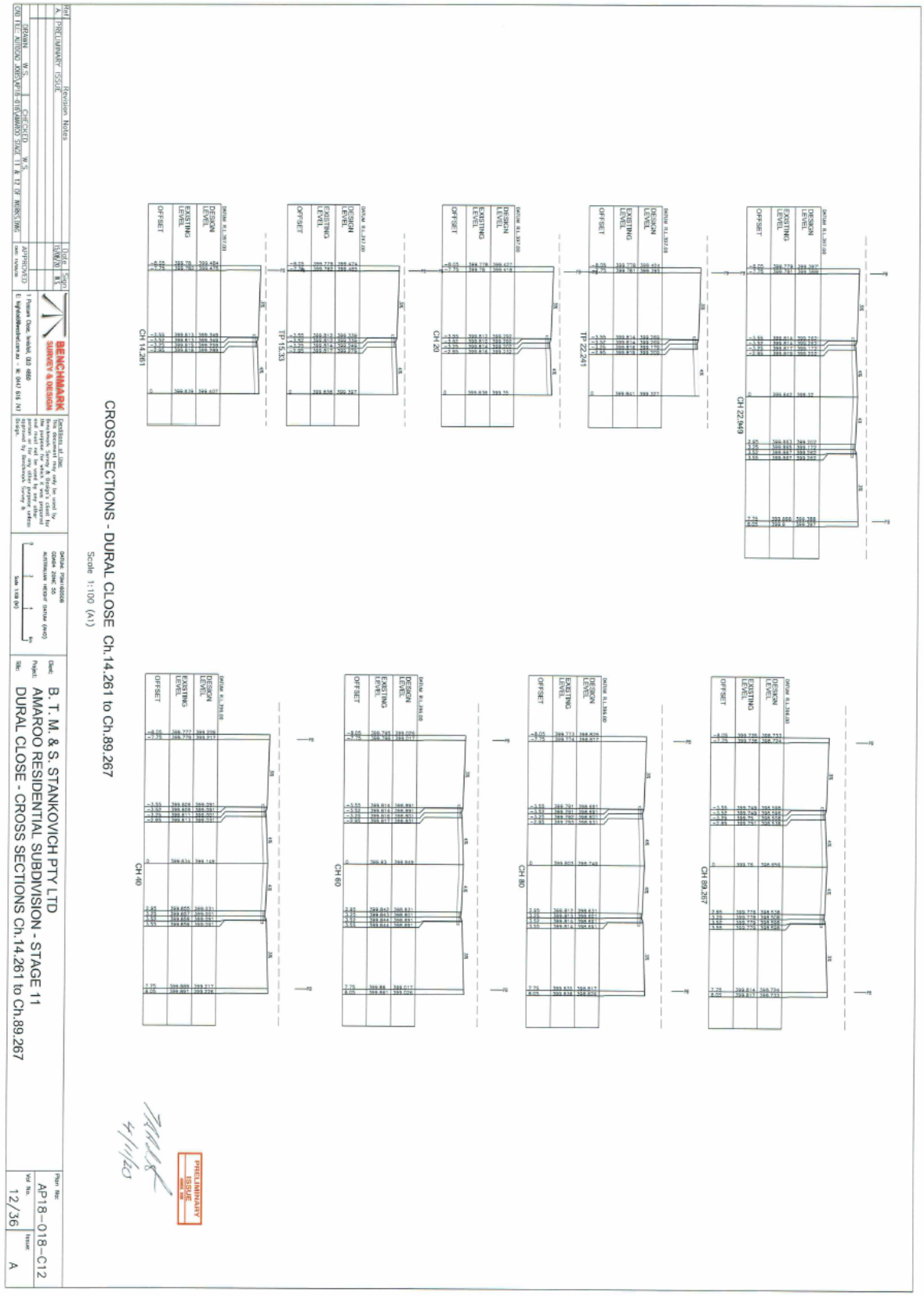
B. T. M. & S. STANKOVICH PTY LTD
AMAROO RESIDENTIAL SUBDIVISION - STAGE 11
DURAL CLOSE - LONGITUDINAL SECTION

PRELIMINARY ISSUE NOT FOR CONSTRUCTION

Plan No.
AP18-018-C11
Vol No.
11/36
Issue
A

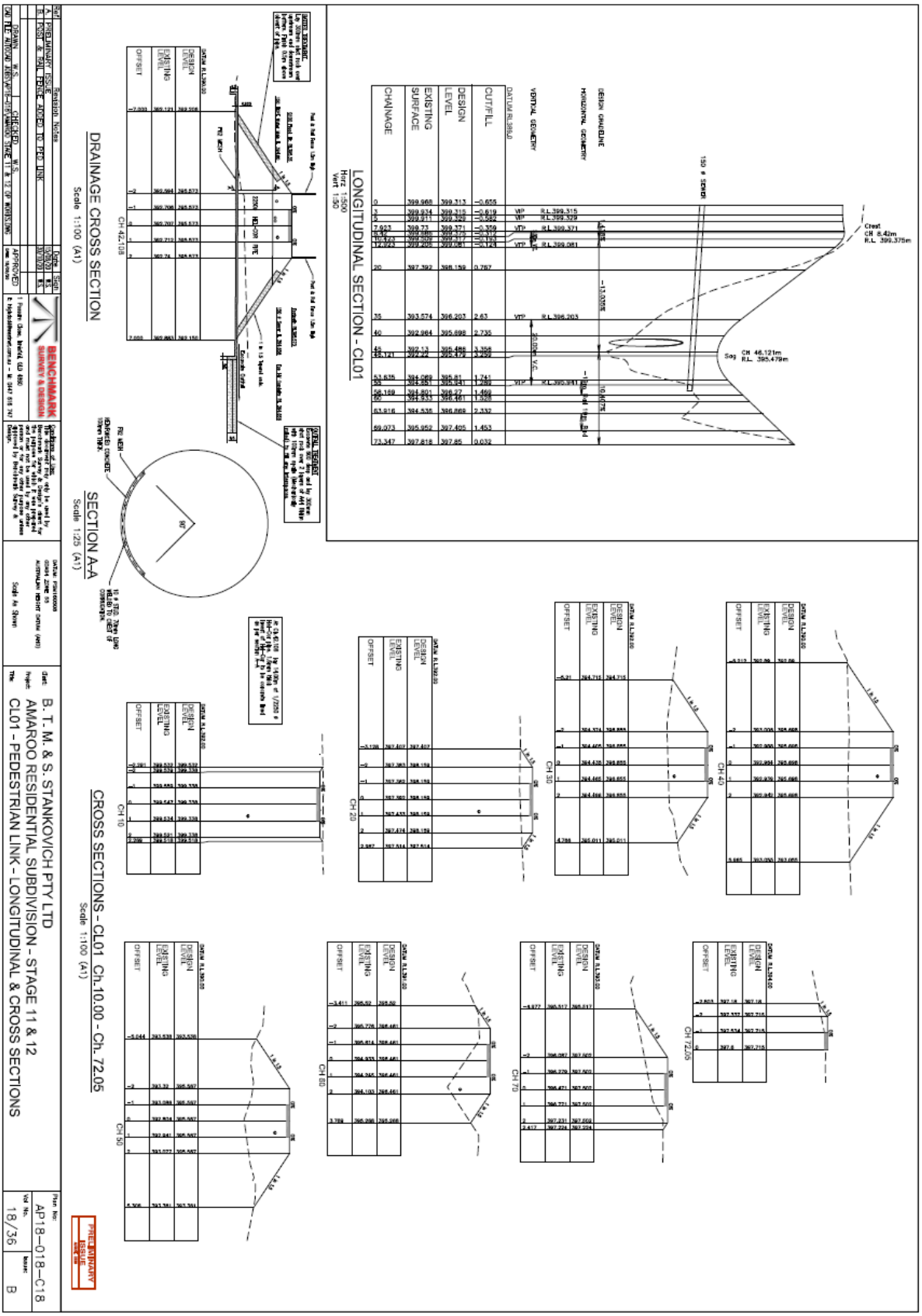
Document Set ID: 3889115
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



Document Set ID: 3889115
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



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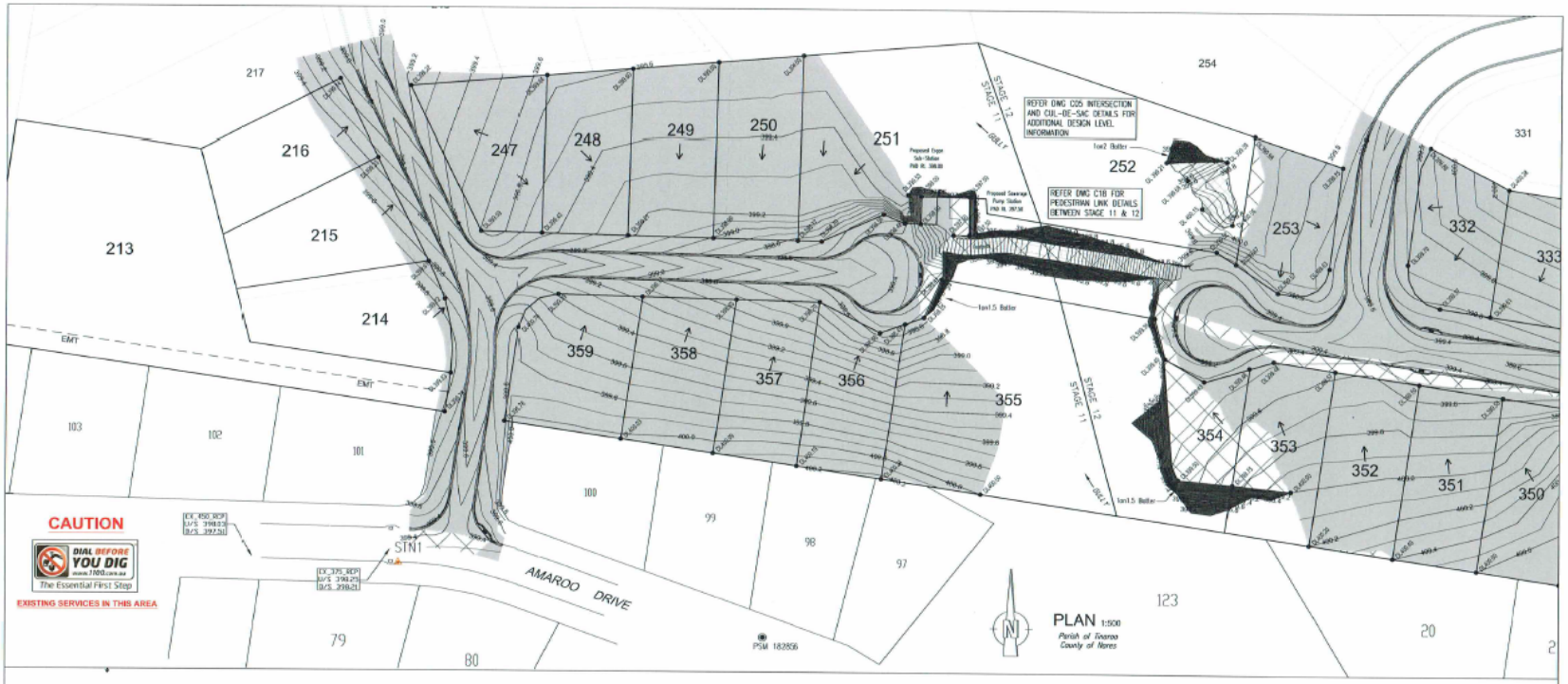
Version: 1, Version Date: 09/12/2020



LEGEND

- EARTHWORKS CUT AREA
- EARTHWORKS FILL AREA
- EARTHWORKS BOUNDARY
- 401.0 — DESIGN CONTOURS WITH LABELS (0.10m Intervals)
- DESIGN LEVEL
- 348 — FALL OF LOTS

EARTHWORKS NOTES

1. ALL EARTHWORKS SHALL BE IN ACCORDANCE WITH AS3798 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS" AND FNQROC STANDARD SPECIFICATIONS.
2. EARTHWORKS TO BE LEVEL ONE CONTROLLED FILL. COMPACTION TESTING IS TO COMPLY WITH SECTION 5 OF "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS" UNLESS NOTED OTHERWISE. FILL LAYERS SHALL NOT EXCEED 200mm DEPTH AND COMPACTED TO 95% STANDARD COMPACTION. COMPACTION TESTS TO BE CARRIED OUT AT 1 TEST PER 200m² OR 1 PER 1000m² PER LAYER, WHICHEVER GIVES GREATER NUMBER OF TESTS.
3. ALL DISTURBED AREAS ARE TO BE TOPSOILED AND GRASS SEEDED IN ACCORDANCE WITH THE FNQROC STANDARD SPECIFICATIONS, WITH EXCEPTION OF BATTERS STEEPER THAN 1 IN 4 THAT ARE TO BE TOPSOILED AND HYDROMULCHED.
4. ALL CUT & FILL BATTERS ARE TO BE 1 ON 4 U.N.O.
5. DUST SUPPRESSION MEASURES MUST BE UNDERTAKEN TO ENSURE THAT DUST DOES NOT CAUSE A NUISANCE TO SURROUNDING AREAS AND RESIDENTS. SUCH MEASURES MUST BE SUBMITTED AS PART OF THE SEDIMENT CONTROL PLAN.
6. IF ANY DUST OR MUD IS BROUGHT ONTO THE ROAD PAVEMENT FROM WORKS ON THE SUBJECT LAND, IT MUST BE PROPERLY CLEANED AWAY TO ELIMINATE MUD OR DUST NUISANCE NO LATER THAN AT THE END OF EACH WORKING DAY.
7. ALLOTMENTS SHALL BE PROVIDED WITH A MINIMUM FINISHED SURFACE GRADIENT OF 0.5%, TO FACILITATE DRAINAGE.
8. ALL EMBANKMENTS AND CUTTINGS MUST BE OUTSIDE THE ROAD RESERVE. THE TOE OF ANY CUT BATTER IS TO BE 300mm INSIDE THE PROPERTY BOUNDARY, THE TOP OF ANY FILL BATTER IS TO BE 300mm INSIDE THE PROPERTY BOUNDARY.

GENERAL NOTES

1. LEVEL DATUM: AHD
2. ORIGIN OF LEVELS: PSM180583; RL 490.897 CNR MARIA CLOSE AND COOLA DRIVE
3. DESIGN SURFACE CONTOUR INTERVAL: 0.10m INDEXED: 0.20m
4. DETAILS OF EXISTING SERVICES ARE PROVIDED FOR INFORMATION ONLY AND THE CONTRACTOR IS TO LOCATE ALL SERVICES PRIOR TO COMMENCEMENT OF WORK.
5. REFER TO FNQROC SPECIFICATIONS AND DRAWINGS FOR EARTHWORKS, ROADWORKS, WATER AND STORMWATER DRAINAGE.

4/12/20

PRELIMINARY ISSUE

Ref	Revision Notes	Date	Sign
A.	PRELIMINARY ISSUE	13/08/20	WS

DRAWN: W.S. CHECKED: W.S. APPROVED: date: 13/08/20

CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 CIP WORKS.DWG

BENCHMARK SURVEY & DESIGN

1 Possum Close, Innisfail, QLD 4860
E: highdod@westnet.com.au – M: 0447 616 747

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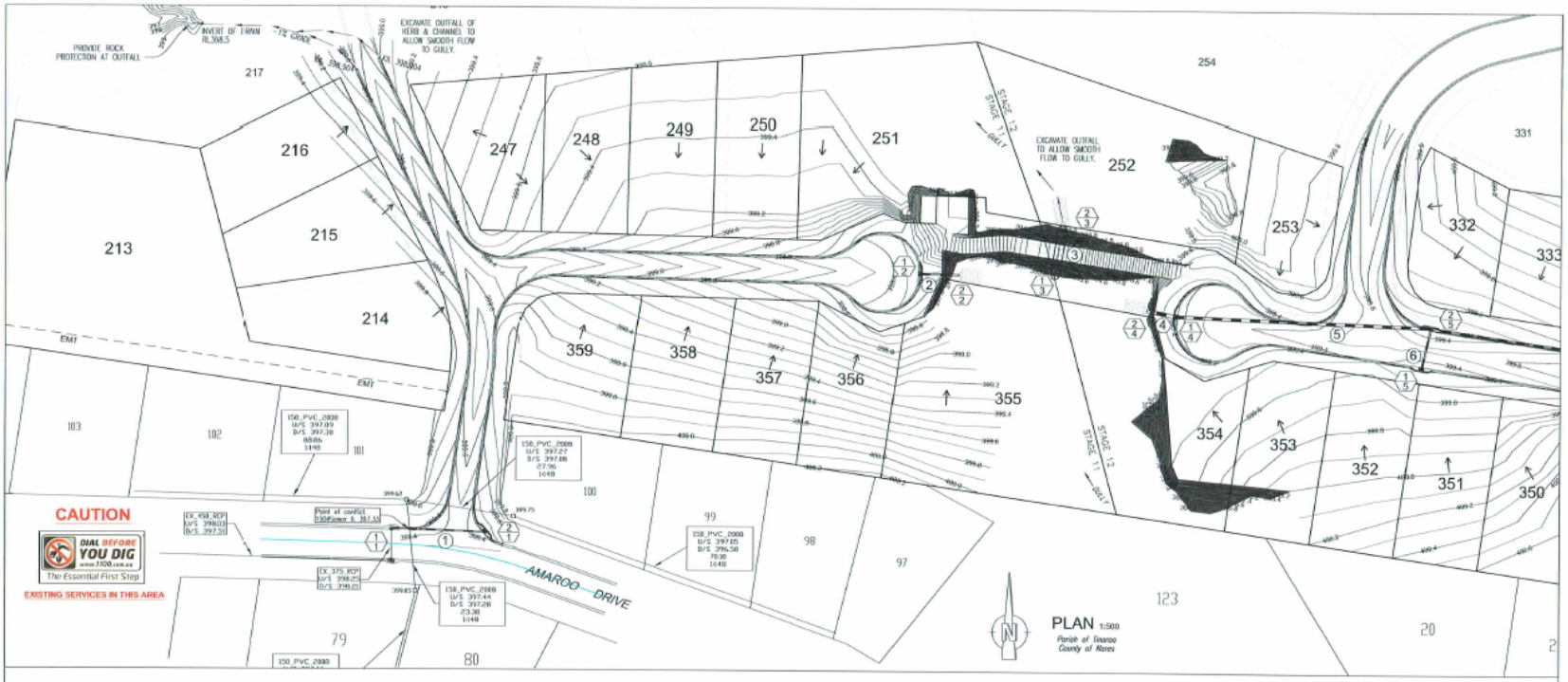
DATUM: PSM180583B
GDA94 ZONE 55
AUSTRALIAN HEIGHT DATUM (AHD)
0 10 20 30m
Scale 1:500 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
Title: EARTHWORKS LAYOUT PLAN - SHEET 1 OF 2

Plan No: AP18-018-C19
Vol No.: 19/36
Issue: A

Document Set ID: 3898116
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



STORMWATER STRUCTURE TABLE

NO.	TYPE	EASTING	NORTHING
1/1	EXISTING KERB INLET PIT	333454.309	8120768.563
2/1	KERB INLET PIT IN SAG (S)	333478.098	8120767.942
1/2	KERB INLET PIT IN SAG (S)	333587.575	8120834.670
2/2	HEADWALL	333600.089	8120834.415
1/3	UPSTREAM 2250Ø HEL-COR	333624.630	8120833.513
2/3	DOWNSTREAM 2250Ø HEL-COR	333626.801	8120847.343
1/4	KERB INLET PIT IN SAG (S)	333656.380	8120824.129
2/4	HEADWALL	333643.694	8120826.696
1/5	KERB INLET PIT IN SAG (L)	333719.489	8120811.938
2/5	KERB INLET PIT IN SAG (L)	333721.707	8120821.306

STORMWATER PIPE TABLE

PIPE	SIZE (dia)	LENGTH	GRADE (%)	U.S.I.L.	D.S.I.L.
1	1/375 Cl 2	23.54m	-0.500	398.389	398.251
2	1/450 Cl 2	9.76m	-1.000	396.964	396.866
3	1/2250 Hel-Cor	14.00m	-0.400	392.206	392.150
4	1/900 Cl 2	7.32m	-1.000	397.319	397.246
5	1/750 Cl 2	65.24m	-0.500	397.675	397.349
6	1/375 Cl 2	9.94m	-2.000	397.924	397.725

CO-ORDINATES REFER TO MIDDLE OF HEADWALL AS SHOWN.

CO-ORDINATES REFER TO CENTRE OF MANHOLE AS SHOWN.

SETOUT REFERS TO MID POINT OF GRATE ON LIP OF KERB AS SHOWN.

CONTROL STATIONS

Point	Easting	Northing	Elevation
PSM 182856	333549.907	8120741.716	399.855
PSM 169584	334232.225	8120673.283	401.463
STN 1 (Pin)	333456.097	8120760.320	399.385
STN 2 (Pin)	333961.659	8120661.682	401.981
STN 3 (Pin)	333979.294	8120549.185	402.459

STORMWATER NOTES

1 ORIGIN OF LEVELS: PSM160503; RL 400.897 CNR MARIA CLOSE AND CEOLA DRIVE

2 DESIGN SURFACE CONTOUR INTERVAL: 0.10m
INDEXED: 0.20m

3 DETAILS OF EXISTING SERVICES ARE PROVIDED FOR INFORMATION ONLY AND THE CONTRACTOR IS TO LOCATE ALL SERVICES PRIOR TO COMMENCEMENT OF WORK.

4 FOR SPECIFICATIONS OF STORMWATER DRAINAGE REFER TO FNQROC STANDARD SPECIFICATIONS.

5 FOR STANDARD STORMWATER DRAINAGE DETAILS REFER FNQROC STD DWGS S1045 – S1100

6 STORMWATER PIPES TO BE REINFORCED CONCRETE TO AS 4058. PIPE 4 TO BE HELCOR 2mm THICK IN ACCORDANCE WITH AS/NZS2041:2010.

7 PIPE 3, 4 & 5 TO HAVE ROCK PROTECTION AT DOWNSTREAM INVERT TO PROTECT OUTFALL.

LEGEND

- STORMWATER STRUCTURE LABEL
- STORMWATER PIPE LABEL
- PROPOSED STORMWATER DRAINAGE PIPE
- GRATED KERB INLET PIT REFER TO FNQROC STD DWG S1055 FOR DETAILS
- 401.0 DESIGN CONTOURS WITH LABELS
- ROCK PROTECTION
- 250 FALL OF LOTS/DIRECTION OF OVERLAND FLOWS

4/11/20

PRELIMINARY ISSUE

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	15/08/20	W.S.
B	STRUCTURE 1/5 & 2/5 LINTEL SIZE CHANGED TO LARGE	30/10/20	W.S.

DRAWN W.S. CHECKED W.S. APPROVED

CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 OF WORKS.DWG

BENCHMARK SURVEY & DESIGN

1 Possum Close, Innisfail, QLD 4860

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DATUM: PSM160503 (GDA94 ZONE 55 AUSTRALIAN HEIGHT DATUM (AHD))

Scale 1:500 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD

Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12

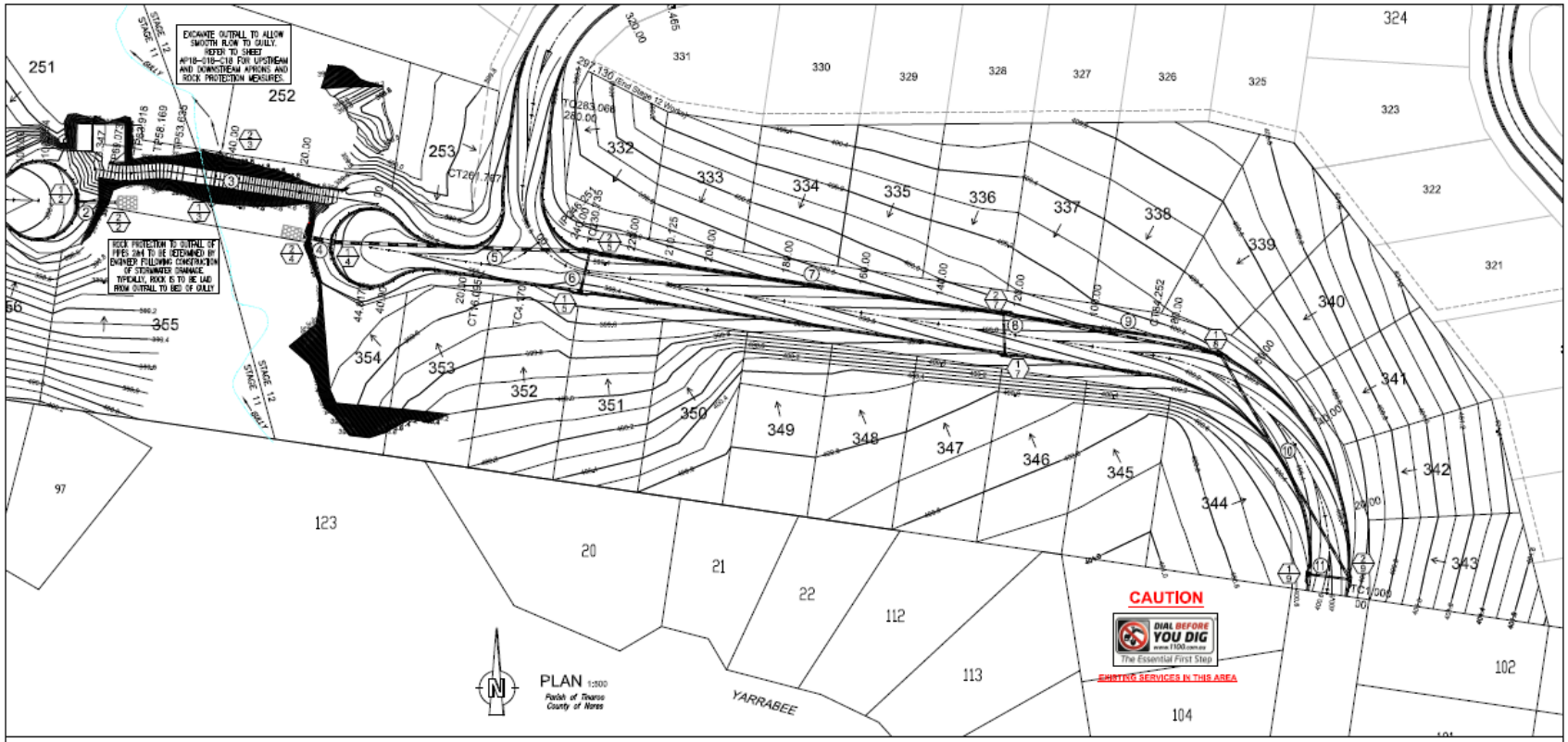
Title: STORMWATER RETICULATION LAYOUT PLAN - SHEET 1 of 2

Plan No: AP18-018-C21

Vol No. 21/36 Issue: B

Document Set ID: 3888116
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



STORMWATER STRUCTURE TABLE

NO.	TYPE	EASTING	NORTHING
1/7	KERB INLET PIT ON GRADE (S)	333628.367	8120795.971
2/7	KERB INLET PIT ON GRADE (S)	333628.159	8120808.502
1/8	KERB INLET PIT ON GRADE (S)	333683.389	8120794.903
1/9	KERB INLET PIT ON GRADE (S)	333906.995	8120736.654
2/9	KERB INLET PIT ON GRADE (S)	333916.331	8120737.584

CO-ORDINATES REFER TO MIDDLE OF HEADWALL AS SHOWN.

CO-ORDINATES REFER TO CENTRE OF MANHOLE AS SHOWN.

SETOUT REFERS TO MID POINT OF GRATE ON LIP OF KERB AS SHOWN.

STORMWATER PIPE TABLE

PIPE	SIZE (dia)	LENGTH	GRADE (%)	U.S.I.L.	D.S.I.L.
7	1/675 Cl 2	106.66m	-0.701	398.473	397.725
8	1/375 Cl 2	9.89m	-0.500	398.572	398.523
9	1/525 Cl 2	55.53m	-0.515	398.809	398.523
10	1/450 Cl 2	66.02m	-0.515	399.199	398.859
11	1/375 Cl 2	9.72m	-0.500	399.308	399.259

CONTROL STATIONS

Point	Easting	Northing	Elevation
PSM 182856	333549.907	8120741.716	399.855
PSM 166684	334232.225	8120673.293	401.463
STN 1 (Pin)	333456.097	8120760.320	399.385
STN 2 (Pin)	333961.656	8120661.662	401.981
STN 3 (Pin)	333979.294	8120649.185	402.489

LEGEND

- STORMWATER STRUCTURE LABEL
- STORMWATER PIPE LABEL
- PROPOSED STORMWATER DRAINAGE PIPE
- GRATED KERB INLET PIT REFER TO FNQROC STD DWG S1055 FOR DETAILS
- 401.0 DESIGN CONTOURS WITH LABELS
- ROCK PROTECTION
- 250 FALL OF LOTS/DIRECTION OF OVERLAND FLOWS

STORMWATER NOTES

1 ORIGIN OF LEVELS: PSM160503; RL 400.897 CNR MARIA CLOSE AND CEOLA DRIVE

2 DESIGN SURFACE CONTOUR INTERVAL: 0.10m INDEXED: 0.20m

3 DETAILS OF EXISTING SERVICES ARE PROVIDED FOR INFORMATION ONLY AND THE CONTRACTOR IS TO LOCATE ALL SERVICES PRIOR TO COMMENCEMENT OF WORK.

4 FOR SPECIFICATIONS OF STORMWATER DRAINAGE REFER TO FNQROC STANDARD SPECIFICATIONS.

5 FOR STANDARD STORMWATER DRAINAGE DETAILS REFER FNQROC STD DWGS S1045 – S1100

6 STORMWATER PIPES TO BE REINFORCED CONCRETE TO AS 4058.

PRELIMINARY ISSUE

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	09/09/20	W.S.

DRAWN W.S. CHECKED W.S. APPROVED

CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 OP WORKS.DWG

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1 Possum Close, Brinsfield, QLD 4880
E: bigdad@freenet.com.au – M: 0447 515 747

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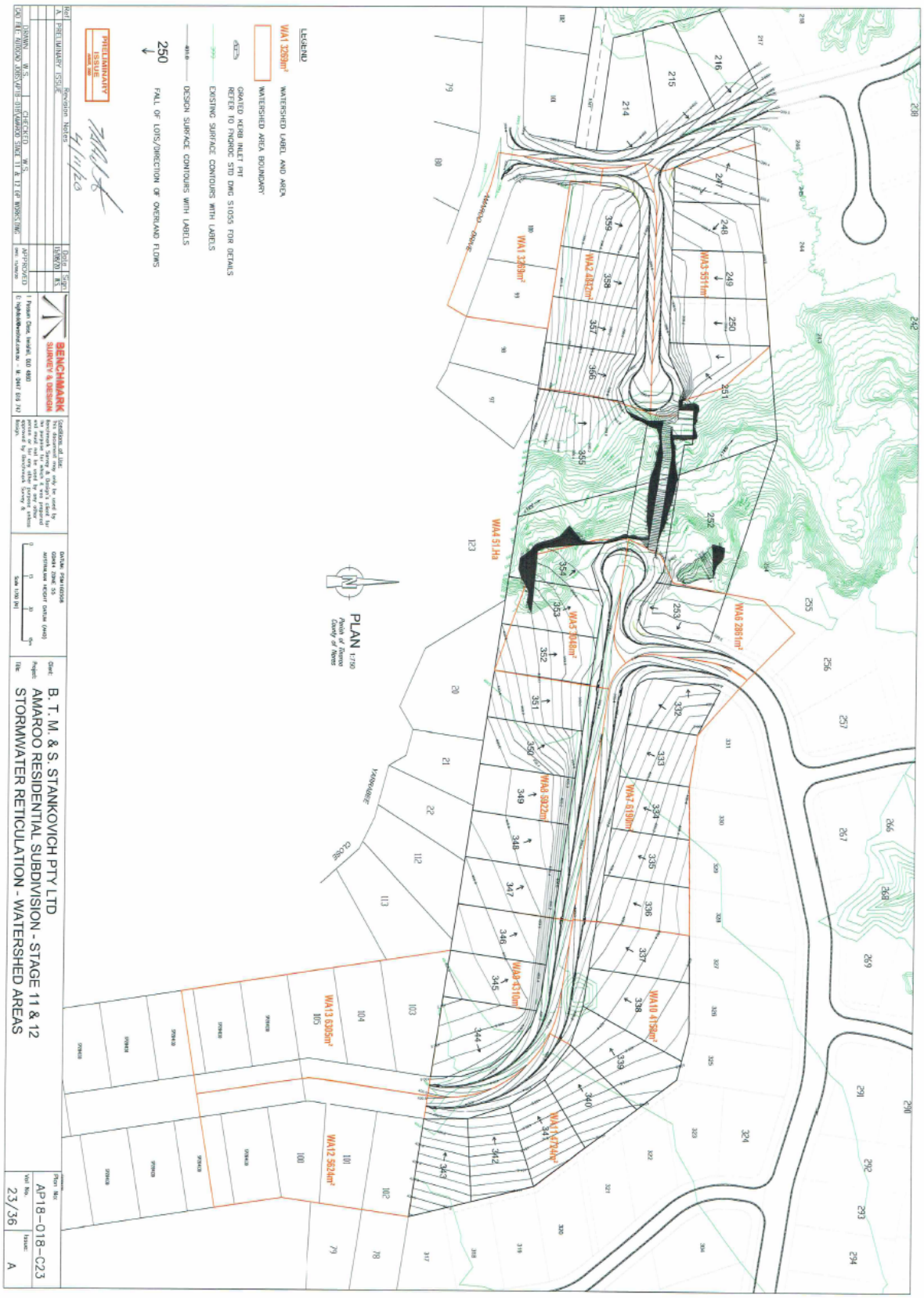
DATUM: PSM160503
GDA94 ZONE 55
AUSTRALIAN HEIGHT DATUM (AHD)

Scale 1:500 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
Title: STORMWATER RETICULATION LAYOUT PLAN - SHEET 2 of 2

Plan No: AAP18-018-C22
Vol No. 22/36
Issue: A

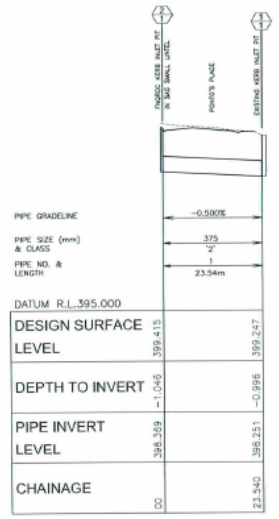
Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



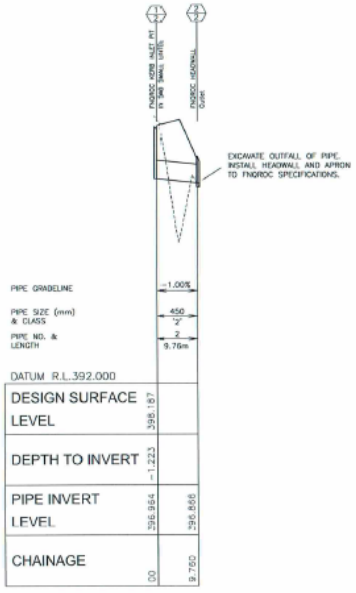
Document Set ID: 3889116
Version: 1. Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020

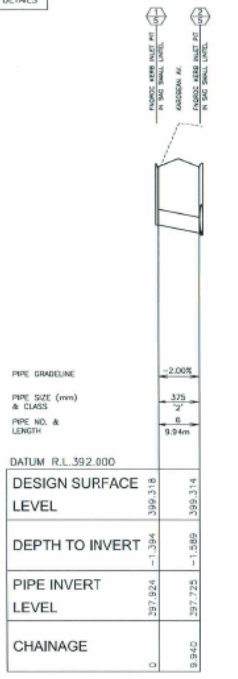
NOTE:
REFER DRAWING C18
FOR PIPE 3 DETAILS



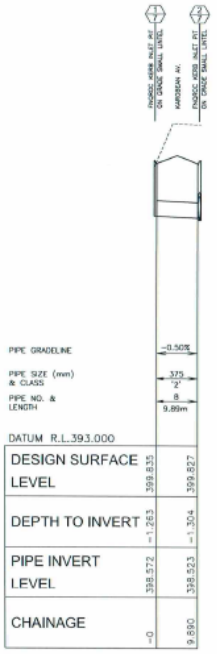
LONGITUDINAL SECTION PIPE 1
Horizontal scale 1:500
Vertical scale 1:50



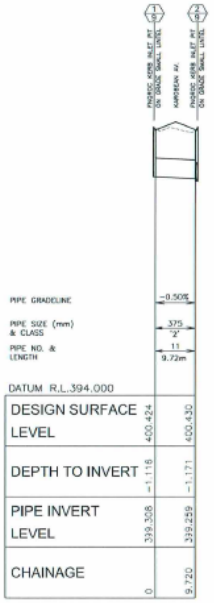
LONGITUDINAL SECTION PIPE 2
Horizontal scale 1:500
Vertical scale 1:50



LONGITUDINAL SECTION PIPE 6
Horizontal scale 1:500
Vertical scale 1:50



LONGITUDINAL SECTION PIPE 8
Horizontal scale 1:500
Vertical scale 1:50



LONGITUDINAL SECTION PIPE 11
Horizontal scale 1:500
Vertical scale 1:50

CAUTION

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EXISTING SERVICES IN THIS AREA

4/11/20

PRELIMINARY ISSUE

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	13/08/20	WS

DRAWN W.S. CHECKED W.S. APPROVED
CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 DP WORKS.DWG

BENCHMARK SURVEY & DESIGN
1 Possum Close, Innisfail, QLD 4860
E: highdale@westnet.com.au – M: 0447 516 747

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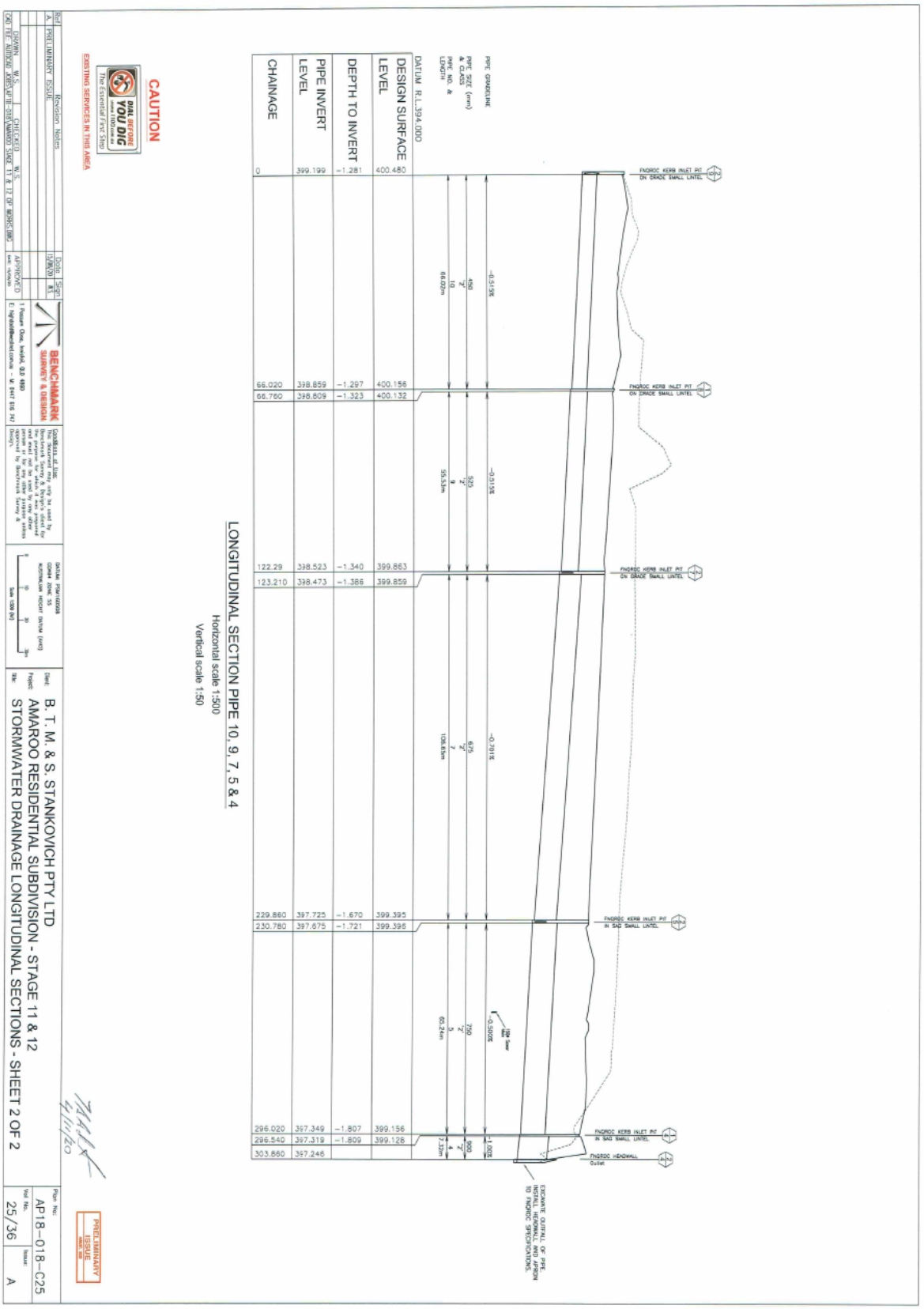
DATUM: PSM1605DB
CDA94 ZONE 55
AUSTRALIAN HEIGHT DATUM (AHD)
0 10 20 30m
Scale 1:500 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
Title: STORMWATER DRAINAGE LONGITUDINAL SECTIONS - SHEET 1 OF 2

Plan No: AP18-018-C24
Vol No. 24/36
Issue: A

Document Set ID: 3889117
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



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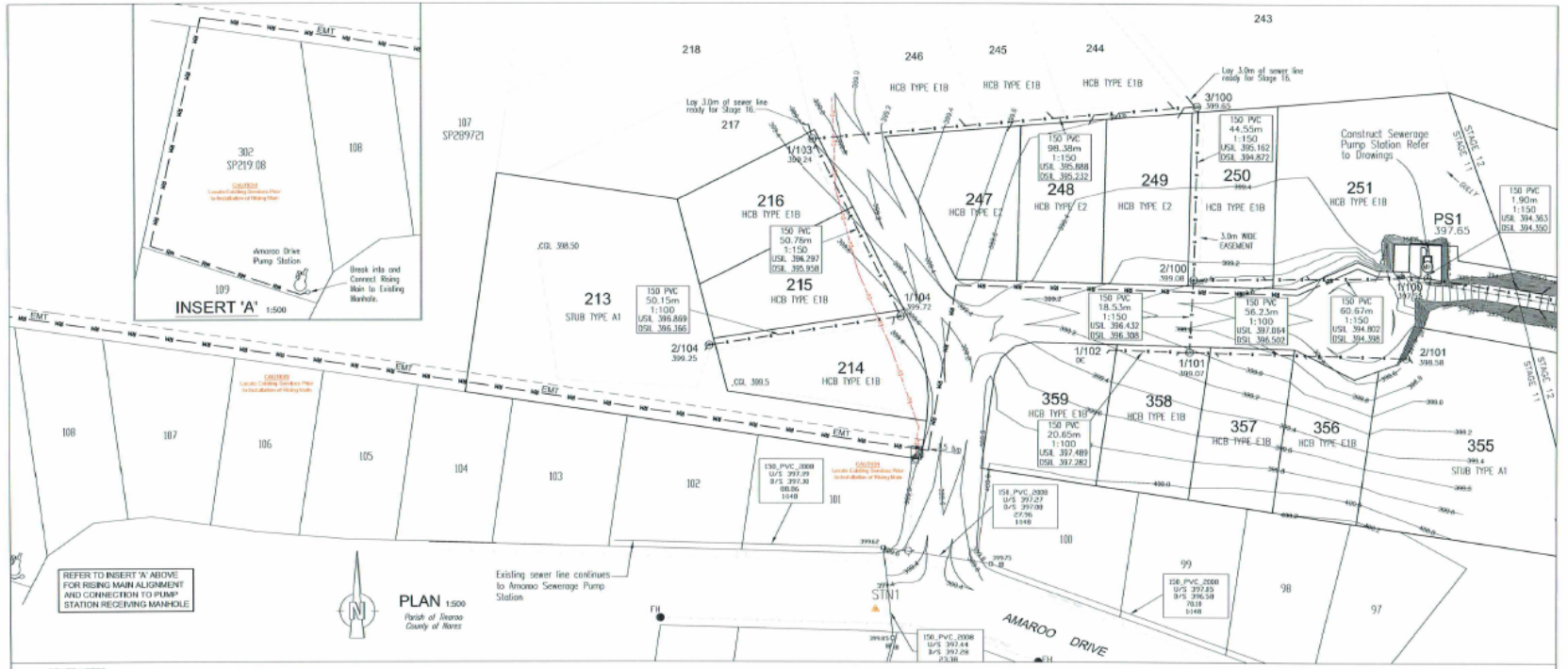
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



SEWER NOTES

1. ALL SEWERS Ø150 uPVC CLASS SEH U.N.O. SEWER MANHOLES ARE TO BE LOCATED 1.5m FROM FRONT BOUNDARIES TO CENTRE OF MANHOLE AND 0.8m FROM SIDE AND REAR BOUNDARIES TO CENTRE OF MANHOLE U.N.O.
2. REFER TO FNQROC STANDARD DRAWINGS S3000 TO S3015 FOR SEWER CONSTRUCTION DETAILS.
3. REFER DWG AP18–018–C09 FOR SEWER LONGITUDINAL SECTIONS.
4. THE CONTRACTOR IS TO CONFIRM THE LOCATIONS AND LEVELS OF EXISTING SERVICES PRIOR TO CONSTRUCTION COMMENCING.
5. CONNECTIONS TO EXISTING WATER & SEWER MAINS TO BE UNDERTAKEN OR SUPERVISED BY MAREEBA SHIRE COUNCIL.
6. ENSURE MIN. 150mm CLEARANCE BETWEEN ALL SERVICES AND STORMWATER STRUCTURES.
7. SEWER TO HAVE MINIMUM 1800mm COVER UNDER ROADS AND 600mm ELSEWHERE.
8. ALL MANHOLES ARE TO FINISH 50mm ABOVE FINISHED DESIGN SURFACE LEVEL.
9. ALL TYPE E1B HCB's TO BE FABRICATED FIBREGLASS, HEAVY DUTY, DEEP SEWER DROPS.
10. BRING ALL HCB's TO SURFACE WITH A VERTICAL RISER FITTED WITH A BOLTED TRAP SCREW & CONCRETE SURROUND.
11. INSTALL A RED PAINTED STAR PICKET ADJACENT TO RISER, 1m HIGH.
12. MANHOLE COVERS ARE TO BE GAS TIGHT.
13. MANHOLE COVERS ARE TO BE LOCATED SUCH THAT THE POSITION OF THE ACCESS IS DIRECTLY OVER THE OUTLET PIPE.
14. THE INSTALLATION OF PRECAST MANHOLE COVERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDED PROCEDURES AND REQUIREMENTS.
15. WHERE MANHOLES OCCUR AT THE ENDS OF SEWER LINES, THE STUB FOR THAT END ALLOTMENT SHALL CONNECT INTO THE MANHOLE IN ORDER TO AVOID A DRY MANHOLE SITUATION.
16. DESIGN CONTOURS ARE 0.1M INTERVAL.

FNQROC DRAWINGS

S3000C	SEWERAGE MANHOLES
S3005D	PROPERTY CONNECTION BRANCHES
S3015C	SEWER BEDDING AND TRENCH DETAILS
S2015A	MSC THRUST BLOCK DETAILS
S3020D	SEWERAGE PUMP STATION DETAILS
S3025C	SEWERAGE PUMP STATION PRECAST UNITS
S3030B	SEWERAGE PUMP STATION DETAILS
S3035A	PUMP STATION OVERFLOW

LEGEND

SEWERAGE MAIN (150 ø)
RISING MAIN (100 ø) CI 12
SEWERAGE MANHOLE - STRUCTURE NAME RL OF LID (3/52, 402.35)
HOUSE CONNECTION BRANCH
460.2 DESIGN SURFACE CONTOURS & LABEL
UNDERGROUND ELECTRICITY
WATER LINE

SEWER STRUCTURE SETOUT

No.	EASTING	NORTHING	LEVEL	DESCRIPTION
1/100	333598.881	8120845.877	Top RL 397.55	Manhole 1050 CL 'D'
2/100	333536.216	8120845.197	Top RL 399.08	Manhole 1050 CL 'B'
3/100	333536.914	8120889.552	Top RL 399.65	Manhole 1050 CL 'B'
1/101	333537.168	8120826.696	Top RL 399.07	Manhole 1050 CL 'B'
2/101	333593.364	8120825.318	Top RL 398.58	DN600 Eziplt CL'B'
1/102	333516.526	8120827.195	Top RL 399.28	Dead End
1/103	333439.919	8120881.115	Top RL 399.24	Manhole 1050 CL 'B'
1/104	333459.603	8120841.829	Top RL 399.72	DN600 Eziplt CL'B'
2/104	333415.239	8120819.899	Top RL 399.25	DN600 Eziplt CL'B'
2/110	333693.033	8120830.655	Top RL 399.69	Manhole 1050 CL 'D'
3/110	333697.962	8120569.347	Top RL 399.83	Manhole 1050 CL 'B'
1/111	333695.438	8120609.603	Top RL 399.64	Manhole 1050 CL 'B'
2/111	333741.940	8120802.783	Top RL 399.68	DN600 Eziplt CL'B'
1/112	333723.472	8120568.753	Top RL 399.94	DN600 Eziplt CL'B'
2/112	333742.357	8120859.082	Top RL 400.29	DN600 Eziplt CL'B'
1/121	333673.103	8120609.262	Top RL 399.53	DN600 Eziplt CL'B'

CONTROL STATIONS

Point	Easting	Northing	Elevation
PSM 182856	333549.907	8120741.716	399.855
PSM 168684	334232.225	8120673.283	401.463
STN 1 (Pin)	333456.097	8120760.320	399.385
STN 2 (Pin)	333961.659	8120861.682	401.981
STN 3 (Pin)	333979.294	8120549.185	402.459

CAUTION

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EXISTING SERVICES IN THIS AREA

PRELIMINARY ISSUE

Ref	Revision Notes	Date	Sign
A.	PRELIMINARY ISSUE	15/08/20	W.S.
B.	RISING MAIN REALIGNED, CONNECTION NOW AT PUMP STATION AMAROO DR	22/10/20	W.S.

DRAWN W.S. CHECKED W.S. APPROVED

CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 OP WORKS.DWG

BENCHMARK SURVEY & DESIGN

1 Pascoe Close, Innisfail, QLD 4860
E: fkjholdall@westnet.com.au M: 0447 516 747

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DATUM: PSM160508 GDA94 ZONE 55 AUSTRALIAN HEIGHT DATUM (AHD)

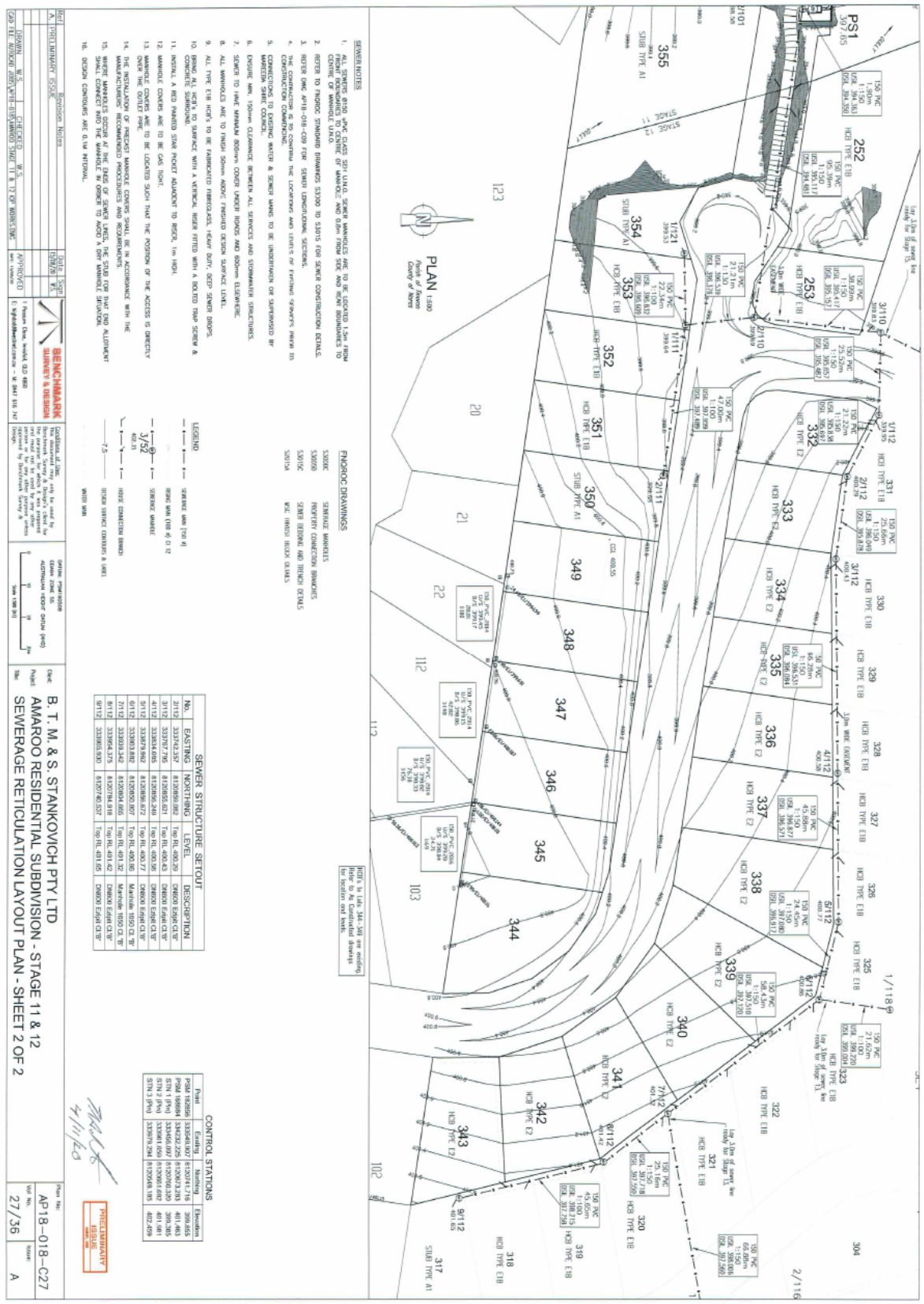
Scale 1:500 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
Title: SEWERAGE RETICULATION LAYOUT PLAN - SHEET 1 OF 2

Plan No: AP18–018–C26
Vol No: 26/36
Issue: B

Document Set ID: 3889117
Version: 1, Version Date: 06/11/2020

Document Set ID: 3899623
Version: 1, Version Date: 09/12/2020



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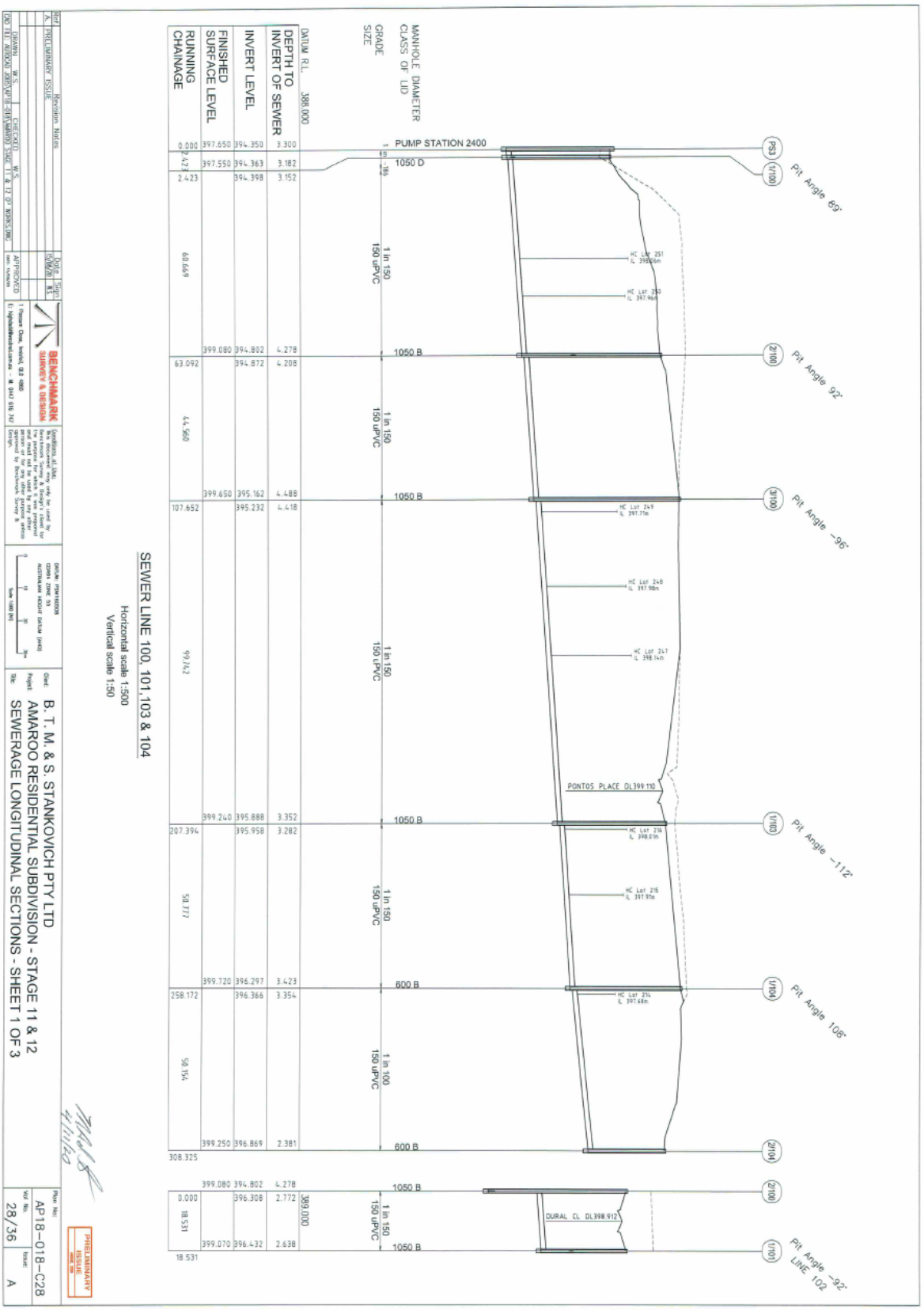
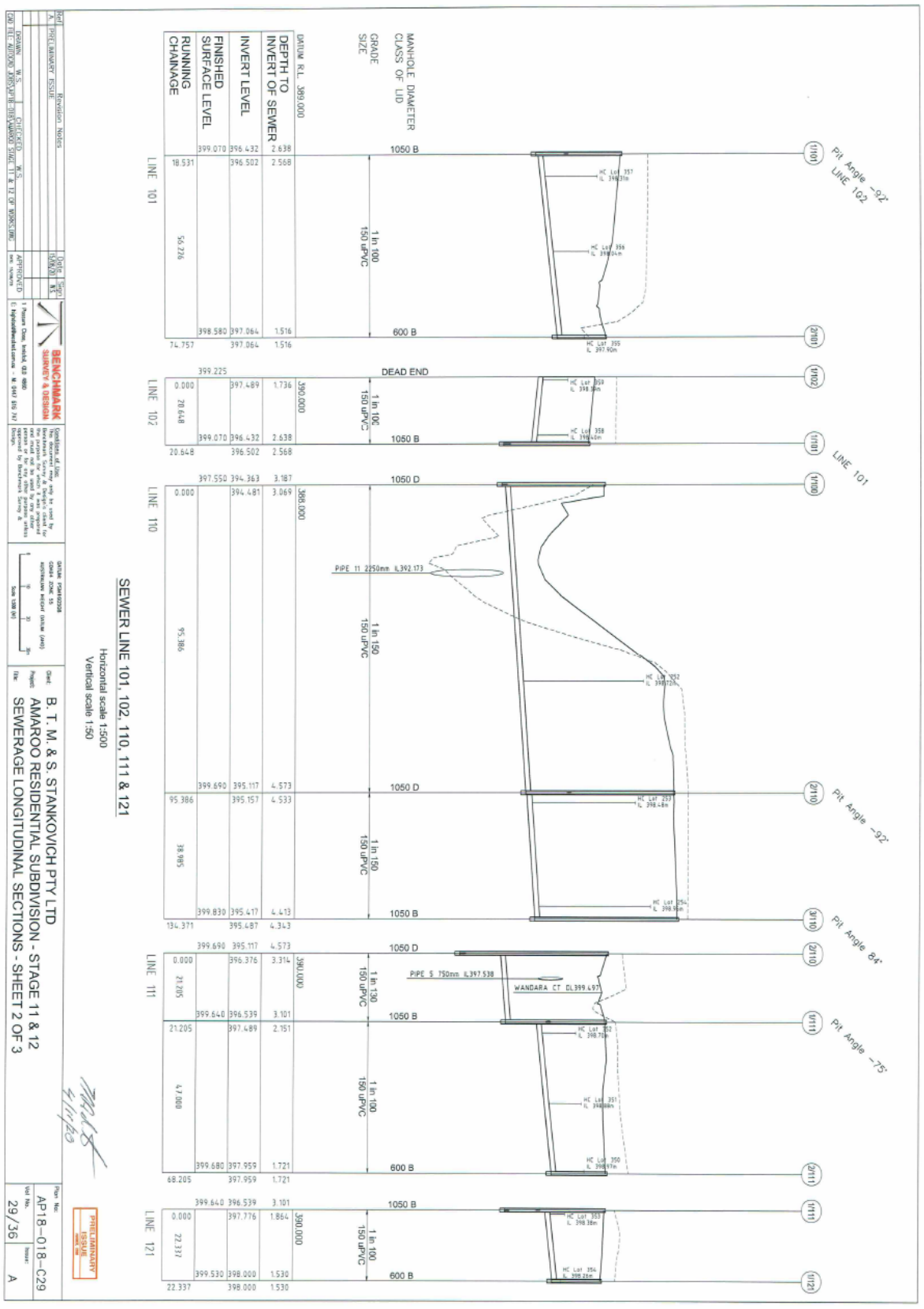
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



Document Set ID: 3889117
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



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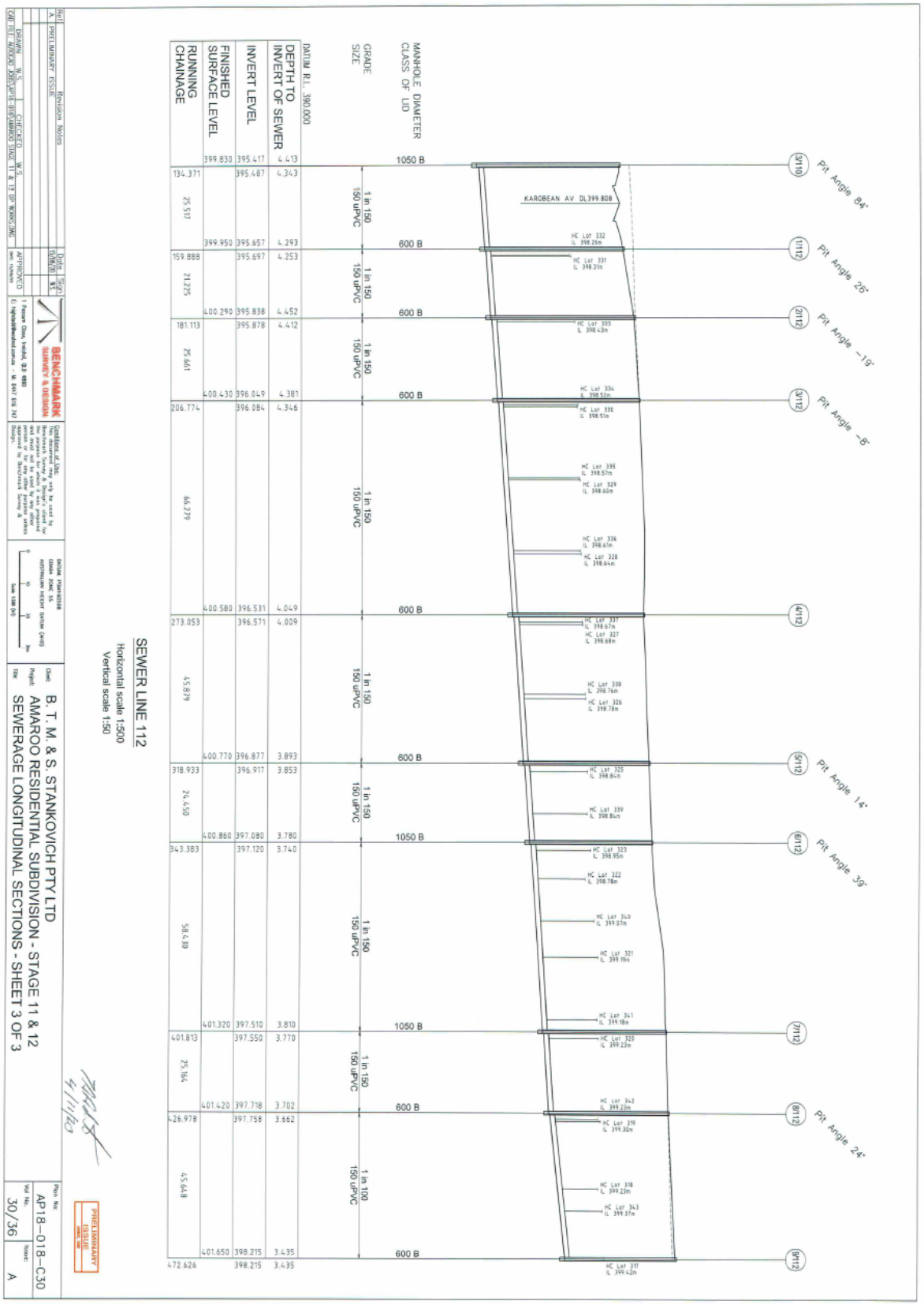
Version: 1, Version Date: 06/11/2020

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



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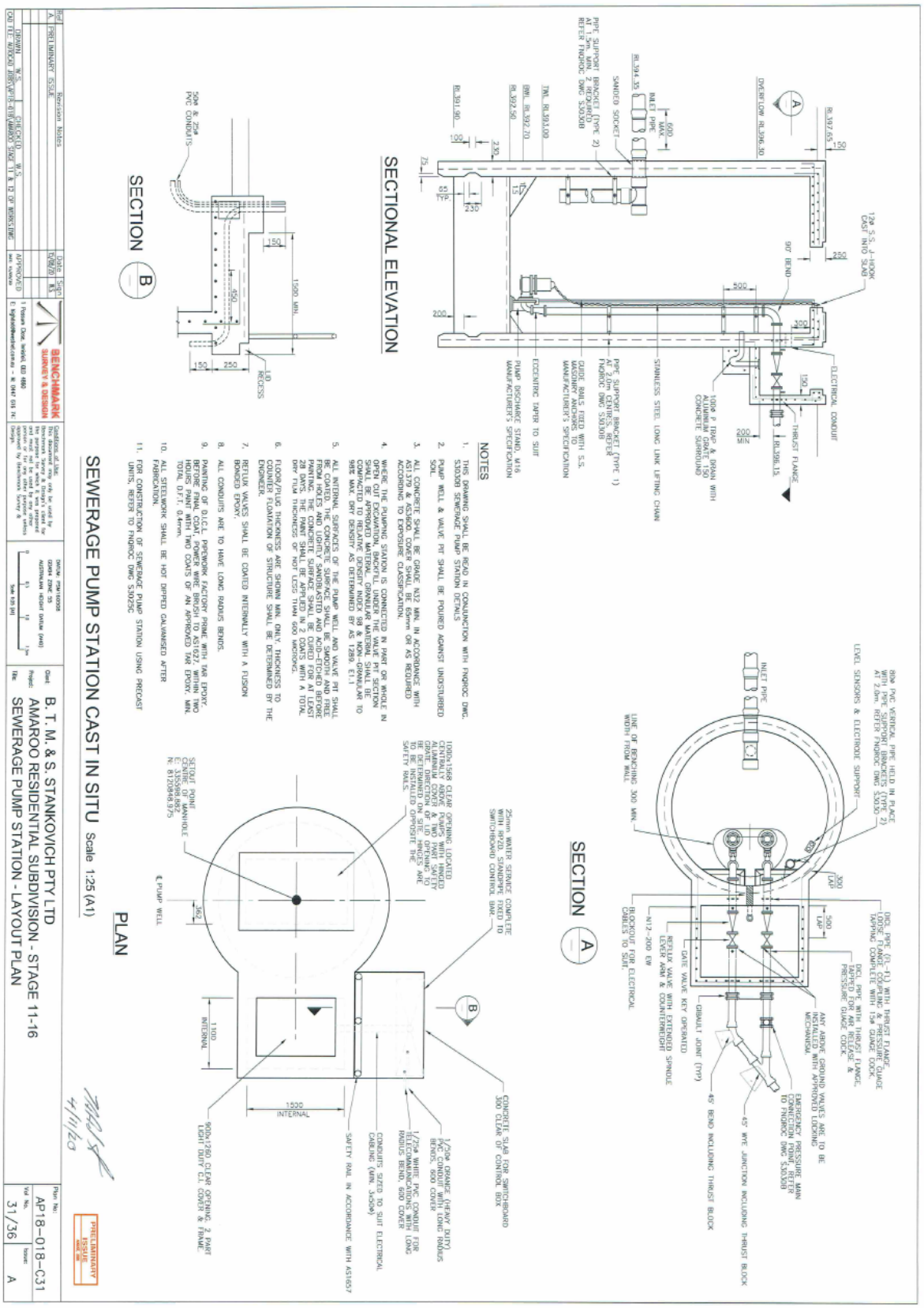

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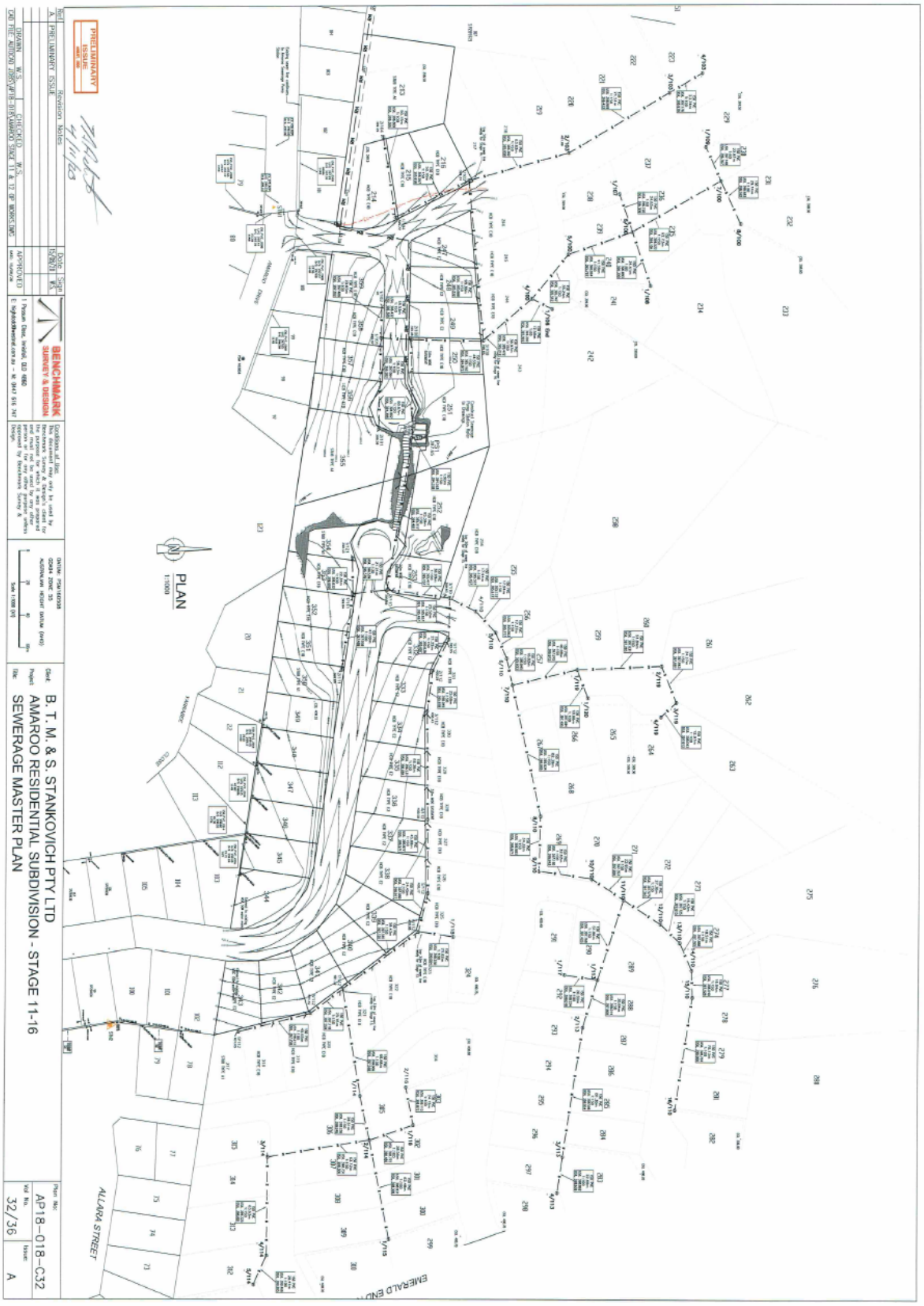

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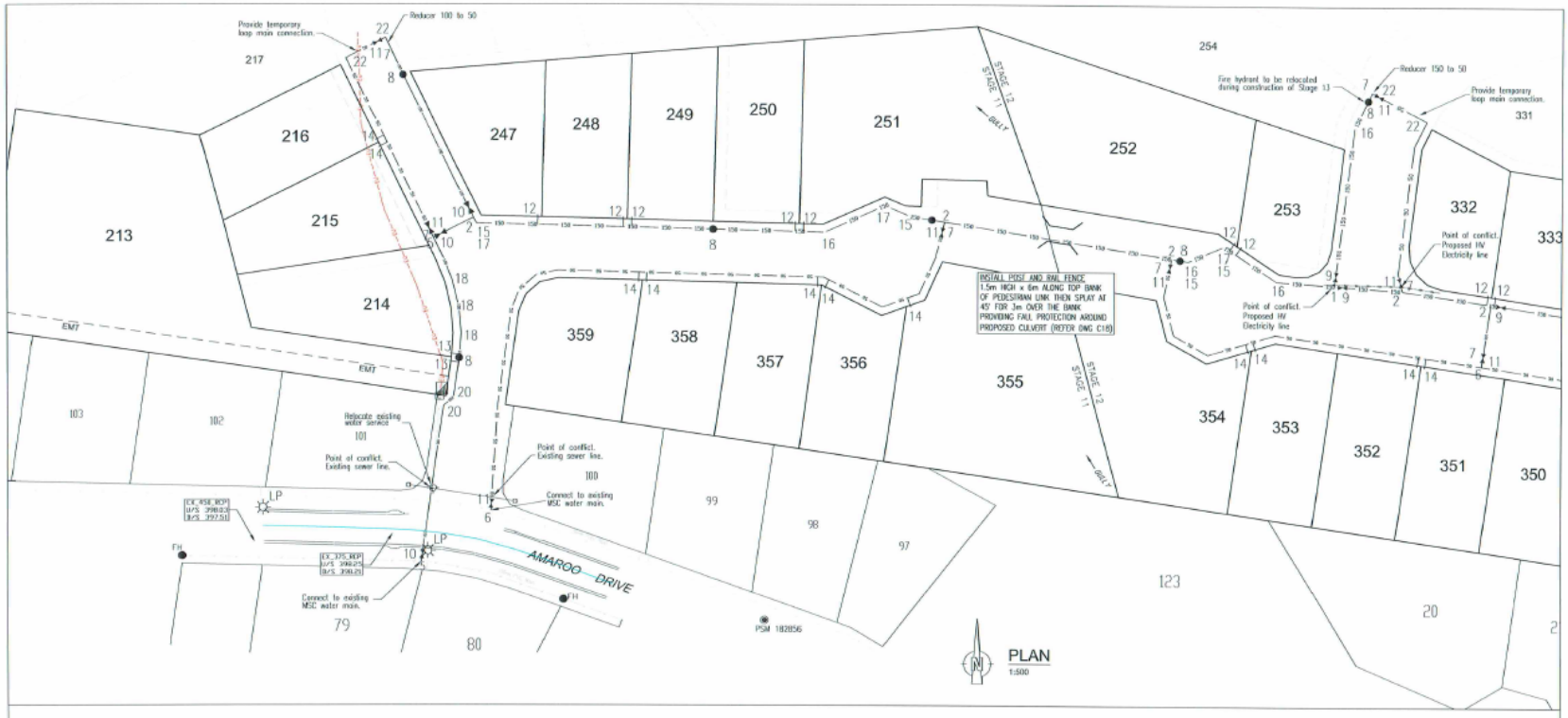

REF	CODE	DESCRIPTION
1		150 x 150 x 150 D.I.C.L. Tee with concrete thrust block.
2		150 x 150 x 100 D.I.C.L. Tee with concrete thrust block.
3		150 x 150 x 50 D.I.C.L. Tee with concrete thrust block.
4		100 x 100 x 150 D.I.C.L. Tee with concrete thrust block.
5		100 x 100 x 100 D.I.C.L. Tee with concrete thrust block.
6		50 x 50 x 50 D.I.C.L. Tee with concrete thrust block.
7		100 x 50 Reducer
8		80 dia. Spring Hydrant "Maxi Flow" 2000 type (DN80) complete with D.I.C.L. Tee, Riser, C.I. cover box marqin and kerb marker. (150 Main)
9		150 dia. Sluice Valve Class 600 W.E. complete with C.I. cover box marqin and kerb marker.
10		100 dia. Sluice Valve Class 600 W.E. complete with C.I. cover box marqin and kerb marker.
11		50 dia. Gate Valve DR Brass complete with C.I. cover box marqin and kerb marker.
12		150 dia. steel or bronze tapping band to 40 or 20Ø copper service to brass stop cock, meter & dirt box.
13		100 dia. steel or bronze tapping band to 40 or 20Ø copper service to brass stop cock, meter & dirt box.
14		50 dia. service fitting to 40 or 20Ø copper service to brass stop cock, meter & dirt box.
15		150 dia. D.I.C.L. 11¼° bend with concrete thrust block.

REF	CODE	DESCRIPTION
16		150 dia. D.I.C.L. 22½° bend with concrete thrust block
17		150 dia. D.I.C.L. 45° bend with concrete thrust block.
18		100 dia. D.I.C.L. 11¼° bend with concrete thrust block.
19		100 dia. D.I.C.L. 22½° bend with concrete thrust block
20		100 dia. D.I.C.L. 45° bend with concrete thrust block.
21		100 dia. D.I.C.L. 90° bend with concrete thrust block.
22		50 dia. 90° bend with concrete thrust block.
23		150 dia. D.I.C.L. Dead end cap with concrete thrust block.
24		100 dia. D.I.C.L. Dead end cap with concrete thrust block.
25		50 dia. D.I.C.L. Dead end cap with concrete thrust block.
	158 — 158	Proposed Water Main 150Ø (Class 16)
	180	Proposed Water Main 100Ø (Class 16)
	50 — 58	Proposed Water Main 50Ø I.D. (Class 16)
		Existing Water Main

WATER RETICULATION NOTES

1. WATER SUPPLY PRESSURE PIPES TO COMPLY WITH AS1477.
2. WATER RETICULATION TO BE HYDRAULICALLY PRESSURE TESTED TO 1250 KPA AFTER LAYING AND BEFORE BEING CONNECTED TO THE EXISTING COUNCIL PIPELINE. THE TEST PRESSURE SHALL BE HELD FOR 15 MINUTES MIN. WITHOUT LOSS.
3. MINIMUM COVER TO ALL PIPES (TOP OF PIPE TO FINISHED SURFACE LEVEL) SHALL BE 600MM IN NON-TRAFFICKED AREAS AND 800MM IN TRAFFICKED AREAS.
4. WATER RETICULATION ALIGNMENT FOR ALL ROADS SHALL BE 2.0M FROM PROPERTY BOUNDARY.
5. A CONTINUOUS STAINLESS STEEL OR COPPER WIRE SHALL BE LAID 150MM ABOVE PIPE, AS THE TRENCH IS BACKFILLED. THIS WIRE SHALL BE WRAPPED ONCE AROUND HYDRANTS AND SLUICE VALVES.
6. FOR MINIMUM BENDING RADIUS TO 50 DIA POLYETHYLENE REFER TO MANUFACTURERS SPECIFICATIONS.
7. PVC PIPE MAY BE DEFLECTED TO ACHIEVE MINOR ANGLE CHANGES IN PROPERTY BOUNDARIES. FOR MAXIMUM DEFLECTIONS REFER TO MANUFACTURERS SPECIFICATIONS.
8. PROVIDE WATER SERVICE AND METER TO EACH PROPERTY.
9. PROPERTIES LOCATED ON THE OPPOSITE SIDE OF THE ROAD TO THE RETICULATION MAIN SHALL BE SERVICED BY A 50mm Dia (63.00) POLYETHYLENE LOOP MAIN Cl 16.
10. RETICULATION MAIN TO BE 150Ø OR 100Ø uPVC Series 2 MIN PN16

FNQROC DRAWINGS

S2D100 – Kerb/Road Markers
S2D16B – Water Reticulation Bedding Details <300
S2025B – Water Service Road Crossings Low Density Residential

MAREEBA SHIRE STANDARD DRAWINGS

S2000A – MSC Valve Box Installation
S2005A – MSC Hydrant Box Installation
S2015A – MSC Thrust Block Details
S2020D – MSC Main Connection Details
S2060A – MSC Domestic Water Service Connection Details

4/11/20

PRELIMINARY ISSUE

Ref	Revision Notes	Date	Sign
A.	PRELIMINARY ISSUE	15/08/20	W.S.
B.	TEMPORARY LOOP MAINS ADDED AT THE END STAGE 11 & 12 150m MAIN REALIGNED ALONG PED LINK TO AVOID CONFLICT WITH POST & RAIL FENCE	30/10/20	W.S.

DRAWN W.S. CHECKED W.S. APPROVED
CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 CP WORKS.DWG

BENCHMARK SURVEY & DESIGN
1 Possum Close, Innisfail, QLD 4860
E: highclass@westnet.com.au – M: 0447 618 747

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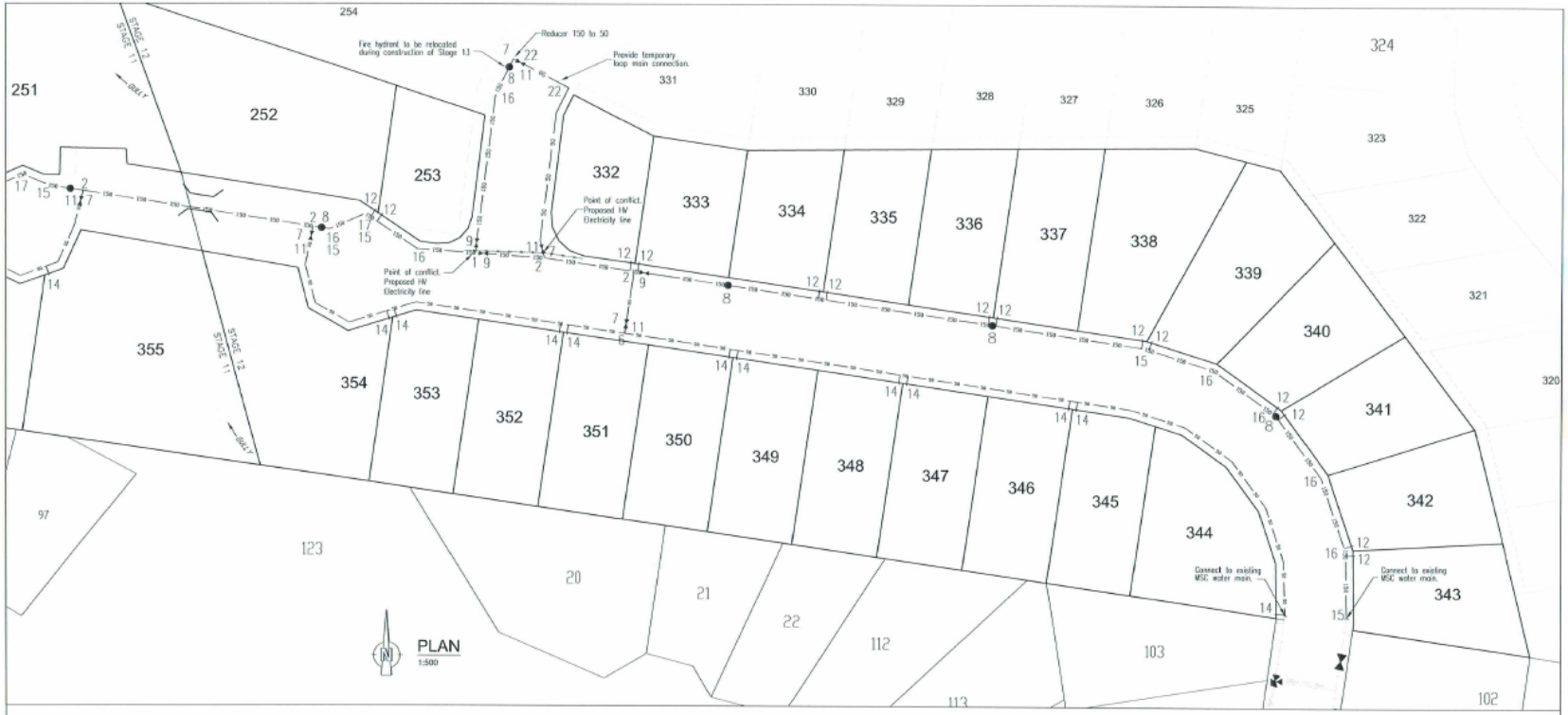
DATUM: PSM182858 GDA94 ZONE 55 AUSTRALIAN HEIGHT DATUM (AHD)
Scale 1:500 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
Title: WATER RETICULATION LAYOUT PLAN - SHEET 1 OF 2

Plan No: AP18-018-C33
Vol No. 33/36
Issue: B

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



REF	CODE	DESCRIPTION
1		150 x 150 x 150 D.I.C.L. Tee with concrete thrust block.
2		150 x 150 x 100 D.I.C.L. Tee with concrete thrust block.
3		150 x 150 x 50 D.I.C.L. Tee with concrete thrust block.
4		100 x 100 x 150 D.I.C.L. Tee with concrete thrust block.
5		100 x 100 x 100 D.I.C.L. Tee with concrete thrust block.
6		50 x 50 x 50 D.I.C.L. Tee with concrete thrust block.
7		100 x 50 Reducer
8		80 dia. Spring Hydrant "Maxi Flow" 2000 type (DN80) complete with D.I.C.L. Tee, Riser, C.I. cover box marqin and kerb marker. (150 Main)
9		150 dia. Sluice Valve Class 600 M.E. complete with C.I. cover box marqin and kerb marker.
10		100 dia. Sluice Valve Class 600 M.E. complete with C.I. cover box marqin and kerb marker.
11		50 dia. Gate Valve DR Brass complete with C.I. cover box marqin and kerb marker.
12		150 dia. steel or bronze tapping band to 40 or 20Ø copper service to brass stop cock, meter & dirt box.
13		100 dia. steel or bronze tapping band to 40 or 20Ø copper service to brass stop cock, meter & dirt box.
14		50 dia. service fitting to 40 or 20Ø copper service to brass stop cock, meter & dirt box.
15		150 dia. D.I.C.L. 11¼° bend with concrete thrust block.

REF	CODE	DESCRIPTION
16		150 dia. D.I.C.L. 22½° bend with concrete thrust block
17		150 dia. D.I.C.L. 45° bend with concrete thrust block.
18		100 dia. D.I.C.L. 11¼° bend with concrete thrust block.
19		100 dia. D.I.C.L. 22½° bend with concrete thrust block
20		100 dia. D.I.C.L. 45° bend with concrete thrust block.
21		100 dia. D.I.C.L. 90° bend with concrete thrust block.
22		50 dia. 90° bend with concrete thrust block.
23		150 dia. D.I.C.L. Dead end cap with concrete thrust block.
24		100 dia. D.I.C.L. Dead end cap with concrete thrust block.
25		50 dia. D.I.C.L. Dead end cap with concrete thrust block.
		Proposed Water Main 150Ø (Class 16)
		Proposed Water Main 100Ø (Class 16)
		Proposed Water Main 50Ø I.O. (Class 16)
		Existing Water Main

WATER RETICULATION NOTES

1. WATER SUPPLY PRESSURE PIPES TO COMPLY WITH AS1477.
2. WATER RETICULATION TO BE HYDRAULICALLY PRESSURE TESTED TO 1250 KPA AFTER LAYING AND BEFORE BEING CONNECTED TO THE EXISTING COUNCIL PIPELINE. THE TEST PRESSURE SHALL BE HELD FOR 15 MINUTES MIN. WITHOUT LOSS.
3. MINIMUM COVER TO ALL PIPES (TOP OF PIPE TO FINISHED SURFACE LEVEL) SHALL BE 600MM IN NON-TRAFFICKED AREAS AND 800MM IN TRAFFICKED AREAS.
4. WATER RETICULATION ALIGNMENT FOR ALL ROADS SHALL BE 2.0M FROM PROPERTY BOUNDARY.
5. A CONTINUOUS STAINLESS STEEL OR COPPER WIRE SHALL BE LAID 150MM ABOVE PIPE, AS THE TRENCH IS BACKFILLED. THIS WIRE SHALL BE WRAPPED ONCE AROUND HYDRANTS AND SLUICE VALVES.
6. FOR MINIMUM BENDING RADIUS TO 50 DIA POLYETHYLENE REFER TO MANUFACTURERS SPECIFICATIONS.
7. PVC PIPE MAY BE DEFLECTED TO ACHIEVE MINOR ANGLE CHANGES IN PROPERTY BOUNDARIES. FOR MAXIMUM DEFLECTIONS REFER TO MANUFACTURERS SPECIFICATIONS.
8. PROVIDE WATER SERVICE AND METER TO EACH PROPERTY.
9. PROPERTIES LOCATED ON THE OPPOSITE SIDE OF THE ROAD TO THE RETICULATION MAIN SHALL BE SERVICED BY A 50mm Dia (63.00) POLYETHYLENE LOOP MAIN CI 16.
10. RETICULATION MAIN TO BE 150Ø OR 100Ø uPVC Series 2 MIN PN16

FNQROC DRAWINGS

S2010D – Kerb/Road Markers
S2016B – Water Reticulation Bedding Details <300
S2025B – Water Service Road Crossings Low Density Residential

MAREEBA SHIRE STANDARD DRAWINGS

S2000A – MSC Valve Box Installation
S2005A – MSC Hydrant Box Installation
S2015A – MSC Thrust Block Details
S2020D – MSC Main Connection Details
S2080A – MSC Domestic Water Service Connection Details

4/11/20

PRELIMINARY ISSUE

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	15/08/20	W.S.
B	TEMPORARY LOOP MAINS ADDED AT THE END STAGE 11 & 12 150Ø MAIN REALIGNED ALONG PED LINK TO AVOID CONFLICT WITH POST & RAIL FENCE	30/10/20	W.S.

DRAWN W.S. CHECKED W.S. APPROVED
CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 UP WORKS.DWG

BENCHMARK SURVEY & DESIGN
1 Possum Close, Innisfail, QLD 4860
E: highdell@bendnet.com.au – M: 0447 616 747

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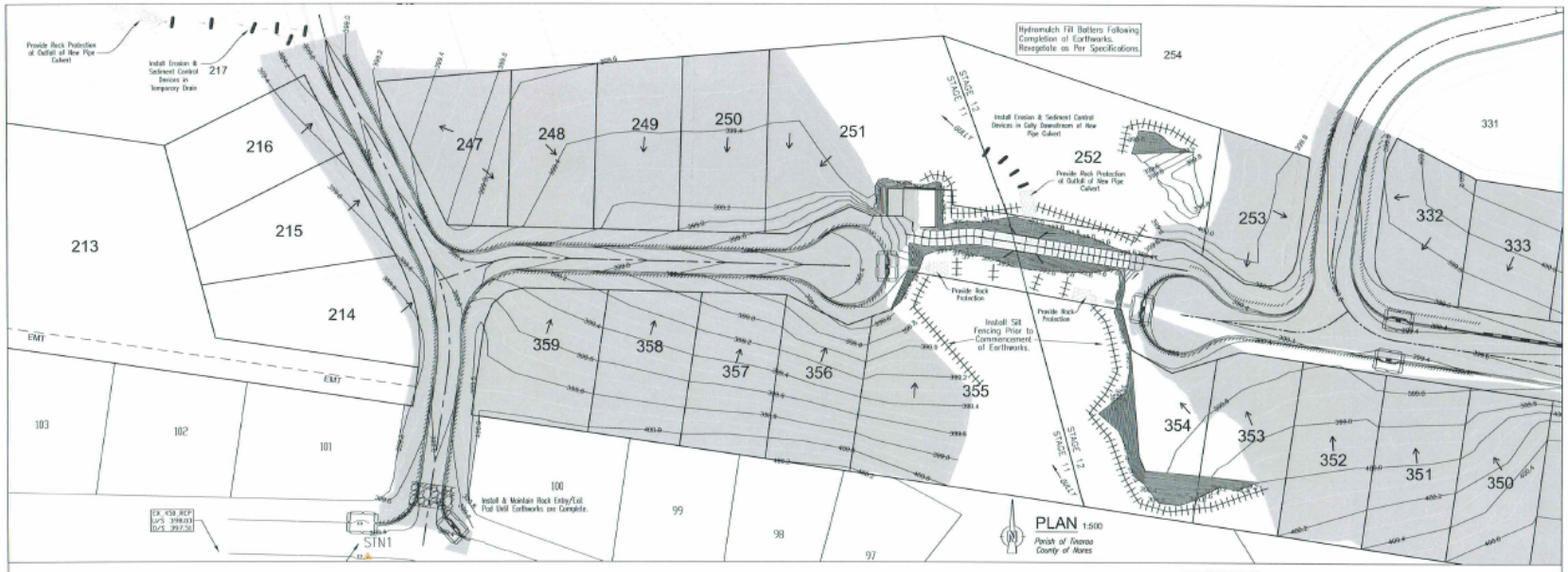
DATUM: PSM 160508
GDA94 ZONE 55
AUSTRALIAN HEIGHT DATUM (AHD)
Scale 1:500 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
Title: WATER RETICULATION LAYOUT PLAN - SHEET 2 OF 2

Plan No: AP18-018-C34
Vol No. 34/36
Issue: B

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



LEGEND

- SAND BAG SURROUND
- COCONUT FIBRE LOGS
- SEDIMENT FENCE
- 300MM TURF STRIP PLACED BEHIND KERB
- SILT FENCE (RETURN TO BE CONSTRUCTED EVERY PROPERTY BOUNDARY)
- DESIGN CONTOURS WITH LABELS (0.50M INTERVAL)
- GRATED KERB INLET PIT
- ROCK PROTECTION.
- CONSTRUCTION ENTRY/EXIT REFER KINST DWG A5-C3-1 FOR DETAIL
- 348 FALL OF LOTS/DIRECTION OF OVERLAND FLOWS
- EARTHWORKS CUT AREA
- EARTHWORKS FILL AREA

EROSION AND SEDIMENT CONTROL NOTES:

1 THE CONTRACTOR SHALL PREPARE AN EROSION AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH THE PROVISIONS OF THE FNQROC DEVELOPMENT MANUAL.

2 EXACT LOCATION OF SEDIMENT CONTROL DEVICES (SCD) TO BE AGREED ON SITE AND IN ACCORDANCE WITH THE CONTRACTORS STORMWATER MANAGEMENT PLAN (SWMP).

3 ALL SCD TO BE CONSTRUCTED IN ACCORDANCE WITH THE INSTITUTE OF ENGINEERS GUIDELINES.

4 DESIGN CONTOURS SHOWN ARE AT 0.1M INTERVALS.

5 INSTALL PERIMETER SCD AND STABILISED ENTRY/EXIT POINT PRIOR TO DISTURBANCE.

6 STOCKPILE LOCATIONS TO BE AGREED ON SITE WITH ENGINEER. STOCKPILES TO BE PROTECTED AS THEY ARE CREATED WITH UP-SLOPE PERIMETER BANK AND DOWN SLOPE SEDIMENT FENCE.

7 SEDIMENT FENCES ARE TO BE INSTALLED SUCH THAT THE BASE OF THE FENCE IS PLACED 150mm MIN. BELOW GROUND LEVEL AND ANCHORED SECURELY IN POSITION.

8 ALL VEHICLES AND EQUIPMENT ENTRY/EXIT POINTS SHALL HAVE SHAKER GRIDS TO PREVENT VEHICLES FROM TRACKING MUD AND SOIL OFF SITE. LOCATIONS TO BE DETERMINED ON SITE.

9 SAND BAG CHECK DAM INSTALLATION TO CORRESPOND WITH THE INSTALLATION OF STORMWATER MANHOLES AND KERB & CHANNEL.

10 PLACE 300mm TURF STRIP (BEHIND KERB) IN ACCORDANCE FNQROC STD DWG S5010.

11 GRASS SEEDING, HYDROMULCH AND/OR TURF TO BE APPLIED TO FINISHED IMMEDIATELY FOLLOWING COMPLETION IN ACCORDANCE WITH THE DEVELOPMENT MANUAL.

12 ALL SEDIMENT CONTROL MEASURES ARE TO REMAIN IN PLACE UNTIL THE END OF THE MAINTENANCE PERIOD UNLESS NOTED OTHERWISE. ALL SEDIMENT CONTROL DEVICES ARE TO BE FULLY MAINTAINED IN AN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND THE MAINTENANCE PERIOD.

MAINTENANCE:

1 CONTRACTOR TO MONITOR SCD ON A DAILY BASIS OR AS DETAILED IN COUNCIL APPROVED SWMP.

2 CONTRACTOR TO ENSURE ALL SCD ARE FULLY MAINTAINED AND CLEAN UNTIL 80% GRASS COVER.

3 WATERING AND MAINTENANCE OF GRASSED AREAS TO BE IN ACCORD. WITH CLAUSE WITH 4.8 OF THE FNQROC DEVELOPMENT MANUAL.

SPECIFICATIONS FOR SITE REVEGETATION

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND APPLICATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF APPLICATION CONTACT THE ENGINEER, LANDSCAPE ARCHITECT OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. ENSURE ALL NECESSARY SOIL TESTING (e.g. SOIL pH, NUTRIENT LEVELS) AND ANALYSIS HAS BEEN COMPLETED, AND REQUIRED SOIL ADJUSTMENTS PERFORMED PRIOR TO PLANTING.
3. APPLY SOIL CONDITIONERS AND FERTILISER AS SPECIFIED ON THE APPROVED PLANS. RIP THE SOIL 100 TO 150mm TO MIX THE COMPONENTS INTO THE SOIL AND TO LOOSEN AND ROUGHEN THE SOIL SURFACE BEFORE SEEDING.
4. WHERE POSSIBLE, THERE SHOULD BE SUFFICIENT SOIL DEPTH TO PROVIDE AN ADEQUATE ROOT ZONE. THE DEPTH TO ROCK OR IMPERMEABLE LAYERS SUCH AS HARDPANS SHOULD BE 300mm OR MORE, EXCEPT ON SLOPES STEEPER THAN 2:1(H:V) WHERE SUCH SOIL DEPTH MAY NOT BE FEASIBLE.
5. ENSURE THE SOIL pH IS WITHIN THE SPECIFIED RANGE.
6. APPLY SEED UNIFORMLY BY HAND, OR WITH A CYCLONE SEEDER, DROP-TYPE SPREADER, DRILL, HYDROSEEDER, HYDROMULCHER, OR OTHER SUITABLE EQUIPMENT AS SPECIFIED.
7. WHEN USING BROADCAST-SEEDING METHODS, SUBDIVIDE THE AREA INTO WORKABLE SECTIONS AND APPLY ONE-HALF THE SPECIFIED QUANTITY OF SEED WHILE MOVING BACK AND FORTH ACROSS THE AREA, MAKING A UNIFORM PATTERN. THEN APPLY THE SECOND HALF IN THE SAME WAY, BUT MOVING AT RIGHT ANGLES TO THE FIRST PASS. COVER BROADCAST SEED BY RAKING OR CHAIN DRAGGING; THEN FIRM THE SURFACE WITH A ROLLER TO PROVIDE GOOD SEED CONTACT.
8. APPLY SEED AT THE RECOMMENDED RATE, AND DISC OR OTHERWISE MECHANICALLY TREAT THE SURFACE TO SINK THE SEED INTO CONTACT WITH THE SOIL.
9. THE SEEDED AREA SHOULD BE MULCHED AS SPECIFIED IN THE APPROVED PLAN

MAINTENANCE

1. DURING THE CONSTRUCTION PHASE, INSPECT THE TREATED AREA FORTNIGHTLY AND AFTER RUNOFF-PRODUCING RAINFALL. MAKE REPAIRS AS NEEDED.
2. WATERING THE VEGETATION PERIODICALLY IS ESSENTIAL, ESPECIALLY IN THE FIRST 7 DAYS AFTER ESTABLISHMENT. USE LOW-PRESSURE SPRAYS BECAUSE HIGH-PRESSURE JETS CAN WASH AWAY THE SEED AND MULCH COVER.
3. WATERING SHOULD START IMMEDIATELY AFTER PLANTING. WATERING SHOULD COMPLY WITH SPECIFICATIONS. GENERALLY WATERING SHOULD VARY ACCORDING TO WEATHER AND SOIL CONDITIONS. A TYPICAL WATERING SCHEDULE MAY CONSIST OF THE FOLLOWING:
   (i) 25mm EVERY SECOND DAY FOR THE FIRST THREE WATERINGS;
   (ii) 25mm TWICE A WEEK FOR THE NEXT THREE WEEKS; AND
   (iii) 25mm ONCE WEEKLY FOR A FURTHER TWO WEEKS.

MAINTENANCE CONT.

4. MONITOR SITE REVEGETATION, PARTICULARLY AFTER RAINFALL, AND APPROPRIATE MAINTENANCE AND/OR AMENDMENT TO ENSURE THAT THE REVEGETATION IS CONTROLLING EROSION AND STABILISING SOIL SLOPES AS REQUIRED.
5. WHERE PRACTICABLE, FILL IN, OR LEVEL OUT, ANY RILL EROSION BETWEEN PLANTS. IF EXCESSIVE EROSION OCCURS, THEN CONSIDER INCREASING THE PLANTING DENSITY, APPLYING APPROPRIATE EROSION CONTROL MEASURES, OR INTRODUCING ALTERNATIVE, NON-CLUMPING PLANT SPECIES
6. AREAS MUST BE RE-SEEDED AND MULCHED IF THE VEGETATION FAILS TO ESTABLISH OR IS DAMAGED BY RUNOFF OR CONSTRUCTION ACTIVITIES.
7. IF THE TEMPORARY VEGETATION COVER OR EROSION CONTROL MEASURE (e.g. MULCH COVER) SHOULD FAIL FOR ANY REASON BEFORE ESTABLISHMENT OF THE PERMANENT VEGETATION COVER, THEN IT MUST BE REPLACED WITH AN APPROPRIATE TYPE OF COVER SUFFICIENT TO CONTROL SOIL EROSION.
8. IF THE PERMANENT VEGETATION SHOULD FAIL TO ESTABLISH OR TO ADEQUATELY RESTRAIN EROSION FOR ANY REASON DURING THE CONSTRUCTION OR MAINTENANCE PERIOD, THE AREA SHOULD BE REVEGETATED OR PROTECTED WITH OTHER EROSION CONTROL MEASURES AS APPROPRIATE.
9. IN AREAS WHERE THE OBTAINED VEGETATION COVER IS CONSIDERED INADEQUATE FOR EROSION CONTROL, THE AFFECTED AREA SHOULD BE OVER-SEEDED AND FERTILISED USING HALF THE ORIGINALLY SPECIFIED RATES, OR AS DIRECTED.
10. MAINTAIN GRASS BLADE LENGTH AT A MINIMUM 50mm HEIGHT WITHIN MEDIUM TO HIGH VELOCITY DRAINAGE AREAS, AND 20 TO 50mm WITHIN LOW VELOCITY FLOW PATHS.
11. WHERE NECESSARY, OR AS DIRECTED BY THE SITE SUPERVISOR, SLASH THE TEMPORARY CROP/GRASS COVER TO ALLOW THE SUCCESSFUL GROWTH OF THE UNDERLYING PERMANENT VEGETATION COVER.
12. CONTROL WEED GROWTH WITHIN 1m OF IMMATURE TREES FOR 6 TO 12 MONTHS FOR FAST GROWING SPECIES, AND 18 TO 20 MONTHS FOR SLOWER GROWING SPECIES, OR UNTIL THE END OF THE SPECIFIED MAINTENANCE PERIOD.
13. WHERE MULCH IS USED TO CONTROL WEED GROWTH, INSPECT AND WHERE NECESSARY, RENEW AT MAINTENANCE PERIODS NOT EXCEEDING 4 TO 6 MONTHS
14. APPLY ADDITIONAL SEED, MULCH AND/OR SOIL CONDITIONING AS REQUIRED. MULCHES USUALLY NEED TO BE MAINTAINED OR RENEWED (AS NECESSARY) 2 TO 3 TIMES A YEAR.
15. INSPECT AND WHERE NECESSARY REPAIR PROTECTIVE FENCING AT MAINTENANCE PERIODS NOT EXCEEDING 1 MONTH.
16. RE-FIRM PLANTS LOOSENED BY WIND-ROCK, LIVESTOCK OR WILDLIFE.
17. REPLACE DEAD OR SEVERELY RETARDED PLANTS.
18. PRUNE ANY PLANTS OF DEAD OR DISEASED PARTS. CUT OFF ALL DAMAGED TREE LIMBS ABOVE THE TREE COLLAR AT THE TRUNK OR MAIN BRANCH. USE SEVERAL CUTS INCLUDING UNDERCUTTING TO AVOID PEELING BARK FROM THE HEALTHY AREAS OF THE TREE.
19. DISPOSE OF CLEARED VEGETATION IN AN APPROPRIATE MANNER SUCH AS CHIPPING OR MULCHING, ON-SITE BURIAL OR OFF-SITE DISPOSAL. CLEARED VEGETATION SHOULD NOT BE DUMPED NEAR A WATERCOURSE OR ON A FLOODPLAIN WHERE IS COULD BE REMOVED BY FLOODWATERS. VEGETATION SHOULD NOT BE BURNT ON-SITE WITHOUT SPECIFIC APPROVAL FROM THE LOCAL AUTHORITY.
20. REPAIR DAMAGED TREE ROOTS BY CUTTING OFF THE DAMAGED AREAS AND SEALING THEM WITH AN APPROVED PRODUCT. SPREAD MOIST TOPSOIL OVER EXPOSED ROOTS

PRELIMINARY ISSUE

4/11/20

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	15/08/20	W.S.

DRAWN W.S. | CHECKED W.S. | APPROVED

CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 OP WORKS.DWG

BENCHMARK SURVEY & DESIGN
1 Possum Close, Innisfail, QLD 4860
E: highclouds@westnet.com.au – M: 0447 615 747

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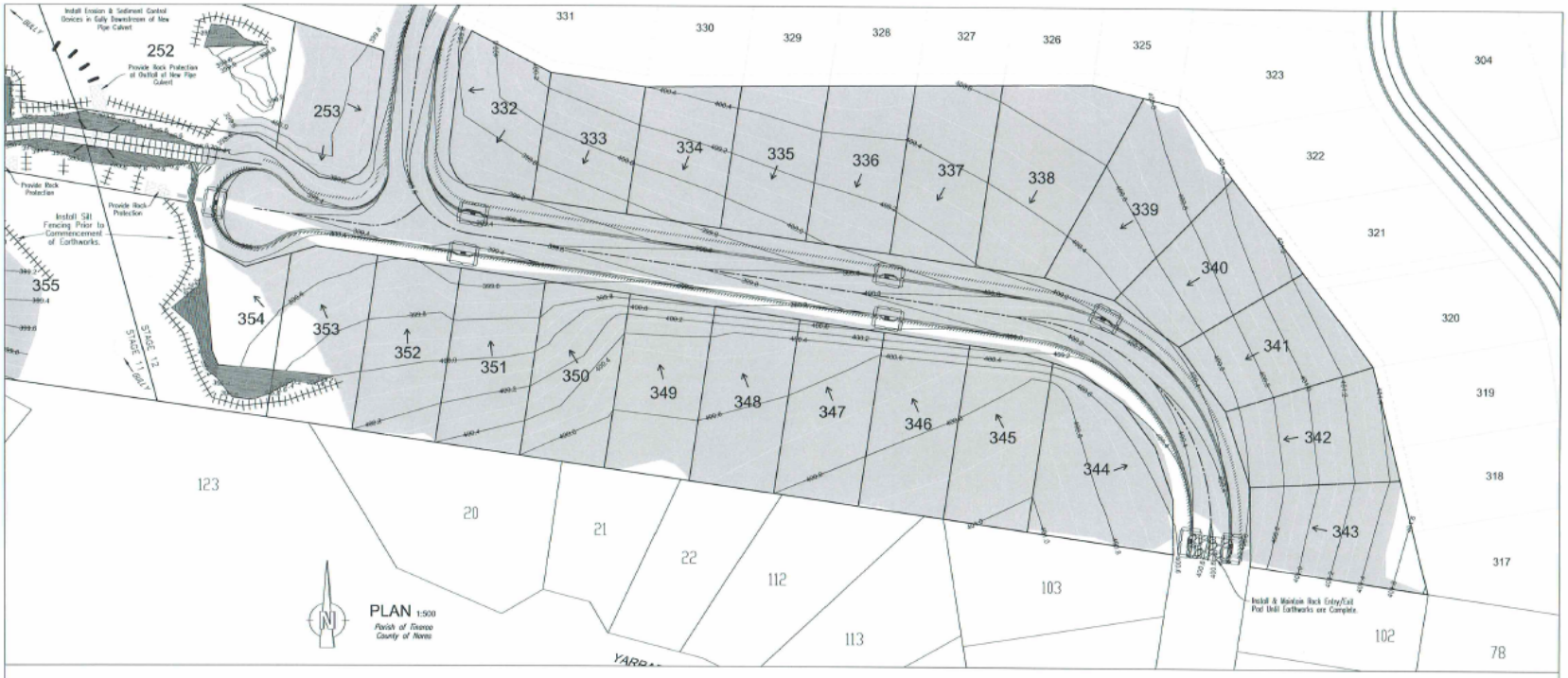
DATUM: PSM192505 GDA94 ZONE 55 AUSTRALIAN HEIGHT DATUM (AHD)

0 10 20 30m
Scale 1:500 (A1)

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
Title: EROSION & SEDIMENT CONTROL LAYOUT PLAN - SHEET 1 OF 2

Plan No: AP18-018-C35
Vol No. 35/36 | Issue: A

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020



LEGEND

- SAND BAG SURROUND
- COCONUT FIBRE LOGS
- SEDIMENT FENCE
- 300MM TURF STRIP PLACED BEHIND KERB
- SILT FENCE (RETURN 10 BE CONSTRUCTED EVERY PROPERTY BOUNDARY)
- DESIGN CONTOURS WITH LABELS (0.50M INTERVAL)
- GRATED KERB INLET PIT
- ROCK PROTECTION
- CONSTRUCTION ENTRY/EXIT REFER ROAST DWG AS-C3-1 FOR DETAIL
- 348 FALL OF LOTS/DIRECTION OF OVERLAND FLOWS
- EARTHWORKS CUT AREA
- EARTHWORKS FILL AREA

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3. ALL SCD TO BE CONSTRUCTED IN ACCORDANCE WITH THE INSTITUTE OF ENGINEERS GUIDELINES.
4. DESIGN CONTOURS SHOWN ARE AT 0.1M INTERVALS.
5. INSTALL PERIMETER SCD AND STABILISED ENTRY/EXIT POINT PRIOR TO DISTURBANCE.
6. STOCKPILE LOCATIONS TO BE AGREED ON SITE WITH ENGINEER. STOCKPILES TO BE PROTECTED AS THEY ARE CREATED WITH UP-SLOPE PERIMETER BANK AND DOWN SLOPE SEDIMENT FENCE.
7. SEDIMENT FENCES ARE TO BE INSTALLED SUCH THAT THE BASE OF THE FENCE IS PLACED 150mm MIN. BELOW GROUND LEVEL AND ANCHORED SECURELY IN POSITION.
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9. SAND BAG CHECK DAM INSTALLATION TO CORRESPOND WITH THE INSTALLATION OF STORMWATER MANHOLES AND KERB & CHANNEL.
10. PLACE 300mm TURF STRIP BEHIND KERB IN ACCORDANCE FNQROC STD DWG S5010.
11. GRASS SEEDING, HYDROMULCH AND/OR TURF TO BE APPLIED TO FINISHED IMMEDIATELY FOLLOWING COMPLETION IN ACCORDANCE WITH THE DEVELOPMENT MANUAL.
12. ALL SEDIMENT CONTROL MEASURES ARE TO REMAIN IN PLACE UNTIL THE END OF THE MAINTENANCE PERIOD UNLESS NOTED OTHERWISE. ALL SEDIMENT CONTROL DEVICES ARE TO BE FULLY MAINTAINED IN AN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND THE MAINTENANCE PERIOD.

MAINTENANCE:

1. CONTRACTOR TO MONITOR SCD ON A DAILY BASIS OR AS DETAILED IN COUNCIL APPROVED SWMP.
2. CONTRACTOR TO ENSURE ALL SCD ARE FULLY MAINTAINED AND CLEAN UNTIL 80% GRASS COVER.
3. ALL REVEGETATED (GRASSED) AREAS TO BE WATERED AND MAINTAINED UNTIL GRASS IS FULLY ESTABLISHED.
4. WATERING AND MAINTENANCE OF GRASSED AREAS TO BE IN ACCORD. WITH CLAUSE WITH 4.8 OF THE FNQROC DEVELOPMENT MANUAL.

7/12/20

PRELIMINARY ISSUE

Ref	Revision Notes	Date	Sign
A	PRELIMINARY ISSUE	7/08/20	W.S.

DRAWN W.S. | CHECKED W.S. | APPROVED

CAD FILE: AUTOCAD JOBS\AP18-018\AMAROO STAGE 11 & 12 OP WORKS.DWG

BENCHMARK SURVEY & DESIGN

1 Possum Close, Innisfail, QLD 4860

E: highdeck@westnet.com.au - M: 0447 615 747

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DATUM: PSM100503
GDA94 ZONE 55
AUSTRALIAN HEIGHT DATUM (AHD)

0 10 20 30m
Scale 1:500 [A1]

Client: B. T. M. & S. STANKOVICH PTY LTD
Project: AMAROO RESIDENTIAL SUBDIVISION - STAGE 11 & 12
Title: EROSION & SEDIMENT CONTROL LAYOUT PLAN - SHEET 2 OF 2

Plan No: AP18-018-C36
Vol No. 36/36
Issue: A

Document Set ID: 3898623
Version: 1, Version Date: 09/12/2020